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X, a double consonant, and the twenty-second letter in the English alphabet; which, however, begins no English word.

The χ of the Latins, and χ of the Greeks, are compounded of ς and ς; whence, to this day, the letter χ in the English and French has the same found with ς, or χ. Thus we pronounce Alexander exactly as if written Alcander or Alcander.

The Italians have no χ at all in their language, but both speak and write Alcander. The Spaniards pronounce the χ like our c before a; viz. Alcandro, as if it were Alcandro. The Portuguefe pronounce it like fs.

In foreign words, used in English, we sometimes soften the χ into a double s; as Bruxelhs, for Bruxelles, &c.

The letter is not known in the Hebrew, or other oriental languages; but in lieu of it, they write the two simple letters of which it is compounded. And the like do the modern Germans.

Peter Diaconus relates, that the letter X was introduced into the Roman alphabet in the time of Augustus; and that, before his reign, the Romans supplied the want of it by the letters C and S. But Mr. Ayliffe observes, that this is a mistake; the letter X being found in the Duilien pillar, inscribed in the year of Rome 494, and 259 before Christ. Origin and Progress of Writing, p. 78.

X is also a numeral letter, and signifies ten; as representing two V's placed one at top of the other. See V.

X Supra denos numero tibi dat retinendas.

When laid flat, thus X, it signifies a thousand; and when a dash is added over it, X, it signifies ten thousand. I before X denotes the subtraction, and after X the addition of unit; thus, IX = 9, and XI = 11. X before L or C Vol. XXXIX.

X denotes the subtraction of 10 from 50, or 100; thus, XL = 40, and XC = 90.

X on the French coins denotes those struck at Amiens.

We often meet with the Greek letters X and Π joined in this manner Ρ on ancient medals. The first we find are on some large brass coins of the Ptolemies, kings of Egypt, where it was placed on a civil account.

Some writers have taken it for a date, and others for the initials of a proper name; but as no reasons are assigned for either of these conjectures, Mr. Ward rather supposes it an abbreviation of the word XPHMA, money, impressed on those pieces, to denote their currency as money; which might be thought proper, as they have not the heads of kings stamped upon them, like their silver and gold coins; but always that of a Jupiter on the front, and an eagle perched on a thunderbolt on the reverse.

This character was afterwards applied to a very different purpose by Constanine the Great, who made use of it to denote XPICTOC, both in his coins and military ensigns; in which he was followed not only by some succeeding emperors, but also by private persons, who out of devotion put it on their lamps and other utensils.

It afterwards came to be used merely as a critical note, to point out remarkable passages in manuscripts; and then it stood for the initials of XPHICTON, useful; as we learn from Isidore, Orig. lib. i. cap. 20. See Phil. Trans. No 474. feot. 1.

X, with a P, or Greek Ρ, in the middle of it, is also the monogram of the name of CHRIST, which constantly occurs in the catacombs or burial-places of the ancient Christians, and which was the chief ornament of the Labarum or military standard of Constanin, and the succeeding emperors. See Labarum.

B XABEA,
XAM

XABEA, in Geography, a sea-port of Spain, in the province of Valencia, near the coast of the Mediterranean; 38 miles N.N.E. of Alicante.

XABORECTORA, in Ancient Geography, a name given by P. Mela to Aborras, a river of Mesopotamia.

XACA, in Geography. See JACA.

XACRE, a cape on the south-east coast of the island of Cuba, 15 miles S.E. of Settia.

XAGUA BAY, a large bay on the south coast of the island of Cuba. This is one of the best ports in the West Indies, and is 15 miles in circumference, surrounded with mountains, which break off the force of the winds. N. lat. 22° 16'. W. long. 81° 20'.

XAINTES, SANTOS, or All-Saints' Islands, as having been discovered on that holiday by the Spaniards; three small islands in the West Indies, situated to the south-east of Guadaloupe. The most westerly of them is called Terra de Bas, or the Low island, and the most easterly, Terra de Haut, or the High island. The third, which lies exactly in the middle between the other two, seems to be nothing more than a large barren rock, but is of use in affording to form a very good harbour. The island of Terra de Bas is about nine miles in circumference, but the other is larger. These islands have constantly a fresh breeze, let the wind blow from what quarter it may; and on the Terra de Bas is a neat wooden church, with two very convenient creeks both for anchorage and landing. They are about six miles distant from Guadaloupe, and 15 from Marigalanete. N. lat. 15° 56'. W. long. 61° 32'.

XALAPA, a considerable town of Mexico, or New Spain, in the fertile province of Tlaxcalla, formerly famous for the fair held on the arrival of the flatted fleets from Europe; and since the declared freedom of commerce, a considerable mart for European commodities. It is situated on the southern skirts of a mountain, in a beautiful climate, the soil being partly clay and partly stony, while pure waters influe from a white sand, and fertilize the country. The population consists of 243 Spanish families, 182 Mulletoz, and 361 Indians. When north winds prevail at Vera Cruz, it always rains at Xalapa; but the climate is esteemed very healthy. The purging powder of the country is made of the root of a plant, to which the town gives the name of Jalap; 30 miles E. of Puebla de los Angelos. N. lat. 19° 50'. W. long. 98° 26'.

XALISCO, a province of Mexico, in the audience of Guadalajara. It is washed by the South Pacific ocean on the south and west; bounded on the east by Guadalajara, proper and Mecoxcan; and separated from Chianetlan on the north, by a narrow strip of land belonging to Guadalajara, and running out into the sea. It is not above fifty leagues in extent either way. It abounds with Indian wheat and silver mines, but has very few cattle of any sort. From this province is brought the oil of the inferior fig-tree, as the Spaniards call it, much used in medicine.

XALISCO, a town of Mexico, which gives name to a province; 9 miles N.W. of Coacotlana Nueva. N. lat. 21° 25'. W. long. 106° 26'.

XALON, a river of Spain, which rises in a mountain near Medina Celi, and runs into the Ebro, about six miles above Saragossa.

XAMACA, a river of America, which runs into the gulf of Mexico, 13 miles from Vera Cruz.

XAMBRINA, a town of Spain, in the province of Leon; 2 miles S.E. of Tordesillas.

XAMDELLILAH, an Arabian term, used as a grace or thanksgiving after meat.

The greatest men of that nation will often call in the meanest, even the beggars, to eat with them; who, as soon as they have done, always rise and pronounce this word, which signifies, God be praised. Pococke's Egypt, p. 183.

XAMI, a name given by some of the old writers to the coasts of the Greeks, or carob-tree. See Charnoe.

XAN, in Geography, a river of the principality of Georgia, which runs into the Kur, 6 miles E. of Gory.

XANGA, a river of Africa, in the kingdom of Mungallo, which runs into the Indian sea, opposite to the island of the same name. Alto, one of the Querimba islands in the Indian sea, near the coast of Africa. S. lat. 10° 45'.

XANILA, a town of Fezzan, in the road to Egypt; 140 miles E.N.E. of Mourzouk.

XANQUE, or GUAYO, a river of Mexico, which runs into the Spanish Main, 30 miles W. of Cape Camaron.

XANTEN, or SANTEN, a town of France, in the department of the Roper, near the Rhine; 7 miles N.E. of Gueldres.


Gen. Ch. Male, Cal. Perianth of one leaf, in five or fix small, deep, imbricated, roundish, concave, acute segments, with a pair of minute opposite scales at the base. Cor. Petals five, roundish, spreading, larger than the calyx. Stam. Filament one, columnar, erect; anthers five, two-lobed, forming a peltate concave disk, full of gluten, their under fide burbling, and discharging the pollen.

Female, Cal. like that of the male, permanent, inferior. Cor. as in the male. Stam. Filament none; anthers five, prismatic, erect, imperfect. Pfl. German inferior, roundish, with five furrows; stipe none; stigmas five, roundish, thick, emarginate, seated on the germen. Peric. Capsule small, globose or oval, with five furrows, five cells, and five valves, burbling at the furrows, their membranous partitions adhering to the central column. Seeds numerous, oblong, imbedded in the pulp, infected in a double row upon the five-angled columnar receptacle.

Obl. It appears that one-fifth is frequently added to the parts of fructification, in the male as well as female flowers.


Female, Calyx and Corolla like the male. Stigmas five, feffile. Capsule of five cells, with many pulpy seeds.

1. X. sandens. Twining Xantie. Willd. n. 1. (Quapoya scandens; Aubl. Guian. 858. t. 343.)—Leaves obovate, fleshy. Capsule globose. Native of the forests of Guiana, flowering in November. The stem is shrubby, with knotty branches, twining round neighbouring trees. Leaves opposite, on short stalks, simple, entire, thick, and smooth, three or four inches long, with a thick midrib, and a short blunt point, but no branching veins. Flowers small, yellow; their petals filaments longer than the calyx. Petals fleshy. Capsule about the size of a black currant, fleshy, crowned with the black stigmas all meeting in a point. Seeds red. Every part of the plant, when wounded, discharges a transparent, white, viscid, resinous juice. The Indians call this species Quapoy. See Quapoya.

2. X. por-


Gen. Ch. Male flowers compound. \textit{Common Calyx} of many imbricated, slender, equal scales, as long as the numerous florets. \textit{Cor.} compound, uniform, equal, hemispherical, conflititng of numerous, tubular, funnel-shaped, monopetalous, upright, five-cleft florets. \textit{Stam.} Filaments in each floret five, united into a cylinder; anthers erect, parallel, distinct. \textit{Common Receptacle} small, with chaffy scales between the florets.

Female flowers below the male, on the same plant, doubled. \textit{Cal.} involucrum two-flowered, of two opposite, acutely three-lobed leaves, (their middle lobe longest,) betef with hooked prickles, and closely enfolding, as well as united to the, germen, except the lobes, which are free. \textit{Cor.} none. \textit{Petil.} German oval, hifipid; fyles two pair, capillary; \textit{ stigma} simple. \textit{Peric.} Drupari dry, ovate-oblong, cloven at the point, clothed all over with hooked prickles. 

\textit{Seed}. Nut of two cells.


Female, \textit{Calyx} two-leaved, two-flowered. Corolla none. 

Drupari dry, maricatic, cloven. Nut of two cells.

Obs. Linnæus remarks, that the fruit of \textit{Xanthium} could scarcely have been well understood, without a previous knowledge of that of \textit{Ambrofia}. These genera in fact belong to that ambiguous tribe, whose habit, qualities, and in part the structure of their male flowers, all associate them with the compound or fringelous order; while the diffusion of their flowers, and the general nature of their female flowers, and fruit, necessarily refer them to the \textit{Compositæ}, or in the artificial fylenm of Linnæus, the clasf \textit{Monococca}. 

1. \textit{X. strumarium}. Common Burweed, or Small Burdock. Linn. Sp. Pl. 1400. Willd. n. 1. Ait. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 2544. Fl. Dan. t. 975. Bigelow Bot. 221. (Xanthium; Fuch's Hill. 670. Camer. Epit. 926. X. leu Lappa minor; Matth. Vglir. v. 2. 545. Bardana minor; Ger. Em. 809.) — Stem without thorns. Leaves heart-shaped; three-ribbed at the base. — Native of dung-hills, and rich moist ground, in various countries of Europe, as well as North America, flowering towards autumn. In this island it is of very rare occurrence, though occasionally met with about London, and in the west. Dr. Sibthorp noticed the plant in many parts of Greece, where the foil is rich and rather wet, and found it called, by the modern Greeks, \textit{xanthon} a name alluding to its bur-like property, rather than to the quality on which an ancient appellation is founded. The \textit{root} is annual. Herb branched, rough, dark green, rather foppid, of a coarse rank habit, with furrowed, rather hairy, branches. Leaves alternate, flaked, heart-shaped, acutely lobed, and toothed or ferrated; their two lateral ribs marginal, for a small space, at the base, as in the great Burdock, \textit{Arctium Lappa}, and a few other plants. Male flowers globular, green, few together, in axillary or terminal clusters, about the upper part of the branches; female in axillary sebleuf tufts. Fruit elliptical, double-pointed, hard, near an inch long, with soft, prominent, awl-shaped, hooked prickles, which attach themselves to the coats of animals, and thus serve to disperse the seeds.

2. \textit{X. orientale}. Oriental Burweed. Linn. Sp. Pl. 1400. Willd. n. 2. Ait. n. 2. Linn. Fil. Dec. 33. t. 17. "Schulkr Handb. v. 3. 239. t. 297." — Stem without thorns. Leaves ovate, slightly three-lobed, somewhat triple-ribbed; wedge-shaped at the base. — Native of Ceylon, Japan, and China, from which last country it was imported, according to the younger Linnæus, with other seeds for the Upfal garden, in 1761. Sir Hans Sloane is recorded by Ray as having introduced this \textit{Xanthium} into England in 1685; but their plant seems to have been a flight variety of the first, figured by Morison, fept. 15. t. 2. f. 2. found in America, and not answering to the distinctive characters of the present species, though Morison, and others who speak of this variety, are cited by Linnæus and Willdenow. The true \textit{X. orientale} is an annual herb, of a more slender habit than the \textit{Strumarium}, and more harsh, though less hairy. Their essential differences are indicated in our specific characters. The most remarkable seems to be the taper base of the \textit{leaves}, the present species, and the union of their three ribs, at a greater or less distance, above the infertion of the footstalk. The \textit{fruit} is twice as large as the foregoing, with peculiarly strongly hooked thorns.

3. \textit{X. ebinatum}. Compound-thorned Burweed. "Mur- 

ray in Comm. Goett. for 1784, with a figure." Willd. n. 3. — Stem without thorns. Fruit oval; its prickles hooked, coweded, compound at the base. Annual. — Its native country unknown. Willdenow. We have not seen either a specime or figure.

4. \textit{X. spinosum}. Spinos Burweed. Linn. Sp. Pl. 1400. Willd. n. 4. Ait. n. 3. (X. spinosum, atriplicis folio; Moris. fept. 15. t. 2. f. 3. X. lufitanicum spinosum; Herm. Parad. 245, with a figure. Volkm. Noris. 424, with a figure. X. lufitanicum, lacinatum, validiflum acule moniment; Magnol. Hort. 208. t. 20.) — Stipula thorny, three-cleft. Leaves lanceolate, three-lobed; hoary beneath. — Native of the south of France, as well as Italy, Spain, and Portugal. It might be raised here as a tender annual, and planted out in a border, were there sufficient beauty in its copious, long, flame-coloured thorns, to entitle it to a place in the flower-garden. The \textit{leaves} are not inegant. Their upper surface is of a fine green, nearly smooth; the lower downy and white. The \textit{thorns} are in fact \textit{fibulæ}, an inch long, very sharp, standing in pairs at the base of each footstalk, separating just above their origin into three spreading needle-like points. Flowers small and inconsiderable. Fruit oval, covered with copious,
copious, small, hooked prickles. The wild plant makes a conspicuous appearance in winter, on banks about Montpellier.

For X. fruticosum, Linn. Suppl. 418, see Franseria.

Xanthium, in Agriculture, a term under which the lesser burdock is sometimes known by writers, and which is found to be a very troublesome weed. See Weed.

Xanthochymus, in Botany, received that name, either from Dr. Roxburgh or Mr. Dryander, in allusion to the remarkable yellow juice of its fruit; the word being compounded of xanthos, yellow, and \( \chi \alpha \nu \) \( \zeta \) \( \theta \) \( \aupsilon \), juice.—Roxb. Coromand. v. 2. 51. Ait. Hort. Kew. v. 4. 420.—Cliffs and order, Polyadphya Polyandra. Nat. Ord. Guttifera, Joff.

Gen. Ch. Cal. Perithan inferior, of five roundish, unequal, oblong, flattened, spreading, slightly imbricated, permanent leaves. Cor. Petals five, orbicular, nearly sessile, opposite to the calyx-leaves, and twice as long. Nectary of five broad, short, abrupt, porous glands, opposite to the petals, alternate with the flaminis, inserted into the receptacle under the germen. Stam. Filaments twenty united into five oblong, linear, flat bodies, alternate with the stamens, and above twice as long; anthers flaked, roundish, of two lobes and two cells. Pist. Germen superior, globose; style fuscous; stigma fuscous; filaments five, spreading horizontally, obtuse, deciduous. Peric. Berry globose, succulent, with five ovate seeds, immersed in the pulp, some of which are generally abortive.

Eff. Ch. Calyx of five leaves. Petals five. Nectaries five, abrupt. Stamens united into five, opposite with the stigmas. berry with from one to five seeds.

1. X. \( \pi \theta \iota \lambda \iota \iota \iota \) \( \iota \) \( \rho \iota \iota \sigma \), Painter's Golden-apple. Roxb. Coromand. v. 2. 51. 1. B. 196. Ait. n. 1.—Native of moif valleys, among the Cearc mountains of Hindoostan, flowering in the hot seafon, and ripening fruit in November, December, and January. A large tree, whose tall trunk is covered with dark rough bark, and whose numerous, smooth, rather angular branches form an ample evergreen head. Leaves opposite, stalked, about a foot long and two or three inches broad, elliptic-oblong, acute, entire, coriaceous, smooth, and shining, with a strong mid-rib, and many transverse, parallel, fine, interbranching veins. Fruit acaulis an inch in length, angular, channelled, corrugated. Stipulae none. Flowers an inch in diameter, five or six together, in flaked umbels, each umbel opposite to a leaf, or situated nearly where a last-year's leaf has been. Petals white. Stamens and Pistils green. Nectaries and Anthers yellow. Fruit globose, drooping, somewhat pointed, orange-coloured, smooth, two inches or more in diameter. Seeds about the size and shape of almonds.

"The ripe apples," says Dr. Roxburgh, "are eaten by the natives. They are very inviting to the eye, and in taste little inferior to many of our apples in England. I have no doubt, if cultivated by culture, they would prove a delicious fruit." The green, but full-grown, fruit yields a large quantity of a gum, very like Gummi Guttia, Gabambo. The best way to obtain it is by cutting the apples acroa, and to scrape off the juice, as it rapidly issues. When recent, it is of the consistence of very rich cream, bright yellow, considerably acid, and somewhat nauseous to the taste. In a few days it hardens, and becomes less acid. It makes a pretty good water-colour, either by itself, as a yellow, or mixed with other colours, to form green, &c. It has no particular smell when burnt. A milky juice exudes from the bark of this tree when wounded, which soon thickens, and in thickening assumes a yellow tint. It has no smell, and, when first taken into the mouth, little taste; but after a while, a sense of dryness and acrimony extends a little way down the throat. This juice, like that obtained from the fruit, is imperfectly soluble in spirits. Roxb. Prek.

The tree above described is no very remote relation of the Mangofteen, the most delicious fruit of India; so that Dr. Roxburgh's advice of improving it by culture may be well worthy the attention of horticulturists, if any be found in that part of the world where such experiments are practicable. The most obvious would be to obtain pollen of the Mangofteen, which, like that of many other plants, would probably bear carriage, and to impregnate it with some flowers of the Xanthochymus, whose progeny might tincture perhaps be much altered.

Xanthon, a name given by some of the ancients to a species of marble of a yellowish-green colour, much used in ornamenting the inner parts of houses; and from its equal hardness with the Tanarian marble, and the equal high polish it was capable of, supponed by the workmen to be of the same species.

The word xanthon is of very dubious meaning, but is supposed as the name of this marble to have expressed a green colour, as this was otherwise called marmor herbofus. See Tannarium and Herbosum Marmor.

Xanthorrhiza, in Botany, received its name from the late M. L. Heritier; xanthos, yellow, and \( \rho \iota \iota \sigma \), a root, alluding to the colour of that part. We follow Marshall, Schreber, and Martyn, in correcting the original orthography.


Gen. Ch. Cal. none; unleaf, with the French botanists, we take the corolla for such. Cor. Petals five, ovate, acute, spreading, deciduous. Nectaries five, abrupt, two-lobed, spreading, inserted into the receptacle, alternate with the petals, and about half as long. Stam. Filaments five to ten, awl-shaped, very short; anthers roundish. Pist. Germen several, to eleven, superior, oblong; styles awl-shaped, incurved; filaments acute. Peric. Capsules as many, inflated, ovate-oblong, bluntish and compressed at the top, where they burst, terminated obliquely by the styles, each of one cell and two valves. Seeds solitary, oblong, compressed, small, pendulous from the top of the capsule.

Obs. Many of the flowers want either the stamens or pilius.

Eff. Ch. Calyx none. Petals five. Nectaries five, ab

rupt, flaked. Capsules five or more. Seeds solitary, pendulous.

1. X. \( \pi \theta \iota \lambda \iota \iota \iota \) \( \iota \) \( \rho \iota \iota \sigma \) \( \alpha \pi \iota \lambda \iota \iota \iota \iota \), Parley-leaved Yellow-root. (Zanthorhiza apifolia; L. Herit. Strup. Nov. 79. t. 38. Wildl. n. 1. Ait. n. 1. De Cand. n. 1. Pursh n. 1.)—Native of shady banks of rivers, from Virginia to Georgia, flowering in May. Pursh. Mr. Aiton says it was introduced, about the year 1765, by John Buft, eqq. into the English gardens, where it is hardy, flowering in the early spring. Here it flowered unnoticed, or at least undescribed, till M. L. Heritier published his magnificent and learned work. The stem is shrubby, bushy, about a yard high, each branch crowned with a tuft of dark green, smooth, shining, long-flaked, pinnate leaves, whole leaflets, an inch or an inch and half long, are acute, rhomboid-lanceolate, sharply and unequally serrated in their fore-part. Flowers in long panicled thyrsi, from the

Gen. Ch. Cal. none, unless the corolla be taken for such. Cor. inferior, of one petal, in fixed, deep, nearly equal, oblong, permanent segments; the three inner ones concave, converging at the base. Stam. Filaments fix, inserted into the lower part of the corolla, linear, flat, smooth, and naked, longer than the segments; anthers veratilis. Pfit. German superior, ovate, with the rudiments of many heads in each cell; lyle cylindrical, with three furrows; stigma fimple. Peric. Capsule projecting beyond the closed permanent corolla, ovate, with three blunt angles, woody, imlort hornly, polished, acute, of three cells, and three valves, the partitions from the middle of each valve. Seeds one or two in each cell, bordered, compressed, with a hard black shell; the scar at the base, naked; embryo transverse; albumen soft and flabby.


Mr. Brown, from whole examination, of the living plants, we have improved our generic description above, remarks, that the species of this genus have a peculiar habit, so striking, that where they abound, they give a singular character to the face of the country. The body of the root is sometimes elevated into a thick, scarred, black stem, often divided or branched, and several feet in height, exuding a fragrant yellow resin: in other instances it is very short, scarcely rising above the surface of the ground. Leaves very numerous, crowded, narrow, grasy, of great length, linear, somewhat triangular, or two-edged, spreading every way; recurved at the extremity; dilated, and half-thrashing, at the base; rigid and elastic when dry. Flower-flask terminal, quite fimple, round, often many feet in length, smooth, firm, hard, and durable. Spike terminal, solitary, cylindrical, dense, many-flowered, resembling a catkin, sometimes equal in length to the spike itself. Flowers sessile, closely crowded, small, white, each accompanied by numerous, imbricated bracts, tapering at the base into a claw, the innermost gradually smaller. Capsules of a shining chestnut, partly black.

"The structure of the seeds agrees with Boronia, Labill. Nov. Holl. t. 107. Brown Prod. v. 1. 286; nor are these two genera very different in foliage or inflorescence. They are placed at the end of the Asphodes, because of their fleshy alments, and the black crustaceous skin of their seeds." Brown.

1. "X. arbor. Arboreous Yellow-gum. Br. n. 1.—" Stem arborecent. Leaves two-edged; triangular beyond the middle; articulated in front. Stalk barely the length of the very long spike. Bracteas and corolla bearded. — Native of the country near Port Jackson, New South Wales. Each division of the thick stem is crowned with a large tuft of innumerable long, slender, drooping leaves, in the centre of which the flower-flakes stand solitary. See n. 3.

2. "X. australis. Southern Yellow-gum. Br. n. 2.—" Stem arborecent. Leaves comprized longitudinally. Stalk shorter than the elongated spike. Bracteas subtending the tufts of flowers elongated. — Native of the island of Van Diemen, where it was gathered by Mr. Brown. We have seen no specimen.

3. "X. Hafite. Spear Yellow-gum. Br. n. 3. Ait. n. 1. (Yellow resin-tree; White's Voyage, 235 t. p. 249.)— Stem very short. Leaves comprized longitudinally. Stalk many times longer than the eighteen-inch spike. Bracteas, and outer segments of the corolla, downy at the point. — Native of New South Wales, from whence we received specimens in 1795, by favour of Dr. John White. It is said to have been sent, in 1803, to Kew garden, by Philip Gidley King, Esq. A green-bole plant, flowering in April and May. In the description given by Dr. White, at the place above quoted, he evidently confounds this species and the X. arbor; for he says "it is about the size of an English Walnut-tree. The trunk grows pretty straight for about fourteen or sixteen feet, after which it branches out into long spiral leaves, which hang down on all sides, and resemble those of the larger kinds of grass, or fedge. From the centre of the head of leaves arises a single footstalk, eighteen or twenty feet in height, perfect straight and erect, terminating in a spike of a spiral form. This large footstalk is used by the natives for making spears and fish-gigs, being pointed with the teeth of fish, or other animals." The first part of this description appears to belong to the arboreous Xanthorrhiza, the latter, regarding the inflorescence, to the Hafite; which might easily, perhaps, except by a scrutinizing botanist, be supposed different stages of growth, or varieties, of the same plant. Such a mistake may be more easily accounted for than that of the great Linnaeus, in combining nearly the whole genus of Asio into one species. The Yellow Resin is produced by the present, and some other, species of this genus, by spontaneous exudation from the trunk; promoted sometimes, as we judge from the appearance of certain specimens, by fires kindled by the savage natives of the country. The juice, fluid at first, soon hardens in the sun, into a concre, brittle, form, of a dull orange colour. Burnt on hot coals, it emits a fragrant smoke, smelling like a mixture of balm of Toju and Benzoin, approaching in some degree to Storax. This resin is perfectly soluble in spirit of wine, but not in water, nor even in essentinal oil of turpentine, unless digested in a strong heat. The varnish which it makes with either is weak, and of little use. Dr. White found this Yellow Gum a good pectoral medicine, in many cases. If burnt in a room, the fcent, though pleasant to some people, soon proves oppressive, and the smoke irritating to the lungs. Olive gum, used by the Italians, is preferable for fumigation.

Mr. Brown near Port Jackson. He is not quite confident of its being a distinct species from the last.

5. X. minor. Lower Yellow-gum. Br. n. 5.—"Stem none. Leaves triangular; flat in front; rather concave beyond the middle. Stalk many times longer than the spike. Bractæae scarcely longer than the tufts of flowers, all, like the corolla, bearded."—Gathered by Mr. Brown, in New South Wales. The "spike" of this species measures from five to eight inches. Brown.

6. X. braætata. Long-bracted Yellow-gum. Br. n. 6.—"Stem none. Leaves triangular; below the middle somewhat elevated in front; beyond it rather concave. Stalk many times longer than the spike. Bractæae subtending the tufts twice or thrice the length of the flowers, lanceolate and drooping, all, like the corolla, bearded."—From the same country. The "spike" is only from three to six inches in length. Brown.

7. X. Pumila. Dwarf Yellow-gum. Br. n. 7.—"Stem none. Leaves below the middle flat, with a slightly elevated ridge on both sides; beyond it triangular and channelled. Stalk many times longer than the ovate spike. Bractæae nearly equal, bearded as well as the corolla."—Gathered by Mr. Brown, in the tropical part of New Holland. The "flower-stalk" itself is, in this species, only a foot high. Brown.

XANTHOOXYLUM, received its name from governor Cadwallader Colden, because of the yellow hue of the wood, to which ʃə, yellow, and ʃə, wood, alludes. We make no scruple to follow the example of professor Martyn, in restoring the proper orthography; nor is it requisite to burden our readers with a perpetual indication of the original blunder, under every species, though that blunder has the sanction of Linnaeus, and perhaps of all the authors, except Martyn, that we may have to quote. They generally write the word Zanthoxylym, or Zanthoelyx. Linna. Gen. 519. Schreb. 684. Willd. Sp. Pl. v. 4. 753. Mart. Mill. Dict. v. 4. Alt. Hort. Kew. v. 5. 352. Pursh 209. Swartz Ind. Occ. 570. Juff. 374. Lamarck Dict. v. 2. 38. Illust. t. 811. Gærtn. t. 68. (Fagara ; Duham. Arb. v. 1. 229. t. 97. Swartz Prodr. 33.)—Clas and order, Diocæa Pentandria. Nat. Ord. "Hederaces," Linna. rather his Domæae. Terebintaceæ affine, Juff.

Gen. Ch. coréfæct. Male, Cal. Perianth very small, in three or five deep, concave, rather acute segments. Cor. petals three or five, oval, erect, concave, thrice the length of the calyx. Stam. filaments three or five, awl-shaped, erect, longer than the petals; anthers roundish, two-lobed, furrowed.

Female, Cal. like the male, inferior, permanent. Cor. like the male, deciduous. Pist. Gernens from two to five, roundish, each terminating in an awl-shaped style, longer than the petals; stigmas obtuse. Peri. Capsules from one to five, stalked, each in one cell, and two carioceous valves, barbate at the inner margin. Seeds solitary, roundish, polished, pendulous from an upright bristle-shaped stalk.

Eft. Ch. Male, Calyx in three or five small deep segments. Petals three or five.

Female, Calyx like the male, inferior, permanent. Petals three or five. Capsules from one to five, of two valves, and one cell. Seeds solitary, pendulous.

Obs. This genus is distinguished from Fagara, (see that article,) by having separate flowers, either three-cleft, or five-cleft, and pendulous. Botanists appear to have mistaken its real character, taking the corolla for a calyx. To this error Linnaeus and Duhamel led the way, and Jussieu, Willdenow, and others, have followed them.

Yet Linnaeus in his Gen. Pl. subjoins to his generic description a more correct statement, altogether superseding the former; and Willdenow admits species from Swartz, whose petals by their presence contradict his essential character. We have not seen living specimens of Xanthoëlyx, but the descriptions of Browne and Swartz leave little doubt of the correctness of the above characters. We are much tempted to unite the two genera in question, but as they really have not been sufficiently investigated, and Gærtner seems to have discovered a distinctive mark of Xanthoëlyx, in the stalked pendulous seeds, we leave them for future inquiry. The whole genus is shrubby or arborescent, with alternate, pinnate, sometimes only terete, entire, or somewhat crenate leaves, and clustered, or panicled, flowers. The stem is, in most instances, armed with prickles, that are sometimes very formidable. The wood is hard, and serviceable for many purposes.

Sect. 1. Stem without prickles.

1. X. ternatum. Three-leaved Yellow-wood. Swartz Ind. Occ. 570. Willd. n. 1. (Fagara trifoliata ; Swartz Prodr. 33.)—Prickles none. Leaves ternate, ovate, oblong, emarginate, hisping; dotted beneath.—Received by Mr. Joseph Banks from the island of Dominica. A shrub, fix feet high, with roundish, subdivided branches, angular when young. Leaves on short, spreading, channelled peti-foots. Leaflets on small flat leaflets, entire, rigid, veiny; contracted at the base; paler beneath, and minutely dotted with black. Clusters axillary, compound. Flowers small, white. Gernens three, contiguous, like one three-lobed germen. Stigmas three, feefile. Capsules three, each of two hemispherical valves, with two internal, membranous, whitish valves. Seeds solitary, roundish, polished. Swartz.

2. X. emarginatum. Emarginate Yellow-wood. Swartz Ind. Occ. 572. Willd. n. 2. Alt. n. 1. (Fagara emarginata ; Swartz Prodr. 33. Lauro affinis, terebinthi folio alato, ligno odorato candido, flore albo ; Sloane Jam. v. 2. 24. t. 168. f. 4.)—Prickles none. Leaves pinnate, ovate, emarginate, veiny. Flowers triandrous.—Native of mountains in the interior parts of Jamaica, where it is vulgarly called Ligum rurum, a corruption of Ligum Rhodium, the smell of every part of the shrub resembling the latter when rubbed, or held near the fire. The stem is woody, branched, round. Leaflets about three pairs, rarely with an odd one, above an inch long, veiny, rather coriaceous, and hisping. Clusters terminal, somewhat compound, erect. Flowers minute, white. Calyx in five deep, ovate, acute, permanent segments. Petals only three, ovate, concave, spreading; twice the size of the calyx. Stamens three, very short. Gernens three-lobed, with three felifile stigmas. Capsules seldom more than one perfected, with two internal, as well as external, valves, and one orbicular, black, hisping seed. Swartz.

3. X. acuminatum. Pointed-leaved Yellow-wood. Swartz Ind. Occ. 575. Willd. n. 3. (Fagara acuminata ; Swartz Prodr. 33. — Prickles none. Leaves pinnate, elliptical, pointed, coriaceous. Flowers triandrous.—Native of mountainous parts of Jamaica. A shrub, with round spreading branches. Leaflets three or four pair, laurel-like, hisping. Gymnæae terminal, subdivided in a forked manner. Flowers crowded, small, white. Calyx of three minute ovate leaves. Petals three, obtuse, concave, one line and a half long. Stamens three, shorter than the corolla. Fruit globose, the size of a pepper-corn, only one capsule, out of three, coming to perfection.

Sect. 2. Stem prickly.

XANTHOXYLUM.

"Well St. Croix 236."—Stem prickly. Leaves ternate, or pinnate, oblong, finely crenate; dotted beneath.—Native of the island of Santa Cruz. Willdenow.

5. X. spinafum. Prickly Triandrous Yellow-wood. Swartz Ind. Occ. 574. Willd. n. 5. (Fagara spinaf; Swartz Prodr. 33.)—Stem prickly. Leaves pinnate, with many pairs of feflile, ovate, pointed leaflets; prickly beneath, as well as the branches. Flowers triandrous.—Native of dry mountainous situations in Jamaica. A ftrub. about five feet high, with a round, branching, upright stem. Spines (rather we prefume prickle[s]) scattered, prominent, needle-like, as long as the finger-nail; thefe of the main item stronger, and thicker at the bafe. Leaves a foot long, with a comprefled footstalk, round and prickly at its bafe, and, if we understand right, furnifhed with a pair of pricklefs before each pair of leaflets, which are nearly feflile, eight or ten pair in all, ovate, with a short emarginate point, veiny, rigid, fmoother, and thining, very minutely crenate at the edges, their mid-rib occafionally prickly. Cymes terminal, with minute, white, crowded flowefs. Calyx with three ovate acute segments. Petals three, ovate, larger than the calyx. Filaments fcarce any. Anthers ovate, converging. Germin in three diftinft lobes. Stigmas three, feflile, obtufe. Fruit not observed. Swartz.

We have been more full in our defcriptions of Dr. Swartz's four fpecies, that the reader may compare their characters with Fagara. Nothing is faid of their flowefs being feparated, or dioecious.

6. X. Clava Ciculati. Great Prickly Yellow-wood. Linn. Sp. Pl. 1455; excluding the synonym of Duhamel. Amev. Acad. v. 3. 16. Wild. n. 6. Alt. n. 2. Swartz Obs. 725. (X. spinafum, lenticell longiflorus foliis, euonymi frutefculi; Catecb. Carolin. v. 1. t. 26, according to Linneus. X. aculeatum, fraxini ffolis et punctatis foliis; Pluk. Phyt. t. 239. f. 4.)—Stem with broad angular pricklefs. Leaflets ovate, pointed, crenate; nearly equal at the bafe: common footstalk prickly. Flowers terminal, panicked.—Native of woods in the West Indies and Carolina, flowering in March and April. It is marked by Mr. Aiton as a green-house plant, cultivated ever since Miller's time, flowering in April and May. The trunk is woody, often, according to Swartz, 30 or 40 feet high, armed with very powerful pricklefs, which are thick at their bafe, angular and sharp at the point. Leaves a foot long, pinnate, as in all the following fpecies; their common footstalks armed with flattened ftraight pricklefs, one-third of an inch long; leaflets about seven pair, on fhort partial falks, unequally divided by their smooth mid-rib, and fome-

what falcate, an inch and a half or two inches long, bordered with fmal unequal notches, fmoother and rather thining. Clyfters terminal, compound. Flowefs polygamous, there being fome united ones, though not perfecfly feding, on one tree, and others entirely female, on another. The former have a minute five-toothed calyx. Petals five, thirfe as long, ovate, eecf, or a little incurved. Filaments five, twice the length of the petals, and inferted between them. Anthers oblong, cloven at the bafe. German roundish, abortive, with five awl-shaped erect styles, and simple flymgs. The female flowefs have a five-toothed calyx; five concave petals; no fliament. Germin five, united into a roundifh body. Styles none. Stigmata peltate, flightly convex, a little elevated, with five furrows. Capfules five, combined, or one of five lobes, each lobe having two valves, and containing a roundifh, black, thining seed. Our defcription of the fructification is taken from Dr. Swartz. The leaves bear but a flight refemblance to the Maffick-tree, or any other fpecies of Pifacia, being decidedly crenate.

7. X. aromaticum. Aromatic Yellow-wood. Willd. n. 7. (Euonymus adninus aromaticus, five Xanthoxylon spinoifum, fraxinelle folis cheufianicum; Pluk. Amathl. 78. t. 393. f. 2.)—Stem with opposite pricklefs. Leaflets ovato-lanceolate, ferrate; unequal at the bafe: common footstalk prickly. Panicles terminal.—Native of Chufan. "A frub with ftraight pricklefs. Leaflets two, three, or four pair, pointed, one inch and a half long, marked with pel-

fucid dots; rounded near the bafe, at the upper edge; constricted at the lower. Common footstalk befit with strong, nearly opposite, pricklefs." Willdenow, from a dried fpecimem, without flowefs. Pluenken fays, "the fruit is a fingle, round, rough, or warty capfule, frafting strongly of camphor, lined with a white, smooth, infipid membrane, containing a black polished feed, with a hollow whitifh fear, in which lies the thread connecting the feed with its capfule." This very accurate defcription determines the genus. He adds, that the Chinese ufe this fruit instead of pepper.

8. X. rhoeifium. Stomach-leaved Yellow-wood. Lamarrk n. 2. Willd. n. 8. (Euonymus affinis aromaticus, five Xanthoxylon spinoifimum, fraxini anguifolii folio punctatam; Pluk. Amathl. 76. t. 392. f. 1.)—Stem prickly. Leaflets lanceolate, finely ferrate; nearly equal at the bafe: common footstalk downy and prickly. Panicles axillary.—Brought from the iflands of Chufan, like the preceding. The leaves are a foot long. Leaflets nine to eleven pair, with an odd one, each three inches in length, pointed, dotted: flightly downy beneath. Footstalk fometimes without pricklefs. Willdenow. Pluenken's figure reprefents the panicule much like the preceding, but latemal. The capfules feem to be one, two, or three from each flower.

9. X. juglandifolium. Walnut-leaved Yellow-wood. Willd. n. 9. (X. americanum, five Herculis arbor aculeata major, juglandis folis alernis parum finuosi; Pluk. Phyt. t. 239. f. 61) —Stem prickly. Leaflets oblong, pointed, obfcurcly ferrate; unequal at the bafe: common footstalk somewhat prickly. Panicles terminal.—Native of Itipaniola and Nevis. Leaves pinnate, with an odd one; leaflets alternate, coriaceous, two or three inches long, marked with diftant, fcarcely visible, pelucid dots; their edges entire to the naked eye, but under a magnifier appearing furnifhed with close diftant furrows; constricted near the bafe, at the upper edge; rounded at the lower, rather downy beneath. Common footstalk befet with a few short ftraight pricklefs. Panicles terminal, much branched, denfe, downy. Capfules four or five, rather downy, pointed. Seeds black.

10. X. rigidum. Rigid Yellow-wood. Willd. n. 10.—Stem prickly. Leaflets elliptical, entire, emarginate, pointed; their veins hairy beneath; mid-ribs and footstalks prickly."—Native of South America. Humboldt and Bonpland. Leaflets four pair, coriaceous, on very short falks; the upper ones large, two inches long; lower but half an inch; their bafe rather unequal; sometimes having a fhort, obtufe, crenate point; their upper fide pollifhed, reticulated with veins; under paler, with one long, reddifh, awl-shaped prickle on the mid-rib of each, of which there are feveral on the common falk. Flowefs not seen. Willdenow.

XAN

united. — Gathered by Aublet, in the forests of Cayenne, flowering in May, and bearing fruit in August. A tree, whose trunk is 40 or 50 feet high, and two feet and a half in diameter, with a prickly bark. The wood is white, hard, and compact. Leaves about five pairs, nearly sessile, smooth; the largest five inches long, and an inch and a half broad. Panicles large and much branched, composed of numerous, small, white flowers, having stamens and pistils in the same individual. Capsules three, four, or five from each flower, reddish, each containing a black, shining, oily seed. These capsules have a pungent aromatic flavour, and the Creoles call them negro's pepper.

12. X. fraxinum. Ash-leaved Yellow-wood, or Common Tooth-ache Tree. Willd. n. 12. Arb. 412. Ait. n. 2. Pursh n. 1. (X. Clava Herculis 8; Linna. Sp. Pl. 1455. X. ramiforum; Michaux Boreal. Amer. v. 2. 235. Pagara fraxini folia; Duhem. Arb. v. 1. 229. t. 97.)—Stem prickly. Leaves ovate, very minutely serrated; equal at the base. Umbels axillary. — Native of shady woods, near rivers, from Canada to Virginia and Kentucky, flowering in April and May. A tufting of the bark and capsules is recommended in rheumatism and the tooth-ache, whence its English name. Pursh. A large deciduous shrub, whose branches are armed with sharp, conical, comferted, brown prickles, very broad at the base. Leaves four or five pairs, with an odd one, an inch and a half long, on short partial flasks; contracted at each end; more or less dinstinctly crenate, or bluntly serrated; smooth above; soft and downy beneath. Their common footstalk is described without prickles; but in our specimens it is always furnished with some, and occasionally with very numerous ones. The flowers are small, yellowish-green, in little dense umbels, just above the scars of last year's footstalks, accompanied by a tuft of downy young leaves. The mode of inoffencece abundantly distinguishes this species from all the rest. It is hardy in our gardens, flowering in March and April, before the leaves appear. The bark is used in America, as a powerful sudorific and diuretic, whence its use, as above-mentioned, in rheumatic disorders. This is the species most popularly taken for X. Clava Herculis, as appears by the herbarium of Jacquin, purchased formerly by Sir Joseph Banks, and even by that of Linnaeus. The two species, nevertheles, are widely different.


14. X. heterophyllum. Various-leaved Yellow-wood. (Macqueria Commerouni; Jaff. 374, under Xanthoxylum.)—Young branches prickly; their leaves with very numerous serrated leaves, on prickly common flanks: old ones unarmed, their leaves of seven entire leaves, on unarmed common flanks. Panicles axillary. Capsules solitary. — Gathered in the isle of Bourbon, by Commeroun, some of whose specimens are in our possession. Nothing can be more paradoxical than the appearance of this shrub. We must rely on its description for the accuracy of its specimens, as the two branches, so very different in appearance, are not connected together; though we cannot doubt their general identity. The young branch is slender, covered with innumerable, sharp, ascending prickles, of various sizes, a line long at the leaf. Leaves alternate: common footstalk of each five or six inches long, round, straight, channelled, beft with numerous prickles, like those of the branch, but smaller: leaves from 40 to 60, or more, opposite or alternate, ovate, bluntish, smooth, armed or bluntly serrated, one quarter or one-third of an inch in length, of a fine green, paler beneath, marked with pellucid dots; their mid-ribs bearing one or two prickles at the back. The older or flowering branches are stout, rugged, unarmed, leafy at their extremities only. Leaves alternate, rather crowded, altogether defiitute of prickles, each consisting of three pairs of ovate, bluntly pointed, entire, coriaceous, yellow, smooth leaves, with an odd one; the lowermost smile: common footstalk channelled, smooth. Panicles compound, rather shorter than the leaves; their flanks unarmed, comferted, and angular. Capsules only one, perfect in each flower, brown, the size of a pepper-corn, rugged, full of pellucid dots lodging a pungent aromatic camphorated oil, and very bitter. Seed black, polished, with a bivalve elastic tonic, or lining of the capsule.

For X. trifoliatum, Linna, see Panax Aculeatum.

XANTHURUS INDICUS, in Ichthyology, the name of a fish called by the Dutch geel-baard.

It is of the size and shape of the bream; its jaws are armed with straight and very sharp teeth, which slant almost straight out; its back is yellow, and its tail very strongly tinged with that colour; its belly is of a blueish-white; its head brown, and its fins of a fine red. It is caught with hooks among the rocks on the shores of the East Indies, and is a very wholesome and well-flavored fish.

XANTHUS, in the Natural History of the Ancients, the name of an iron-ore of the hematites or blood-flone kind, and usually accounted a species of it, and called by others Elatites.

It was of a pale yellowish-white, or the colour of the French pale yellow ochre, used by our painters; but like all other ferruginous bodies it became red by burning.

Thocphrastus gives us expressly the etymology of the name, observing that it was called fo from its colour; the Dorians calling a yellowish-white Υηςος, xanthus.

XANTHUS, in Ancient Geography, a famous river of Asia Minor, in the Troade. According to Pliny, it had its source in mount Ida, and discharged itself at the port of the Acheans into the Hellespont, after having joined the Sinos.—Alfo, a river of Asia Minor, in Lycia, which had its source in mount Taurus, and watered the towns of Xanthus and Patara, and ran into the Mediterranean, near the laft of these places. This river was anciently called Sirbes, according to Strabo, and he says that the temple of Latona was situated ten stadia above its mouth, and sixty stadia farther was the town of Xanthus.

XANTHUS, or Xanthopolis, a town of Asia Minor, and the largest in Lycia. It was situated seventy stadia from the mouth of the river on its bank. Pliny reckons fifteen miles from this town to the mouth of the river. Under Appian, the inhabitants of Xanthus were such enthusiastic for liberty, that when it was taken by Brutus they burnt it, and preferred death to submission to the conqueror. He adds, that the same circumstance occurred with regard to Harpalus, general of Cyrus the Great, and Alexander the Great. It subsisted in the time of Strabo.—Alfo, a town of the isle of Lefbos.

XANTIPPE, in Biography. See Socrates.

XANTON, in Geography, a town of France, in the department of the Vendee; 5 miles E. of Fontenay-le-Comte.

XANXUS,
XEBEC, in Natural History, a name given by some authors to a large species of sea-shell, somewhat like that with which the Tritons of old were painted. It is found in great abundance near Ceylon, and is used there in medicine as an alkali and absorbent in the same cafes in which we give the tafteaceous powders.

XAPARACO, in Geography, a town of Mexico, in the province of Mechoacan; 85 miles W.N.W. of Mechoacan.

XARAMA, a river of Spain, which runs into the Tagus, a little below Aranjuez.

XARAYES, or ZARAYOS, Laguna de Los, a supposed lake of Brazil, formed by the river Paraguay; about 108 miles in length, and 21 in breadth. This is merely an inundation of the river, and exploded as a lake. S. lat. 17° 45'.

XATHOS, in Ichthyology, a name given by Appian to the fifth called by the generality of authors the erythrinus, or rubellini.

XATIVA, now St. Felipe, in Geography. See St. Felipe.

XAVIER, a town of Spain, in Navarre, the native place of the celebrated missionarv of that name; 3 miles E. of Sangüeza.

XAVIER. See SABI.

XAVIER GOYA, a town of Africa, in the country of Whidah; 12 miles N.N.E. of Sibi.

XAVIER, Saint. See SAINT XAVIER.

XAVIER Zante, a town of Africa, in the country of Whidah; 14 miles N.W. of Sibi.

XAUXA, a town of Peru, in the bishopric of Guamanga, containing two churches; 90 miles E. of Lima. S. lat. 12°. W. long. 75° 30'. See JAUCA.

XAUXA, a river of South America, which rises in the Andes, about 75 miles N. from Atum Xauxa, and uniting with the Apurimac, forms the Ucayale.

XAUXAVA, a town of Morocco, on a river, and at the foot of a mountain, both of the same name; 15 miles N. of Morocco.

XEBEC, in Sea Language, a small three-masted vessel, navigated in the Mediterranean sea, and on the coasts of Spain, Portugal, and Barbery. The fore and main masts are called block-masts, being short, and formed square at the head, to receive threes, to receive the jers, &c. The mizen-mast is fitted with a top-mast, &c., similar to a small English thip, and which has been lately added, to keep them better to the wind. The xebecs have no bowprit, but a sort of boomkin, wound and confined to the prow, nearly horizontal (see GALLEY), to the outer end of which lead the bow-lines. The fore-mast rakes much forward, has no stay, and the shrouds set up, similar to the runners in English cutters or sloops, to toggles fixed in the sides. These shrouds are easily shifted when the xebel go about. The main-mast is nearly upright, and ribs as the fore-mast. Each main carries a latteen-fall, the largest lade of which is bent to a yard that hoists by a purrel round the mast, at about one-third its length; the yards are worked at the lower end by bow-lines, and the fall extended by a fleet at the clue. The upper lee-yard-arm is worked by a brace, and the strain supported by vangs nearer the mast. The main-mast carries a latteen-fall, similar to the main and fore-mast. Vessels with latteen-falls will lie one point nearer the wind than a quare-rigged vessel. Xebecs, particularly in France, have been rigged similar to polacres; but they never fail so well as they did in their primitive situation.

The xebec, generally equipped as a corvair, is constructed with a narrow floor, to be more swift in pursuit of the enemy; and of a great breadth, to enable her to carry a great force of sail for this purpose, without danger of overturning. As these vessels are usually very low built, their decks are formed with a great convexity from the middle of their breadth toward the sides, in order to carry off the water, which falls aboard, more readily by their fenders. But as this extreme convexity would render it difficult to walk thereon at sea, particularly when the vessel rocks by the agitation of the waves, there is a platform of grating along the deck from the sides of the vessel toward the middle, on which the crew may walk dry-footed, whilst the water is conveyed through the grating to the fenders.

When a xebec is equipped for war, she is occasionally navigated in three different methods, according to the force or direction of the wind. Thus, when the wind is fair, and nearly aft, it is usual to extend square sails upon the main-mast, and frequently upon the fore-mast; and as these sails are rarely used in a fresh wind, they are of an extraordinary breadth. When the wind is unfavourable to the course, and yet continues moderate, the square yard and falls are removed from the masts, and laid by; in order to make way for the large latteen yards and falls, which soon after assume their place; but if the foul wind increases to a sturm, these latter are also lowered down and displaced, and small latteen yards, with proportionate falls, are extended on all the masts. The xebecs, which are generally armed as vessels of war by the Algerines, mount from sixteen to twenty-four cannon, and carry from three hundred to four hundred and fifty men, two-thirds of whom are generally soldiers. Falconer.

XEBEROS, in Geography, a town of South America, in the audience of Quito; 40 miles S.W. of La Laguna.

XEUJU, a river of Paraguay, which runs into the Paraguay.

XEKIAS, in Biography, a name given by the Chinefe and Japanee to an Eastern philosopher of mythological origin and character, called also Buddas among the Indians, Sonomacodom in Siam, and after his death Foe or Fotoki, who fascinated the whole northern and eastern region of Asia, as well as part of the southern, with his pantheistic doctrine. It is probable, as some have said, that he lived about 600 years before Christ; and having first appeared in the southern part of India, on the borders of the Indian ocean, disseminated his philosophy by means of his disciples to all India. It is said that he spent twelve years in solitude, when he was instructed by the Tolopoi, called by the ancients "hyloblis," i.e. Sylvan hermits; and that in his 30th year he devoted himself to contemplation, and attained to the intuitive knowledge of the first principles of all things, from which he took the name of Foe, which signifies, "something more than human." His mystical philosophy was delivered to his innumerable disciples under the veil of allegory. The Japanese add, that in his contemplations, during which his body remained unmoved, and his senses unaffected by any external object, he received divine revelations, which he communicated to his disciples.

Buddas, or Xekias, in his esoteric doctrine, taught the difference between good and evil; the immortality of the souls of men and brutes; different degrees of rewards and punishments in a future world; and the final advancement of the soul, after various migrations, to the habitations of the blest. Amidas, who, according to the Chinefe, is Xekias himself, prefigured in these habitations, and is the mediator, through whose intercession had men obtained a mitigation of their punishment. These dogmas are contained in an ancient book, called Kio, which all the Indians beyond the Ganges, who follow the doctrine of Xekias, receive.
receive as sacred, and which is illustrated by innumerable commentaries.

The doctrine which Xekias delivered towards the close of his life to his esoteric disciples was very different. Vacuum, or void, was, according to his instruction, the principle and end of all things, simple, infinite, eternal, but delimited of power, intelligence, or any other familiar attribute; and that to be like this principle, by extinguishing all passion and affection, and remaining absorbed in the most profound contemplation, without any exercise of the reasoning faculty, is the perfection of happiness. The first principle in this system cannot be pure nihility, which admits of no properties; probably, it is First Matter, without variable qualities, whence all things are supposed to arise, which is not to be perceived by the senses, but contemplated as the latent divinity, infinitely distant from the nature of visible things, yet the origin of all substanices. The emanations from this fountain became, in the popular theology, objects of the grossfet superlition and idolatry.

The doctrine of Fœ, or Xekias, was embraced by innumerable disciples. Among these, one of his most eminent succours was Tamo, a Chinefe, who was so entirely devoted to contemplative enthusiasm, that he spent nine whole years in profound meditation, and was on this account defied.

According to the Brahmans, Xekias had neither father nor mother; and as no Indian city claims the honour of his birth, he was probably a foreigner, who migrated to the southern part of India from some neighbouring maritime country, perhaps from Lybia; whither he came with some Egyptian colony, and who had been instructed in the Egyptian mysteries. It is not improbable, that at the time when Cambyses conquered Egypt, and dispersed almost the whole nation, this impostor might have passed over into India, and propagating his doctrine among an ignorant and superstitious people, became an object of universal veneration.

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XLE, in the Materia Medica of the Ancients, a name given to the fruit fcl. XELS, in Geography, a town of Spain, anciently a Roman colony, called Julia Celia. XELVA. See Chelva.

XENDAY, a town of Japan, in the island of Niphon; 115 miles N.N.E. of Jedo. N. lat. 39°. E. long. 141° 22′. XENEXTON, a word used by Paracelsus, to express a fort of amulet to be worn about the neck, to preserve people from infection in the plague.

XENIA, σενία, q. d. gifis, in some Ancient Cylians, were gifts, or presents, made to the governors of provinces, by the inhabitants thereof.

The word occurs pretty frequently in charters of privileges; where quieta effe à xenia denotes an exemption from making such presents to kings and queens, upon their travelling through such provinces.

XENIA, in Geography, a township of Ohio, in the county of Greene, with 1429 inhabitants.

XENIL, a river of Spain, which rises in Grenada, and runs into the Guadalquivir, about three miles below Eeja.

XENINEPHIDEI, a word used to express a sort of imaginary spirits, mentioned by the adepts, as delighting to discover the occult qualities of bodies to men.

XENISMI, καινόμηθεις, in Antiquity, sacrifice offered at the Athenian festival Anaea.

XENOCRATES, in Biography, a famous Grecian philosofer, was born at Chalcedon, in the first year of the 96th Olympiad (B.C. 356), and attached himself at first to Echines, but afterwards became a follower of Plato, and succeed Speusippos in the chair of the old academy (B.C. 339). His temper was gloomy, his aspect severe, and his manners were little tinged with urbanity. Plato took pains to correct these obliquities of his disposition and character; and as he highly respected his manner, he probably improved by his instruction, so that he was reckoned as one of his most esteemed disciples. Xenocrates was held in such estimation among the Athenians for his virtues, and especially his integrity, as well as his wisdom, that in a public trial his simple alleviation was accepted instead of an oath, which was usually required; and that even Philip of Macedon found it impossible to corrupt him. Dreading his influence, and the temptation of a bribe, he declined all private intercourse with the Macedonian sovereign, and was honoured by him with this testimonium; that of all persons who had come to him on embassies from foreign states, Xenocrates was the only one whose friendship he was not able to purchase. On occasion of being employed as an ambassador to the court of Antipater, for the redemption of several Athenian captives, he waved the honour of accepting the invitation of this prince to sit down with him at supper, in the words of Ulysses to Circe, cited from Homer's Odyssey. (l. x. v. 383); thus translated—

"What man, whose bosom burns with gen'rous worth, His friends enthral'd, and banish'd from his sight, Would taste a selfish, solitary joy?"

The patriotic spirit expressed in this appropriate passage gratified Antipater so much, that he immediately released the prisoners. As another example of his moderation, it is alleged, that when Alexander, willing to mortify Arisotle, on account of some accidental pique, lent Xenocrates a magnificent present of 50 talents; he accepted only 30 mina, returning the residue to the donor with this message; that the whole sum was more than he should have been able to spend during his whole life. In this instance, he also manifested a superiority to that kind of jealousy and revenge which might have actuated meaner minds, when it is considered that Aristotle had inducted a school in the Lyceum, in opposition to the academy over which Xenocrates prevailed.

In the use of food he was singularly abstemious; his chastity was invincible by the seducing arts of Phryne, a celebrated Athenian courtezan; and his humanity was testified by the shelter which he afforded to a sparrow that was pursued by a hawk, and fled into his bofon, where he allowed it to remain till its enemy was out of sight, alleging that he would never betray a suppliant. In the employment of his time, he allotted a certain portion of each day to its proper busines, one of which he devoted to silent meditation. His high sense of the importance and utility of mathematical studies was sufficiently evinced by his refusing to admit into his academy a young man who was ignorant of geometry and astronomy, because he was deluged of the handles of philosophy. Upon the whole, Xenocrates was eminent, both for his purity of morals, and his acquaintance with science; and he supported the reputation of the Platonic school by his lectures, his writings, and his conduct. His life was prolonged to the third year of the 118th Olympiad (B.C. 314), or the 82d year of his age, when he accidentally fell in the dark into a refervoir of water.

His philosophic tenets were Platonic; but in his lectures he adopted the language of the Pythagoreans. In his system, unity and diversity were principles in nature, or gods; the former being the father, and the latter the mother of the universe.
universe. The heavens he represented as divine, and the
flars as celestial gods; and besides these divinities, he taught
that there are terrestrial demons, of a middle order between
the gods and men, partaking of the nature both of mind and
body, and, like human beings, capable of passions, and
liable to diversity of character. He probably conceived
with Plato, that the superior divinities were ideas, or intel-
ligible forms, proceeding immediately from the Supreme
Deity, and the inferior gods, or demons, to be derived from
the soul of the world, and, like that principle, compounded
of a simple and a divisible substance, or of that which
always remains the same, and that which is liable to change.
by Enfield, vol. i.

XENODOCHUS, formed of ξενο-, stranger, and
δοχειας, I receive, an ecclesiastical officer of the Greek
church, the fame with the hospitalier, or a person who
takes care of the reception and entertainment of strangers.
St. Isidore, a priest and folitary, furnished Xenodochus,
lived in the fourth century. He was thus called, becaule
engaged with that office in the church of Alexandria.

XENOPAROCHUS, formed of ξενο-, stranger, and
παροικος, of παροικος, I furnishe among the Romans, an officer
who provided ambassadors with all kinds of necessaries, at
the public expense.

XENOPHANES, in Biography, the founder of the
Eleatic fect, was born at Colophon, about the 56th Olympi-
ad (B.C. 556); and having left his country, took refuge in
Sicily, where he gained a sublimity by reciting, in the
court of Hiero, elegiac and iambic verses, which he had
written against the theogonies of Hefiod and Homer. From
Sicily he removed to Magna Graecia, where he became a
celebrated professor in the Pythagorean school, without
adhering strictly to the doctrines of Epimenes, Thales, and
Pythagoras. His life was prolonged to the advanced age
of 100 years, that is, till the 81st Olympiad (B.C. 456),
during 70 years of which he occupied the Pythagorean
chair of philosophy. In Enfield's Philosophy of Brucker we have
the following summary of the doctrine of Xenophanes:
In metaphysics, he taught, that if ever there had been a time
when nothing existed, nothing could ever have existed. That
whatever is, has always been from eternity, without deriving
its existence from any prior principle; that nature is one and
without limit; that what is one is similar in all its parts, else
it would be many; that the one infinite, eternal, and ho-
mogeneous universe, is immutable and incapable of change;
that God is one incorporeal eternal being, and, like the uni-
verse, spherical in form; that he is of the same nature with the
universe, comprehending all things within himself; is intel-
ligent, and pervades all things; but bears no resemblance to
human nature either in body or mind.

In physics, he taught, that there are innumerable worlds;
that there is in nature no real production, decay, or change;
that there are four elements, and that the earth is the basis
of all things; that the flars arise from vapours, which are
extinguished by day, and ignited by night; that the fun
confists of fiery particles collected by humid exhalations, and
daily renewed; that the course of the sun is rectilinear, and
only appears curvilinear from its great distance; that there
are as many funs as there are different climates of the earth;
that the moon is an inhabited world; that the earth, as ap-
pears from marine shells, which are found at the tops of
mountains, and in caverns far from the sea, was once a gene-
ral mass of waters; and that it will at length return into the
fame state, and pafs through an endless series of similar
revolutions.

The doctrine of Xenophanes concerning nature is so ob-
scurely expressed by those who have transmitted an imperfect
account of it, that it has been misunderstood and misrepre-
sented. Some have confounded it with the atheistical sys-
tem of Spinoza; by others it has been accommodated to
the ancient doctrine of emanation; and others have main-
tained its similarity to the Pythagorean and Stoical notions
of the soul of the world. The truth seems to have been,
according to Brucker's statement, that he held the univer-
se to be one in nature and substance; distinguishing in his con-
ception between the matter of which all things consist, and
that latent divine force, which he considered as a distinct
substance, but an attribute, and yet necessarily inherent in the
universe, and the cause of all its perfection. This view of
his notion is consistent with the language he used, and with the
account of his doctrine, preferred by Sextus Empiricus, that
God is the same nature with the universe; τον Θεόν ουκ εξαιρετικώς
πᾶν. When he affirmed that there is no motion in nature, it is
probable that he understood the term motion metaphorically,
meaning merely that there is no such thing in nature as passing
from non-entity to entity, or the reverse. Accordingly, the an-
cients more generally applied the term motion to a change
of nature than to change of place. Brucker is of opinion
that the notion ascribed to Xenophanes concerning the na-
ture and origin of the celestial bodies, as meteors daily re-
newed, must have been founded on a misconception and mis-
representation of his opinion on the subject. See Eleatic
Philosophy.

XENOPHILES, an able Greek musician, who pro-
ferred the philosophy of Pythagoras, and who lived at
Athens, where he arrived at the great age of 105. It is
Lucian who gives this account of his extraordinary longevity
from Ariflozenus.

XENOPHON, the son of Gryllus, an Athenian, was
distinguished as a philosopher, commander, and histo-
rian. His engaging appearance whilst he was a youth in-
duced Socrates to admit him into the number of his disci-
iples. Under his tuition he made rapid progress in that kind
of wisdom for which his master was so eminent, and which
qualified him for all the offices of public and private life.
Having accompanied Socrates in the Peloponnesean war,
and manifested his valour in defence of his country, he after-
wards entered into the army of Cyrus as a volunteer; but
his enterprise against his brother proving unfortunate, Xeno-
phon, after the death of Cyrus, advised his fellow-fighters
attempts to retreat into their own country rather than to
surrender themselves to the victor. His advice was regarded,
and he was chosen as their commander. In the exercise of
this duty he acquired by his prudence and firmness a high
degree of honour; and the memorable adventure is re-
lated by himself in his "Retreat of the Ten Thousand."
Having joined Agesilaus, king of Sparta, after his return
into Greece, and fought with him against the Thebans in
the celebrated battle of Cheronea, he displeased the Athe-
niens by this alliance; and he was publicly accused for
his former engagement in the service of Cyrus, and con-
demned to exile. Thus ignominiously treated, the Spartans
took him under their protection, and provided for him a com-
fortable retreat at Scillus, in Elus. In this asylum he
enjoyed the pleasures of domestic life with his wife and two
children for several years, and availed himself of the leisure
that was thus afforded him by writing those historical works
which have rendered his name immortal. On occasion of a
war between the Spartans and Eleans, he was obliged to
abandon this agreeable retreat, and to join his son, who was
settled at Lepreus. From hence he afterwards removed with
his whole family to Corinth, where, in the second year of the

C 2

105th

Gen. Ch. Common Calyx imbricately; scales numerous, elliptic-lanceolate, scarious, permanent, the inner ones much longer than the disk, coloured, forming a radiant crown to the whole compound flower. Cor. compound, somewhat unequal; florets of the disk very numerous, all perfect, tubular, funnel-shaped, much shorter than the calyx, in five equal spreading segments; those of the circumference fewer, female, tubular, somewhat two-lipped, with five unequal segments. Stam. (in the perfect florets) Filaments five, capillary, very short; anthers forming a cylinder rather longer than the corolla. P filament. (in the same florets) German short; style thread-shaped, longer than the stigmas; stigma cloven; in the female florets, Stam. none. Pist. German and style as in the perfect florets; stigma simple, club-shaped. Peric. none, except the calyx scarcely at all altered, except being closed. Seed in both kinds of florets alike, oblong; down a row of taper-pointed narrow scales. Recept. flatish, clothed with linear acute scales, rather longer than the florets.


Obst. Gaertner has long ago observed, what indeed no one could overlook, that the essential character of this genus, as given by Linnaeus, answers to his first species only, X. annuum. This stands in the Syll. Veg. making a fection by itself, characterized by a chaffy receptacle; whereas the other fections, "with a naked receptacle," receive all the numerous species besides, and directly contradict the generic character, "receptaculum palucecum." Gaertner, Jussieu, and Willdenow, have properly corrected this oversight, as we have shown under Elycrium. The true Xeranthemum, therefore, would be left with a solitary species, sufficiently well marked indeed to be distinguished, as far as the Linnaean species go. But our great master is proved to have confounded several together, under his X. annuum. Willdenow distinguishes three species, two of which we cannot separate, but we shall subjoin a fourth. They were all known to Tournefort, who indeed divides them still further, mistaking double or white flowered varieties as species. The root of the whole genus is annual. Herb erect, rigid, alternately branched, clothed with hair, white, clove, cottony down, easily rubbed off. Leaves alternate, sessile, lanceolate, acute, undivided, entire; tapering at the base. Flowers solitary, on long, terminal, slightly scaly, stalks. Outer scales of the calyx roundish, membranous and shining, at least at the edges; inner oblong, spreading while in flower, purple or brownish, occasionally white, very brilliant and ornamental.


2. X. vulgatum. (X. inapertum; Willd. n. 2. Ait. n. 5; excluding the synonym of Moris. X. capiluliflorum, inapertum; Hall. Enum. n. 21. 23. n. 121. Hall. Hift. t. 52. Parn. Imperata; Ger. Em. 666, no figure. Jacc. oleif. flor. minium flore; Bauh. Pin. 272.)

Outer calyx-scales roundish-elliptical, awned, smooth at the
XERANTHEMUM, in Gardening, contains plants of the herbaceous, flowering, annual kinds, in which the species cultivated are, the annual xeranthemum, or common eternal flower (X. anuum); the reflexed-leaved eternal flower (X. retortum); the golden eternal flower (X. speciosissimum); the silvery eternal flower (X. lepidoides); the proliferous eternal flower (X. proliferum); the leafy-flowered eternal flower (X. velutum); and the imbricated eternal flower (X. imbricatum). As to the species of Xeranthemum, see the preceding article.

The first is an herbaceous flowering plant, of which there are varieties with large white flowers, with double white flowers, with double purple flowers, and with double violet-coloured flowers.

Method of Culture.—In the first fort and varieties, the culture is readily effected by fowing the seeds in pots of light fresh mould, in the autumn or spring, or at other seasons for a succession, plunging them in a moderate hot-bed, to bring forward the plants. In the spring they may also be sown in patches where they are to remain, or in beds to be afterwards removed. When the plants have a few inches growth, they should be pricked out in rows a foot apart on beds, or into the borders, clumps, or other places where they are to grow. They should afterwards be kept clean from weeds, and have occasional waterings immediately after prickining out, and afterwards in dry weather.

The other sorts are raised by planting cuttings of the young shoots in the summer, in pots filled with light mould, giving them a little water and shade, or, which is better, plunging them into a hot-bed, and covering them with hand-glasses. When they are become firmly establisht in the autumn, they should be carefully removed into separate pots, being replaced in the hot-bed till re-rooted, after which they should have the management of other shrubby green-house plants.

The first fort produces a fine effect in the borders, clumps, &c. while growing, as well as in pots when the flowers are taken off; and the other sorts afford variety in green-house collections, among other potted plants of the same kind.

XERASIA, in Medicine, the name of a disease, a species of alopecia, in which the hair falls off through a dryness of the part, and want of due nourishment.

XERASIA, in Animals, denotes a certain kind of diseased rate, which confits in a dryness of the hairs, caused by the want of due and sufficient nourishment and support, from which they decay and fall off. It is met with in such animals as have been starved, and kept and fed in a stinted manner only on poor sorts of food. It is to be removed by a better and more full kind of fodder, and other sorts of keep, and by being turned into a good falt-marsh paiture. See SUREITY.

XEREOQUARO, in Geography, a town of Mexico, in the province of Mechoacan; 45 miles N.E. of Mechoacan.

XERES, a town of South America, in Paraguay, now in ruins. S. lat. 20° 5'.

XERES de Badajoz, or Xeres de los Caballeros, a town of Spain, in Extremadura; 72 miles N.N.W. of Seville. N. lat. 38° 17'. W. long. 6° 52'.

XERES de la Frontera, a town of Spain, in the province of Seville, on the Guadate; near which a battle was fought between the Moors and Goths, in the year 712, in which Roderick, the last king of the Goths, lost his life. The environs are celebrated for that excellent wine corruptly called sherry. The best and richest fort of sherry is called "pagarette," from the Spanish word pago, a district, and particularly applied to this vintage. In one aranzado (an acre of vineyard) they plant 1800 vines at regular distances.
XER

tances. It is reckoned a good year if it gives three butts per acre, middling if two, and bad if but one: some years, however, it yields four or five. The number of inhabitants is estimated at 40,000, of whom one-twentiethth, Mr. Swinburne says, are religious; 15 miles N. N. E. of Cadiz. N. lat. 36° 41', W. long. 6° 15'.

Xerex de la Frontera, a town of Mexico, in the province of Zacatecas, with a garrison of Spaniards to protect the mines; 25 miles S. of Zacatecas.

Xerex de Guadalupe, a town of Spain, in the province of Seville, near the frontiers of Portugal; 74 miles W. of Seville.

Xerex Nueva, a town of South America, in the province of Venezuela.

Xeres. Sec Chuluteca.

Xerica, a town of Spain, in the province of Valencia; 7 miles N.W. of Segorbe.

Xeriff, in Commerce, a money of account in Morocco, which is divided into eight paels.

Xerito, in Geography, a small river of Spain, which runs into the Alagon.


Eff. Ch. Calyx two-flowered, of two unequal valves, parallel to the hollow of the receptacle, and half sunk therein; the outer valve smallest. Corolla of both flowers longer than the calyx, of two valves, awl-shaped, membranous, awn-lefs. Stamens in the outermost flower. Styles in the inner one, combined at the base. Nectary none. Seed enclosed in the inner, paper-like, valve of the corolla.

This genus consists of perennial, rough, dry, smooth grases. Leaves awl-shaped, straight and stiff, with a very short rhipula. Stem terminated by alternate sheaths, each containing from two to four short spicatelets, of few flowers. Xerchoila is akin to Apluda, whole character requires correction.

Brown.


Xerodes, in Animals, a term which is applied, and which serves to express any form of tumour that is attended with the property of excision or dryness. See Tumour.

Xeromyron, of εξηρ, dry, and μύρων, ointment, a word used by the ancients to express what they do at other times call in express words a dry ointment. It was a composition of warm aromatic drugs, or of other things fit for external use, but without the fatty ingredients, by which they were usually reduced into the form of ointments.

Xerophagy, εξηρφαγία, formed of εξηρ, dry, and φαγία, I eat, among the Ancients, the feeding only on dry victuals, which was the practice of the athletes.

In the first ages of the church, some, not contented with simple fasting, added the xerophagy thereto; abstaining not only from flesh and wine, but also from all fresh, succulent, and vinous fruits. And some even brought themselves to bare bread and water.

Tertullian, in his book De Abstinentic, cap. 9. speaks of the xerophagy as a thing commendable in time of persecution.

Xerophthalmia, εξηρφαθλήμα, compounded of εξηρ, dry, and οφθαλμος, eye, a kind of ophthalmia, in which the eyes itch, and are red, but without swelling or watering.

Xerophyllum, in Botany, from εξηρ, dry, and φυλλοι, a leaf, a genus founded by Michaux upon Helonias aphyllodeae of Linnaeus.—Michaux Boreal-Amer. v. i. 210. Wildl. Enum. 402. -We confefs ourselves unable to make out any sufficient reason for this measure, either in the author's description, or in the plant itself. Mr. Pursh probably was equally puzzled; for he has not even cited the Xerophyllum of Michaux, as a synonym under the above Helonias. It seems the bases of the flaments are dilated in the aphyllodeae, more than in other species of Helonias. See that article.


Gen. Ch. Cal. none. Cor. of one petal, superior: limb in six deep ovate-oblong, acute, permanent segments; the three outer ones narrowed, spinous-pointed, flouette, externally glandular. Stamina fix, inserted into the lower part of each segment, thread-shaped, very short, equal; anthers erect, linear, half as long as the corolla. Pist. Germin inferior, turbinate; style one, short; stigma tumid, oblong, undivided. Peric. Capsule oval, rough, crowned with the fadex corolla, with three cells, and many seeds.

Eff. Ch. Corolla in six deep segments, permanent; three outermost narrowed, spinous-pointed. Stamens inserted into the base of each segment. Stigma club-shaped. Capsule inferior, of three cells, with many seeds.

1. X. pinifolia. Fir-leaved Xerophyta. Wildl. n. 1. Gathered by Commerson, in Madagascar. A hard rigid shrub, whole stem is round, alternately branched; the wood formed of parallel tubs, as in the generality of the monocotyledonous tribe; branches quarter of an inch in diameter, thickly clothed with the imbricated, deeply furrowed, permanent sheaths of the leaf's foliage, each crowned with the reflexed base of a leaf, by which the whole branch assumes a fagular scaly appearance. Leaves alternate, two inches, or more, in length, linear, rigid, channelled, frayed, with thick entire edges, and a pungent spinous point; their leaf sheathing, fibrous, and somewhat woolly. Flowers terminal, one or two at the end of each branch, on simple flanks, an inch long, rough, like the germin, with minute prominent glands, of which some traces are also found on the backs of the three outward segments of the corolla. The colour, of the inner segments at leaf, appears reddish. Each flower is about half the size of a snowdrop. Nothing is known of the ripe fruit, which in perhaps some better marks, than have hitherto been given, may be found, to distinguish the essential characters of this genus from those of Hypoxis. See that article.

Xeropkin, in Commerce, a silver coin of Goa, in the East Indies, which is worth 3s. 1/2d. being nearly.

Xerotes, in Botany, εξηρ, dry, dryness, a name chosen by Mr. Brown to express the arid roughy habit of this genus, in preference to Lomandra, by which it is designated in the work of M. Labillardiere. This latter appellation, formed of εξηρ, a border, or rather fringes, and αυξ, a male, is designed to indicate the occasionally bordered anthers. It might perhaps have been allowed to remain, as well as many other names which are liable to some exception, though the anthers are not properly fringed. - Brown Prodr. Nov. Holl. v. i. 259. (Lomandra; Labill. Nov. Holl. v. i. 92.) -Clasfs and order, Dioecia Hexandra, Nat.
XEROTES.


Gen. Ch. Male. *Cal*. Perianth of six regular, ovate, co-loured leaves; the three innermost, or perhaps all the six, connected at the base. Cor. none, unless the calyx be so called. Stam. Filaments fix, very short, inserted into the base of each leaf of the calyx; anthers orbicular, peltate. Some rudiments of a pistil.


Female, Calyx of six separate, permanent leaves. Styles three. Capsule superior, coated, of three cells; valves with central partitions. Seeds peltate, solitary.

This New Holland genus consists of perennial herbs, of a dry rigid texture, and a peculiar aspect, resembling the *Junci* and *Calamaria*. Root fibrous. Stem none, or generally very short; sometimes divided, and clothed with sheathing foliage. Leaves linear, either flat or channelled, rarely thread-shaped; their base dilated, membranous, half sheathing; their extremity sometimes toothed. Flowers terminating the stem, or radical spikes, either peltate, racemose, spikoid, or capitate. Inner leaves of the calyx often different from the outer in texture or size. When the flowers are fide, they are inviolate with imbricated membranous bracteas; the male ones are sometimes filiform, with bracteas. Bark of the capsule at length separating, and occasionally a little pulpy. In some species, the skin of the seed adheres to the pelt, as to resemble a distinct tunic. The embryo is longitudinal, slanting, in the bottom of a cartilaginous albumen. Xerotes is allied in many points to the *Palme*. See that article. Brown.

Sec. 1. Female flowers in solitary heads. Leaves entire at the extremity.

1. *X. flexifolia*. Spiral-leaved Xerotes. Br. n. 1. (Dracena of Br. 3. Thum. Dracen. 6. 1. 1. f. 2.)—Stem somewbat branched. Leaves shorter than the branches, two-ranked; twisted; their edges rough with minute teeth; their points withering, acute. Male spikes interrupted, somewhat branched longer than the leaves. — Native of New South Wales, from whence specimens were sent us by Dr. White. The stem is about a foot high; woody at the base; more or less branched above, clothed with numerous, narrow, smooth, deciduous leaves, an inch or an inch and a half long, spreading in two directions; their sheathing bases imbricated, and bordered with a long, thin, torn, filipodiumous membrane at each side. Male flowers small, whitish, in long, mostly branched, rigid, filiform spikes or clusters, separated into little whorl-like tufts, accompanied by brown fleshy bracteas. Female flowers rather larger, in round solitary heads, terminating short leafy branches in the forks of the stem.

2. *X. macrorhiza*. Pointed Xerotes. Br. n. 2.—“Stem somewhat branched. Leaves shorter than the branches, but longer than the male spikes, two-ranked, filiform, or slightly twisted; their points withering, acute; their margins rough, with very minute teeth; dilated and entire at the base.”—Gathered by Mr. Brown, near Port Jackson, New South Wales, as well as the foregoing.

3. *X. colona*. Hill Xerotes. Br. n. 3.—“Leaves taller than the stem, narrow and straight; rough with marginal teeth; withering and very acute at the point; dilated and jagged at the base. Head of female flowers feffile.”—Found by Mr. Brown, on the southern coast of New Holland.

4. *X. glauca*. Glaucous Xerotes. Br. n. 4.—“Leaves taller than the stem, narrow and straight; withering and bluntish at the point; rough with marginal teeth; dilated and jagged at the base. Tufts of flowers in the male spikes feffile.”—Gathered on the south coast of New Holland by Mr. Brown.


Sec. 2. Female flowers racemose or spikoid; male ones racemose or paniced; partial flalks scattered; flowers drooping.

6. *X. paniflora*. Few-flowered Xerotes. Br. n. 6.—“Flowers few in the male cluster, in distal whors. Leaves very narrow, acute and smooth; dilated and entire at the base; shorter than the divided stem.”—Found by Mr. Brown, near Port Jackson, New South Wales.

7. *X. filiformis*. Thread-shaped Xerotes. Br. n. 7. (Dracena filiformis; Thum. Drac. 4. 1. 1. f. 1.)—Leaves thread-shaped, semicylindrical, elongated; flattened in front; rough-edged; finely frayed at the back; round at the point. Male cluster rarely branched. Stem short.—Gathered near Port Jackson, New South Wales, by Dr. White, and Mr. Brown. The root is woody. Stem scarcely any. Leaves several, a span or more in length, erect, rigid, very slender; flattened and whitish in front, with a green, frayed, central flak, convex at the back. We do not find that the point is always, as Mr. Brown says, round or cylindrical. Clusters much shorter than the leaves, branched in our specimens, as in Thunberg’s figure, erect, lax, with rough flaks. Flowers scattered, or in pairs, drooping, whitish, small; the outer segments of the calyx smaller, and more membranous than the inner. Bracteas awl-shaped, acute, at the base of the partial flalks. Mr. Brown notices three varieties: 1. male perianth nearly globular, twice the length of the partial flak; 2. male perianth nearly globular; partial flak longer than that part, or the bracteas: 3. male perianth turbinate; partial flak shorter than it, or the bracteas. The leaves seem variable in breadth and flatness.


10. *X. dentiflora*. Small-toothed Xerotes. Br. n. 10.—“Leaves elongated, thread-shaped, compressed, channelled, with two or three terminal teeth. Male clusters simple or divided. Stem short.”—Gathered by Mr. Brown at Port Jackson. We have some specimens which answer to this description, in the teeth of their leaves, but they seem nearly akin to *X. filiformis* to be separated from that species, and they exactly accord with Thunberg’s fig. 1, drawn from a dried specimen. We are not, however, certain of their being Mr. Brown’s *dentiflora*.

XEROTES.

12. X. rigida. Rigid Xerotes. Br. n. 12. Ait. Epit. 376. (Lomandra rigida; Labill. No. Holl. v. 1. 93. t. 120.)—Stem very short. Stalks and spikes much shorter than the foliage. Leaves two-ranked, cartilaginous; convex beneath; abruptly, with two marginal teeth, at the end; smooth at the edges; dilated and entire at the base.—Gathered by Mr. Brown in the southern part of New Holland. M. Labillardiere found it in Van Lewin's land. Root woody. Leaves a span in length, full a quarter of an inch in breadth, spreading in two directions, thick, rigid, smooth; greatly dilated, and bordered with a membrane, at the base; singularly abrupt, and three-pointed, at the end. Common flower-stalk terminal, thick, sharply two-edged, sometimes triangular, smooth. Tufts of flowers one above another, not numerous, forming an interrupted, branched, upright spike; each tuft accompanied by several unequal, lanceolate, acute bracteae. Three alternate filaments, according to Labillardiere, are longer than the reef, and bear cloven, not bordered, anthers.

13. X. montana. Mountain Xerotes. Br. n. 13.—"Stem none. Leaves elongated, linear, flat, membranous, smooth-edged; their sharp point with two very short lateral teeth. Female spike undivided, many times shorter than its flower-stalk."—Found by Mr. Brown, near Port Jackson.

14. X. fluvatialis. River Xerotes. Br. n. 14.—"Stem none. Leaves elongated, narrow, channelled, smooth-edged, two or three toothed, with an acute sinus, at the extremity. Female spikes simple or divided. Bracteas rather rigid, twice as long as the tufts of flowers."—Gathered by Mr. Brown in the same country, but, as appears by the name, in the vicinity of rivers.

15. X. longifolia. Long-leaved Xerotes. Br. n. 15. Ait. Epit. 376.—"Stem none. Leaves elongated, linear, coriaceous, erect; irregularly toothed at the point; rough-edged. Panicles lanceolate, rather dense, with opposite branches. Flower-stalk flat-tish. Anthers uniform.—Gathered near Port Jackson, by Mr. Brown; at the Cape of Van Diemen, by M. Labillardiere. The leaves are a foot and a half long, somewhat fritated; dilated at the base, and bordered in that part with a membrane, which at length separates, and becomes torn. Stalk from nine to twelve inches high, two-edged. Flowers more numerous and crowded than in X. rigida, n. 12, with long taper-pointed bracteae. Calyptrum ovate, acute, three as long as the calyx, chesnut-coloured; pale yellow at the base; its coat peeling in irregular fragments.

16. X. Hypoxia. Porcupine Xerotes. Br. n. 16.—"Stem none. Leaves elongated, linear, lax, smooth-edged; somewhat toothed at the extremity. Stalk rather convex on both sides. Male panicles repeatedly compound, with whorled branches. Bracteas leafy, rigid, spinous-pointed.—Sent from the neighbourhood of Port Jackson, among the first botanical communications from thence, by Dr. White. It has also been gathered there by Mr. Brown. We have seen the living plant in tame garden near London, possibly at Kew, and were much struck with the delightful fragrance of its copious panicles of male flowers, resembling the scent of Craulala cumingii, Mischombeanthemum nodiflorum, or a Bergamot Pear. Yet it does not occur in Hort. Kew. The leaves are a foot and a half or two feet long, spreading. Flower-stalks of the male plant numerous, erect, two-edged, though convex at each side, from one to one and a half feet high, somewhat zigzag occasionally, each bearing a flat-tish panicle, from fix to fourteen inches long, composed of numerous triangular branches, from four to eight in a whorl, beset with numerous tufts, or whorls, of sessile flowers, accompanied by several chaffy, inner bracteas, and subtended by about three long, spreading, external ones, with needle-like points. The flowers, and whole panicles, are of a delicate straw-colour, with a tinge of brown about the calyx or anthers. We have not seen the female plant. This species well deserves a place in the green-house, for the singularity of its appearance, as well as for its fine smell.


18. X. dipteras. Distant-flowered Xerotes. Br. n. 18.—"Stem none. Leaves very long, channelled, very rough at the edges. Male panicle with undivided branches, and distant tufts of flowers. Partial stalks shorter than the calyx."—Native of the tropical part of New Holland. The male panicles are a foot long; calyx about a line and a half. Brown.

19. X. media. Intermediate Xerotes. Br. n. 19.—"Stem none. Leaves very long, channelled, smooth-edged. Branches of the male panicle undivided. Flowers five or fix in each tuft; their partial stalks scarcely so long as the very short calyx. Female spike divided in the lower part, each branch bearing one head of flowers."—From the same country as the last. Calyx only one-third of a line in length; male panicle fix inches. Brown.


21. X. multiflora. Many-flowered Xerotes. Br. n. 21.—"Stem none. Leaves very long, channelled; smooth at the back and edges. Male panicle with undivided branches, each bearing from one to three many-flowered tufts. Partial stalks longer than the calyx."—Found by Mr. Brown in the same country as the four preceding species.

22. X. amula. Rough-long-leaved Xerotes. Br. n. 22.—"Stem none. Leaves very long, channelled, erect; rough at the back and edges. Male panicle with undivided branches, each bearing from one to three many-flowered tufts. Partial stalks longer than the calyx."—Found by Mr. Brown, in the country near Port Jackson, New South Wales. The roughness of the leaves seems chiefly to distinguish this species from the last. We have seen no specimens of either.

23. X. Bankjii. Bankian Xerotes. Br. n. 23.—"Caulecent. Leaves two-ranked, flat, rough-edged. Female panicle dense, about the length of its two-edged stalk; branches quadrangular, very short."—Gathered by Mr. Joseph Banks, in the tropical part of New Holland, where it was not found by Mr. Brown.

Sect. 5. Flowers of each sex in a cylindrical, catkin-like spike.
24. X. *b)optii* Spear-flanked Xerotes.—"Stem none, spike very long. Stalk round. Leaves elongated."

Gathered by Mr. Brown, on the southern coast of New Holland. The habit of this species appears by the above characters, to differ widely from the rest of its genus, rather approaching a Xanthorrhoea. See that article.

**XEROTRIBIA**, formed of 25° 25', and 27° 30', *J. rub.,* a term used by authors to express a dry friction, a rubbing of some affected part with the hand or otherwise, to recall the warmth and circulation.

**XERTE**, in Geography, a river of Spain, which passes by Placentia, and runs into the Alagon.

**XERTIGNY**, a town of France, in the department of the Volges; 7 miles E. of Epinal.

**XERUMENHA,** or *JERUMENHA,* or Gerumenha, a town of Portugal, in Alentejo; 10 miles S. of Elvas. N. lat. 38° 35'. W. long. 6° 58'.

**XERXENA,** in Ancient Geography, a country of Asia, on the confines of Lefker Armens, of which it makes a part. Strabo.

**XERXES,** in Biography, was the son of Darius I. by Atossa, the daughter of Cyrus; and on the death of his father, succeeded to the crown of Persia, in the year 485 B.C. Having in the second year of his reign subdued the revolted Egyptians, and committed them to the government of his brother Artaxerxes, he determined to renew the invasion of Greece, in which Darius had been disappointed; and for the success of his expedition, he formed an alliance with the Carthaginians, on condition of their making an attack on the Greek colonies in Italy and Sicily, so that they might not have it in their power to assist the mother-country. His preparations were immense, and occupied several of the first years of his reign. Having provided a large navy, he formed a project of cutting a canal through mountain Athos, of sufficient breadth to admit two galleys abreast; and to this undertaking, which some have regarded as a fiction, he devoted three years. He also constructed a bridge of boats across the Hellepont, in order to convey his army from Asia to Europe; and as the first bridge which had been laid was demolished by a storm, he not only manifested his childish rage by ordering 300 laches to be inflicted on the sea, and a pair of fettlers to be thrown into it, but his tyrannical and cruel disposition by beheading those whom the conduct of the work had been committed. The number of sea and land forces which he employed in this expedition is said to have amounted to two millions and a half, to which we may add as many more attendants. When he ascended a high tower at Abydos, and took a view of the immense number that covered the sea and surrounding plain, his pride and triumph are said to have given way to tears, when the reflection occurred, that the brevity of human life was such as not to allow of one of this sort's half to survive the lapse of 100 years. Without detailing the events of this disastrous expedition, which are the proper subjects of history, we shall merely mention that it terminated in the defeat of Xerxes's navy at Salamis, and the subsquent overthrow and dispersion of Mardonius's army of 300,000 men; and specify some traits of the disposition and character of this ambitious despot. For his ignominious treatment of Leonidas, we refer to his article. Upon his taking possession of Athens, he wreaked his vengeance on the buildings and the temples, and dispatched a special messenger to his uncle Artabanus, to inform him of this inglorious triumph. Having erected a throne on a lofty mountain, in order to view the expected victory at Salamis, the event produced such consternation, that he suddenly left Mardonius and the army, and hastened to the Hellepont, where finding his bridge shattered by storms, but still haunted with terror, he intrusted himself in a fishing-boat, and hastened to Sardes; but when Mardonius was defeated, and all his hopes of conquering Greece were frustrated, he quitted Sardes, after having given orders for the demolition of all the temples in the Greek cities of Asia, and proceeded with all possible expedition to the Persian frontier. The other traces of his disgraceful expedition were the records of the cruelties and debaucheries exercised by himself and his family. So much at length did Xerxes become the object of contempt and hatred, that a conspiracy was formed among his own guards, which terminated in his murder during sleep, in the 21st year after his accession, B.C. 465. Herodotus. Diodorus. Anc. Un. Hist.

**XESTA,** or *xer.* an Attic measure of capacity, answering to the Roman sextary.

**XESTES,** an ancient Greek liquid measure, which is 2 cotyls. See MEASURE.

**XIAMESTL,** in Geography, a town of Mexico, in the province of Xalifico; 30 miles S.E. of Purification.

**XIASSI,** a town of the duchy of warfaw; 20 miles S.S.E. of Posen.

**XIBACA,** a town of Japan, in the island of Niphon; 120 miles S.W. of Mexico.

**XICOCO,** called also Sikoko, and Sikok, an island of Japan, about 90 miles in length, and about half as many in breadth, divided into several provinces, situated near the south-west extremity of Niphon, from which it is separated by a strait, full of small islands, and to the north-east of Ximo. It has several convenient harbours, and towns many within the country. N. lat. 33° 30'. E. long. 132'.

**XICONA.** See XIXONA.

**XILCA.** See CHILCA.

**XILAO.** See QUILO.

**XILOCO,** a river of Spain, which rises in the south part of Aragon, about 7 miles N.E. of Alarbarin, and at Calataiud changes its name to Xalon.

**XILOTEPEC,** a town of Mexico, in the province of Guatleca; 90 miles S.S.W. of Panco.

**XILVAN,** a town of the principality of Georgia; 20 miles N. of Gory.

**XIMABARA,** a town of Japan, on the south coast of the island of Ximo, on a gulf to which it gives name; 33 miles E. of Nangafuki. N. lat. 32° 45'. E. long. 132° 7'.

**XIMAGUINO,** a town of Japan, in the island of Xicoco; 10 miles S. of Awra. N. lat. 33° 50'. E. long. 130° 30'.

**XIMENA,** a town of Spain, in the province of Seville. Near this town Crassus is said to have concealed himself in a cave, till Marius and Cinna were overthrown by Sylla; 24 miles E. of Medina Sidonia.

**XIMENESES, FRANCIS, Cardinal,** in Biography, was born in 1427, in Old Cañizles, and educated at Alcala and Salamanca. Renouncing prelatures which he obtained in his youth, he assumed the habit of St. Francis, in a monastery of the Observantines, one of the most rigid orders of monks in the Romish church. Distinguishing by his austerities and devotional practices, he became confessor to queen Isabella; and still retaining his customary modes of living, he so far engaged her respect and attachment, that he was nominated by her to the archbishopric of Toledo, the richest benefice in Europe next to the papal see; but his real or affected reluctance to accept this high preferment could be overcome only by the authority of the pope. In this elevated station he maintained his strict adherence to the rigours of the order to which he belonged, and so far from relaxing...
in his severities, he indulged them to the extreme of self-mortification and penance. Having thus acquired a complete mastery over his own passions, and possessing political talents in a very high degree, he was thought peculiarly fitted to execute dominion over others; and accordingly Ferdinand and Isabella entrust him with a principal share in the administration. When a long party was formed among the Castilians to deprive Ferdinand of the authority as regent, devoted upon him by the will of the queen, he was defeated by every perfon of distinction except Ximenes and two nobles; and after he had resigned it to the archduke Philip, he again acquired it upon Philip's death in 1506, by the influence of Ximenes. In 1507 Ximenes was created a cardinal by pope Julius II.; and in the following year he undertook the conquest of Oran, and of other places on the coast of Barbary, with an armament, the expense of which he offered to defray out of his own revenues, and he succeed in this enterprise. Such was Ferdinand's confidence in the abilities and integrity of the cardinal, that when he was dying in 1516, he appointed him regent of Castile until the arrival of his grandson Charles. Although he was then in his 70th year, he took an active part in securing the throne to Charles, though in his own judgment he disapproved the king's conduct, who in his assumption of power contended the declared opinion of the Cortes. With no lefs firmness and inflexibility, he prosecuted a plan for extending the royal authority, which the nobility had very much circumvented. The measures which he adopted for this purpose excited violent opposition, but he persevered, and ultimately succeeded. During his administration he was also engaged in two foreign wars; one for the preservation of the kingdom of Navarre, in which he was successful, and another against Horace Barbarossa, who advanced himself from the condition of a corsair to the sovereignty of Algiers and Tunis, in which the Spaniards were totally defeated. When Charles was prevailed upon by Ximenes to visit Spain, the cardinal took a journey towards the coast to meet his majesty; but being disabled to proceed by the attack of a disorder, supposed to be the effect of poison, he requested an interview with the king; but Charles having conceived prejudices against him, returned a cold answer, with permission for his retirement to his diocese, that he might finish his days in tranquillity. In a few hours after the receipt of this letter, he expired November 1517, at the age of 80 years.

Ximenes was held in high estimation by his superstitious countrymen, under a delusive idea that he possessed the gift of prophecy, and a power of working miracles. But his more unequivocal claims to their respect were founded on his extraordinary talents and learning, his liberal patronage of literature, and the munificence of his public charities, to which he devoted the immense revenues of his archbishopric. At Alcalá he built the magnificent college of St. Ildefonso, endowed with forty-six profefhors, and conducted under excellent regulations. Here he printed the Complutæan Polyglott (see Polyglott), the Mozarabic liturgy, and the theological works of Tôtâius. Here he also established a splendid monastery for the education of indigent females of quality, which served as a model for that of St. Cyr, under Lewis IV. The granaries which he constructed remained without decay for centuries; and upon the whole he was justified in declaring on his death-bed, that to the best of his knowledge he had not misapplied a crown of his revenue. Robinson's Charles V. vol. ii.

XIMENES, in Geography, a town of Spain, in the province of Leon; 16 miles S. of Astorga.

XIMENESIA, in Botany, Cavan. Lec. v. 2. 60. Ait. Hort. Kew. v. 5. 85, a genus which can by no means be separated from Pallasia. (See that article, n. 3.) Nothing can be more trifling as a generic, or even specific distinction, than the difference between the fungineous orders of Polygama-superflua, and P. frustrana, of the Linnæan sytem, provided the form of the flores be alike. The fluit, of which rudiments are found in several genera of the latter, may occasionally be perfect, as it does now and then in Melastatus, and this over lies the distinction.

XIMENIA, owes its name to Plumier, who confecrates this genus to the memory of the Rev. Father Francis Ximenes, a Spanish monk, one of the twelve Franciscan friars, who first preached Christianity to the Mexicans. Being well skilful in the language of the country, he collected a great flore of information concerning the properties and medical uses of the plants and animals of New Spain, and especially of Mexico; whence he compos'd a work, printed in four books, at Mexico, in 1615, which is quoted with approbation by De Lact, in many parts of his own publication. It is some confutation to find any of these apolles turning their minds to the study of their Maker's works; as we cannot suppose the fluch to have been contaminated with that infernal spirit, which renders the whole history of the Spaniards in America a foul reproach to humanity, and to Christianity itself, so prostituted or so misunderstood!—Plum. Nov. Gen. 6. t. 21. Linn. Gen. 190. Schreb. 255. Willd. Sp. Pl. v. 2. 338. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 2. 352. Juss. 259. Lamarck Illust. t. 297. Poiret in Lam. Dict. v. 8. 804—Clafs and order, O浦东ria Monogynia. Nat. Ord. Aurantià, Juss.


Obs. Plumier's figure represents but three petals. Linneus has left a note, that his correspondent Allamand found but five flamenta. Swartz and Jacquin describe eight.

1. X. americana. Thoryn Ximenes. Linn. Sp. Pl. 497. Hort. Cliff. 483. Willd. n. 1. Ait. n. 1. Swartz Obf. 149. (X. multiflora; Jacq. Amer. 166. t. 177. f. 31. X. acuta, flore villoso, fructu luto; Plum. Sp. 1. 261. t. 261. f. 1. Heymaëlii spinosa; Aubl. Guian. 324. t. 125?) and H. incermis (ibid. 325?)—Branches spinous. Leaves oblong. Stalks many-flowered.—Native of the neighbourhood of Carthagena, as well as of Hispaniola, flowering in September and October, and ripening fruit in December. Jacquin. Of the rocky flores of Hispaniola, flowering in July. Swartz. We believe Linneus never saw any specimen of this, except in Cliftor's herbarium. That before us was given to the younger Linneus by Dr Joseph Banks. Though Miller might have the plant at Chelsea in 1759, it would now probably be vainly sought for in any collection. The flœm is either shrubby or arborescent. Young branches spinous, round, fruticated. Leaves two or three together, in alternate tufts, from buds of many years' duration, tallaked, elliptic-oblong, obtuse with a minute point, rarely emarginate, entire, single-rilled, smooth on both sides, about two inches long. Footstalks quarter of an inch
inch long, smooth. Thorns lateral, erect, longer than the footstalks, awl-shaped, stout, but sparingly produced. Flower-stalks axillary, or rather from the same bud as the leaves, not half their length, deflexed, round, divided into three to five smooth, single-flowered partial flanks. Galyx spreading quadrangular. Petals four, whitish, faggzy from the base almost to the apex, on the inside; smooth externally. Fruit the size of a small apple, yellow when ripe. Jacquin says the pulp is sweetish, eaten by children and negroes, and that the smell of the flowers is extremely sweet, as well as powerful, something like burnt frankincense. Aublet compares them to cloves. His figure, if it belongs to the same plant as ours, is very faulty; but we rather presume it must be a species nearly akin, whose flowers are really axillary, and, like the fruit, only one-third the size of the Linnean plant; their petals finely downy, not shaggy, all over their inner surface. Still, without seeing a specimen, we dare not describe it as distinct.

2. X. elliptica. Elliptical Ximenia. Forst. Prodr. 27. Willd. n. 2.—"Thorns none. Leaves elliptic-lanceolate. Stalks many-flowered."—Found by Forster in New Caledonia. This is known only by the above characters, which are not so determinable as could be wished, the thorns being variable in the original species, and in the plant of Aublet.

3. X. inornis. Jamaica Ximenia. Linn. Sp. Pl. 497. Willd. n. 3. (Amaryllis arboreae, foliis ovalis glabris, vulturilibros confectis; petolis submarginitatis; floribus foliatis; Browne Jan. 209.)—"Thorns none. Leaves ovate. Stalks single-flowered."—Native of Jamaica. Browne describes it as a bushy tree, not above eight or nine feet high; its trunk about four and a half inches in diameter. Leaves oval, not above an inch long, standing very thick upon the smaller branches. Petals hairy on the inside towards the base. Drupa ovate-oblong.

M. Poirier describes, in Lamarck's Dictionary, a plant by the name of X. ferox, n. 3, which we can scarcely refer to this genus; the flowers being five-cleft; petals linear, smooth on both sides; and filaments prominent. This is a spinous færa, found in Hispaniola, with nearly orbicular, coriaceous leaves, above an inch long, and either solitary or umbellate axillary flowers. The thorns are three or four inches long, very sharp, sometimes leafy.

Jussieu speaks of a X. egypica, as described in the Species Plantarum of Linnaeus, though omitted subfuscely in his Systema. We are unable to discover this, and Jussieu, like Calpurn Buhin, unhappily omits to cite pages. We do, however, find in Linnaeus's copy of Plumier's Genera Plantarum, which once belonged to the French botanist Ifnard, a note of the latter under Ximenia, that "the Agathid of Alpinus, Pl. Ægypt. 38, appears to belong to this genus." The rude wooden cut does indeed countenance such an opinion, especially the flowers; but the author compares the fruit to that of Sambucus Ebulus, describing it moreover as bitterish and astringent. Now Sambucus has nothing in common with Ximenia. The plant of Alpinus, which was brought from Ethiopia, may be a thorny Lythrum, but we cannot refer it to any known species.

XIMO, or Kuroshu, in Geography, an island of Japan, and second in size and eminence, situated to the S.W. of Nippon, from which it is divided by a narrow channel. Its circumference is supposed to be upwards of 300 miles, exclusive of the bays and creeks. It has considerable numbers of cities and towns, with some good harbours. N. lat. 32° 40' to 34° 30'. E. long. 130° 50' to 133° 30'.

XIMONOSEQUII, a sea-port town of Japan, on the S.W. coast of Nippon, with a good harbour, capable of containing 300 vessels. It is a place of trade, and surrounded with walls. N. lat. 33° 50'. E. long. 132° 30'.

XIPHYUS, a river of South America, which rises somewhere near S. lat. 17°, and is first called "Paringa," it afterwards takes a northerly course of about 900 miles, and runs into the Amazonas river, 20 miles E. of Paru, in the government of Para.

XIPHIAS, or sword-fish, the name of the sword-fish; which see. This fish is cut in pieces by the Sicilians, and salted. The procès was annually performed particularly at the town of Thurii, in the bay of Tarantum, and hence the fish was called "Tomus Thurianus." (Plin. l. 32. c. 11.) Besides the Xiphiphas Gladius, described under the article Sword-Fish, Dr. Shaw has enumerated some other species, such as the following:—

PLATYPETERUS, or sword-fish with extremely broad backfin, and very long sharp-pointed thoracic appendages; the Guebeu of Marcgrave, and Staminus gladius of Black. This species, in the appearance of the long and sharp-pointed procès of the upper jaw, is nearly allied to the common sword-fish, but in other respects materially differs from it. It is found twenty feet in length, and sometimes much longer. Its general colour is a silvery blueish-white, except on the back, head, tail, and fins, which in the living animal are of a deep blue. The strength of this fish is such, that it pierced the bottom of an East Indian ship with such force as completely to imbed its finnot into the base; and if it had not been killed by the violence of the effort, but had been able to withdraw its finnot, the ship must have been leaky, and thus have founders. This power of transfixing vessels is mentioned by Pliny. This fish is found not only in the Brazilian and East Indian seas, but also in the Northern ocean; and it is said to be a great enemy to whales, with which it has frequent combats. Dr. Black says, that when this species does not exceed four feet in length, it is considered as an edible fish; but when it exceeds that length, it is too coarce.

MAKAIRA, the blackish sword-fish with finnot of middling length, and two bony tubercles on each side of the tail. This is a species lately discovered, and described by Cepedé under the title of "Makaira." This fish was cast on the island of Rhé, near Rochelle in France. Its length was 330 French centimetres, and its weight 365 kilogrammes; its colour was blackish. It was eaten by many of the inhabitants of Rochelle, and found to be tolerable food, though somewhat dry; the flesh was white. The "round-finned sword-fish" is also described by Cepedé, from the sword or finnot preferred, with the fore-part of the head, in the Paris Museum. Shaw's Zoology, vol iv. part i.

XIPHIAS is also used to express a fiery meteor, in form of a sword. See ACONTIAS.

XIPHIAS, in Astronomy. See DORADO.

XIPHIDIUM, in Botany, from σφεδν, a sword, alluding to the sword-shaped leaves. The name occurs in Pliny, and was adopted by Loebling for the present genus, which Linnaeus, in publishing Loebling's papers, confused with Xiphias (see that article); but subsequent writers have reformed it, the genus being superior, and the corolla of six separate petals.

Filaments three, linear, opposite to the three inner petals; anthers ovate. *Pist. German superior, globose; style thread-shaped; stigma simple.* *Peric. Capsule at first fleshy, then dry, roundish, with three funnels, and three cells. Seed numerous, roundish, pointed, inserted into a fleshy, central, nearly globular, receptacle.* 

Eff. Ch. Corolla regular, of six petals. Capsule superior, of three cells, with many seeds. 

Obf. The regularity of the flower readily distinguishes this genus from *Wachsenburgia.* See that article. 

1. *Xiphionum.* Many-flowered Xiphidium. Swartz Prod. 17. Ind. Occ. 80. Vahl n. 1. (X. albidiurn; Lamarck Illust. v. 1. 131. X. album; Willd. n. 1. Ixia; Linn. in Loebl. it. 179.) 

2. *X. curculium.* Aubl. Guian. 33. t. 11. Willd. n. 2. Ait. n. 1.—Native of South America, as well as of Tobago and St. Kitt's. Mr. Maillon is recorded by Dr. Swartz as having gathered the white-flowered kind, a, at the foot of some hills, near Sandy Point, in the laft-mentioned island: e was found in Guiana, by Aublet. We have a specimen of the latter from Miller's herbarium, gathered in some part of South America. The root is perennial, somewhat creeping, jointed. Stem a foot or more in height, round, simple, as thick as the little finger; leafy in the lower part; more or less minutely hairy. Leaves numerous, alternate, sessile, somewhat sheathing, sword-shaped, pointed, entire, or minutely ferrated, frayed with numerous longitudinal ribs. 

Cluyter compound, terminal, erect, of many spreading, simply racemose, branches, more or less hairy, with a very minute *bractea* under each partial flower-fall. Flowers not half an inch in diameter. Three outer petals green, and often downy at the back; white or blue in front, as the three inner ones are on both sides. 

Swartz and Vahl have united the two supposed species of other authors. The latter affords the blue-flowered variety to be sometimes entirely smooth in its leaves as well as flowers. 

**Xiphionus**, John, in *Biography*, was born at Trebizond, in the 16th century, and having passed the earlier period of his life in a monastery on mount Olympus, was advanced to the patriarchate of Constantinople, which office he held till his death in 1075. Besides a sermon printed in the Bibliotheca Patrum, he is reputed by some to be the author of an “Abridgment of the History of Dion Cassius,” in Greek, written faithfully, which was printed at Paris in 1592, fol. 

**Xiphion**, or *Xiphium*, in *Botany*, *3 of Diosco- 

cides, so called from the sword-shaped leaves, appears evidently, by the account of that ancient writer, to be *Gladiolus commenis*, Linn. Sp. Pl. 52, our Common Cornflag. Xiphium nevertheles is retained by Linnaeus as the specific name of a common, but very elegant and fragrant bulbous *Iris*, with blue and yellow flowers. To this it seems he was led by Tournefort, who applies the name of *Xiphion* to the whole tribe of bulbous-rooted species of *Iris*, of which he makes a separate genus, characterized by the root. This is rather unfortunate, as the Linnaean *Iris* Xiphium has rather awl-shaped than sword-like leaves. 

**Xiphionides**, *3 of Xiphionides*, in *Anatomy*, a cartilage placed at the bottom of the *sternum*, called also *enformis.* 

It is about an inch long, and shaped like the point of a sword. Whence its appellation, from *3 of swords,* and *3 of swords figure.* 

**Xiphionae Promontorium**, in *Ancient Geography*, a promontory of Sicily, near port Xiphionis. 

**Xiphos**, *3 of Xiphos*, among the Athenians, a capital punishment, by beheading with the sword. 

**Xipixapa**, in *Geography*, a town of South America, in the audience of Quito; 80 miles N.W. of Guayaquil. 

**Xiquacan**, a town of Mexico, in the province of Mechoacan; 50 miles S.E. of Zacatula. N. lat. 18° 4'. W. long. 102° 34'. 

**Xiquena**, a town of Spain, in the province of Merida; 15 miles W.N.W. of Lora. 

**Xiquito**, a town of Japan, in the island of Ximo; 16 miles S. of Naka. N. lat. 32° 20'. E. long. 130° 13'. 

**XIR**, a word used by the chemists to express mercury. 

**Xisimum**, a word used by some of the chemical writers to express vinegar. 

**Xivert**, in *Geography*, a town of Spain, in Valencia; 7 miles W.N.W. of Segorbe. 

**Xivry le Franc**, a town of France, in the department of the Moselle; 16 miles S. of Longwy. 

**Xixona**, a town of Spain, in Valencia. In the neighbourhood of this town a great number of perfumes are employed annually to collect the drug called *Kermes*, and a small district, called *de la Grande*, produces some years to the value of $30,000 dollars; 13 miles N. of Alicante. N. lat. 38° 32'. W. long. 6° 42'. 

**Xizabras**, mountains of South America, in the province of Venezuela. 

**Xoana**, in *Ancient Geography*, a town of India, on this side of the Ganges. 

**Xochicocotzo**, in *Botany*, a name used by some authors for the tree which produces the liquid amber, and is called the sweet gum by the inhabitants of the West Indies. 

**Xochitenacatl**, in *Ornithology*, a name given by some to the toucan, or American great-beaked magpie. 

**Xochitenacatl Alia**, the name of a bird described by Nieremberg, of the nature of the toucan, or Brazilian magpie. 

It is of the size of a pigeon; its beak is large and thick, and is black and pointed; its wings and tail are variegated with black and white; it has a large black mark reaching from its back to the breast; the anterior part of the wings is yellow, the rest of its body of a pale colour, and the legs and feet brown. It always is found among the sweet-flowering trees, and is not uncommon in many parts of South America. Ray. 

**Xocotlan**, or *Xocotlan*, in *Geography*, a town of Mexico, in the province of Xalifco; 15 miles S.W. of Purification. 

**Xocoxochitl**, the Indian name of the clove-berry-tree, or the *caffa carapophyllata*, the bark of which is used in medicine. 

**Xodract**, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy. 

**Xoes**, an island of the Mediterranean, on the coast of Egypt, near the mouth of the Nile, called “Xebennictum;” and also a town of the same name. Steph. Byz. 

**Xois**, a town of Egypt, in the Nome, denominated *Xoites Nomos.* Ptolemy. 

**Xola**, in *Geography*. See *Soolo.* 

**Xolo.** See *Gilo.* 

**Xomotl**, in *Ornithology*, the name of an American bird, of which the Indians are very fond, making a part of their garments of its feathers. 

Nieremberg has given a short account of it. It is a web-footed fowl; its back and the upper part of its wings are black, and its breast is brown. When it is angry, it raises up the feathers of its head in form of a crest. Ray. 

**Xorullo,**
XORULLO, or JORULLO, Volcano of, in Geography, a bafaltic cone of New Spain, which appeared above ground on the 15th of September 1759, and which at this day 249 fathoms or 1494 feet above the surrounding plain. It is situated in the province of Mechoacan, at the distance of eight leagues from Pafquaro the capital, towards the S.W.; the volcano of Colima being in the same direction, but at a greater distance. A delicious and fertile vale, eight leagues in length from N. to S., and three in breadth, was called Xorullo by the Indians, a word in their language signifying paradise; but upon the eruption of the volcano, this valley assumed an infernal aspect, blackened with perpetual smoke, covered with deformed rocks and ashes, the trees consumed, the earth full of deep breaks and openings, and now forming a hill of considerable height, crowned with a volcano. A rivulet which fertilized the valley is now so hot as to burn men and animals who attempt to pass it, which is peculiarly inconvenient, as it is in the direct road to the copper-mines in this quarter. Before this catastrophe, there were constantly heard horrible subterranean noises, and earthquakes were felt, which excited contermination in the inhabitants.

XOHOUNHUITICATL, an American name of a stone of the jasper kind, and of a beautiful green, but usually pale, and sometimes with a mixture of grey, and variegated in several places with spots of a deeper green. It is found among the several kinds of lapis nephriticus, with which that country abounds, and most of which the Indians celebrate for their virtues against diseases; they are not, however, acquainted with any medicinal virtues of this species.

XV. VIR, Quindedivir. See Quindedivir. Authors, and especially antiquaries, make use of such abbreviations, which they borrow from medals, and other monuments of antiquity, where those names are so expressed.

XUAREZIA, in Botany, according to De Theis, is a genus dedicated, in the Flora Peruviana, p. 20, to Gaspar Xarez, a Spanish botanist, who has devoted himself to the study of the plants of Italy.

XUCAHA, or Xucahi, the name of a plant much famed for its virtues among the ancient Arabs, but unknown at this time.

XUCAR, in Geography, a river of Spain, which rises in New Castile, and runs into the Mediterranean, 20 miles S. of Valencia.

XUCHES, or Zuchis, in Ancient Geography, a town of Africa, in Libya. Steph. Byz.

XULI, in Geography, a town of Peru, in the diocese of La Paz, near the west coast of lake Titicaca, chiefly inhabited by Indians, and governed by Indian magistrates; 100 miles N.N.W. of La Paz. S. lat. 16° 25'. W. long. 70° 6'.

XULI, a small island in the Pacific ocean, near the coast of Peru. S. lat. 16° 50'.

XULLA, or Xullo, an islet in the East Indian sea, about 42 miles long, and from 10 to 15 broad. The English some years since formed a settlement in this isle, but from the badness of the soil, and some other circumstances, they were induced to abandon it, and remove to Balambangan, on the coast of Borneo. S. lat. 1° 53'. E. long. 125°.

XULLABELLA, an islet in the East Indian sea, about 25 miles long, and 6 broad. S. lat. 2° 15'. E. long. 125° 12'.

XULLAMANGOLA, an islet in the East Indian sea, about 30 miles long, and 10 broad. S. lat. 1° 54'. E. long. 125° 42'.

XUN, a city of China, of the second rank, in Se-tchuen; 150 miles S.W. of Pao-king. N. lat. 36° 18'. E. long. 103° 20'.

XUNDALE, a town of South America, in the province of Popayan; 8 miles S.W. of Sante Fe de Antiquia.

XUQUI, See Jujuy.

XUTHIA, in Ancient Geography, a country of Sicily. Diod. Sic. It is represented as a town by Steph. Byz.

XUXUY, in Geography, a town of La Plata, which chiefly trades in cattle, sold to the miners of Potosí, and brought in considerable number to the great fair of Salta; but now in a declining state. See Jujuy.

XYLAGIUM, a name given by some authors to the lignum fanctum, or guaiacum.

XYLANDER, Wiliam, in Biography, whose family name was Holtzmann, was born in indigent circumstances at Augsburg, in 1532, and enabled by public liberality to study at Tubingen and Balil, in the latter of which places he took the degree of M.A. in 1556. In 1558 he was invited to undertake the Greek professorship at Heidelberg; where, with all the disadvantages of penury, he pursued his literary labours, and acquired an amfluence of erudition, which comprehended the learned languages, history, poetry, music, philosophy, and physics. The works by which he is chiefly known are Latin translations, (with notes,) of Dion Cassius, Plutarch, Strabo, and Cedrenus. His life was prematurely terminated in consequence of hard study, in 1576, at the age of 44 years. Morei.

XYLARIA, in Botany, from ξυλόν, wood, a name given by some cryptogamie botanists to the first section of the genus Sphæria in Perforo. (See that article.) The idea appears to have been suggested by the old name Hypsyxylon, belonging to one of the species. But it may also apply to the woody and durable texture of that and some others of the same section.

XYLENOPOLIS, the Town of the Woods, in Ancient Geography, a town of India, at one of the mouths of the river Indus, according to Pliny, who reports that it was built by Alexander. M. D'Anville thinks that this town is the same with Hyala. It subsisted in the time of Pliny.

XYLINA, Inl, a town of Asia, in the Colchide, and country of the Lazzi. It was situated on the right bank of the Acinatis, near its mouth in the Euxine sea, north of Chordylia.

XYLINE, a town of Cappodocia, in Cappodocian Pontus. Ptol.

XYLINES, a people of Africa, in Libya interior, E. of the Agangines, from the foot of mount Arangas. Ptol.

XYLO-ALOE, compounded of ξυλόν, wood, and αλος, aloe, in Medicin, the lignum aloe; called also agallochum. See Aloe, and Calambac.

XYLO-BALSAMUM, ξυλοβάλσαμον, compounded of ξυλόν, wood, and βάλσαμον, balsam, a name which naturalists, &c. give to the wood of the tree, which yields that precious gum known to the Latins by the name of opobalsamum, and, among us, by the name of balsam, or balm of Gilead.

We have branches of this tree brought from Cairo. They are very straight, brittle, unequal, and full of knots; their bark is reddish without, and greenish within. The wood is whitish, and full of pitch; and, when broken,
broken, yields an agreeable smell, resembling that of the

The xylo-balsamum is reputed good to strengthen
the brain and stomach, and to expel poison.

XYLOCARACTI, or Xylocaracta, in the Materia
Medica, a name by which some authors have called
the carob, or siliqua dulcis, the sweet pipe-tree.

This was called by some of the Greek writers xylocaracta,
the tree bearing pods, and from a corruption of this name
the other has been formed.

XYLOCARPASUM, in Natural History, a name given
by some authors to a poisonous kind of wood.

It was the wood of that tree whose gum was called
carpasum and opocarpasum.

XYLOCARPUS, in Botany, from ξύλον, wood, and
στρώμα, fruit, alluding to the woody texture of the feed-

The writer, C. Rumphius, The
Compound. Xylocarte, prominent
Botany, corruption

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 XYLODON, in Botany, from ξύλον, wood, and οἶος, a
tooth, an appellation given by Perfon to the third section
of his genus Sistotrema, Syn. Fung. 550. (See that article.)
The lamella of that genus, (which is intermediate, as he justly
fays, between Boletus and Hydnum, though, in our opinion,
mott akin to the latter,) are of a firm, woody, and durable
nature, and divided into many compressed irregular teeth.

XYLOGLYCON, a name given to the carob, or siliqua
dulcis, by some of the old Greek writers.

The word expresses a sweet or sweet-fruited tree.

XYLOIDES, or Hyloides, a term used by many of
the ancient writers to distinguish those plants which had
woody flacks, though they never grew up to any con-
fiderable size; such as the garden-thyme, marjoram, and
the like.

XYLOMA, so called from the firm or woody substance
of the whole fungus, and the jagged or radiating margin
of one of the most common species, X. acerum; the word
being apparently composed of ξύλον, wood, and ακνέ, a
—Clas and order, Cryptogamia Fungi. Nat. Ord. Fungi
Angiocarpi.

Eff. Ch. Flat, nearly orbicular. Receptacle various,
hard, somewhat fleshy internally; either remaining clofed,
or burling unequally.

Sect. 1. Compound. Several receptacles combined. Rather
large.

Meth. 5. t. 2. f. 4."—Thick, tuberculated; internally carti-
laginous, and white at the base.—Frequent on the leaves
of Salsis express. This, according to Perfon, is generally
clofed, but he has found it in the spring, as delineated in
the work quoted, breaking, in the upper part, into several
portions, like the shell of a tortoise, from whole intertices
the fine powdery feeds flew off like smoke. The breadth of
the whole fungus is about half an inch; its colour black.

"Oblong, thickifh, with rib-like elevations, polished."—
Found in summer on the leaves of Andromeda polifolia, which
hence appear as if pitch had been dropped upon them.
Sometimes each fungus is as long as the whole leaf; some-
times only half as long. Its thickness is considerable with
regard to the fize. The lower fparatum is white and firm, as
in the foregoing.

3. X. acerum. Maple Xyloma. Perf. n. 3. (Sphæria
maculiformis; Ehrh. Crypt. n. 219. Beitr. v. 7. 101.)—
Dilated, somewhat orbicular, thin, flat, black, slightly cor-
rugated towards the centre.—Frequent on the leaves of
Acer platanoides, and *A. campbell*, in the autumn. It con-

fects of numerous, black, opaque, inseparable patches, scattered over the upper side of the leaf, each about a quarter or one-third of an inch in diameter; the margin sometimes variably and elegantly notched, or fringed, and always circum-

scribed by a very striking yellow, or tawny, discolora-

tion of the leaf. Persoon says he has observed the surface of this species, though usually almost even and uniform, cracking into wavy bordered fissures. We can see some-

thing of this in a specimen from professor Schrader.

4. *X. punctatum*. Sycamore Xyloxa. Perfor. n. 4. Obs. Mycol. v. 2. 100.—Dilated, thin, imperfectly orbicular, somewhat convex, black. Receptacles unequal, aggregate, parallel, oblong, blunt, superficial.—Frequent on the fading or fallen leaves of *Acer Pseudoplatanus*, which are rarely without this parasite in autumn and winter. The patches are from half an inch to an inch wide, closely united with the leaf, slightly convex above, and rather concave at the under side, which is somewhat blackened by them, e specially at the circumference of each. The wrinkles, or receptacles, are shaped like the clefts of an *Opegrapha* (see that ar-

cicle) but much more shallow, as well as more uniform in colour.

5. *X. stellare*. Starry Xyloxa. Perfor. n. 5. Obs. Mycol. v. 2. 100.—“Thin, pitchy; the margin fringed with radiating fibres.”—Found by Persoon, on the leaves of *Phyto-

tuma spicatum*, though rarely. About half an inch broad, more or less, of a handson appearance, with an uniform smooth dish, very black; the marginal fringe either black, or greyish. No distinct receptacles have yet been noticed.

6. *X. rubrum*. Red Xyloxa. Perfor. n. 6. Obs. Mycol. v. 2. 101.—“Aggregate, orbicular, somewhat confluent, red.”—Generally found in autumn on the leaves of *Prunus domes-

tica*, rarely on *P. spinosa*. At first sight the rich colour of this species, all the others being black, cauces it to be taken for an *Aecidium*, or *Uredo*; but on examination the internal fur-

bivalence proves to be solid, uniform, scarcely containing distinct receptacles, or seed-wuffs; its genus, however, is recog-

nised by Mr. Persoon as very doubtful. The patches are each from two to four lines broad, rather thick, with darker-coloured superficial dish, visible only with a micro-

toscope. Persoon.

Sect. 2. Simple. Receptacles solitary, scattered; generally rounded, as a *Peziza*; or dot-like. Smaller.

7. *X. pseudioideae*. Cup-like Xyloxa. Perfor. n. 7. (Pe-

ziza comitiales; Sowerb. Fung. t. 118. P. viridis; Bolt. Fung. t. 109. f. 1.)—Rather crowded, orbicular, black; opening at length, with an upright, somewhat crenate, border, and a pale olive or greenish dish.—Found on fallen leaves of oak in December; more rarely, and in lesser perfec-

tion, on those of beech. The specimens are very uniform in

form, larger than mustard-feud, closely attached to the surface of the leaf; the border of each sometimes pale, sometimes black, unless Sowerby and Bolton describe two different species.

8. *X. spherioideae*. Dot-like Xyloxa. Perfor. n. 8.—“Scattered, dot-like, softish, with an open dish, and a col-

apped incohered border.”—On the leaves of *Salix caprea*. This at a distance resembles *Spharia punctiformis*; but under a magnifier it looks like some *Peziza*, with a crisped margin. The outside is black; the dish, rarely all displayed, is paler.


at Decri. Fung. t. 10. f. 3, 4.”—“Elliptical, shining, ranged

nearly parallel.”—On the fallen leaves of *Iawthorn*, in the

spring. Each plant is one-third of a line long, ovate, or

elliptical, of a shining black; solid within. A longitudinal

line seems to mark the place where it finally bursts.

10. *X. falicenum*. Willow Xyloxa. Perfor. n. 10. (“Spho-

tia falicha; Ehrh. Crypt. n. 299.”)—“Aggregate and rather crowded, orbicular, thin, with a somewhat convex dish.”—On the leaves of *Salix caprea*, occupying nearly their whole surface. Each individual is from one-third to one-

half a line broad.

11. *X. populorum*. Aspen Xyloxa. Perfor. n. 11.—“Ag-

gregate, flattened, variably shaped, smooth, opaque, black.”

—Found on the old leaves of *Populus tremula*, in the spring.

About a line broad; the disk here and there greyish.


Obs. Mycol. v. 2. 101.—“Simple. Receptacles small, orbicular, depressed, somewhat conical, concentrical, of a footy grey.”—On half-decayed leaves of *Populus tremula*, forming circular patches, near an inch broad. Receptacles like small scattered dots, at first black, afterwards footy or greyish, burfting finally at the sumit.


Meth. Fung. 52.”—“Minute, crowded, of a shining black, 

orbicular, plated, a little depressed.”—Found on the under side of fallen and dried leaves of Beech, in the form of crowded black dots.

14. *X. album*. Alder Xyloxa. Perfor. n. 14.—“Mi-

nine, scattered, roundish, plated.”—This species is met

with in summer, upon Alder-leaves, while they are still green. It consists of a few black distant dots.

These minute productions are neccesarily very obscure in

their charactes and economy. The present genus is marked by its internal solidity, of a corky or woody substance, having nothing of a gelatious nature, nor are there any di-

nict round capular receptacles, as in *Spheria*. See that articlce.

XYLOMELUM, so called by the writer of this, from *Xylem", wood, and "melus", an apple, in allusion to the hardnec

and form of the fruit, which procured it, when firft disco-

vered, the appellation of the wooden pear.—Sm. Tr. of


Alt. Hort. Kew. v. 1. 212.—Class and order, *Tetrandria*


Gen. Ch. Col. non. Car. Petals four, regular, equal, lineal; externally hairy; a little dilated and concave at the tip; revolute soon after expansion. Nectary four glands at the base of the germen. *Stam. Filaments four, very short, inferted rather above the middle of each petal, and becoming prominent by its recurvation; anthers linear, inflexed, of two lateral parallel lobes, with a membraneous edge; im-

perfect in some of the flowers. *Pil. Germin superior, roundish; style erect, rigid, the length of the petals, deci-

duous; stigma vertical, club-shaped, obtuse, often small and abortive. *Petals*. Follicle woody, very thick, ovate, of one

excentric small cell, and burfting into two divided half

valves, at the point. *Seeds* two, roundish, compressed, each with a terminal, oblong, rather oblique, membranous wing, as long as the follicle.

Eff. Ch. Petals four, bearing the petals above the middle, regular, revolute. Nectariferous glands four. Stigma club-

shaped. Style deciduous. Follicle woody, of one excêntric cell, with two winged seeds.


pyriforua; Gaertn. v. 1. 270. t. 47. f. 1. Lamarck Illust.

v. 1. 242. t. 54. f. 4. White's Voyage 224. t. 21. Hakea

pyriforua; Cav., v. 1. 25. t. 536.)—Gathered on the eastern coast of New Holland, near Port Jackson, by the first settlers in that colony. We received specimens from

Dr. White,
Dr. White, in 1780 and 1793. Mr. Brown says it grows on stony hilly ground. This, the only known species is a tree, with opposite branches; downy and rustily when young. Leaves opposite, flaked, five inches long, lanceolate, acute at each end, entire, rather coriaceous, smooth, with one rib, and many prominent reticulate veins; pale and yellowish beneath; clothed, when they first come out, with dense, deciduous, rusty down: those of young plants, according to Mr. Brown, are toothed. Fruit flat, an inch long, smooth. Stipules none. Spikes axillary, opposite, catkin-like, cylindrical, dense, much shorter than the leaves, many-flowered, thready with rusty down. Flowers sessile, hardly an inch long, in pairs, each pair accompanied with one small downy bract; all of them abortive, except the lowermost, so that from specimens seen in fruit only, the flowers were judged to be solitary. The fruit is ovate, or irregularly pear-shaped, very hard, even, downy, two or three inches in length. Seeds and their wings brown. Mr. Brown remarks, that the greater part of the flowers, having a small stigma, and no germs, are necessarily abortive. Many of the anthers too have, as above-mentioned, an imperfect appearance; but having never seen living flowers, we cannot tell whether this be an original defect, or merely owing to their having long ago performed their office. It is possible that the rusty hue of the flowers and young leaves, so rich and beautiful in our specimens, may partly, if not altogether, be owing to drying. This plant, though procured for Kew garden, by sir Joseph Banks, in 1789, appears never yet to have bloomed there.

XYLON, is so well described by Pliny, book 19. chap. 1, as to leave no doubt of its being our Cotton. (See Gossypium.) He says it served to make the chitlons of the Egyptian priests. Dr. J. R. Forster, the famous botanist and circumnavigator, published in 1776 a most learned little volume, to prove Cotton the true Buffs of the ancients. See also Matth. Valgr. v. 1. 376.

XYLON, ἕδαρα, among the Athenians, a punishment inflicted, by putting the offender into the flocks.


Gen. Ch. Male, Cal. Perianth in fix deep regular segments; the three innermost largest. Cor. Petals none, unless the calyx, or its inner segments, be taken for such. Nectary of fix globular glands. Stamin. Filaments united into a very short column; anthers three or fix, roundish; two-lobed.

Female, on the same plant, and in the same situation, as the male. Cal. and Nectary as in the male. Pfl. Gernmen superior, sessile, roundish; styles three, short, spreading; stigmas three-ellipt. Peric. Capsule roundish, with three furrows, three cells, and fix elatic valves. Seeds two in each cell, roundish.


Female, Calyx and Nectary like the male. Styles three.

Stigmas three-ellipt. Capsule of three cells, with fix elatic valves. Seeds two in each cell.

Of. Dr. Sima, in Curt. Mag. 1021, has justly indicated this genus as too near Phyllanthus (see that article) where the seeds are erroneously said to be solitary. Whether the difference between their nectarine be permanent, we have not seen enough to determine. At any rate, these two genera must fland next to each other, in the Linnean artificial system, as well as in every natural one.

1. X. longifolia. Long-leaved Sea-side Laurel. Linn. Mant. 221. Willd. n. 1. Swartz Obs. 112. (Xypophyllas ceramica; Rumph. Amboyn. v. 7. 19. t. 12.—Leaves linear, alternate toothed. Flowers solitary at each tooth.—Found only on the lofty, stony, cold mountains of the island of Ceram. The trunk is thorny, fearfully so thick as a man's arm, dividing above it into many round branches, as thick as the finger. Thee end in numerous, alternate, drooping, long, linear, acute leaves, or perhaps winged branches, with blunt alternate teeth, usually an inch distant from each other. The flowers are solitary, nearly sessile, at each notch. Of their structure nothing is known; nor of the fruit, except what Rumphius relates, and this, as Dr. Swartz observes, does not agree with the genus before us, Linnaeus having merely adopted this remarkable plant as a Xylophylla, on account of its habit, which is striking enough. Rumphius says, "the calyx resembles a small clove, and is red, bearing a round-oblong fruit, resembling a Bay-berry, or the Abris of Alpinus, (and Linneus,) green, hard, with a small point. When opened, a small nucleus is found, resembling a grain of rice, fixed on the stam, and falling sweet, like a Firmber, being enclosed in a white skin." It is very unlikely that the kernel of any species of this genus should be eatable.

2. X. lafifolia. Broad-leaved Sea-side Laurel. Linn. Mant. 221, excluding the synonym. Willd. n. 2. Ait. Swartz Obs. 113. Curt. Mag. t. 1021. (Genethera afrenchilia; L'Her. Sert. Angl. t. 59. Phyllanthus n. 1. Browne Jam. 188.) Hemisodium affinis, americana epiphyllanthos, &c.; Pluk. Phyt. t. 16. f. 7.—Leaves rhomboid, crenate; notches crowded, each bearing one or more staked flowers.—Native of lime-stone rocks, near the sea-fide, in the West Indies. Mr. Waller is recorded in Hort. Kew. as having first sent this elegant and singular shrub to his friends in England, in 1783. If we mistake not, the marquis of Rockingham, who died in 1782, received it from Mr. Waller some time before; the original plant has been lost, one of the dowager marcheshe's finest plants. It flowers in a stuss copiously in August and September. The stam is four or five feet high, with a round bushy head. Leaves a foot long, alternate, staked, alternately pinnate; leaflets twelve or more, nearly sessile, one and a half or two inches long, ovate-rhomboid, acute, hard and rigid, crenat, fruited, smooth, entire towards the base. Flowers copious, small, green, on simple creninous flasks; though of the female flowers much the longest. Both stamens and pistil sometimes occur in the same flower, according to Dr. Swartz.

3. X. Arbustula. Lanceolate-leaved Sea-side Laurel. Swartz Prodr. 22. Willd. n. 3. (Phyllanthus speciosia; Jacq. Coll. v. 2. 360. Lc. Ra. t. 616. Swartz. Ind. Occ. 1107. Scheen. Lc. t. 302.)—Leaves pinnate, lanceolate, pointed, crenate; notches crowded, each bearing one or more staked flowers.—Native of the sloping sides of lofty mountains, in the south part of Jamaica. Swartz. We can discern no real specific difference between this and the last. The leaves indeed are narrower, more elongated, and less falcate, but those characters vary. Dr. Swartz lays...
lays a film on the flowers being polygamous in latifolia, monoeocious in Arbuthuta; but nothing is more variable than this circumstance. It is difficult to say which of the two Schweinheigt's figure represents.

4. X. falcata. Sickle-leaved sea-side laurel. Swartz Prodr. 25. Willd. n. 4. Ait. n. 2. Andr. Repop. t. 351. (Phyllanthus Ephythyllathus; Linn. Sp. Pl. 1932. Ph. americana plat, flores e ungulil foliis crenatis proferent; Comm. Hort. v. i. 199. t. 102.)—Leaves scattered, linear-lanceolate, somewhat falcate, diffusely toothed. Flowers nearly femail, many together at each tooth. Native of the Bahama islands. Cultivated for about 120 years past in the flowers of England and Holland, flowering in July and August. The stem is five or six feet high, shrubby, with round branches. Leaves not pinnate, with a flat stalk, as in the two last, but scattered irregularly over the branches, each proceeding from a scaly bud, fimple, five or six inches long, one-third of an inch wide, rigid, flicated, tapering at each end; entire towards the base; alternately toothed in the upper part, the teeth an inch or more abundant. Flowers crimson, on short stalks, some male and some female in each tuft; the latter fewest.

5. X. angufitifolia. Narrow-leaved sea-side laurel. Swartz Prodr. 28. Willd. n. 5. Ait. n. 3. (X. elongata; Jacq. Hort. Schanbr. v. 3. 53. t. 348. Poir. n. 7. Phyllanthus n. 2; Browne Jam. 188. Ph. americana, anguillarii et longiori folio, ramofo, caulefcens; Pluk. Phyt. t. 247. f. 4. Ph. anguifikolia; Swartz Ind. Occ. 1111.)—Leaves pinnate, linear-lanceolate, rather dis- tandem toothed, scarcely curved. Flowers on short stalks, polygamous, one or more from each tooth.—Native of lofty rocky situations, in the western part of Jamaica. Swartz. Cultivated in the English flowers before 1789, flowering in July and August. Aiton. This agrees with our second and third species, in having several alternate leaves, on a flat or channelled, bordered common stalk; but scarcely half so many on each stalk as in those; and of a longer narrower form, not copiously crenate, but sparingly and rather diffusely toothed, more in the manner of X. falcata. The stem is only two feet high. The flowers are less copious than in the last-mentioned species, and, according to Dr. Swartz, there are some perfect, intermixed with the male and female ones. Their colour is red; the male ones pale. (Jacquin's figure expresses the contrary.) Plutenet's engraving, such as it is, manifestly agrees with this species, and with no other. Linneus, no doubt, confounded this and, at one time, the latifolia also, with the falcata. Browne's synonyms are settled by his own species, though unmarked.

6. X. linearis. Linear sea-side laurel. (X. angufitifolia §; Swartz Prodr. 28. Willd. n. 5. Phyllanthus linearis; Swartz Ind. Occ. 1113.)—4 Leaves pinnate, linear, tapering, pliant, crenate; their common stalk bordered. Flowers several from each notch.1—Native of shady rocky banks of rivers, in the western part of Jamaica. Swartz. The stem is scarcely a foot high, erect, with round branches. Common footstalks four or five inches long, scattered, compressed, (rather depressed) bordered. Leaves linear, rather broadest in the middle; tapering at the base; ending in a very long acute point, fibrated, paler beneath, two inches long, of a thinner subtance than the foregoing species, which circumstance, added to its humbler stature, and different colour, has induced Dr. Swartz to consider it as distinct. The flowers are white, monoeocious, from three to five at each notch of the leaves, on capillary stalks, four lines in length.

7. X. montana. Mountain sea-side laurel. Swartz Vol. XXXIX. Prodr. 28. Willd. n. 6. (Phyllanthus montana; Swartz Ind. Occ. 1117.)—Leaves somewhat two-ranked, elliptic-lanceolate, coriaceous, deeply crenate. Flowers nearly femail, many from each notch. Branches round; two-edged at the extremity.—Found on lime-flone rocks, in the western part of Jamaica. A shrub, six feet high, much and irregularly branched; the branches often forked, round, nearly erect, with annular scars; ultimate ones permanent, glaucous a little coloured, compressed and two-edged at the summit. Leaves alternate, imperfectly two-ranked, nearly femail, either blunter or acute, obliquely flicated, rigid, brownish-green, smooth, with deep many-flowered rosettes. Flowers monoeocious; the males eight or ten, pale red; females solitary among the males, deep purple. Clearly distinguishable from all the species which it otherwise resembles, by the permanency, and woody texture, of the ultimate branches. Swartz.

8. X. ramiflora. Siberian sea-side laurel. Ait. Hort. Kew. ed. 1. v. 1. 376. ed. 2. n. 4. Willd. n. 7. (Pharsaceum? suffruticulm; Pallas It. v. 3. 716. t. E. f. 2.)—Leaves elliptical, fcarce. Flowers axillary.—Native of the defarts of Siberia, from whence it was procured for the English gardens, in 1783, by the late Mr. Bell. It is a hardy shrub, flowering in July and August. Pallas, who never saw the plant alive, merely guessed at its genus. By its figure, its habit is altogether that of a Phyllanthus. The stem is bushy, with many straight, wand-like, leafy branches, each a foot long. Leaves scattered, thin, hardly an inch in length, blunt, crenate, or somewhat wavy. Flowers six or eight together, making a little axillary tuft, accompanied by minute red fipulas, or bractes. Segments of the calyx five, concave, white, with a coloured margin. Anthers five, thick, obtuse, furrowed at the outside. Germin in the same flower, as we preume from Pallas’s description, very small. Styles three, thread-shaped, simple, the length of the flamen. The genus of this species is, at best, very doubtful, as Willdenow has already remarked.

Phyllanthus and Xylophylla are so totally different in habit, and the latter is, in this respect, so very peculiar, that a clear character between them is much to be desired. The true Xylophylla are all of West Indian origin. The tropical Phyllanthi are natives of the East Indies; a few hardy species grow in North America.

Xylophylla, in Gardening, contains plants of the tender exotic kind for the flower, in which the species cultivated are, the long-leaved love flower (X. longifolia), the broad-leaved love flower (X. latifolia), and the falcated love flower (X. falcata).

The first is a branching angular plant, but the second has round branches; and the last is woody in the stems and branches.

Method of Culture.—These plants are increased by sowing the seeds in pots in the early spring, and plunging them in a hot-bed; when the plants are come up two or three inches in growth, they should be pricked out in separate pots, replacing them in the bark-bed; they may afterwards be managed as other flower-plants of a similar growth.

They are also, some of them, capable of being raised by offsets, slips, and cuttings, affixed by a hot-bed in the same manner.

They require the constant protection of the flower in winter, but in the hot summer months may be set out in their pots in a sheltered situation, being taken in on the approach of cold nights.

They afford variety, and are curious in flower collections among other plants of similar growths.

E. Xylophylla.
XYLOPIA.

 XYLOPIA, in Botany, altered by Linnaeus from Xylipheitrum of Browne, a name which the latter took from Plukenet, whose Xylipheitrum, formed from Xylo- and -heitrum, alludes to the bitternels of the wood. M. De Candolle, in following Linnaeus, observes, that this abbreviation entirely destroys the sense. It certainly does to those who do not trace out the source of the word. If the original had been constructured in the most unexceptionable manner, we might have hazarded its restoration; but Xylopia is now too firmly esta-blished to be lightly disturbed, and in found nothing can be better. - Linn. Gen. 469. Schreb. 375; Willd. Sp. Pl. v. 2. 1792. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 336. Juss. 284. De Cand. Syll. v. 1. 499. Poiret in Lamarck Dict. v. 8. 810. Lamarck Illustr. t. 495. Gebrtn. t. 69. (Xylopicterion; Pluk. Almagra. 395. Xylopietrum; Browne Jan. 250.)—Clas and order, Polyandria Polygoenia. (Gynandra Polyandria, Linn.) Nat. Ord. Condateae, Linn. Anone, Jull. Annonaceae, De Candolle. Gen. Ch. Cal. Perianth inferior, of one leaf, in three to five deep, broad, ovate, coriaceous, rather acute, permanent segments. Cor. Petals fix, seelie, linear-lanceolate, coriaceous, much longer than the calyx; the three outermost largest. Stam. Filaments none; antlers numerous, oblong, quadrangular, abrupt, parallel, crowded, seated on the tumid, nearly globose, receptacle, in several rows. Pif. Germs several, on short stalks, compressed; styles tapering, crowded together; stigmas simple. Peric. Capsules several, stalked, coriaceous, compressed, bluntly angular, of one cell and two valves, bursting at the top. Seeds one or two, obovate, polished, tunicrated at the base. Eff. Ch. Calyx lobed, coriaceous. Petals fix; the three outermost largest. Capsules stalked, angular, compressed, of two valves. Seeds one or two, tunicrated.

The plants composing this genus are trees or shrubs, with oblong or lanceolate (entire) leaves, and axillary, bracteated, simple or divided flower-flalks. The wood is bitter; bark and fruit aromatic. De Candolle, who describes eight species, of which the first is still the leaf understood. Linnaeus, by a misapprehension of the true character of his own clafs of Gynandria, (fee that article,) has placed this genus far aunder from Annona, Uvaria, &c., to which it is closely allied, both in natural and artificial distinctions. Few genera have hitherto been less understood.

1. X. muricata. Rough-fruited Bitter-wood. Linn. Sp. Pl. 1567. Willd. n. 1. De Cand. n. 1. Ait. n. 1. (X. fruticosum; Gebrtn. v. 339. 69, excluding the synonym of Aublet. Xylop Fetum; Browne Jan. 250. t. 5. f. 2.)—Leaves ovato-lanceolate, pointed; clothed with close-pressed hairs beneath. Branches zigzag, narrowly smooth. Stalks with several flowers. Fruit mucrinated.—Found by Dr. Patrick Browne, at the foot of the mountains, in Sixteen-mile walk, Jamaica. His specimcn, drawn in the plate above-cited, is in our hands, but stipped of the leaves. This deficiency is supplied by another very large and perfect one, gathered in Jamaica, by Mr. Maffon. The latter M. De Candolle unfortunately did not see, when the writer of this was favoured with too short a visit from this learned and amiable man. It is become necessary to correct some errors in the description, whose fource is unknown to us. The leaves are certainly not "bearded at the point," nor do we perceive in what fume they are termed "fragile beneath." Thafe is Wildenow's expression, adopted by De Candolle. Sir Joseph Banks sent a living plant of this species to Kew garden, in 1793; but if it survies, it has not yet flowered. This is a small tree, fifteen or twenty feet high, with alternate, round branches, zigzag when young, quite smooth, except towards the very extremity, which is slightly milky. Leaves alternate, on short thick flalks, spreading, rather ovate than lanceolate, with a blunt or emarginate, smooth point; their length two inches, or a little more; their margin entire, lightly revolute; their upper surface smooth and shining, reticulated with veins; under paler, more opaque, clothed with fine, scattered, close, milky hairs, after a while deciduous: midrib stout, rough with minute tubercles at the back. Flower-flalks cipious, axillary, solitary, short, knobby, bearing from two to five flowers. Calyx three-lobed, nearly downy. Petals half an inch long, densily milky on both sides; the three innermost very narrow, triangular-awlshaped. Capsules, by Gartner's account, which in the main agrees with that of Linnaeus, nearly ovate, but angular and compressed, sometimes as many as fifteen, coriaceous, covered with little points, of one cell and two valves, containing one or two oval seeds, each with a cup-like tunic at the bottom. Browne made no remarks on the bark or wood of this tree. We perceive little bitterness in either, though some aromatic flavour in the bark. This species being the type of its genus, we have thought a full description requisite.

2. X. fruticosum. Shrubby Silky Bitter-wood. Aubl. Guian. 602. t. 242, excluding the synonyms of Linnaeus and Browne. Willd. n. 2. De Cand. n. 2. — "Dunal Monogr. 120." Lamarck t. 495, copied from Aublet, excluding the fruit, which is Gartner's figure of the foregoing. Poiret n. 2. (X. ietofa; Poiret n. 4, according to De Candolle. Embira feu Pindaiba; Pif. Braf. 71. Ibra; Maregr. Braf. 99.)—Leaves lanceolate, pointed; glaucous and silky beneath. Branches silky. Stalks with few flowers. Capsules smooth.—Found by Maregraf in Brazil, flowering in February; by Aublet in Cayenne and Guiana, bearing flowers and fruit in August. M. De Candolle has examined a specimen, and we, having seen none, are obliged to rely on him and the other authors here cited for the specific distinctions between this and the first species. The smoothness of the fruit, the filikines of the branchies, and narrowness of the leaves, appear sufficient to ascertain the present plant. Maregraf says the bark affords a touch of rich kind of cordage. The fruit, equal in size to hazel-nuts, is aromatic and acrid, fering, when powdered, instead of pepper.

3. X. julifolia. Willow-leaved Bitter-wood. "Humb. and Bonpl. unpublished. Dunal Monogr. 121. t. 17." De Cand. n. 3.—"Leaves oblong, with a blinfth point; silky beneath. Stalks short, single-flowered? with small bracteas."—Found by the celebrated travellers baron Humboldt and M. Bonpland, near Efinail, in South America. A tree with blackish branchies, marked with white dots. Leaves narrow, an inch and a half or two inches long, three or four lines broad, on short flalks, single-ribbed, without veins; smooth and green above; villous beneath, with close-pressed, milky hairs, of a rufous grey. Capsules five to ten, gibbous, slightly pointed, not burbling. Seeds one or two. De Cand.

4. X. liquifera. Privet-leaved Bitter-wood. "Dunal Monogr. 121. t. 18." De Cand. n. 4.—"Leaves oblong, rather acute, smooth on both sides. Stalks short, with few flowers, and small bracteas."—Gathered by Humboldt and Bonpland, at Boga, in South America. The branchies are round, blackish, rugged, rough with whitish points. Leaves an inch and a half long, four lines broad, on very short flalks, single-ribbed, veined; somewhat shining above; paler beneath; the young ones milky at the under side. Stalks axillary, with three or four flowers, and roundish con-

5. X. glabra. Smooth Bitter-wood. Linn. Sp. Pl. 1367. Willd. n. 3. De Cand. n. 4. Dunal Monogr. 121. t. 19." Lunan Hort. Jam. 97. (Xylopiherum n. 2; Browne Jam. 51. Xylopropion arbors, barbadenfibus Bitter-wood; Pluk. Phytl. t. 238. f. 4).—Leaves ovate-oblong, pointed, quite smooth on both sides. Stalks single-flowered, foliary or in pairs. Fruit smooth.—Brought from Barbadoes by Mr. James Reece, who was sent to the West Indies by the earl of Portland, to procure plants for the royal garden at Hampton-Court. Plukent. This species, therefore, may have been alive in England, Dr. Patrick Browne met with it in the mountains, at the back of Bull-bay, in Jamaica, where it grew to a considerable size, being fifty or sixty feet high. He never saw the flowers in perfection. "The wood, bark, and berries," says this author, "have an agreeable bitter taste, not unlike that of the orange-feeding; and would probably prove excellent medicines. Wild pigeons feed much upon the berries, and owe their delicate bittersweet flavour to this food. I have eaten many of the berries jut off the tree, and found them agreeable to the palate, and grateful to the stomach. The bark and wood are agreeably bitter while fresh, but that delicacy diminishes greatly after they are dried. The wood is easly wrought, and good timber, but must not be exposed to the weather." Browne. Mr. Lunan, in his Hortus Jamaicenfis, adds nothing to this account, but carefully distinguishes this Bitter-wood from Quassia, (see that article), with which some persons have confounded it. M. De Candolle observes, that the branches of X. glabra are round, smooth, scarcely dotted; and that even the young leaves are smooth on both sides; the full-grown ones are two inches long, and broad, obtuse with a point. Calyx smooth, with three very obtuse lobes. Unexpanded petals oblone, clothed externally with close-preffed pubescence, their length four lines. Pluknet represent the flower-flanks foliary, opposite to each leaf.

6. X. nitida. Shining-leaved Bitter-wood. "Dunal Monogr. 122. t. 20." De Cand. n. 6.—"Leaves oblong-lanceolate, smooth; polished on the upper side. Stalks branched, many-flowered. Calyx nearly entire."—Found by Joseph Martin, on the Oyac mountains of Cayenne, sloping down to the sea. A tree of a middling size, with straight, round, rugged, not hairy or downy, branches. Leaves somewhat elliptical, two or three inches long, and one or ten lines broad; green, smooth, and very shining above; viscid, pale, and rather silky, with minute close hairs beneath; the margin a little revolute. Clusters small, corimbosely, of four or five flowers, whose flacks are embraced by little roundish bretias. Calyx coriaceous, brown, pitcher-shaped, finely divided. Bed of the petals oblong, triangular, acute. Fruit unknown. De Cand.

7. X. acuminata. Long-pointed Bitter-wood. "Dunal Monogr. 122. t. 16." De Cand. n. 7.—"Leaves oblong-lanceolate, very long-pointed, perfectly smooth. Capsules on long flacks, single-valved, with two seeds."—Native of Cayenne. Branches round, rugged, smooth. Leaves on very short foot flacks, four to six inches long, two inches wide, remarkably pointed, revolute, rather coriaceous; a little shining above. Flowers unknown. Capsules ovate, two or ten lines in length, pointed, each tapering down into a long flack, imperfectly bivalve, smooth and even. Seeds obvolute, black, fatid, convex at the outflde, flat at the inner. De Cand.

8. X. prinodes. Winter-berry Bitter-wood. "Dunal Monogr. 122. t. 15." De Cand. n. 8.—"Leaves oblong-lanceolate, smooth, membranous, pointed; blunth at the extremity. Flowers foliary. Capsules with two valves."—Native of Cayenne. Branches wand-like, slightly rugged. Leaves on short flacks, smooth on both sides, three or four inches, (the author, by mistake as we presume, says three or four lines) in length, and from sixteen to fifteen lines broad; shining above; rather glaucous beneath. Stalks single-flowered, axillary, very short, each bearing an extremely minute bretia. Calyx deeply three-cleft. Petals ovate, acute, fearely two lines long, being the smallest of this genus, or perhaps natural order. Capsules flaked, imperfectly bivalve. Seeds two, flat at the inner side, convex at the outer. De Candolle.

XYLOPORICRUM. See Xyloporia supra.

XYLOPOLIS, in Ancient Geography, a town of Macedonia, in Mydonia. Ptolemy.


Female, Calyx and Neatary as in the male. Style very short. Stigma slightly three-cleft. Berry dry, of two incomplete cells. Seeds two to each cell.

1. X. fulevolens. Serrate-Sweet-wood. Forst. Prodr. n. 380. Willd. n. 1. (Myroxylon fuaveolens; Forst. Gen. 63. n. 1).—Leaves ovate, serrate.—Native of the Society islands of the South seas. The inhabitants employ this wood, to give a fragrant scent to cocoa-nut oil, for anointing their hair. We know not whether this be the precious Red Sanders Wood of the South sea islands, for a specimen of which we are indebted to Sir Joseph Banks, whose scent resembles that of the East Indian wood of the same name. The tree which produced it was, as long as possible, kept from the knowledge of our European voyagers.

2. X. orbicularum. Entire-leaved Sweet-wood. Forst. Prodr. n. 381. Willd. n. 2. (Myroxylon orbicularum; Forst. Gen. 63. n. 2).—Leaves roundish, entire.—Native of Savage island. We have never seen a specimen of either species.

XYLOSTEON, a name by which some authors have called the small red-berried double-fruited chamaeccephus.

XYLOSTEUM, Dod. Pempt. 411. Tourn. 609. t. 379. Juss. 212. Pursh 161. (Chamaeccephus; Tourn. ibid.). A word formed of xylon, wood, and eidos, being synonymous with a Swits name for the same shrubs, which alludes
alludes to the hardnecfs of their wood, and perhaps to its
rubber afiform, filled with pith, as a bone is with marrow.
The authors who retain this genus split the Lonicer of Linnaeus, as (see that article,) into several, without necessity
or utility, offering, in our opinion at leaft, great violence to
nature.

XYLOSTROMA, so called from ἔξω, wood, and κύστις, a flatum, or layer, because this fungus forms indefinite
terminate expansions, like cloth or leather, in the infide of
the trunks or branches of trees.—Tode Fung. Mecklenb.
Fungi angiospermi?

Eff. Ch. Expanded, coriaceous, two-fid, shapefes, concceded; surface smooth and even. Seminal globules very
minute, attached to internal fibres.


f. 51. Sowerb. Fung. t. 358. (Racodium Xylostroma;
Perf. Syn. Fung. 702. Fungus coriaceus quercinus kctam-
todes; Raîi Syn. 25. " F. ampliflimus; Scop. Pl. Subterr.
116. t. 44." Byfus candida ; Lightf. Scot. 1004.)—
This fingular production is found in the centre of the trunks of growing trees, spreading in the form of a piece of
cloth or leather, with numerous ramifications, through some of
the largest trees. But whether it is, like the Boletus lucthymans, or Dry Rot, in wrought timber, the cause of
their decay, or its confequence, we have not sufficient infor-
mation to decide. Tode’s obfervations countenance the
former opinion. He fays the wood of the trees, occupied by
this fungus, becomes rotten and perfectly dry. Its
fhme surfaces are owing to the smoothnefs of the fiffures,
through which it fpreads in a tender flate, and its branching
indeterminate figure arises from the irregularity and subdi-
vifion of those fiffures. The infide is fpongy, or partly
hollow, occupied with branching fibres, bearing numerous
little ovate capsulates, or receptacles, whole apex appeared
in Mr. Sowerby to have an opaque flid. The whole fungus is
very durable, remaining unchanged for many years. Its
lue is generally an uniform buff or pale tan colour; but
Perfons notices a whitifh variety, more compact than the
ufual kind; and a faffron-coloured one, found by Schrafen.
We cannot well reduce the Xylostroma to any other genus
of this natural order. The Racodium, Perf. Syn. 701, de-
fined as “ expanded and soft, refembling cloth in its defibly
interwoven fibres,” feems to us but a vague affimilation;
the firft species being Byfus nigrar, which fome make a
Lichen, others a Conlferva; the fefond a Musor.

XYLOSTROTTON, formed of ἔξω, wood, and κυστις,
lochat, among the Ancients, an appellation given to Mofaic or
chequered work.

XYLUS, in Ancient Geography, a town of Asia Minor,

XYMETHUS, a town of Africa, in the interior of
Cyrenaica. Ptol.

XYMPATHESIS, a word used by fome of the old
medical writers for fympathy.

XYNERESIS, formed of ἔξω, or συς, together, and
αϕης, J feel, a word used by Hippocrates, and others of the
ancients, to express a firm cohesion or connection of any
two things. Some use it to express that firm flitting togethcr,
or clenching of the teeth, which happens in convulsions.

XYNIA, in Ancient Geography, a borough of Thessaly,
on the confines of Phthoebia, near a lake of the fame name.

Linn.

XYNOECA, formed of ἔξω, or συς, with, and αϕης, I
inhabit, a faetl among the ancient Athenians, instituted on
occasion of Thefeus’s uniting all the petty communities of

Attica into one commonwealth; the assemblies of which
were to be held at Athens, in the Pytbanum.

XYPHIOD, in Anatomy, a name given to the cartil-
geage, which forms the inferior extremity of the sternum.
See, the defcription of the fternum, in the article Lungs.

XYRIS, in Botany, an ancient name, of unknown derivation,
ἐξως, or rather ἐξως, of the Greeks, supposed to be
long to our Iris faditifma, transferred by Gronovius to the
present genus, as one of nearly similar habit and characters.
They are not, however, of the fame natural order.—Linn.
v. 8. 818. Lamarck Illuftr. t. 36. Genr. t. 15.—Clafs
rather Tripetaloideae.) Junc. Juff. Refifaces, Brown,
Kunth.

Gen. Ch. (corrected from Brown and Gartner), Cal.
Perianth inferior, of three concave flabby leaves; the outer-
most hooded, deciduous; the two lateral ones keeled, com-
pressed, curved, acute, converging, permanent. Cor. Pet-
tals three, large, spreading, flat, crenate; with narrow
claws, as long as the calyx. Nectaries three, feathery,
alternate with the petals; inferted by Brown and Kunth to
be barren flaments. Stam. Filaments three, inferted into the
clasps of the petals, much shorter than the limb, thread-
shaped, creaf; anthers oblong, incumbent. Pflf. Germs
superior, obovate, three-lobed; ftyle one, thread-shaped,
rather longer than the clasps of the petals, three-celt at the
summit; fflagrs obtufe, entire, or jagged. Peric. Capsu-
le roundifh, of one cell and three valves, with three or
fes prominent receptacles, running down the middle of
each valve. Seeds numerous, minute, roundifh or elliptical,
acute.

Eff. Ch. Calyx of three unequal leaves; the two lateral
ones permanent. Petals three, equal. Nectaries three,
feathery. Capsule superior, of three valves, with central re-
ceptacles. Seeds numerous.

A genus of perennial herbs, with fibrous roots. Leaves
radical, numerous, fword-shaped, or thread-shaped; dilated,
equitant, and membranous at the bafe. Flower-flalk per-
fettly fimple, wrapped in a fheath at the bottom. Head
terminal, solitary, its fcales membranous, fingle-flowered,
clofly imbricated; the outer ones sometimes empty, and
differ from the ref. Anthers pofterior. Brown. flowers
almost invariably yellow.

Linnaeus was acquainted with but one species, X. indica.
Several others have been determined by various authors, in-
formuch that Willdenow defines four, and Vahl ten in all.
Mr. Brown has fifteen from New Holland alone, and there
is a new one from South America. The author juft men-
tioned divides this genus into two fections. Thofe species
which belong to the firft fection have a capule of one cell,
whose receptacles are separate at the bafe; of thofe there
are thirteen found in New Holland. The second fection is
characterized by a capule incompletely divided into three
cells, the receptacles being combined in their lower part.
Of this there are two New Holland species. It is utterly
impossible for us to follow this arrangement, few people
having been half the species in any flate, much lefs their ripe
capules. We are pollefled of ten, which appear to be
different, and which can be referred, with tolerable certainty
in general, to as many defcribed species. For the remainder
we hall cite our authorities.

1. X. indica. East Indian Xyris. Linn. Sp. Pl. 62,
excluding the synonyms of Gronovius, Morehon, and Pifo.
Linn.
Linn. Zeyl. 14. Willd. n. 1. Vahl n. 1. (Gladiolus indicus, flore tripetalá; Rudb. Elsy. v. 2. 127. f. 8. Gladiolus laciniatus ascendas malabaricae, e capitulo botryoidi florifera; Pluk. Almag. 170. t. 416. f. 4. Kotsjelitzi—pulla; Rheede Hort. Malab. v. 9. t. 71. Ramnotta; Hern. Zeyl. 4.)—Stalk furrowed, with many angles. Head ovate.—Native of the East Indies, and perhaps of Sierra Leone. The leaves are described by Vahl as sometimes a foot long, equaling the flower-flasks, lax, acute, almost the breadth of the leaf; but he never saw any so broad as in Rheede's figure. The flower-flasks are several, rather more slender than a pigeon's quill, furnished with six or eight furrows, and twilled in the lower part. Head rather smaller than a Hazel-nut, with roundish scales. Our specimens, gathered by the late Mr. Smithaston at Sierra Leone, have no leaves, but the stalk and head answer exactly to the above description. The scales are from twenty-five to thirty in each head, rounded, or nearly obicular, convex, closely imbricated, obtuse, brown, but little polishes, divided lengthwise into three nearly equal spaces, or regions, (as is the case in most of the species that we have seen); the middle region here is slightly hoary or downy, the fide-ones smooth. The flowers are male. The head in these specimens is nearly globose; not oblong, as in Sertner's figure, marked X. indica. A few of the lowest scales are flatter and rather smaller than the rest, apparently always barren, or unaccompanied by flowers. Whatever Mr. Pursh's X. indica may be, it cannot belong to this species. He describes the leaves very long and graily, twilled as well as the flasks.

2. X. pubescens. Downy-sheathed Xyris. Poiret n. 1.—"Stalk fliered, almost cylindrical, enveloped in a downy sheath. Leaves greatly elongated."—Received by profcorv Desfontaines, from the West Indies. Nearly related to X. indica, but differing in several characters peculiar to itself. The roots are long, as thick as the finger, with foth, rather fleshy, nearly fimple, fibres, thin as a raven's quill; and producing from the crown a great number of foth, fliad, alternate, somewhat imbricated, very smooth leaves, a foot or foot and a half long, half an inch wide, entire, pointed; dilated at the base. Stalks fliad, rather flied, twilled at the lower part, where they are each embraced by a cylindrical, fliered, downy sheath, three or four inches long, terminating in a little short acute leaf. Head of flowers ovate, obtuse, the fize of a large pea, formed of numerous, imbricated, very clove, unequal, whifhit scales; the outer ones a little dilated, ovate, near flat, fcarcely pointed; the inner narrower, obtuse, rather con- cave. Poiret. See our X. anceps, which has also a very long leafy-pointed leaf, but it is quite smooth.

3. X. marcescens. Great-headed Xyris. Vahl n. 2.—"Stalk with one acute angle. Head and fcales ovate; the latter grey at the back."—Native of Cayen. Derived from the herbarium of profcorv Desfontaines. The leaves are eighteen inches long; as broad as the nail, or broader. Stalks taller than the foliage; round in the lower part; somewhat two-edged further up, with one convex and one acute fide. Head when in fruit twice as big as a Hazel-nut, ovate, with obtuse fcales. This differs from the rest in the breadth of its leaves, and the fize of the head. Vahl.

4. X. platycalyx. Broad-flaked Xyris. Poiret n. 4.—Stalk compressed, dilated, fliered, smooth; twilled below; with a lax, cloven, abrupt fheath at the base. Heads glo- bose, abrupt at the summit.—Gathered by Commerfon in Madagascar. Leaves wanting in the specimens. Stalks a foot high; or two or three lines broad. Sheath at leaf three inches long, smooth, fliered, rather lax, cloven lengthwise, obliquely truncated at the fummit. Head hardly so big as a pea, flattish at the top, with broad, obtune, concave, shining, chefnut-coloured fcales, the outer ones keeled towards their point. Poiret. We have enlarged the author's specific orher to his own description, in order the better to contrast this species with the two following, with which it appears to agree in the flatness of the flals.

5. X. aceps. Small-headed Two-edged Xyris. La- marck Illustr. v. 1. 132. Vahl n. 9.—"Stalk two-edged, smooth. Head nearly globose."—Native of Madagascar, and Malabar; perhaps also of Guiana. Leaves rather rigid, narrow, but one-third or one-fourth the height of the flals, which are several, a foot or more in height, twilled, smooth, by no means fliered. Head scarcely so large as a pea, with roundish, convex, hardly emarginate, fcales. Pe- tals yellow, finely toothed. Vahl. A Guiana specimen, communicated by Mr. Rudge, remarkable for the smallness of its head in proportion to the herbage, answers precisely in every point to Vahl's description. Aquatic, or marsh- plants, such as the species of this genus, are known to grow, more than any others, in widely different and dissimilar parts of the world. We have suspected this Guiana specimen might be Poiret's X. pubescens n. 2; but the sheath at the base of the flals is not pubescent.

6. X. complanata. Flat-flaked Xyris. Brown n. 1.—"Stalk compressed flat, dilated, nearly flied; cartilagin- ous and rough at the edges, four times as long as the fword- shaped, flied, bordered, roughish leaves. Spike oblong or cylindrical. Scales orbicular, timid."—Gathered by Mr. Brown, in the tropical part of New Holland. The fals is a line and a half froad. We have seen no specimen.

7. X. fabra. Rough Xyris. Br. n. 2.—"Stalk two- edged, twilled, with rather acute and rough angles. Leaves linear, roughfhit. Head ovate or oblong."—From the same country. The fals is hardly a line in breadth. Brown.

8. X. levis. Smooth Xyris. Br. n. 3.—"Stalk two- edged, smooth, as well as the narrow linear leaves. Head nearly ovate. Scales imbricated every way. Keels of the calyx-leaves fringed."—Gathered by Mr. Brown near Port Jackson, as well as in the tropical part of New Holland. The flals are from fifteen to eighteen inches high.


—Native of moit paitures in Brafil, flowering in the rainy feafon, according to Pito, whole fynonym was verified by Vahl, from an infpefion of Maregraafs herbarium. Aubl found the fame in wet meadows near the river Macouria, in Guiana, flowering in December; but his figure is made up, as Vahl observes, with the leaves of an Ericacol; the fcales of the head, and the flowers, being moreover very ill drawn. We have never met with a specimen anfwering to this species. Vahl fays the leaves are graidly, narrow, and acute, hal the length of the flals, which is a foot or more in height; round in the lower part, with two prominent lines running down it; compressed in the upper part, and a little dilated under the head. The latter is obtufe, rather bigger than a pea. Scales oblong, concave, cloven at the point, with a brownfhit, rather callous point in the notch. Vahl. The corolla is faid to be blue, of which we know no other infance in this genus.

Xyris.

Carolina. *Vahl.* Found in low grassy fields, on a sandy soil, from New Jersey to Florida. Perennial, flowering from June to August. Heads small. Flowers yellow. It is extremely variable. *Pursh.* Vahl thought this species distinct from the last, in having more rigid leaves, and larger heads, which are acute, instead of being remarkably obtuse. The flowers moreover are yellow, not blue. The leaves vary in length. The heads in Lamarck's specimens are longer than those of Richard's. *Vahl.* We have not seen this species, but it seems that more than one may possibly here be confounded.

11. *X. torta.* Twisted-leaved Xyris. (X. indica; Pursh n. 1, excluding the synonomy.)—Leaves linear, spirally twisted, as well as the stalk, which is two-edged below, quadrangular at the upper part. Head globose. Scales polished, rounded, somewhat emarginate, pointless, with a small silky disk.—Gathered in North America by Kalm. Linnaeus confounded his specimens with *X. indica,* which he knew but imperfectly. They appear, however, to answer exactly to the *indica* of Pursh, who very properly gives an original specific character, instead of copying what did not agree with the plant before him. He found it in overflowed meadows, and small ponds, from Pennsylvania to Virginia; perennial, bearing yellow flowers in June and July. He calls the leaves "longissima graminis." In our specimens they are from one to ten inches long, a fine broad, acute, many-ribbed, roughish at the edges, perfectly gramineous; the outermost degenerating into broad, short, chefnut-coloured, pointed, imbricated scales. *Stalks* solitary, about two feet high; nearly round, though two-edged and flattened, at the bottom, as well as very much twisted, even more than the leaves; the upper part is less fo, more evidently two-edged; and towards the top there are four, not always equal, angles. *Head* the size of a large white currant, obtuse, of a shining chefnut-colour. *Scales* almost orbicular, convex; dilated and thin at the edges; marked at the back, just below the notch, with a pale, greenish, silky spot. Two or three of the lowermost of all are smaller, flatter, a little keeled.

12. *X. pufilla.* Dwarf Broad-leaved Xyris. *Brown* n. 4.—Stalk two-edged, smooth, like the short, sword-shaped, two-ranked, equitant leaves. Head orbicular, comprefsed, of a few shining, somewhat keeled and pointed, scales.—Gathered by Mr. Brown, in the tropical part of New Holland. Our specimens, in the herbarium of the younger Linnaeus, were probably given to him when in England, by Sir Joseph Banks and Dr. Solander. The *flanks* are from two to five inches high, pale green, a little zigzag and twisted, somewhat quadrangular; sheathed at the base with one or two *leaves,* which, like those that grow from the root, are about an inch long, and two or three lines broad, slightly incurved at the point, of a pale rather shining green, with several ribs, and a finely dotted, reticulated, surface in the dry state. *Head* the fize of a pea. *Scales* orbicular, convex, of a shining chefnut-brown, pale at the edges; the two lowermost equal, without *flowers,* in an early state covering the whole head, and furnished with a strong, green, pointed keel.

13. *X. dentiflora.* Tooth-leaved Xyris. *Br.* n. 5.—Stalk roundish, smooth. Leaves short, linear-awl-shaped; rough with minute marginal teeth. Head globose. Scales orbicular, shining, keeled at the summit.—Gathered in the tropical part of New Holland, by Sir Joseph Banks and Dr. Solander, who gave specimens to the younger Linnaeus. This is about the fize of the last, or rather taller. The *root* consists of very small fibres. *Leaves* from one to two inches long, not a fine broad, their fine reticulations seeming to form the little teeth, at the margin and keel. *Stalk* slender, fribated or angular towards the top. *Head* twice the fize of the last, of more numerons, bright-chefnut *scales,* with thin, pale, often jagged margins, and a little green short keel, or point, not extending beyond the fcale. The two lowermost *scales* are barren, as in the preceding, and in a young flake enehe the whole head.

14. *X. paludosa.* Bog Xyris. *Brown* n. 6.—"Stalk roundish, smooth; angular at the top. Leaves somewhat tubular; that of the *flalk* longer than the theahe. Head nearly globular. Scales orbicular, shining, imbricated every way."—Found in the tropical part of New Holland, by Sir Joseph Banks and Dr. Solander. We have seen no specimen, nor did Mr. Brown himself meet with this or the last species, any more than with the *pau/iosa* hereafter described.


17. *X. pau/iosa.* Few-flowered Xyris. *Vahl.* n. 2. *Phytogr.* 2. t. 1. f. 1. *Vahl* n. 8. *Br.* n. 7.—Stalk quadrangular. *Leaves* linear; rough with minute marginal teeth. *Head* nearly globular. *Scales* shining, orbicular; spreading at the point, with a short triangular keel.—Gathered by Koenig and Rottler in the East Indies; and by Sir Joseph Banks, in the tropical part of New Holland. The *root* is a small dense tuft of pale fibres. *Stalk* from one to six or eight inches high, erect, straight, slender, fribated, roughish. *Leaves* several, erect, sometimes nearly as tall as the *flalk,* graffy, very narrow, taper-pointed, fribated, roughish, especially at the edges, where they are minutely toothed, or crenate, as in *X. dentiflora,* n. 13. *Head* the fize of a large pea. *Scales* chefnut-coloured, with a membranous, dilated, shining margin of a golden yellow, and each tipped with a green, triangular, projecling keel, or point, originating from the brown disk, but not extending beyond the membranous margin, with which it is incorporated. The prominence of this point, giving the head a squarrose aspect, is well expreffed in Willdenow's, otherwise miserable, figure. The two lowermost *scales* are barren, and closely preffed to the next. *Carrolla* yellow.

18. *X. bracteata.* Bracteated Xyris. *Br.* n. 8.—Stalk triangular. *Leaves* linear; their margins, and base of the keel, rough. *Head* roundish. *Scales* with a hoary disk, and brown membranous margin; the lower ones oblong, empty, with a linear disk.—Sent from Port Jackson, New South Wales, by Dr. White, in 1792. Mr. Brown found it in the same country, and we borrow from him the above characters of the *leaves,* wanting in our specimens. The *flalk* is a foot and a half high, fribed and rough, bluntly triangular, even, smooth to the touch, though Mr. Brown remarks that its moist acute angle is roughish. *Head* rather ovate.
XYRIS.

ovate than perfectly globose, one-third of an inch in length. *Scales* elliptical, abrupt, or partly margined; their disk elliptic-obovate, convex, not keeled, of a hoary or glaucous hue, finely dotted, not downy; their margin, at each side, about half as broad, membranous, of a shining brown, paler outwards. Three, four, or more, *scales*, at the bottom of each head, are di-tilated of flowers, shorter, much narrower, abrupt, oblong, not elliptical, with a peculiarly narrow disk, and have the appearance of *bracteae*. *Corolla* rather large, yellow, turning white in decay.

19. *X. juncea*. Rushy *Xyris*. Brown n. 9.— "Stalk roundish, flatly compressed, rather zigzag, smooth as well as the awl-shaped leaves. Head globose. Scales ovate, undivided, imbricated every way; their disk of the same colour as the margin. *Stigmas* many-cleft."—Gathered by Mr. Brown, in the neighbourhood of Port Jackson, New South Wales. The *flask* is only eight or ten inches high. We have no specimens answering to the above characters.

20. *X. gracilis*. Slender *Xyris*. Brown n. 10?—Stalk thread-shaped, smooth, scarcely twisted. Leaves linear, straight, rather engorged. Head oval, of few flowers. Scales imbricated every way; their disk hoary, margin blackish. *Stigmas* undivided.—Sent from Port Jackson, in 1792, by Dr. White. Mr. Brown mentions only the south part of New Holland, and Van Diemen’s Island, as the native country of this species, and yet we cannot refer our specimens to any other mentioned by him. Our plant is about half the size of *X. bracteata*, with fewer and paler flowers. *Head* small, elliptical, or obovate. *Scales* with a broad, hoary, or glaucous, disk, like that of the *bracteata*; but their membranous margin is of a darker brown, and, at the upper part of each scale, quite black, as if burnt. Several of the lowermost flae are smaller, linear-oblong, and of a more uniform brown. The *flages* are long, and undivided. *Stalk* somewhat compressed, fiddleneck above a foot high; Mr. Brown says a foot and half.

21. *X. filiformis*. Thread-shaped *Xyris*. Lamarck Illust. 132. Vahl n. 9. Poiret n. 9.—Stalk thread-shaped, compressed. Leaves linear-awl-shaped, compressed, two-ranked. Head and scales elliptical; disk and margin uniflorous; with a light trace of a keel.—Gathered by the late Mr. Smeathman, as well as by Dr. Adam Aitzellus, in marly sandy ground at Sierra Leone. The *root* is small and fibrous. *Leaves* four or five, fiddleneck, equitant, erect, linear-awl-shaped, compressed, very narrow, tapering, but rather obtuse at the point; their surface minutely speckled, and more or less evidently reticulated, or dotted; their length, in our specimens, from one to two inches; *Vahl* fidesflectly half an inch. *Stalk* solitary, six or eight inches high, very slender. *Head* the size of hemp-seed, but more oblong, acute at each end, of a copper-brown, not very shining; the two lowest flae are round, neither pale, more oblong, and strongly keeled; the rest elliptical, bluntly pointed, very smooth and even, without any limited disk, but sometimes marked with tenon of beautiful concentric veins; their keel feebly discernible, except in the form of a short pale elevation, near the apex, but not projecting into a point. *Corolla* yellow, small.

22. *X. flexifolia*. Wavy-leaved *Xyris*. Br. n. 11.— "Stalk thread-shaped, twisted, smooth, as well as the zigzag, flender, slightly compressed, leaves. Head oval, with few flowers. *Stigmas* undivided."—Found by Mr. Brown, on the southern coast of New Holland. *Stalk* from six to twelve inches high.


24. *X. lacerata*. Jagged-headed *Xyris*. Br. n. 15.— "Stalk round, smooth. Head nearly globular, many-flowered. Scales imbricated every way, torn into many segments."—Discovered by Mr. Brown, on the south coast of New Holland. We have seen no specimens of this, or the two species immediately preceding.


26. *X. vivipara*. Viviparous *Xyris*. Kuntz n. 2.— "Stalk somewhat compressed; roughish at the top. Leaves linear-awl-shaped; their sheaths fringed. Head globular; at length leafy and viviparous."—Gathered by Humboldt and Bonpland on the banks of the river Oroonoko, between the mouths of Venturius and Guaviare, flowering in May. *Root* fibrous, perennial. *Leaves* all radical, two-ranked, from two to four inches long, erect, bluntish, flatish, smooth, except a little roughness at the back; their *leaves*: keeled, fringed, fringed, roughish also at the back. *Stalks* about a foot high, smooth, except some roughness points towards the summit; enveloped at the base with a fringed, keeled, bluntish, smooth, rough-backed *flabellum*, an inch and a half long. *Head* globose, rather abrupt, the fize of a pepper-corn. *Scales* roundish-ovate, bluntish, brownish, coriaceous, smooth, rather transparent at the margin. After flowering, the head throws out from its centre a leafy crown, which becomes a young plant. *Kuntz*.

We are not told whether this leafy tuft originates in the vegetation of one or two of the seeds; or in the *germen* being inculpated in the flower by a bud; or, which is the leaft likely, in a proliferous elongation of the *flask*, independent of the parts of fructification altogether.

27. *X. operculata*. Imbricated *Xyris*. Labill. Nov. Holl. v. i. 14. t. 10. Brown n. 14. Poiret n. 13. Curt. Mag. t. 1158.—Capsule partly three-celled, *Stalk* round. *Leaves* thread-shaped. *Head* obtuse. *Scales* beardless, imbricated in five rows, with numerous empty ones, gradually smaller at the base.—Sent from Port Jackson, New South Wales, by Dr. White, in 1792. Mr. Brown also observed it there; and Labillardiere in Van Diemen’s Island. Neither the figure of the last-mentioned author, nor that in the Botanical Magazine, by any means represents the remarkable charafter of the five-ranked flae of the *head*, and the numerous, gradually diminishing ones, destitute of flowers, at its base; so that, but for Mr. Brown’s authority, we should have supposed our Port Jackson plant to be essen- tially and widely different. Dr. White’s specimens are without leaves. The *flask* is about eighteen inches high, round, or slightly angular, quite smooth. *Head* obtuse, full half an inch long, with five rows of very numerous obvolute flae, whose broad convex disk is of a bronze-like hue; the margin brown and narrow, more or less jagged, with a deciduous tooth-like fringe. *Flowers* large, bright yellow. *Stigmas* obtuse.

28. *X. lanata*. Woolly *Xyris*. Br. n. 15.— "Stalk round, smooth. Leaves linear, narrow. Head nearly glo- bular. Scales woolly at the extremity, imbricated in five rows, with several empty ones, gradually smaller at the base."—Gathered by Mr. Brown, on the southern coast of New Holland.

The above great accession of new species throws much light
light on this hitherto little-known, and ill-described, genus of plants. Could they all be compared together, even in a dried state, we have no doubt that their specific characters, and the principles on which they are founded, would derive considerable improvement; and that Xyris, whose generic marks are so well established, would afford a beautiful display of clear and specific specific discrimination. Whether the leaves of any of the species be really toothed, in a living state, we have considerable doubt. Their foliage partakes greatly of the cellular texture, so remarkable in the neighbouring genus Ericea;alum; with which also they closely accord in inflorescence, and general habit. Mr. Brown, in his Prodromus, has elucidated both these genera, as far as concerns their numerous New Holland species, with infinitely more success than any other botanist; the one genus having previously been feebly better understood than the other.

XYSMALOBium, from Συμαλαμάν, a shrub, or narrow-bered, and λαμβία, a pod, alluding to the thready coat of the seed-vest, which is very peculiar.—Brown Transf. of the Wernerian Soc. v. 1. 38. Asclepias. 27. Ait. Hort. Kew. v. 2. 79.—Clasf and order, Pentandria Digynia. Nat. Ord. Contorte, Linn. Apocinea, Jaff, Asclepiadse, Brown.

Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, lanceolate, acute, permanent segments. Cor. of one petal, in five deep, ovate, spreading, rather oblique segments. Crown of the flamin in a single row of ten deep segments; five of them feathery, roundish, opposite to the anthers, simple at the inner side; five intermediate ones smaller. Stam. Filaments scarcely any; anthers five, each tipped with an ovate blinfh membrane; mafles of pollen ten, compressed, smooth, pendulous, with rather broad con-necting procde. Pil. Germens two, ovate, pointed; styles very short; common stigma pointtles. Peric. Folicles two, inlaced, clothed all over with numerou5, long, fonder, tapering, hairy, filamentous proc fuse. Seeds numerous, imbricated, crowned with silky down.


A genus of upright shrubs, with opposite, fometimes alternate, leaves. Umbel lateral, either axillary, or between the ftoofstalks. Flowers rather large; the limb of the corolla sometimes bearded. Only two species are at present known, both natives of Southern Africa.

1. X. undulatum. Waved-leaved Xyismalobium. Dryand. in Ait. n. i. (Asclepias undulata; Linn. Sp. Pl. 312. Willd. Sp. Pl. v. 1. 1262. See Asclepias, n. i. Aponynum africamum, lapathi folio ; Comm. Var. 16. t. 16.)—Leaves undulated, naked. Corolla bearded. Native of the Cape of Good Hope. Sent to Kew garden, in 1763, by Mr. John Grazier. This is a green-houfe plant, flowing in July. Mr. Aiton marks it as a shrub; but Co-melin fays the thick, white, perennial root fends up every year, in the early spring, two or three thick, round, green, leafy stems. All authors fpake of the leaves as opposite; but in our Linnean fpccimen, gathered at the Cape by Thunberg, they are alternate, fefile, three or four inches long, ovato-lanceolate, gradually tapering to a blinfh point, with a thick mid-rib, and numerous interbranching veins; nearly smooth on both fides; undulated and rough breath. Umbels axillary, falked, much shorter than the leaves, with falty falks, and linear hairy branches. Flowers green, their segments densely bearded at the extremity, with white faggy hairs. Follicles covered with fpreadiig hairy filaments, an inch long. Every part of the plant, when wounded, difcharges a copious milky fluid.

2. X. grandiforum. Large-flowered Xyismalobium.
Y

The twenty-third letter in the English alphabet, borrowed, originally, from the Greek ι.

It is occasionally both vowel and consonant. As a vowel some authors have judged it unnecessary in our language, because its sound is precisely the same as that of the i. Accordingly, it is but little used, except in words borrowed from the Greek, to denote their origin, by representing the Greek υ ὑ.

The vowel y, however, has a place even in some words purely English; and that both in the middle of them, as in dying, frying, &c. and at the end, as in lay, &c.

Some ascribe the use of the y, in pure English and French words, and those that have no y in Latin or Greek, to this; that anciently each of those words was written with a double ii; which having something awkward in it, the y was substituted in their place.

Others say, that those words being anciently written, as well as pronounced, with a double ii, as they still are in the Walloon, as paining, painifan, &c. to avoid their being mistaken for an u with two dots over it, they made the second i longer than the first, and so formed the y without defigning it.

Some give a particular reason why words ending in i came to be written with y; viz. that the copysts found the tail of the y very commodious, in adorning the margins and bottoms of pages.

Y was much used by the Saxons; whence it is found for i in the old English writers.

When the y follows a consonant, and at the end of words, it is a vowel, and has the sound of i; and when it precedes a vowel, or diphthong, and at the beginning of words, it is a consonant.

Some have thought that y is in all cases a vowel; but Dr. Johnson observes of y, of as, that it follows a vowel without any hiatus, as it is the Saxons; whence it is found for i in the old English writers.

The Romans used the y for the vowel u, which they had no character for, distinct from the ο consonant; their way being to pronounce the common u, as we do the diphthong eu; and the Greek υ ὑ, as the English and French u.

Peter Diaconus observes, that Augustus first took the letters y and ι from the Greeks, which were not used by the Romans before his time; ι ι being written for ι, and i for ι. But Mr. Jackson shews, that the y was used before the time of Augustus, though probably (says Aristotle, Orig. and Progr. of Writing, p. 78.) it was not much older.

In our own and some other modern tongues, authors begin to dispense more and more with the precise orthography, which requires all words that have an upilon, in the Greek, to be written with a y. And with reason; since our Greek y has lost the sound it had, in the language from which we borrow it. But it is certainly ridiculous to use it, as many do, in words which indeed have a Greek origin, but have no u in the Greek, as in ecclife: yet some affect to do this.

Y is also a numeral letter, signifying 150, or, according to Baronius, 159; as in the verfe—

"Y dat centenos et quinquaginta novens."

When a dash was added at top, Y, it signified 150 thousand.

Pythagoras used the Y as a symbol of human life; the foot representing infancy, and the forked top the two paths of vice and virtue, one or the other of which people are to enter upon, after attaining to the age of discretion.

Y, on the French coins, denotes those struck at Bourges.

Y, in Geography, a city of China, of the second rank, in Chan-tong; 317 miles S.S.E. of Peking. N. lat. 35° 10'. E. long. 118° 19'.

Y, a city of China, of the second rank, in Pe-tche-li; 55 miles S.W. of Peking. N. lat. 39° 25'. E. long. 115° 14'.

Y, or Ey, a river, or broad piece of water, which palls by Amsterdam, exhibiting the appearance of a creek of the sea rather than of a river.

YA, a city of China, of the second rank, in Se-tchuen, on the borders of Thibet; 840 miles S.W. of Peking. N. lat. 36° 35'. E. long. 102° 39'.

YABAQUE, one of the Bahama islands, situated in N. lat. 23° 30'.

YABARGULSKAIA, a town of Russia, in the government of Tobolik, on the Irtsch; 120 miles E. of Tobolik.

YABAY, a town of Burmah; 50 miles S.W. of Ava. YABTONOI, a ridge of the Altai chain in Asiatic Russia, bending in a northerly direction to the vicinity of Ochotk. The name denotes the mountains of Apples.

YACHT. See Ship, and Plate XIII. Ship-Building.

YACHTA, in Geography, a fort of Russia, in the government of Irkutsk, on the borders of China; 48 miles S.S.W. of Selengink.

YACINTE, St. See St. Tainite.

YACONG TALA, a number of small lakes in Thibet, situated near each other. N. lat. 30° 52'. E. long. 78° 39'.

YADAVA, in Hindoo Mythology, a name of the Hindoo Kriithns. It is said to indicate his being of the family or tribe of Yadu.

YAD, in Geography, a river of Russia, which runs into the Obâkaia gulf, N. lat. 68° 25'. E. long. 72° 38'.—

ALSO, a river of Russia, which runs into the Obâkaia gulf, N. lat. 67° 25'. E. long. 72° 18'.

YADKIN, a river of North Carolina, which rises in the F Allegany.
Allegany mountains, and after a course of about 100 miles, changes its name to Pedee, in North Carolina; 9 miles S.W. of Salem.

YADRIN, a town of Ruffia, in the government of Kazan; 122 miles W. of Kazan. N. lat. 55° 34'. E. long. 45° 44'.

YAEGONMEEW, a town of Pegu; 58 miles S. of Prone.

YAFFA. See Jaffa.

YAGARCHOCA, a lake of South America, in the jurisdiction of St. Miguel de Ibarra. It is famous for having been the sepulchre of the inhabitants of Otolcho; upon this place being taken by Huana Capac, the 12th ynea, he, instead of offering any clemency to them on account of their magnanimity, being exasperated at the noble refilance which they made against his army, ordered them all to be beheaded, both those who had quietly surrendered, as well as those taken in arms, and their bodies to be thrown into the lake; so that from the waters of the lake being tinged of a bloody colour, it acquired its present name, which signifies a lake of blood.

YAGATH, in Mythology, a deity adored by the ancient Hindoos, or under the figure of a lion.

YAGO, St. in Geography. See St. Tago.

YAGUACHE, or ST. JACINTO DE YAGUACHE, a town of Peru, and principal place of a lieutenantcy, in the province of Guayaquil; 25 miles N.E. of Guayaquil.

YAGUASH, a town of the island of Cuba; 22 miles S. of Bayamo.

YAGUARIBE, a river of Brazil, which runs into the Atlantic, S. lat. 13° 12'.

YAGUARON, a town of South America, in the province of Paraguay; 10 miles S.E. of Assumption.

YAGUEPIRI, a river of Brazil, which runs into the Negro, 50 miles above Fort Rio Negro.

YAH, in Hindu Mythology, a name of Pavana, the Hindoo god or regent of the wind; another of whose names is Vayu. See PAVANA and VAYU.

YAHANGA, in Geography, a small island in the sea of Japan. N. lat. 43° 8'. E. long. 131° 45'.

YAHEBIRI, a river of South America, which runs into the Parana. S. lat. 24° 42'.

YAIK, a considerable stream of Atavtic Russia, which flows into the Caspian. The name has been recently changed for that of Ural, on account of a daring insurrection of the tribes bordering on the YaiK.

YAITCHNEI, a small island of Russia, in the Penzinsko fea. N. lat. 60° 30'. E. long. 165° 50'.

YAIVA, a river of Russia, which runs into the Kama, 16 miles S. of Solikamsk, in the government of Perm.

YAK, in Zoology, the bar grunniens of the Linnaean syllen, or ox with cylindric horns curving outwards, very long pendant hair, and extremely villous horfe-like tail, the grunting ox of Pennant, and yak of Tartary, has been lately particularly described by Turner, in his "Embassy to Tibet." He calls it the bashly-tailed bull of Tibet; and in Hindooslan it is denominated foora goy. It is about the height of an English bull, which it resembles in the general figure of the body, head, and legs. He could discover no difference between them, except that the yak is wholly covered with a thick coat of long hair. The head is rather short; the horns tapering from the root, upwards, and terminating in sharp points; arched inwards, and bending towards each other, but a little turned backwards near the extremities; the ears small; the forehead prominent; the eyes full and large; the nose small and convex; the nostrils small; the neck short and curved; the withers high and arched; the rump low; over the shoulders rises a thick mufcle, like the protuberance peculiar to the cattle of Hindooslan, covered with a profusion of soft hair; the tail composed of a prodigious quantity of long, flowing, glossy hair; the shoulders, rump, and upper part of the body, clothed with a fort of thick soft wool, the inferior parts having strait pendant hair that descends below the knee, and sometimes trailing on the ground; from the cheek, between the legs, iflies a large pointed tuft of straight hair, somewhat longer than the rest; the legs very short. In all other respects, this animal resembles the ordinary bull. These cattle appear of a large bulk; they have a downcast heavy look, and, as they appear to be, fallen and fupplious, and very impatient at the near approach of strangers. Their lowing is not loud, but a kind of fearfully audibly grunting noise. They are paitured in the coldest parts of Tibet, on the short herbage peculiar to the tops of mountains and bleak plains. Their favourite haunt is the chain of mountains that is situated between the latitudes 27° and 28°, which divides Tibet from Bootan, and whose summits are commonly covered with snow. They are a valuable property to the tribes of itinerant Tartary, called Duckba, who live in tents, and tend them from place to place; they at the same time afford their herdsmen an easy mode of conveyance, a good covering, and wholesome subsistence.

They are never employed in agriculture, but are very useful as beasts of burden; for they are strong, sure-footed, and carry a great weight. Tents and ropes are manufactured of their hair, and caps and jackets are made of their skins. Their tails are much esteemed; and under the denomination of shewnies, they are universally used for driving away winged insects, flies, and mulipquitoes, and are employed as ornamental furniture upon horses and elephants. They supply an abundant quantity of rich milk and excellent butter, which may be kept in skins or bladders through the year, and to the utmost verge of Tartary furnishes a very material article of commercial produce. The orientals highly value a large kind of bezoor that is sometimes found in this animal's stomach. The yak is said to vary in colour, as well as in the length and form of the horns. Those with white tails are most esteemed; and sometimes their horns are as white as ivory.

In India no man of fashion ever goes out or sits in form at home without two "chow badar," or brushes, attired in each furnished with one of these tails, mounted on silver or ivory handles, to brush away the flies. The Chinefe dye them of a beautiful red, and wear them as tufts to theirummer bonnets.

Elhan, according to Pennant, is the only ancient writer who takes notice of this singular species.

YAK, in Geography, a name given by the Okiaks to the Oby; which see.

YAKE DSAKE, a lake of Thibet, about 12 leagues in circumference. N. lat. 34° 40'. E. long. 90° 24'.

YAKSAI. See AKSHA.

YAKSHA, in Hindu Mythology, a race of malignant beings of hideous form, into whom the souls of bad men are said to migrate; particularly the souls of such as in this life are addicted to foridic and base passions, or absorbed too much in worldly prosperity. In the plural, they are termed Yakshas; and are assigned as slaves or servants to Kuvra, the Plutus of the Hindoo Panteon. Another race of beings, of a like description, is called Raksha. (See that article.) Rakshni and Yakshni are the feminines of these races of demons. These names, and some notes of their characters
YAK

characters and attributes, occur in the articles Kuvera, Ravena, and Sitanta.

YAKSHNI-DEVI, a name and an inferior manifestation of the Hindoo goddess Parvati. It means goddesses of malignant beings; one race of whom are in the masculine termed Tafta, which article, and others thence referred to, the reader dehors of information concerning them may consult.

YAKSIMVAR, in Geography, a town of Russia, in the government of Viborg, on the north-west coast of lake Ladoga; 8 miles S. of Serdopol.

YAKUTS, a town of Russia, in the government of Irkutsk, on the Lena, which is here about two leagues in width; but it is greatly impeded with ice, and navigable only by a few small boats, chiefly employed in supplying the town with provisions. This town is the capital of a province, to which it gives name; it contains between 500 and 600 houses, mostly of wood, with stone churches, and is defended by a wooden fort. The best fables are found near this town and Nerchinsk; 960 miles N.E. of Irkutsk. N. lat. 63° 5'. E. long. 129° 14'.

YAKUTS, the Province. The Yakutes, or, as they denominate themselves, Sucho, or natives of this province, are robust, and in general large; they resemble the Tartars in the cast of their features, and there is said also to be a great similarity in the idioms of these two people. Their ancient homestead extended from the Sayane mountains as far as the Angara and the Lena. Persecuted by the Buruts and Mongoles, they removed down the Lena to their present rude and inclement districts, where they are found in the government of Irkutsk on both sides of that river quite to the Frozen ocean. In the year 1620 they submitted to the Russian conquerors, and at the middle of the last century they numbered upwards of 40,000 souls; but since that time they are considerably increased. Their dress is simple, and nearly the same all the year round; the only difference is, that in winter it is made of skins; over their chemise they commonly wear a large striped waistcoat with sleeves; their breeches do not extend below the middle of the thigh, but their long boots, called farri, reach above the knee. In hot weather they wear nothing but the breeches. Polygamy forms a part of the political code of this people; obliged to make frequent journeys, a Yakut has a wife in every place where he stops, but he never affames them together. Notwithstanding this licence, they are jealous to excess, and the sworn enemies of any one who shall dare to violate the rights of hospitality. When summer commences, they leave their winter habitations, and with their families and a small number of horses, make their harvests of fodder for consumption during the frost season. They repair to a considerable distance from their yourt, and to the most fertile cantons. In their absence, the horses are left to the care of the servants, and the neighbouring pastures serve for the maintenance of all their herds. Chamans, or forcerers, are regarded as interpreters of the gods; they grant their intercession to the stupid Yakute, who implores it with trembling, but always pays for it. In the idolatry of the Yakutes, we find all the abfurdities and superlative practices of the ancient Kamtchadales, Corliaks, Tchutchis, and other inhabitants of these countries. The funerals are attended with a kind of pomp more or less magnificent, in proportion to the rank and wealth of the defunct. If a prince, he is arrayed in his finest habits, and most splendid arms. The body, placed in a coffin, is carried by the family to the tomb; deep groans announce the solemn procession; his favourite horse, and another the best in his stud, both richly caparisoned, and led by a valet, or near relation, walk by the side of the corpse. When arrived at the burying-place, they are tied to two stakes, fixed near the grave, and while the matter is interred, their throats are cut over the corpse. This bloody libation is the homage paid to his attachment to these animals, who are suppos'd to follow him into the other world, where it is imagined that he will again be able to enjoy them. They are then flayed; the head and hide, in one entire piece, are fixed horizontally upon the branches of trees at a small distance from the grave; and fuch is the memorial that is erected. A fire is then kindled, and the laft proof of friendship for the deceased confists in roasting and eating upon the fpot their favour'd animals; the tabl being con- cluded the company difperfes. The fame ceremonial is observed for a woman, except that instead of a horse, they sacrifice her favourite cow. Their houfes, like the yorts of the wandering Koriaks, are circular, spacious, and constructed with poles, fewer in number, but ranged in the fame manner, and kept afunder by a fort of hoops at the top, the whole covered with the bark of the birch-tree, formed into pieces eighteen inches wide, placed in a downward direction. These pieces are edged with a kind of ribband, made of bark, and shaped into foetons, and the inside of the yourt is ornamented in the fame manner. The taste of the ornaments is governed by the caprice of the proprietor, and there is in them a fsort of wildnefs that is inefufficiently amusing. The fame decoration is annexed to the chairs and beds of the heads of families. The domestics lie upon the ground on mats or skins, and the fire is lighted in the middle of the houte. See YUHAGHIRS.

YALE, a town of the island of Ceylon; 36 miles S.S.E. of Candi. N. lat. 6° 52'. E. long. 81° 20'.—Allo, a river of Ceylon, which runs into the sea, on the S.E. side of the island, N. lat. 6° 23'. E. long. 81° 41'.

YALE College. See COLLEGE.

YALEPUL, in Geography, a town of Ceylon, at the mouth of the Yale; 30 miles S. of Yale.—Allo, a town of the island of Ceylon, near the E. coast; 96 miles S.E. of Candi.

YALLAH'S BAY, a bay of the island of Jamaica, on the S. coast, situated to the E. of Yallah's Point.

YALLAH'S POINT, a cape on the S. coast of Jamaica; 12 miles S.E. of Kington. N. lat. 17° 53'. W. long. 76° 21'.

YALLAH'S RIVER, a river of Jamaica, which runs into the sea, a little to the east of Yallah's Point.

YALMAL, a cape on the E. coast of Russia, in the Karfkeo sea. N. lat. 72°. E. long. 68° 24'.

YALME, a river of Devonshire, which runs into the English Channel, 7 miles S.E. of Plymouth.

YALLOFFS, YALLOFFS, JALOFFS, or Jaloffs, an active, powerful, and warlike race of negroes, and esteemed the most hardy of all the people, who inhabit a great part of that tract of Africa which lies between the Mandingo states, on the river Gambia to the S., and the Senegal to the N. and E. See JALOFFS.

The Yalloffs differ from the Mandingoos, (see MANDINGO) not only in language, but likewife in complexion and features. Their noses are not so much deformed, nor the lips so protruberant, as among the generality of Africans; and although their skin is of the deepest black, they are considered by the white traders as the most slighty negroes in this part of the continent. They are divided into several independent states or kingdoms; which are frequently at war either with their neighbours, or with one another. In
their manners, superstitions, and government, however, they have a greater resemblance to the Mandingoos than to any other nation; but excel them in the manufacture of cotton cloth, spinning the wool on a finer thread, weaving it in a broader loom, and dyeing it of a better colour. Their language is said to be copious and significant, and is often learnt by Europeans trading to Senegal. Their numerals are as follow:

| Number | Yeen | Yar | Yanet | Judom | Judom Ween | Judom Yar | Judom Yanct | Fook | Fookang Ween, &c. |

Park's Travels, vol. i.

In connection with this brief account of the Yaloffs, we cannot forbear mentioning an anecdote which redounds very much to the honour of Damel, their king. On occasion of a war between Damel and Abdulkader, king of Foota Torra, a country to the W. of Bondon, the latter inflamed with zeal for propagating his religion, sent an ambassador to Damel, accompanied by two of the principal Bahreens, who carried each a knife, fixed on the top of a long pole. When they obtained admittance into the presence of Damel, they announced the object of their embassy in the following singular manner:—"With this knife," said the ambassador, "Abdulkader will consecrate the head of Damel, if Damel will embrace the Mahometan faith; and with this other knife, Abdulkader will cut the throat of Damel, if Damel refuses to embrace it—take your choice." Damel coolly replied, that he had no choice to make; he neither chose to have his head shaved, nor his throat cut: and with this answer the ambassador was civilly dismissed.

Abdulkader with a powerful army invaded Damel's country. The inhabitants of the towns and villages filled up their wells, destroyed their provisions, carried off their effects, and abandoned their dwellings as he approached. Thus he was led on from place to place, until he had advanced three days' journey into the country of the Yaloffs. Several of his men had died with fatigue and hunger by the way. This led him to direct his march to a watering-place in the woods, where his men, having allowed their thirst, lay down, overcome with fatigue, to sleep among the bushes. In this situation, they were attacked by Damel before daybreak, and completely routed. Many were killed, and a greater number taken prisoners. Among the latter was Abdulkader himself, who was led, as a miserable captive, into the presence of Damel. The behaviour of Damel on this occasion is celebrated, in terms and sounds of the highest approbation, by the baying men. When his royal prisoner was brought before him in irons, and thrown upon the ground, the magnificent Damel, instead of setting his foot upon his neck, and stabbing him with his spear, according to the custom in such cases, addressed him in the following manner:—"Abdulkader, answer me this question. If the chance of war had placed me in your situation, and you in mine, how would you have treated me?" "I would have thrice my spear into your heart," returned Abdulkader with great firmness; "and I know that a similar fate awaits me." "Not so," said Damel; "my spear is indeed red with the blood of your subjects killed in battle, and I could now give it a deeper sting by dipping it in your own; but this would not build up my towns, nor bring to life the thousands who fell in the woods. I will not therefore kill you in cold blood; but I will retain you as my slave, until I perceive that your presence in your own kingdom will be no longer dangerous to your neighbours; and then I will consider of the proper way of disposing of you." Abdulkader was accordingly retained, and worked as a slave for three months; at the end of which period, Damel listened to the solicitations of the inhabitants of Fouta Torra, and restored them their king.

YALOVA, a town of Natalia, on the sea of Marmora, once the residence of Dioclesian; 30 miles N. of Brifa.

YALUTOROVSK, a town of Ruffia, in the government of Tobolsk, on the river Tobol; 108 miles S.W. of Tobolsk. N. lat. 56° 8'. E. long. 66° 32'.

YAM, in Botany, a large filthy root, eatable when boiled or roasted, of which there are several species, all natives of tropical climates, and highly useful to voyagers, as they will, like potatoes, keep for a considerable time without spoiling. See Dioscorea.

YAM, in Geography. See JAMEZ.

YAMA, in Hindoo Mythology, is the god of the infernal regions, corresponding with the Pluto of western heathens. Yama is a very important deity; his name is of perpetual recurrence in the sacrificial ceremonies of the Hindoos; obligations and invocations to him forming a portion of many of those ceremonies. The Hindoos, as is explained under our article Marut, have assigned regents or guardian deities to each of the cardinal and intermediate points of the world. Yama is regent of the south, or lower world, in which the Hindoos place the infernal regions; this corresponding with the Grecian Pluto or Minos. Under our article Meni, the great law-giver of this name is supposed to have been the same person as the Minos of antiquity. Yama has many names; and in his character and functions is found related to many important personages of sacred and profane history. Among his names are, Dhrmara, or king of justice; Purjiti, lord of the Purjits, or patriarchs (see Purjit); and Mritu, meaning death; a name also of Kala, or Siva. (See those articles.)

Suan-yama, and Vairavatwa-yama, are others of his names, derived, it is said, the first from a term denoting comeliers or beauty, the other from his solar origin; Yama being of the race of the sun, of which some explanation will be found under our article Suravansa. He is also named Suddha-dhena, or lord of the obsequies, in honour of deceased ancestors, of which a copious account is given under Sraha. As well as the Seventh Meni, Yama bears likewise the name of Satyavrita. He is also named Adhumbara; this name is said to be derived from a species of wood, by the attrition of which fire is produced, wherewith to light the piles on which funeral obsequies are performed to Yama. Every thing connected with the important element of fire is peculiarly mystical with the Hindoos. Touching the sacrificial and other fires, the reader will find many particulars under our articles Pava, Sagnika, Sami, and others: whence referred to. Anbeha is another name of Yama; it means death, or the destroyer: thus the compound Kal-anbeha-yama is Yama, the destroyer of Kal or Time, a peronification of great boldness and extent. Kal is also a name of Yama. (See KAL.) Yama has other compound names, meaning the slayer of all beings, king of deities, reducer of all things to ashes, the dark-blue deity, of wolf-like
like belly, the variegated being, the wonderful inflictor of pain, &c.

His abode is in the infernal city of Yamapur, whither the Hindoos believe that a departed soul immediately Repairing and receiving a just sentence, ascends to Sverga, the first heaven, or descends to Naraka, the naky hell; or is returned to earth, according to its merits or demerits, where it assumes the form of some animal, unless its offences had been such as deserved condemnation to a vegetable or even to a mineral prison. This extensive theory of transmigration is of a very poetical tendency, affording great scope for the imagination, which the mythical and enthusiastic turn of Hindoo metaphysicians or theologians has amply indulged in.

Mr. Wilford believes Yama to be the same with Sersapis; deriving the latter from a Sanskrit term, implying thirst of blood. In the Puranas, Yama is described as attended by two dogs, named Serbura and Syama; the first name signifies raven, and it has other appellations meaning flayed or spitted. When we add that it was also called Tri-siras, or the three-headed, little doubt can be entertained of its being the same as the Cerberus of the Greeks. Syama means black. See SERBURA, SYAMA, and TRI-SIRAS.

As Dharma Raja, or the king of justice, Yama is described in the Puranas as having two countenances. "One, called his divine countenance, is mild and benevolent; and those only see it who abound in virtue. In this form, he is called an emanation of Vishnu. He is attended by a servant named Karmala, who conducts the righteous on self-moving cars into the presence of their judge. His other countenance or form is more terrifically named Yama. He is then depicted with large teeth and a monstrous body, and is thus seen only by the wicked. His attendant is named Kahmala, who drags the wicked with ropes round their necks over rugged paths; and at the command of Yama some are beaten, some cut to pieces, some devoured by monsters, and thrown headlong into hell. He is unmerciful, hard is his heart, and every one trembles at his sight."

"Yama is the name of a celebrated legislator, whose enactments are still venerated by the Hindoos. For his profound knowledge and justice, he is said to have been the judge of departed spirits.

In the feconding of mythologies, Yama is found to be identified, or nearly so, with both Siva and Vishnu, (see those articles,) as well as with Menu, Kala, and others. This may be reconciled, as in the mythology of Greece, by recollecting that almost all the deities met into one. Proserpine or Hecate is given to Pluto as a help-mate, being but another form of Diana. Thus Yama has a form of Parvati asigned him, under the name and character of Pataladevi, or goddess of the infernal regions. (See PATALADEVI.) In heaven Diana is Luna, and Parvati is Svardevi, or queen of heaven. On earth they are distinguished by the names of Diana and Bluddevi, the latter meaning goddess of the earth. These similarities or coincidences could be carried to a great extent.

Some of the ceremonies still in use as propitiating Yama, or his consort Sakti, (which see,) have been found by Sir W. Jones and others, as strikingly resembling those of the Eleusinian goddess; and there can be no doubt but the investigation of the mythological fables of the Hindoos has thrown great light, and may throw still greater, on many obscure and unintelligible passages of our ancient poets of Europe.

We do not find any direct representation of Yama, or any minute description of his person and attributes, in the mythological works before the public; nor many particulars of his family. We have already noticed him as the offering of the fun; this he shares in common with several other of the heroic personages of the Hindoos. Yama is indeed one of the many names of Surya, or the sun. The river Yamuna, or Jumna, or rather perhaps the damsel who here poetically metamorphosed into that interesting stream, is styled the twin sister of Yama. She is poetically called the "blue daughter of the sun." Days are especially kept apart for certain ceremonies to their honour. On one, Yamuna is said to have entertained her brother; and the remembrance of it is preserved in an existing usage of Hindoo young ladies feasting and making their brothers presents on its anniversary. In the Rig-veda (see VEDA), a dialogue is given, in which Yama endeavours to seduce his benevolent father; but his base offers are rejected by her with virtuous expostulation. In some accounts, a divinity named Swadha is described as the goddess of funeral obsequies; and as such we should expect to find her closely allied to Yama, but know little of the relationship. We have noticed her under the article SWADHA. Several other of our articles contain some particulars of Yama. See KASVA, KRITANTA, SARADHADEVA, TAPAS, and VAIVASWAT.

YAMAMAK, in Geography. See JAMA.

YAMANCHALINSKOI, a town of Russia, in the government of Cancaus, on the Ural; 20 miles N. of Guriev.

YAMASCA, a river of Canada, which runs into the St. Laurence, N. lat. 45°. W. long. 72° 45'.

YAMASCO, a town of Canada, at the confluence of the Yama and the St. Laurence.

YAMBLAK, one of the Aleutian islands; which see.

YAMBO. See JAMBO.

YAMBURG, a town of Russia, in the government of Peterburgh, on the Luga. The cloth manufactory at this place was instituted by Catharine II., preferently after her accession to the throne; it contains 36 looms, and employs 600 persons. The cloths are sold at St. Peterburg at a low price; 20 miles E. of Narva. N. lat. 59° 15'; E. long. 28° 40'.

YAMEOS, a town of South America, in the audience of Quito, on the river Amazons; 36 miles W.S.W. of St. Joachim de Omacugai.

YAMIMA, a river of Russia, which rises in the government of Tobol', and runs into the Irtysch, 14 miles S.S.W. of Kozlovo.

YAMINA, a town of Africa, in the kingdom of Bambara, near the Niger. This town, according to Mr. Park, was large, covering the same extent of ground as Sanfanding; but having been invaded and plundered a few years since by the king of Kaarta, it was, when he was there, half in ruins. N. lat. 13° 45'; W. long. 12° 50'.

YAMON BAY, a bay on the coast of the island of Luion. N. lat. 14° 21'; E. long. 123° 37'.

YAMSHEVSKAIA, a fort of Russia, in the government of Kolvian, on the Irtysh. N. lat. 51° 55'; E. long. 77° 50'.

YAMSKA, a gulf of Russia, in the Penzinskoi sea, between Cape Pilatelin and the continent. N. lat. 60° 20'; E. long. 154° 14'.

YAMSKO, a town of Russia, near the gulf of Yamskia; 2500 miles E. of Tobol'. N. lat. 60° 12'; E. long. 155° 34'.

YAMUMINTI, in Hindoo Mythology, the name of one of.
of the wives of the amorous Hindoo deity Krishna. Her name seldom occurs.

YAMUNA, in Geography, a river of India, which takes its rise, as is supposed, in the great range of mountains called Himalaya. Its course has not been accurately explored, but it probably is not more remote than that of the Ganges, which rises in the southern part of that range. The Yamuna flows through the province of Singhara, or Serinagar, in a foitherly course, nearly parallel with the Ganges, approaching its fuller stream to within forty miles, at the village of Garudavara (Gurudwar), in N. lat. 30° 22'; it is then of nearly equal width. The Yamuna enters Hindooout Proper, in the province of Delhi, varying its distance from eighty to fifty miles from the Ganges. The country between them is called Doobab, a word meaning two waters, or watered by two rivers. It is a very fertile district. The rivers approximate and join at Allahabad, an important fortress and military station under the Bengal government, when the Yamuna, little inferior in magnitude, has its name and waters absorbed in the more celebrated stream. Its length, of course under its own name, is estimated at about nine hundred miles.

For many miles of its course, the Yamuna, or Jumna, as it is more properly called, was considered a boundary to the British territories, dividing them from the possession of the Mahrattas. But from its shallowness, being fordable in many places in the dry season, it was not an important military barrier; and for the same reason is of less consequence for the operations of commerce.

The confluence of any two rivers is viewed with holy respect by Hindoos; of these two grand streams more particularly. To heighten the myrificm, (any ternary connection being still more deeply venerated,) it is feigned that a third river, the Sarafwaty, joins the other two by a subterranean communication at Allahabad. Frequent allusion is made to this occult union by mythological poets, who teach that these three rivers are terrene manifestations of the three great deities, Parvati, Lakshmi, and Sarafwati; the Sakti, as they are called, or active energies of their respective lords, Siva, Vishnu, and Brahma, who compose the Hindoo triad of divinity. Of these personages sufficient will be found in the articles given under their several names in this work. The fable of the "three plaited locks," as this supposed union of these rivers is poetically called, often occurs in the writings of the Hindoos: it is noticed in our articles JUNCTIONS, TRIVENI, and ZENNA. Under SUICIDE, an account is given of the supposed proneness of the Hindoos to this crime. At the confluence now under our notice, it not only loses its form, but assumes a meritorious form. Of this, lie more under SUITTEL.

The river deities Yamuna is made by mythologists to be the same with Lakshmi, comfort of Vishnu, and twin sister of Yama, the judge of departed spirits, and ruler of the infernal regions. Of these personages sufficient occurs under their respective names.

YAMUThA, one of the Aleutian islands. N. lat. 53° 40'. E. long. 180° 29'.

YAMYA KONDA, a town of Africa, in the kingdom of Yani.

YAMyAMA KUNDA, a town of Africa, in the kingdom of Toman.

YANA, a river of Russia, which rises in a lake, situated in lat. 62° 14', long. 131° 14', and running due north, being supplied by many small streams, empties itself into the Frozen sea, N. lat. 71° 25'. E. long. 131° 16'. At its discharge it forms five considerable rivers, which issue in a capacious bay.

YANAM, a town of Hindoostan, in the circuit of Rajamundry; 28 miles S.E. of Rajamundry.

YANATONG, a town of Burma; 40 miles S. of Mollone.

YANAVA, a small island at the mouth of the river of the Amazons; 10 miles N. of Caviana.

YANABOO, a town of Birmah, on the Irawaddy, remarkable for its manufacture of earthenware; 70 miles W.S.W. of Ava.

YANDINSKOEI, a town of Russia, in the government of Irikutik, on the Angara; 160 miles N.N.W. of Irikutik. N. lat. 54° 30'. E. long. 103° 20'.

YANFONG, a town of Corea; 40 miles E.S.E. of Outchuen.

YANG, a town of Corea; 13 miles E. of King-ki-tao.

YANGFONRAW, a town of Pegu; 60 miles S. of Lundey.

YANG-CONG, a river of China, which runs into the Kincha river, near Lo-chou-tong.

YANG-FO, a river of China, which joins the Sancambo, N. lat. 40° 23'. E. long. 112° 49'.

YANG-KIN, a town of the kingdom of Corea; 15 miles S.E. of King-ki-tao.

YANG-LI, a city of China, of the second rank; 1157 miles S.S.W. of Peking. N. lat. 22° 54'. E. long. 106° 35'.

YANG-TCHEN, a town of Corea, in Tchufin; 150 miles S.S.W. of King-ki-tao. N. lat. 35° 19'. E. long. 125° 14'.

YANG-TCHEOU, a city of China, of the first rank, in Kiang-nan, situated on the bank of the royal canal, which extends from the Ta-kiang northwards to the river Hoango, or the Yellow river: it carries on a great trade in all manner of Chinefe works, and is rendered extremely populous, chiefly by the sale and distribution of the salt that is made on the sea-coasts of this jurisdiction and parts adjoining, and which is afterwards carried along small canals made for this purpose, which end in communication with the great canal; 485 miles S.S.E. of Peking. N. lat. 32° 30'. E. long. 118° 54'.

YANG-TCHUEN, a town of Corea; 35 miles W.S.W. of King-ki-tao.

YANG-TE', a town of Corea; 84 miles E. of Hanctheon.

YANG-TSE-KIANG, a river of Asia, which rises in the mountains of Tibet, and after crossing the empire of China, from call to call empties itself into the sea, 120 miles E. from Nan-king. This river changes its name almost in every province through which it passes. See KINCHA.

The Yang-te-kiang may be considered as equalling, if not exceeding in size, the Yellow River (which see). The sources of both these rivers are in the same range of mountains, and they approach one another in one part within a few miles. The Yang-te-kiang, according to Mr. Barrow's statement, consists of two distinct branches, which separating from each other about eighty miles, flow in a parallel direction to the southward for the space of 70 miles, and then unite between the 26th and 27th degrees of N. latitude, just at the boundaries of the two provinces of Yunam and Sechuen. Then flanking off to the N.E. directly through the latter of these provinces, collecting the waters of the numerous rivers that descend towards it from that and another province called Quee-choo, it continues in this direction about 600 miles, and then enters the province of Hoo-quang, in the
YAN

31st degree of N. latitude. Through this province it takes a serpentine course, and receives the waters of several lakes, with which this part of the country abounds. Leaving Hoo-quang, it passes between the province of Ho-nan and Kiang-fee, and with a little inclination from the E. towards the N., its copious current glides smoothly through the province of Kiang-nan, and is difembogued into the sea, which bounds China to the E. in the 32d degree of latitude. The distance from thence to Hoo-quang is about 800 miles, which makes the whole length of the river about 2200 miles. The current, where the yachts of lord Macartney’s embassy passed it, did not exceed in the strongest part two miles; but it was much deeper than the Yellow river.

There are two great Chinefe rivers, taking their sources in the fame mountains, falling almost close to each other in a particular spot, separating afterwards from each other to the distance of 15 degrees of latitude, finally discharge themselves into the same sea, within two degrees of each other; comprehending within their grasp a tract of land of above 1000 miles in length, which they contribute greatly to fertilize and enrich, though by extraordinary accidents occurring unequal torrents, they may do injury in particular inferences. This tract includes the principal portion of the Chinefe empire in ancient times; and lies in that part of the temperate zone, which in Europe, as well as in Asia, has been the scene where the most celebrated characters have existed, and the most brilliant actions been performed, which history has transmitted to posterity. When the gentlemen of the embassy had crossed the Yang-tie-kiang, they found that, instead of a flat country, lakes, and swamps, the ground rose gradually from the margin of the river, enriched with various kinds and tints of culture, intermixed with trees, temples, and pagodas. In the river were islands skirted with shrubbery, and rocks rising abruptly from the surface of the water. The waves rolled like thole at sea, and porpoises are said to be sometimes seen leaping amongst them: several junks were lying at anchor.

In the middle of the river is the island called “Chin-fann,” (which fee.) The ground to the southward of the river gradually rises to a height, that it was found necessary to cut down the earth in some parts to the depth of near 80 feet, in order to find a level for the passage of the canal. The land in this neighbourhood is chiefly cultivated with that particular species or variety of the cotton-hrub that produces the cloth usually called Nankeen in Europe. The soil enveloping the seed, or cotton-wool, is whole in the common plant; but in that growing in the province of Kiang-nan, of which the city of Nan-kien is the capital, the down is of the same yellow tinge which it prefers when spun and woven into cloth. The colour, as well as the superior quality of this substance in Kiang-nan, was supposed to be owing to the particular nature of the soil; and it is asserted, that the seeds of the Nankeen cotton degenerate in both particulars when transplanted to another province, however little different in its climate. Lord Macartney’s EmbaHy, vol. ii.

YANG-TSI, a town of Corea; 30 miles S. of King-ki-tao.

YANI, a kingdom of Africa, situated to the east of Burfali, and divided into Upper and Lower, on the north side of the river Gambia. See GISANIA.

YANIMAREW, a town of Africa, in the Lower Yani.

YANIMAZCU, a town of Africa, in the kingdom of Yani. N. lat. 15° 30’. W. long. 1° 14’. YANKEON, a mountain of Thibet; 30 miles N. of Zuenga.

YANKJA, a town of Assyria, near the Tigris, and

not far from Bagdad. This place and also Douelfa are small straggling towns, every house being surrounded by a separate mud-wall.

YANTAC, a town of Thibet; 28 miles S.W. of Harachar.

YAN-TCHIN, or VAN-TCHIN, a city of China, of the second rank, in Guang-fu; 1177 miles S.S.W. of Peking. N. lat. 25° 1’ E. long. 106° 31’.

YAN-TINCOU, a town of Thibet; 75 miles E.N.E. of Pa.

YANTRA, a word denoting a mystical figure among the Hindoos; also a mathematical instrument used in any science or art of an occult nature. An instrument used in astronomical observations, called Golayanta, or the spherical yantra, is described in the ninth volume of the Asiatic Researches, art. 6, as similar to our armillary sphere. The article now referred to by Mr. Colebrooke, president of the Asiatic Society of Calcutta, is very curious and important. The Hindoos, being so prone to mysticism, can fancy various wishes in occult figures and practices. Figures similar to the magic squares, abracadabra, &c. of western wizards, are still used and venerated by the knives and fools of Asia; there are generally called yantra: as are peculiar figures or hieroglyphics, appropriated to certain Hindu deities, whose followers or sectaries mark their foreheads therewith, and deem them of a sanctifying tendency. The nature of these various yantras, with suitable instructions and warnings as to their formation, uses, and purposes, are taught in a Sanskrit book, entitled “Agamasattra, or Occult Science.” It may be noticed in passing, that the word Agama, meaning in the Sanskrit tongue hidden, mysterious, secret, &c. seems to have had in various languages and regions a similar meaning, as to which it may suffice to refer to our articles OGAM, OME, and SHASTAH.

Combined with and related to the yantra, are certain imprecations, incantations, charms, philtres, &c. called Mantra and Tantra, which occur frequently in Hindoo writings, and of which some notice is taken in this work under those words.

YAO, in Geography, a city of China, of the second rank, in Chen-fu; 485 miles S.W. of Peking. N. lat. 31° 54’. E. long. 108° 31’.

YAO-NGAN, or YAO-GAN, a city of China, of the first rank, in Yuen-nan. The territory of this city is considerable, although it contains but two cities, one of the second order, and the other of the third. It is intermixed with mountains, which are covered with fine forests and fruitful valleys, and produces abundance of mufk: near the city there is a well of salt water, from which they make very white salt; 1175 miles S.W. of Peking. N. lat. 25° 33’. E. long. 10° 14’.

YAO-TCHEOU, a town of Chinefe Tartary; 380 miles E.N.E. of Peking. N. lat. 40° 43’. E. long. 122° 14’.

YAO-TCHEOU, or YAO-CHOO-FOO, a city of China, of the first rank, in Kiang-fu, situated on the S.E. bank of the lake Po-yang. It has seven towns of the third rank in its jurisdiction. In this town is a large manufacture of porcelain, from whence, as well as from King-te-ching, it is sent to Nen-chang-fu; 670 miles S. of Peking. N. lat. 29°. E. long. 116° 14’.

YAP, among the Hindoos, is a silent meditation on the names, attributes, and powers of the Deity. Great merit is ascribed to this species of devotion, which is otherwise, though we apprehend its correct, spelle yap; under which article we find we have sufficiently described it, although reference has occasionally been made to this article.
YAPANDAIN, a town of the empire of Birmah, on the Irawaddy; 40 miles W. of Ava.

YAPIZLAGA, or Llanos de Manso, a province of South America, in the vice-royalty of Buenos Ayres, of great extent, situated to the south of the Vermejo river. This country was formerly called Llanos de Manso, or the Plains of Manso, from a captain of that name, who in 1556 undertook to build a town; but when he thought himself in perfect security, he, with all his attendants, was murdered by the Indians; of whom there are several nations. The country is but little known.

YAPON, a river of Surinam, which runs into the Atlantic, near Cape Oranje.

YAPON, in Botany, a species of ilex. See HOLLY.

YARACUI, in Geography, a river of Venezuela, which runs into the Spanish Main, N. lat. 10° 28'. W. long. 68° 40'.

YARANSK, a town of Russia, in the government of Viatka; 72 miles S.W. of Viatka. N. lat. 55° 36'. E. long. 48° 34'.

YARAY, a town of Africa, in the kingdom of Kayor; 80 miles S.E. of Amboul.

YARBA, a town of Africa, and capital of a country, called Yarba; 430 miles S.W. of Tombutóo.

YARD, Virga terre, a long measure, used in England and Spain; chiefly to measure cloth, fluffs, &c.

The English yard contains three feet. It was first settled by Henry I. from the length of his own arm. See Measure.

The English yard is just seven-ninths of the Paris ell; so that nine yards make five ells. To reduce ells, therefore, into yards, say, If seven ells give nine yards, how many yards will the given number of ells give?

Yards are converted into ells Flemish, by adding a third part; into ells English, by subtracting a fifth part; or multiplying by 8, and calling off the right-hand figure. Eells English are converted into yards, by adding a fourth. To turn ells Flemish into yards, subtract one quarter.

The Spanish vara, or yard, chiefly used at Seville, is, in some places, called barra. It contains seven twenty-fourths of the Paris ell; so that nineteen ells make twenty-four Spanish yards.

Yard, in Anatomy, the penis, or virile member; serving for the evacuating of the urine and seed.

It is also the common name for the penis in most animals.

Yard of Land, Virgata terre, or Virga terre, is a certain quantity of land, but that various, according to the place. At Wimbledon, in Surrey, it is only 15 acres; but in most other counties it contains 20, in some 24, in some 30, and in others 40 or 45 acres.


Yard, in Agriculture. See Farm-Yard.
foil must be particularly favourable to the wheat-crop, in preferring a genial temperature beneath the surface late in the autumn and during winter. Moreover, it is a general principle in chemistry, that in all cases of decomposition, substances combine much more readily at the moment or time of their disengagement, than after they have been perfectly formed: and in fermentation beneath the foil the fluid matter produced is applied instantly, even while it is warm, to the organs of the plant, and consequently is more likely to be efficient, than in short dung or manure that has gone through the processes; and of which all the principles have entered into new combinations.

The writings of scientific cultivators allege many arguments and facts which favour the application of yard-dung in a fresh or long flat; and it is suppos'd, that perhaps there is no subject of investigation in which there is such an union of theoretical and practical evidence and proof.

The main objection against the use of slightly fermented or long yard-dung or manure is, that weeds rife more luxuriantly and in greater numbers where it is had recourse to; but though seeds thus carried out will certainly sprout, it is but seldom that this can be the case to any extent; and if the land be not clean of weeds, any kind of manure, long or short, fermented or unfermented, will cause their rapid growth.

The application of yard-dung, or manure in the long flat, is highly advantageous with regard to the quantity or extent of the improvement which may be produced, as nearly four loads of it are mostly required to form one of the short kind.

There are several questions connected with this subject, which is not of less interest or importance to the farmer to have decided, which is that of the superior advantage of containing the straw of the farm by animals, or of having it littered and trodden into dung or manure in the yards. Many of the most enlightened farmers in the first of the above counties, the writer of the account of the agriculture of it says, are against the former of these practices, though a large part of them is in the custom of it: and they have frequently, too, recourse to the method of buying oil-cake, even often at a loss, in order that their straw may be trodden into dung or manure by fattening beasts, which is an excellent management of the yard kind.

Yard-Fallen, a term used among our farriers to express a malady to which horses are sometimes subject, which is the hanging down of the penis from its sheath between the legs, the creature not being able to draw it up again. This is caused by weaknesses of the peculiar muscles which should act in the drawing up; and proceeds sometimes from a violent slip or strain, sometimes from a blow on the back, and sometimes from extreme weariness in long journeys.

The method of curing this is, first to wash it with oil of roes, after this with warm white wine, and finally, to anoint it with a mixture of oil of roes and honey; it is then to be returned into its place, and kept from falling down again by a little canvas bolster. It is to be thus trebled once in twenty-four hours, till the cure is perfect.

There are some other distempers to which this part is subject in a horse, as the being foul at the end, so that the creature voids his urine in the sheath; in this case, the method of cure is to draw out the penis, and cleanse the end of it from any foulness that may be found there; then it is to be washed with butter and white wine vinegar melted together; sometimes there is a discharge of yellow flanking matter from the penis; this is peculiar to flone-horses, and principally affects them after the time of their covering of mares.

This running is attended with a swelling of the penis, and with a pain in voiding the urine; the creature also finds a difficulty in drawing up the penis into the sheath.

The method of cure is, to dissolve in a pint of white wine an ounce of roach-alum by boiling; and four or five times a day this is to be used, injecting it up into the yard with a syringe, blood-warm. This will prove a certain cure.

Yard-Feal, the filthy, furred flat of the yard and sheath in animals of the horse kind, which sometimes produces disease.

It is removed by well washing and cleaning the parts, by the use of soap and water.

Yard, Mattering of, a disease in the yards of horses, produced by different causes, in which matter is formed. It is removed by the use of cooling washes, and keeping the parts clean and perfectly free from dirt and naughtiness.


Yard, Stable. See Stable.


Yard, Straw. See Straw-Yard.

Yards, in a Ship, are long cylindrical pieces of fir-timber, suspended to the masts of ships, &c., to extend the sails to the wind.

All yards are either square or latteen; the former are suspended athwart the masts by the flings, at right angles, and the latter at one-third their length, obliquely.

The proportional lengths of yards are as follow, particularly in the royal navy:—Main-yard, eight-ninths the length of the main-mast; fore-yard, seven-eighths of the main-yard; mizen-yard, fix-fifths of the main-yard; maintopfail-yard, five-sevenths of the main-yard; fore-topfail-yard, seven-eighths of the main-topfail-yard; mizen-topfail-yard, two-thirds of the main-topfail-yard; topfail-yard, to-three-quarters of the main-topfail-yard; topfail-yard, seven-eighths of an inch to every yard in the length; royal-yards, half of the topfail-yards; crofs-jack-yard and spritfail-yard, the same as the fore-topfail-yard; spritfail-topfail-yard and driver-yard, the same as the fore-topfail-yard; and the studding-fail-yards, four-sevenths of their booms.

Proportion of diameters of main and fore yards at the flings is one-quarter of an inch to every foot in their length; mizen-yard, two-thirds the diameter of the main-yard; topfail-yards, five-eighths of an inch to every yard in the length; topfail-yards, three-fifths of an inch to every yard in the length; royal-yards, half the diameter of the topfail-yards; spritfail-yard and crofs-jack-yard, the same diameter as the fore-topfail-yard; spritfail-topfail-yard and driver-yard, the same diameter as the fore-topfail-yard; and the studding-fail-yards, one inch diameter to every five feet in the length.

The square yards are of a cylindrical surface the greater part of their length. They taper from the middle, which are called the flings, towards the extremities, which are termed the yard-arms; and the distance between the flings and the yard-arms on each side is divided into quarters, which are distinguished into the first, second, and third quarters, and yard-arms, which are regularly tapered by the following proportions. The first quarter, or that next the flings or middle, thirty thirty-oners of the given diameter; the second quarter, seven-eighths; the third quarter, seven-tenths; and the arms or ends, three-sevenths. From a middle line struck on the tree or spar the yard is to be made from, half of the several dimensions above is to be set.
set off, and the yard then fawn to its fiding; it is then canted, and a middle line fruck on one of those fides, and the middle and the quarters squared up thereon from the middle line on the frift fide, and the fame diameters set off as before, then lined and fawn square to the upper fide; it is then fawn eight-square the whole length.

The main and fore yards (fig. 17. Rigging, Plate II.) are then trimmed sixteen-square, and rounded from one quarter on each fide the flings to the outer ends, except on the aft-fide, which must remain eight-square two-quarters on each fide the middle. The whole is then planed fair and smooth.

In merchant ships they have a shear-hole in their arms for the topfail-sheets, and are left square the length of the shear-hole; but this method weakens the lower yards.

Topfaff-yard (fig. 18. Rigging, Plate II.) being trimmed sixteen-square, are rounded and planed from the frift quarter on each fide the middle to their outer ends, and a shear-hole cut from their upper fide, its length within each outer end for the reef-tackles. In some merchant ships a hole is cut within the cleats for the top-gallant-sheets, but is better avoided, as it weakens the yard-arms.

Topgallant-yards (fig. 19. Rigging, Plate II.), royal yards, crofs-jack-yards, mizen-yards, sprit and sprit-topfaff-yards, studding-fail and driver yards, are trimmed eight-square, sixteen-square, and then rounded and planed fair and smooth from end to end throughout the length.

Battening of Yards.—Main and fore yards, main, fore, and mizen topfaff-yards, have oak battens nailed on their squares nearly the fame length and breadth, one inch to three-quarters of an inch thick; their ends rounded and fnaed, and the edges chamferred. The fore-fide has no battens.

Clothing of Yards.—The fhing-cleats, a a, (fig. 17. Rigging, Plate II.) nailed on the fore-fide of the main and fore yards, are once and a quarter the given diameter of the yard in length, with a shoulder one-third its length; the breadth one-fourth the length; the thickenfs two-thirds the breadth, made of elm, and nailed once the given diameter on each fide the flings.

Stop-cleats, b, (fig. 17. Rigging, Plate II.) are made of oak, and nailed within the arms, on the fore-fide and aft-fide of the lower yards, one inch and a half to every yard in their length. Their length half the given diameter of the yard; the breadth one-fourth its length; and its thickenfs two-thirds its breadth. Yards for merchant ships have their cleats sometimes raised from the fold.

Topfaff-yards have flop-cleats, nailed on the fore-fide of the yard, once the given diameter on each fide of the flings. Thofe within the arms, on the fore and aft fides of the main and fore topfaff-yards, three inches to every yard in the length; and mizen topfaff-yards, two inches and a quarter.

Topgallant-yards the fame as topfaff-yards.

Royal-yard-cleats are once the diameter on each fide the middle afunder, and twice their length within at the arms.

Crots-jack-yards have flop-cleats, nailed on the fore-fide of the yard, half the diameter on each fide of the flings; thofe at the arms, one inch and a half within their outer ends to every yard in length, and naifed on the fore and after fides.

Mizen-yards have flop-cleats nailed once the diameter afunder on the flarboard-fide, and once and a half the given diameter below the middle of the yard; thofe at the peck or outer end, once the diameter within.

Sprit and sprit-topfaff-yards have flop-cleats nailed on their under fides; the spritfail-yard once the diameter on each fide the flings; the sprit-topfail-yard half the diameter one each fide; thole at the arms one inch and a half within their outer ends to every yard in the length; and they nail on the fore and after fides contrary to thole at the flings.

Studding-fail and driver yards have flop-cleats, nailed on the given diameter afunder, at one-third the length of the yard from the inner end; thole at the arms twice their length within.

Boat-yard-cleats are once the given diameter afunder at the flings; some in the middle, others one-third from the end, fuch as lugs, lateen, and letfes, and the length of the cleats within at the arms.

Yards are fitted at their outer ends for rigging out studding-fails. Main and fore yards have four boom-irons; one on each of their outer ends, c, (fig. 17. Rigging, Plate II.) the others at one-third the length of the boom within, d. The outer boom-iron is composed of a ring, a neck, and flars.

The ring, through which the boom fildes, is of the fame diameter in the clear as its toprail-studding-fail boom; breadth three-eighths the diameter, and from five-eighths to three-quarters of an inch thick. In one fide a ligament vite roller is fitted, one-third in length the diameter of the boom-ring. The neck is fquare, and connects the ring to the flars; each neck one inch longer than the diameter of the ring, and one-fourth its length in fize.

The flars are made one inch and a quarter in length to every three feet of the yard; their breadth once and a half the breadth of the ring; thickenfs at the inner part, three-eighths of an inch: they increafe in fublimen towards the neck, and are made to the fame of and let in their thickenfs into the yard-arm. They are bolted, and have two hoops made to the fize of the yard-arm, one close to the end, and the other near the neck.

Inner boom-irons are made after the fame proportion as the outer ones, but differ in fhape. The flars are made to comfaps the yard at one-third the length of the toprail-studding-fail boom within the end, and the ring is feparated from the flar by a collar; the upper part of the ring opens with a hinge on one fide, and the heel of the boom is clasped therein.

Boom-irons fix on the yards thus: the rings are parallel with the axis of the yard, in a strait line direction, with a line fruck upon the yard, in the middle of the fquare, between the upper and fore fide.

Boom-irons, on the yard-arms of fhips in the merchant service, differ much in fhape. The ring the boom fildes through is connected by a collar to a fquare hoop, that lets on and nails to the yard-arms, they being left fquare; and sometimes a round hoop to the fize of the yard-arms. Others have a strait neck, projecting from flars, with a shoulder in the middle of the neck, and the part without left square. The boom-ring has a fhanl on the under part, with a mortife that fits the neck, and there fattened by a frew-nut, or a fpring-forelock, that goes on the neck next the ring.

Topfaff-yards, main and fore, commonly have boom-irons at their outer ends, like the lower yards in merchant fhips. In the navy they are mostly fitted with a boom-ring, and a fprig-eye-bolt driven in the middle of their ends, parallel to its axis; and an iron hoop let in its thickenfs and breadth, and nailed, to prevent splitting the yard-arm. Yards that have no inner boom-irons have fadders for the heel of the boom.

Topgallant-yards, main and fore, mizen-yards, sprit and sprit-topfail-yards, have their arms fitted with a ferrule-hoop and fprig-eye-bolts, as the topfail-yards.

Mizen-
Mizen-topfall and topgallant yards have hoops like the former let on their outer ends, but no eye-bolts.

Driver-yards have a sheave-hole cut through their outer end, and a hoop and eye-bolt.

The main and fore yards of large ships are sometimes made of two trees; they have each tree lined, long enough to luff four feet beyond the first quarter, next the middle, or slings, which is in all five-eighths the length of the yard, adding four feet. The slings run straight from each quarter next the middle to one-fourth the substance at the quarter next the butt, and three-fourths at the quarter next the middle, and haunches to about three inches at the butt. Each tree is then fawn as before directed, and completed thus: the slings and haunches are trimmed straight, and out of windings on the infide, and a line strung along the middle, and a chain-coak let off, each about two feet four inches long, and one-third the diameter broad; and the slings squared across and down the fides. The coaks are railed one inch and a quarter at the butt, and funk to the fame on the other side of the middle, towards the arm; the other half is then canted thereon, set straight and out of windings, and rayed as the main, (which fee, and the Plate of Main,) and bolted together fore and aft through the middle, in the butt of every coak; the heads are to be driven from the thinneft part of the slings, and clenched on a ring, and the haunches nailed.

The yard is then completed as before directed, and the slings caulked their length and hooped; one hoop over the butt of each slings, one in the middle of each haunch, and one over every bolt: then a filh of fir, two inches thick, and the fame length and breadth as the fquare on the affide, is rayed and nailed clofe over all the hoops.

Another method of treating yards together made of two trees, which is the strongeft, and takes lefs trees than the former, is by providing two trees that will hold the diameter beyond the fijhes, and scanf together similar to the foregoing. Then the deficiency of the diameter towards the middle is made good by long fijhes of fir, from four to fix inches thick, as the fize of the yard may require, extending two feet in length at each end beyond the long fquare on the affide, and each of fufficient breadth to form the eight-square on the outside. The inner surfaces of the fijhes are caoked and rayed clofe upon the yard, the coak extending towards the whole length. The yard is then finifhed as before directed, and hooped and bolted, as in the Plate of Main-making.

Yard-Arm is that half of the yard which is on either fide the main, when it lies athwart the fhip. See the precedig article.

Yards also denote places belonging to the navy, where the ships of war, &c. are laid up in harbour. See Dock-Yards.

YARDLEY, in Geography, a village of Worceftershire, which, according to the population return of the year 1811, contained 1918 inhabitants, including 121 families employed in manufaets, and 453 houses; 7 miles S.E. of Birmingham.

YARE, a river of England, in the county of Norfolk, which rives about five miles N. from New Buckenham, passes by the city of Norwich, and runs into the German ocean near Yarmouth.

YARE. See Segovia Nueva.

YARE, among Sailors, implies as much as, nimble, ready, quick, expeditious. Hence, to be yare at the helm, as some fay, signifies to set a freeth man at the helm.

YARECA, in Geography. See JARECA.

YAREE, a town of Birmah; 40 miles S.W. of Ava.

YARENSK, a town of Russia, in the province of Uliug, on the Vitebsag; 92 miles N.E. of Uliug. N. lat. 62°. E. long. 47° 50'.

YARI, a town of Brafil, in the government of Para; 60 miles N.E. of Paru.

YARIN, a word used by some of the chemical writers to express the floe ari.

YARKAN, Yarkand, Irken, or Yarkien, in Geography, a town of Cashgar, or Little Boccharia, where the grand khan of the Eflh Tartars chiefly resides. The town is large, and well built of bricks dried in the sun. The environs are fertile, and the palace of the khan large, but not handsomely. In 1460 this town was taken and plundered by Timur Beu; 90 miles S.E. of Cashgar. N. lat. 38° 13'; E. long. 78° 49'.

YARKAN, or Yarkand, suggested to be the Oecharides of Ptolemey, a river of Aflia, which passes by the town of Yarkan, and after a considerable course runs into Lake Lop; 100 miles S. of Tourfan.

YARM, or Yarum, a market-town in the W. division of the liberty of Langbargh, in the North Riding of the county of York, England, is situated on the banks of the river Tees, 4 miles S. by W. from Stockton, 44 N.W. from York, and 237 in the fame direction from London. In 1811 the houses in the town and parish were 361, and the inhabitants 1431. Here is a neat modern church. A market is held on Thursday, and fairs on Thursday before the 5th of April, Holy Thursday, 2d of August, and 20th of October. At Yarm was an hospital, founded before 1185; also a house of Black friars, founded about 1271, by the family of Brus or Bruce, both of which were fuppofed by Henry VIII. Over the river Tees at this place is a handsome stone bridge, communicating with the county of Durham. The town, formerly more conliderable than at prezent, flill carries on a good trade by water, particularly in corn and lead for the London market. In 1761 the town suffered feverely by an inundation of the river Tees.—Beauties of England and Wales, Yorkshire, by J. Bigland, 8vo. Lond. 1812.

YARMOUTH, Great, an important fea-port, borough, and market-town, in the hundred of Earl Flegg, and county of Norfolk, England, is situated on the E. coast of England, near the mouth of the river Yare, whence it has its name, 22 miles E. from Norwich, and 124 N.E. from London. The number of houses in the parish, according to the returns of 1811, was 3504, and the inhabitants were 17,977. A market is held here on Saturday, and a fair in Easter week. The town, which sends two members to parliament, was incorporated by James I. It is governed by a mayor, recorder, 7 aldermen, 36 common-council-men, a town-clerk, and other inferior officers. In former times, Yarmouth was a member of the Cinque Ports, and by ancient custom appointed bailiffs, who, in conjunction with the magiftrates of the town, hold a court there during the hering-fair. The corporation poifts also the privileges of courts of admiralty and of record. Yarmouth is finguarly fitioned on a long, narrow, fandy peninfula, having on the E. the German ocean, and on the W., the river Yare, which, after pointing N.E. towards the sea, fuddently bends round to the S. parallel to the shore, and opens into the sea, two miles below the town. The coast near Yarmouth and southward to Lowestoft is the moft eafalter part of Great Britain, Yarmouth church lying in E. long. 1° 45' from Greenwich.

The first mention of this town is in Domeldag-book, which renders it probable, that it had its beginning in the early part of the Anglo-Saxon dynasty. When the land-bank, on which it flands, and which, thrown up by the sea, G 2
unpericed, or at least diverted, the course of the Yare, was sufficiently consolidated, habitations were formed on it by the fishermen who reforted to the coast. By the influx of foreigners for the purchase and sale of fish the town increased, so as to become the most considerable port on the east coast of England. To provide for its security, Henry III. granted to the inhabitants permission to inclose the town with a moat and walls: works which, however, do not appear to have been commenced until 1285, the thirteenth year of his successor, Edward I. But when war with France broke out in 1545, an additional rampart was thrown up towards the sea, and further extended in 1587. In the following year, to guard against the Spanish invasion, outworks were constructed, the south mount was raised and planted with cannon, and a bomb was laid across the entrance of the harbour. Coeval with the first fortification of Yarmouth was probably the caille, in the centre of the town.

It served for some years as a prison; but in 1621 the whole was demolished. In 1642 the inhabitants of Yarmouth declared for the parliament; but it was only after the independent had gained an ascendency in the state that a garrison was admitted here. During the American war, forts and batteries were constructed, and barracks for a considerable body of troops were erected for the defence of the place. Indented for its original excellence, and subsequent increase to the fishery, Yarmouth very early possessed a very numerous shipping. In the summer of 1510, when Edward II. ordered the several ports of England to send ships to Dublin, to convey troops over to Scotland, Yarmouth furnished six, while even Bristol and Gloucester, although so conveniently situate for that object, furnished only two between them. To form a fleet to be employed in the siege of Calais, in 1346, under Edward III., Yarmouth sent out forty-three vessels, carrying 1995 mariners. A number of men far exceeding those furnished by any other port in the kingdom; for London itself was called on for only twenty-five vessels, containing 662 mariners.

In 1797, when men for the navy were required in proportion to the tonnage of each port, Yarmouth was the ninth in order; but according to the Custom-house books of 1800 it had advanced to be the eighth, the ships of the port being 375, the tonnage 32,957, navigated by 2442 men, while Bristol supplied 186 ships, carrying 26,193 tons and 1774 men. Yarmouth was early distinguished, and still remains unrivalled, for the herring-fishery. About 1220 the abbot of St. Alban's purchased a large house in Yarmouth, "in order to lay up fish, especially herrings, which were bought in by his agents at the proper season, for the use of his abbey." Prior to 1238, the people of the opposite coast of Europe were in the habit of returning to Yarmouth for a supply of herrings. These and other recorded facts shew that the method of preserving that fish, probably by salt, must have been known in England more than 200 years before the pretended invention of Beukels in Flanders, from whom pickling is said to have had its name. (See HERRING-FISHERY.) The herrings usually appear on the east coast of England about September, when the grand fishing season commences. The boats fitted out for the fishery are decked, and average from forty to fifty tons burden, with a crew of eleven or twelve men to each. The vessels, with some tons of salt on board, proceed from four to twelve leagues out to sea. Each boat is provided with eighty or a hundred nets, twenty-one yards in length, and eight and a half in depth: all of which, fastened to a long rope, are let down into the sea at dusk, and drawn up at day-light. When salted, the fish are hung up in lofty buildings, and exposed, with small intermissions, for about a month, to the smoke of a wood fire, and thus become red-herrings. Two centuries ago the fishery was also carried on in summer; but in the present times no herrings are found on the coast in that season. In the interval of the fishery, the boats are employed in catching mackerel and cod. Yarmouth trades very largely in the export of corn and malt, and in the woollen stuffs of Norwich. Timber, iron, and hemp, are imported from the Baltic, and ship-building is carried on at this place to a considerable extent.

The formation and the maintenance of the harbour of Yarmouth have required great exertion, ingenuity, and expense; for the present it is the seventh recorded to have been made, and its yearly charge amounts to about 2000l., which sum is defrayed by duties exacted from goods brought in. The new works were executed by Jos. Johnson, a Dutchman, who had been invited from Holland for the purpose. The principal or north pier is in length 275 yards, and the south pier, which is better constructed, 340 yards: the extent of the harbour between these piers is 1111 yards; and the depth of water, in all places of the tide, being now about twenty-four feet, instead of three feet, as was the case before the erection of the piers, vessels can always lie afloat at their moorings. The well-known Yarmouth roads are formed by ranges of sand-banks, lying out parallel to and at no great distance from the shore. The channels between the banks, some of which are dry at low water, and between them and the shore, are in general narrow, but deep enough for ships of any size. The roads conveniently afford most defensible shelter in stormy weather, on a tract of coast projecting a great way into the German ocean, and peculiarly defiitute of accessible harbours. But the concourse of shipping in this station has, on various occasions, produced dreadful disasters, the vessels being frequently driven from their anchors, and wrecked on the banks or on the shore.

The town of Yarmouth is in form an oblong quadrangle, consisting of four principal streets, crossed at right angles by 156 lanes, called rows, so confined in breadth, that for the conveyance of goods through them, the inhabitants have adopted narrow carts, mounted upon low wheels, and drawn by one horse, the driver standing in the front of the cart. The town is inclosed by a wall on the north, east, and south sides, in length 2240 yards, which, with the west side along the river, 2030 yards, make the circuit two miles and 750 yards. Although so populous a town, Yarmouth forms but one parish, and, until a century ago, had but one church, that of St. Nicholas, which was erected by Herbert Lofing, bishop of Norwich, in 1123; but it was greatly enlarged in 1250. It consists of a nave, two aisles, and a transept, and had lately a fire 136 feet high, a distinguished sea-mark in the midst of a long tract of low and dangerous coast; but in 1805 it was taken down. The other public buildings of Yarmouth are, the town-hall, a handsome building, with a Tufcan portico, situated near the centre of the quay; the council-room, which also serves for assemblies; the fisherman's hospital, a quadrangle, containing twenty rooms on a floor, each intended for an old fisherman and his wife; the hospital-school for maintaining and clothing thirty boys and twenty girls, at the expense of the corporation; and the charity-school for seventy boys and thirty girls, who are clothed and educated. The quay of Yarmouth is justly the boast of the town, and is one of the finest and the most extensive in Europe. Its length from the south gate to the bridge is 1014 yards, beyond which it reaches 1016 yards farther, making its whole extent a mile and 370 yards. In many places the breadth is 150 yards, and the southern part
is decorated with a range of handsome buildings. By means
of a bridge across the Yare a communication is main-
tained with the county of Suffolk, which stretches up the
well bank of the river. As a fashionable watering-place, Yar-
mouth is well provided with every accommodation, and
consequently much frequented. On the beach a bathing-hou-
se was erected in 1759, commanding a fine view of the roads
and shipping; and in 1778 a neat theatre was opened. Oppo-
site to Yarmouth, and for about two miles north and
south of the town, the coast is nearly a level common, elevat-
ed only from two to three yards above high-water mark.
From the edge of the common down to the water is a
gentle slope of fine sand, intermixed with coarse pebbles called
flint-ingles; and as the tides rise but about six feet, the space
brought under water is only a few yards. From high-water
mark to the turf of the common the sands abound with
marine plants, some of them rare and curious, of which an
account is given by Mr. Dawson Turner in the Hirtoftic
Guide to Great Yarmouth, 12mo. 1866.—

Beauties of England and Wales, Norfolk, by J. Britton,
F.S.A. 8vo. Lond. 1809.

YARMOUTH, South, a fea-port, borough, and market-
town, in the S.W. half hundred of Wet Meaft liberty, in
the Isle of Wight, and county of Southampton, or Hamp-
shire, England, is situated at the entrance of the little river
Yare, on the N.W. coast of the island, 10 miles W. from
Newport, and 97 S.W. from London. The town, which
was governed by a mayor, twelve burgesses, a reeved, a
town-clerk, &c. was incorporated by James I., and fends
two members to parliament. In 1811 the houses in the
borough and parifh were 88, and the inhabitants 427.
A market is held here on Saturday, and two fairs annually.
Yarmouth is built on a bank floping to the fea, and feems
to have been formerly much larger than it is at present.
The church is situated in the middle of the town. The market-
houfe has over it the town-hall. Here was a castle, built
by Henry VIII. on the feite of an ancient church, which
had been destroyed by the French. This fortrefs is defended
by some pieces of cannon, and a small garrifon. Between
Yarmouth and Lymington a packet falls daily.—Beauties
of England and Wales, Hampshire, by J. Britton and
E.W. Brayley, 8vo. Lond. 1808.

YARMOUTH, a fea-port town of Maffachufetts, in Barn-
stable bay; 50 miles S.E. of Boston. N. lat. 41° 42'.
W. long. 70° 10'.

YARMOUTH, a town on the west coast of Nova Scotia;
35 miles W. of Shelburn.

YARMOUTH, North, a town of America, in the dijtrict
of Maine, and county of Cumberland, with 3295 inhabitants;
9 miles N.E. of Portland. N. lat. 43° 45'. W. long.
76° 8'.

YARMUC, or YARUN, a town of Palestine, in the di-
trict of Saphet, on a river of the fame name, which runs
into the lake of Tiberias, chiefly inhabited by Chriftians;
24 miles S.E. of Saphet.

YARMUC, a river of Syria, anciently called Maria-
thus, which runs into the Orieut, near Apamea. In 636 a
battle was fought on the banks of the river, between the
Chriftians and the Saracens, in which the former were
defeated.

YARN, denotes fpun wool. See Wool, and Woollen
Manufacture.

YARN, Marking. See Marking.

YARN, in Rope-Making, is fpun from hemp, and is called
twenty-five, twenty, and eighteen thread yarn, which differs
only in the finefles; the twenty-five being finer than the
twenty, &c. It is thus distinguished, because either
twenty-five, twenty, or eighteen threads a hook, make
a rope of three inches in circumference, and fo in propor-
tion.

YARN, spun, on board a Ship. See Spun.

YARNALLS, in Geography, a town of Pennsylvania;
20 miles E. of Sunbury.

YAROVOI, a town of Russia, in the government of
Tobolok, on the Irtix; 52 miles N. of Tobolofk.

YARRA. See JARRA.

YARRINGLES, or Yarringle-Blades, a kind of
reel, or instrument, with which hanks of yarn are wound on
to clues, or balls.

YARROW, in Botany. (See Achillea.) Perhaps
this old English name originated in the Spanish Tera, or
Terra, an herb; our Common Achillea Millefolium having
been formerly called, in that language, Milhojas Terra, or
Thousand-leaved Herb, a translation of its Latin appella-
tion.

The leaves and flowers of the common yarrow, or achil-
lea millefolium of Linnum, which is in flower on our ditch-
banks, and in dry purlfures, the greatest part of the summer,
are greatly recommended by some of the German phytifians,
as mild corrodorants, vulneraries, and antipalmodics, in
diarrhoeas, hemorrhages, hypochondriacal, and other dif-
orders. They promise, fays Dr. Lewis, by their fenfible
qualities, to be of no inconfiderable activity. They have
an agreeable, though weak, aromatic smefl, and a bitteriff,
roughif, somewhat pungent taste. The leaves, having the
greatest bitterifnes and aiferity, are chiefly directed for
medicinal ufe; the flowers have the firrongeft and moft
fubtile fmeif, are remarkably acrid, and promise to be of the
greateft efficacy, if the plant has any fuch efficacy, as an
anodyne or antipalmodic. The virtue of both leaves and
flowers is extracted by water and SPIRITuous MENTI-
TRA, the altrirongency most perfectly by the former; their
atromatic warmth and pungency by the latter; and both of
them equally by a mixture of the two. The flowers,
diftilled with water, yield a penetrating effential oil, polleffing
the flavour of the milfoil in perfection; in confequence
fomewhat thick and tenacious; in colour very variable, from
a greenifh-yellow to a deep green and blufh-green, and line
blue, which differences depend in a great meafure on the
foil in which the plant is produced; the flowers gathered
from molt freth grounds yielding generally a blue oil, and
those collected from dry commons a green one, with a
greater or lefs admixture of yellow. The extract obtained
by infipiduating the yellowrifh tincture made in rectified
SPIRIT, is more agreeable in fmeif than the flowers of
a moderately warm penetrating taste, somewhat like that of
camphor, but much milder, accompanied with a flight bit-
erifnes and antifeptic agency. The achillea panicles of
Linnzm, called Jeezewort, or baftard Pellitory, is perennial,
grows wild on heaths, and in moift fandy grounds, and is
found in flower from June to the end of Summer. The
roots of this plant have a fubftantial taste, approaching to
that of Pellitory of Spain, with which they nearly agree in
their pharmacetic properties, and for which they have
been sometimes substituted in the fops. They are by
some recommended internally as a warm fufifuent and
attenuant; but their principal ufe is as a maflicatory and
fermentative. Lewis.

YARROW, in Agriculture, a plant of the herbage kind,
which is common but ufeful in the purlfure-eld in many
cafes. It has long ago been noticed, by the writer of the
"Effays on Rural Affairs," as valuable for cultivation in
grafs-lands in different forts of foil. It fucceeds on moist
loams, but is moft proper for dry burning gravel, sands,
and
and chalks. It is said to polishes the singular quality or property of refuting drought on the moist and dry soils; so that if a green spot appears in a burnt-up cloe-fed pasture ground, it may almost with certainty be concluded to be covered with this plant. In pastures there is not any sort of plant which is eaten down more closely than this, by every kind of browsing domestic animal. It has been remarked with surprize, that spots of rich dry land, which were almost wholly filled with these plants, were eaten down barer than even white clover. It is a strong-rooted perennial plant, which has many fine leaves, of a highly aromatic smell, and which is considered as not only very acceptable, but uncommonly healthy, or even medicinal, both to sheep and black cattle.

It is found in the best bullock pastures and grounds, where it is said to be highly grateful to every sort of live-stock of the cattle kind, and particularly so to sheep, which bite it as fast as it grows or rifes: so that on tolerably well-funded pastures or grounds it is rarely suffered to come into flower. The seeds of it are, therefore, to be obtained from some rich dry spot which is well floored with the plant; and if the soil be well supplied with good mouldy compost, it has been found that the yarrow may be made into a rough hay, from which it is easy to obtain seeds, which are of a peculiar winged form and appearance. It flowers late in the summer, and the seeds may be gathered about the month of October.

It is a plant that has not been observed in abundance in boggy or wet lands; but which, for dry rich soils, deferves the preference to most others for the purpose of being depauperated. It is a plant that on the whole seems to merit the attention of the Stock-farmer, at least in a much greater degree than he has yet bestowed upon it.

Yarrow. Water. See Water Violet.

Yarrow, in Geography, a river of Scotland, which rifes in a mountain called Yarrow Cleugh, in the county of Selkirk, forms two lochs, St. Mary's and Lows, in its course, and runs into the Tweed, about two miles below Selkirk.

YARUM. See Yarm.

YARUQUI, a plain twelve miles north-east from the city of Quito. This spot was pitched upon as the bafe of the whole operations for measuring the length of an arc of the meridian, by Ulloa, &c. Near it is a village of the same name.

YARWHELP, or Yarwip, an English name used in some places for the _agophalus_ of authors. See Godwit.

YASASCHA, in Geography, a town of Ruffia, in the government of Irutik, on the Kitoi; 68 miles N.W. of Irutik.

YASASCHAIA, a river of Ruffia, which runs into the Kolima, at Verchei Kovimiko.

YASCHAMBOUT, a town of Persia, in the province of Adiribitzan; 198 miles S.W. of Taurus.

YASSA, in Modern History, the name given among the Tartars to a body of laws, ascribed to the famous conqueror Gengis-Kan, which are still observed among the Tartars of Crimea, and other parts of Asia. M. de la Croix has given, in his life of Gengis-Kan, an extract of those laws, comprising twenty-one articles: the first of which inculcates the belief of one God, the Creator of heaven and earth, and to whom belong the absolute dominion and dominion of events.

YASUDA, in Hindo Mythology, the name of the fathermother of the Hindoo Krihna: it is said to mean the giver of honour.

YASUDERA, the name of the wife of Bodha, or Boodel, or deity of the Hindoos, and of other people. See Boodel.

YATA, in Geography, a town on the south coast of the island of Catanduanes. N. lat. 13° 52'. E. long. 124° 29'.

YATCHEEVERAM, a town of Hindoostan, in the Carnatic; 25 miles S.W. of Nellore.

YAT, a town of Corea; 25 miles S.W. of Toucheou.

YATCHE, a town of China, in Fo-kien; 15 miles N.E. of Fou-shing.

YATE'S RIVER, a river of Africa, which runs into the Atlantic, N. lat. 8° 8'. W. long. 12° 15'.

YATHKIED, a lake of North America. N. lat. 63° 10'. W. long. 98°.

YATI, the priesthood of the extensive sect of Jainas, in India. (See Jaina.) A yati is sometimes said to be more properly an ascetic, for it doth not appear that he performs any religious rite. It is his duty to read and expound his disciples the scriptures of the Jaina sytem. See under Sects of Hindoos for a general notice of the Jainas.

The yatis are devoted to religion from their infancy; for with the Jainas the priesthood is not hereditary, as with the orthodox Hindoos. A yati never marries, but sometimes purchases a child, adopts it, and instructs it in religious duties. Parents sometimes vow or promise their first-born to the deity, in the hope of obtaining the blessing of fecundity in their family. They serve their noviciate with their guru, or preceptor, and perform for him many domestic offices. After a proper period, when arrived at sufficient age and progress in their studies, they are admitted as yatis. The ceremony on this occasion is simple. The noviate is carried out of the town with music and rejoicing in procession, followed by a crowd of Sravakas, as the laity of the Jainas are called. (See Sravaka.) He is taken beneath a tree with milky juice. The pipala, or Indian fig, is usually preferred. A circle is formed on the ground, within which none but yatis are admitted. The hair, or lock of the noviate is pulled out by the root at five pulls; and camphor, mulk, fandel, fafron, and sugar, are applied to the scalp: he is then shorn, and placed, with joined palms, the poulter of respect and supplication, before his guru, who pronounces a mantra (see MANTRA) in his ear, and invests him with the drell of a yati, which consists of a cloth of three cubits for his loins, another of five cubits for his head, a coarse country blanket, called kamly, for his bed, a water-pot, a plate in his victuals, a cloth to tie up in, a long flicht to defend him, but not to injure others, and lastly, a broom of cotton-threads to sweep the ground where he sits or lies, to avert the destruction of any insect. The Jainas are the sect that so especially avoid shedding blood or destroying life; a tenet that leads them to ridiculous excesses, as will be seen under our article Jaina, in which several particulars of the yati are also given.

YATREB, in Geography, the real name of Medina, in Arabia. It is called Medina, or the city, by way of eminence.

YATTENDON, a village in England, in the county of Berks. Here Alfred overthrew the Danes in 876; 4 miles S.E. of East Ilsley.

YATTONG, a town of Burmah; 15 miles W.N.W. of Ava.

YATTONUR, a town of the island of Ceylon; 10 miles S.W. of Candy.
YAW

YAUACA, a town of Peru, in the diocese of Lima; on the coast: 20 miles S. S. E. of Nafca. S. lat. 15°.

YAGAR, a town of Burmah, on the right bank of the Irawaddy, opposite to Raynangong.

YAGOS, a town of Peru, in the diocese of Lima; 80 miles S. E. of Lima. S. lat. 12° 40'. W. long. 75° 40'.

YAV, a town of Peru, in the diocese of La Plata; 85 miles E. E. of Lipes.

YAW, in Sea Language, denotes the movement by which a ship deviates from the line of her course towards the right or left in steering. See Steady.

Yawl, a small light ship's boat, rowed with four to fix oars, used to convey the officers to and from the ship.

Yawning, Oscillatio, an involuntary opening of the mouth, generally indicating a troublesome weariness, or an inclination to sleep. See Lungs.

YAWS, in Medicine, a severe cutaneous disease, which is indigenous in Africa, and has been thence conveyed to the West Indies and America; so called from the resemblance of its eruptions to a raspberry, the word yaw in some African dialect being the name of that fruit. No folkogists have denominated it Framboesia, from the French Frambois, which has the same signification.

The nature of this disease has been imperfectly investigated by European practitioners; and as it is perhaps never seen in England, a brief account of it will be here sufficient.

It is not easy to discover the precise character of this eruption, from the varying language of authors. An anonymous writer, who gave the first explicit account of the disease, (see Edinb. Med. Essays, vol. v. part 2. art. 76.) says, they are at first "level or smooth with the skin," but soon "become protuberant like pimples." Dr. Hillary, who has copied much from this writer, describes them as "pimples," though smooth and level with the skin, but soon becoming "protuberant pustules." (On the Diff. of Barbadoes, p. 339.) And Dr. Winterbottom, who has given on the whole the most perpicious description of the disease, calls them "pustules," from their first appearance. Again, as to the contents of these eruptions, the anonymous author and Dr. Hillary say, that no pus nor any quantity of ichor is found in them, but speak of a little ichor as drying upon the surface; while Dr. Winterbottom says, they are "filled with an opaque whitish fluid," and when they burst, "a thick viscid matter is discharged." There is also some difference of opinion among the writers on this disease respecting the precursory symptoms, the Former authors asserting, that the general health is not impaired during the first stages; but others, especially Dr. Winterbottom and Dr. Dancer, affirm, that a febrular usually precedes it. On the whole, however, the following appears to be the most correct account of the malady, which is to be collected from the various descriptions which have been published.

The eruption of the yaws sometimes commences without any precursory symptoms of ill health; but it is generally preceded by a slight febrile state, with languor, debility, and pains of the joints, resembling those of rheumatism. After several days, minute protuberances appear on various parts of the skin, at first smaller than the head of a pin, but gradually enlarging, in some cases to the diameter of a line, and in others even to a greater extent: they are most numerous, and of the largest size, in the face, groins, axilla, and about the anus and pudenda. But the crop is not completed at once; new eruptions appear in different places, while some of the earlier ones dry off. When the cuticle is broken, a foul crust is formed on the surface, from under which, on the larger protuberances, red fungous excrescences often spring up, which attain different magnitudes, from that of a small raspberry to that of a large mulberry, which fruit they somewhat resemble from their granulated surfaces. When the eruption is most copious, these tubercles are of the smallest size; and when fewer, they are large. Their duration and progress are various in different constitutions, and at different periods of life. Children suffer less feverously than adults, and are more speedily freed from the disease. In them, according to Dr. Winterbottom, the duration of the yaws is from six to nine months; while in adults it is seldom cured in less than a year, and sometimes continues during two or three. The fungous tubercles attain their acme, according to the anonymous writer already quoted, more rapidly in the well-fed negroes than in those who are ill-fed and thin; and they likewise acquire a larger size in the former than in the latter. They are not posseled of much sensibleness, and are not the seat of any pain, except when they appear upon the soles of the feet, where they are confined and comprised by the hard and thickened cuticle; in that situation they render the act of walking extremely painful, or altogether impracticable. They never suppurate kindly. Dr. Winterbottom says, but gradually discharge a forbid glutinous fluid, which forms an ugly coat round the edges of the excrescence, and covers the upper part of it, when much elevated, with white floughs. When they appear on any part of the body covered with hair, this gradually changes in its colour from black to white, independently of the white incrustation from the discharge. They leave no depreeion of the skin.

The period during which the eruption is in progress varies from a few weeks to several months. "When no more pustules are thrown out," Dr. Winterbottom observes, "and when those already upon the skin no longer increase in size, the disease is supposed to have reached its acme. And, at this time it happens, on some part of the body or other, that one of the pustules becomes much larger than the rest, equaling or surpassing the size of a half-crown piece: it assumes the appearance of an ulcer, and instead of being elevated above the skin like others, it is considerably depressed; the surface is foul and floughy, and pours out an ill-conditioned ichor, which spreads very much, by corroding the surrounding found skin: this is what is called the matter or mother yaw." When arrived at its acme, however, the eruption continues a considerable time without undergoing much alteration, often without very materially injuring the function, and it seldom proves dangerous, except from the mischiefous interference of ill-directed art.

The yaws is propagated solely by the contagion of the matter discharged from the eruption, when it is applied to the wounded or broken skin of another person, who has not previously undergone the disease. For, like the febrile eruptions, the yaws affects the same person only once during life; but, unlike them, it is not propagated by effluvia. The complaint is sometimes inoculated by flies, in those hot countries, when the skin both of the diseased and the healthy remains uncovered. Hence, Dr. Bancroft says, "none ever receive it who's skins are whole; for which reason the whites are rarely infected; but the backs of the negroes being often raw by whipping, and suffered to remain naked, they scarce ever escape it." (Nat. Hist. of Guiana, p. 365. See also Winterbottom, p. 141-3.) In Africa it is usually undergone during childhood. The period which elapses between the reception of the contagion and the commencement of the disease is no where mentioned; but in the case of a Dane, whom Dr. Adams saw at Madeira, the patient had been absent ten months from...
from the West Indies before he felt any indisposition. See Memoirs of the Med. Soc. of London.

With respect to the treatment of yaws, nothing very satisfactory is to be collected from the writings of the practitioners to whom we are indebted for the history of the disease. "The native Africans," according to Dr. Winterbottom, "never attempt to cure it until it has nearly reached its height, when the fungi have acquired their full size, and no more pullules appear." And the practitioners in the West Indies soon learned by experience, that active evacuations retard the natural progress of the disease; and that mercurials, although they induced it, and cleared the skin of the eruption, yet left the patient still susceptible of, or rather still impregnated with, the virus, which deeply evinced its presence by a reappearance of the symptoms more severe and tedious than before. In truth, the disease, it would seem, like the pullular and exanthematous fevers of our own climate, will only leave the constitution after it has completed the various stages of its course, and removed the susceptibility of the individual to future infection; and no medicine yet discovered has had any influence in superseding this action, or in accelerating its progress. Unless, therefore, any urgent symptoms should require alleviation, (which seldom, if ever, happens) it is advisable to dispense with the administration of medicine, and to be content with refticting the patient to a moderate and temperate regimen, during the first stage of the malady. When the eruptions begin to dry, or as soon as they cease to multiply and enlarge, the disease appears to require the same management as other fever and superficial ulcerations, accompanied with a cachectic state of the system; viz. a light but nutritious diet, a dry and wholesome air, warm clothing, moderate exercise, and a course of tonic medicine, especially of farfaparilla, or cinchona, with the mineral acids, or with antimonials and small doses of mercury, according to the circumstances of the individual habit. The effects of mercury, however, exhibited so as to excite salvation, as the early practitioners recommend, seem to be of a very questionable nature, especially when it is unaccompanied by the vegetable decoctions; and it is certain that patients have, in some cases, soon recovered under the use of the latter, when the mercurials were omitted. The mercurial treatment, indeed, is often followed by a train of harassing symptoms, called by the negroes the bone-aque. "The unhappy sufferer is tormented with deep-seated pains in the bones, especially round the joints, which are occasionally aggravated to a violent degree; the perioleum becomes thickened, inflamed, and painful, and nodes are formed on the bones. When these symptoms have continued for some time, the bones are affected with caries, and even become soft and lose their form." The native Africans employ decoctions of the bark of two or three trees, which are generally purgative, as well as tonic, and likewise wash the sores with them, after carefully removing the crusts.

The major-yaw sometimes remains large and troublesome after the rest of the eruption has altogether disappeared. It requires to be treated with gentle echarotics, and soon affumes a healing appearance under these applications. Stronger caustics are requisite after the cure of the crab-yaw, or tedious excrecences, which occur on the soles of the feet.

We may add, that the anonymous writer in the Edin. Med. Essays, and after him Dr. Hillary and others, have deemed the yaws to be the Hebrew leprosy, described by Mozes. (Leviticus, chap. xiii.) In some respects, and especially in the appearance of what is called "raw flesh" in the leprous spots, together with subitenes of the hair, the description of the leprosy of the Jews is applicable to the yaws. But the leprosy is described by the great legislator as beginning in several ways, or appearing under several varieties of form, in only one of which this rising of "raw flesh" is mentioned; and the two circumstances, which all these varieties exhibited in common, were a deprefion of the skin and whitening of the hair. Now this change in the colour of the hair is common to the yaws and to the leprous; and it is conjoined in the latter with cutaneous deprefion. It seems pretty obvious indeed, that the term leprosy was used in the Scriptures to denote several diseases of the skin, against which the law of exclusion was enforced, and others to which it did not apply. An instance of the latter occurs in Gehazi, whom we find full in the employment of Elifha, and even conversing with the king, after the leprosy had been inflicted upon him, and his lefis for ever. (2 Kings, chap. iv. and viii. v. 4.) See Dr. Bateman's Practical Synopsis of Cutan. Disease, and the Works above quoted.

YAXARTES, or YAXARTES, the Syr-Daria, in Geography, a river of Russia, that falls into the Aral. YAXLEY, a small market-town in the hundred of Norman-Crofs, and county of Huntingdon, England, is situated 2 miles N.E. from Stilton, and 73 miles N. by W. from London. It has of late increased in importance from its contiguity to the barracks at Norman-Crofs. The market was for a long time discontinued, but has been recently revived, and is now held on Tuesdays. It was originally granted to the abbots of Thorney, one of whom, named De Yalkesley, who died in 1294, was native of this town. Here is also an annual fair. The church is a handsome fabric, and particularly remarkable for its lofty and well-proportioned spire, which is seen at a considerable distance on all sides. The population of the parish, in the enumeration of the year 1811, was returned at 1391, occupying 171 houses.

YAYACATLAN, a town of Mexico, in the province of Tlafaca; 10 miles E.S.E. of Puebla de los Angélos. YAYAUHQUITOTOL, in Orthoithology, the name of an Indian bird described by Nieremberg, remarkable for having two feathers of its tail much longer than the rest, and naked for a great way, but the end ornamented with black and blue hairs. The bird is of the fize of the flaring, and is beautifully variegated with green, blue, yellow, and grey.

Mr. Ray is of opinion, that this is the bird described by Marcgrave under the name guaira-guainambi.

YAYANGHEOUN, or EARTH OIL CREEK, in Geography, a town of Burmah, on the Irrawaddy, which receives its name from some wells of petroleum, in its neighbourhood. It is chiefly inhabited by potters; 15 miles S. of Pegomgwe.

YAYOS, or YANOS, a town of Peru, and capital of a jurisdiction, in the archiepiscopate of Lima, which begins about 48 miles south-east from Lima, and extends about 75 miles in length along the Andes. It abounds in fruit, maize, wheat, barley, &c. and the pastures feed a great number of cattle for the markets of Lima; 80 miles S.S.E. of Lima.

YAZAMATES, a people who inhabited Kuban, after the Sarmates were for the most part given to Europe, five years before Alexander.

YAZOO, a river of the flate of Georgia, which runs into the Mississiphi, N. lat. 32° 38'. W. long. 91° 10'.

YAZOO, Little, a river of West Florida, which runs into the Mississiphi, N. lat. 32° 13'. W. long. 91° 10'.

YAZVA,
YAZVA, a river of Russia, which runs into the Vishera, 8 miles E. of Gerdin, in the government of Perm.

YBAGUE,  a town of South America, in the kingdom of New Grenada.

YBAICABAL.  See Nervio.

YCA.  See Ica.

YCAJALE.  See Ucayale.

YCHAN, a town of Corea; 13 miles S. of Hetun.

Y-CHI, a town of China, of the third rank, in Chantâ; 12 miles N.N.E. of Kias.

YECONOMUS.  See Oeconomus.

YDALA, in Geography, a town of Sweden, in Blekingen; 10 miles S.S.E. of Kongsback.

YDRIA.  See Hydria.

YDRINUS, or Hydrinus, a name given by some to the ophiur, or serpent-flame.

YDRUS, in Ancient Geography, a mountain of Hilpasia. Jerome.

YE, or Yve, in Geography, a river of Holland, which passes by Amsterdam, and runs into the Zuyder See, about 6 miles below.

YEWA WATER, a river of Scotland, which runs into the Nith, 2 miles E. of Lochmaben.

YEADON, a township of Yorkshire, in the West Riding, with 1695 inhabitants, including 476 employed in trade and manufactures; 3 miles S. of Otley.

YEALME, a river of England, in the county of Devon, which runs into the English Channel, 1 mile N.N.W. of Stoke Point.

YEANGLAW, a town of Birmah; 7 miles S. of Pegomsgow.

YEANLING, among Sheep-Farmers, a term used to signify the act of bringing forth the young animals of the sheep kind. It is said that in the polled breeds of sheep the lambs are reared with the greatest ease and facility, and in the large-horned breeds with the greatest difficulty and inconvenience. See Sheep.

YEANING-Time, the season of yeaning in sheep, which is different in different breeds of them, but probably the most early in the Dorsetshire breed, as they may be managed so as to lamb at a very early period. In general, however, the management is such, that the lambs are yeaned or brought forth from towards the latter end of February to the beginning of the following month, and later in some caels and situations. When yeaned too early there is often great loss, on account of the inclemency of the season, unless the ewes have been kept very well for some time before it takes place. Consequently, in all such caels, they should, for some weeks at least before the yeaning time, be plentifully supplied with proper food, so that the health and strength of them and that of their young may be promoted and preserved against this period. Proper sheltered situations, yards, and spots of ground, should also be provided for this purpose, by which the lives of numbers may be saved. See Sheep.

In all bad caels of yeaning, the ewes should be well supported by good oatmeal gruel and cordial drinks.

YEANLING, a term applied to the young of the sheep kind when newly yeaned. See Lamb.

YEARN, Annuus, in the full extent of the word, is a system or cycle of several months; usually twelve.

Others define year, in the general, a period, or space of time, measured by the revolution of some celestial body in its orbit.

Thus, the time in which the fixed stars make a revolution is called the great year. And the times in which Jupiter, Saturn, the Sun, moon, &c. finish their revolutions, and return to the same point of the zodiac, are respectively called the years of Jupiter and Saturn; and the solar and the lunar years.

As there is no luminary whose changes and revolutions are so frequent and remarkable as those of the moon, some have thought that all nations at first measured and divided time according to the various aspects of this planet. Accordingly the Egyptian year originally consisted of a single lunaion; afterwards it included two or three months, and was defined by the fixed returns of the seafons. It has been also supposed, that several ages must have elapsed before the idea of adjusing the length of the year to the course of the sun became general, though repeated observations were made on his motion in the ecliptic. The Indians, the Chaldeans, and Egyptians, who in a verj early period applied their attention to astronomy, at length found, by comparing the motions of the sun and moon together, that one revolution of the former was equal to about 12 of the latter; and hence was formed a year of 12 lunations, in every one of which were reckoned 30 days: and hence also, it is said, arose the division of the ecliptic into 360 equal parts or degrees.

Year, properly, and by way of eminence so called, is the solar year; or the space of time in which the sun moves through the twelve signs of the ecliptic.

This, by the observations of Caffini, Bianchini, and de la Hire, contains 365 days, 5 hours, and 49 minutes; which is the quantity of the year affirmed by the authors of the Gregorian calendar.

But in the civil or popular account, this year only contains 365 days; except every fourth, which contains 366.

The vicissitude of seasons seems to have given occasion to the first institution of the year. Man, naturally curious to know the cause of that diversity, from found it was the proximity and distance of the sun; and, upon this, gave the name year to the space of time in which that luminary, performing his whole course, returned to the same point of his orbit.

And hence, as it was on account of the seasons, in a great measure, that the year was instituted, their chief regard and attention were, that the same parts of the year should always correspond to the same seasons; i.e. that the beginning of the year should always be when the sun was in the same point of his orbit; and that they should keep pace, come round, and end together.

This, different nations aimed to attain by different ways; making the year to commence from different points of the zodiac, and even making the time of his progress different. So that some of their years were much more perfect than others, but none of them quite just; i.e. none of them whose parts did not shift, with regard to the parts of the sun's course.

We may naturally suppose that the commencement of the year would be determined by the date of some considerable event, such as the creation of the world, the universal deluge, a conjunction of planets, the incarnation of our Saviour, &c.; and of course it has been referred to different points in the ecliptic. The Chaldean and Egyptian years were dated from the autumnal equinox. The ecclesiastical year of the Jews began in the spring; but in civil affairs they retained the epoch of the Egyptian year. The ancient Chinese reckoned from the new moon nearest to the middle of Aquarius; but according to some recent accounts, the beginning of their year was transferred (B.C. 1740) to the new moon nearest to the winter solstice. This likeness is the date of the Japanese year. Dimechfeld,
or Gemelli, king of Peria, observed on the day of his public entry into Persepolis, that the sun entered into Arees; and in commemoration of this fortunate event and coincidence, he ordained the beginning of the year to be removed from the autumnal to the vernal equinox. This epoch was denominated Neurus, viz. New-day, and is still celebrated with great pomp and festivity.

The ancient Scythian year commenced at the winter solstice, or rather at the time of the sun’s appearance in the horizon, after an absence of about 40 days. The feast of this epoch was solemnized on the 20th day after the solstice. Some of the Grecian states computed from the vernal, some from the autumnal equinox, and others from the summer tropic. The year of Romulus commenced in March, and that of Numa in January. The Turks and Arabs date the year from the 16th of July; and the American Indians reckon from the first appearance of the new moon of the vernal equinox. The church of Rome has fixed new-year’s day on the Sunday that corresponds with the full moon of the same season. The Venetians, Florentines, and Pisans in Italy, and the inhabitants of Treves in Germany, begin the year at the vernal equinox. The ancient clergy reckon from the 25th of March; and this method was observed in Britain until the introduction of the New Style, A.D. 1752, after which our year commenced on the first day of January. See EOC libido and CHRONOLOGY.

They were the Egyptians, if we may credit Herodotus, that first formed the year, which was lunisolar, making it to contain 360 days, which they subdivided into 12 months.

This year was corrected by the Thebans, who added to it five intercalary days. The Medes and Persians, who were anciently a part of the Assyrian empire, adopted the old Chaldaean year of 360 days, which they afterwards reformed.

Some millionaries report, that the lunisolar year was corrected in China; the year of the Indians contained 360 days, and was divided into 24 months. But besides this form of the year, the Indians used another, for astronomical purposes, consisting of 365 d. 15 h. 31' 15"; which Indian days and hours are equal to 365 d. 6 h. 12' 30", according to our mode of computation. Or, as this year is sidereal, if you subtract 21' 35" on account of the motion of the stars in longitude, the Indian tropical year will be 365 d. 5 h. 30' 55". The Mexicans received the lunisolar year from the Indians or Chineese, and divided it into 18 months of 20 days; adding five days to the last month, and dating the year from March. That the ancient Grecian year was lunisolar, is evident from many testimonies of Hippocrates, Plato, and Pliny. The Latin year, before Numa’s correction of it, consisted of 360 days, 304 of which were divided into 10 months; and to these were added two private months, not named in the calendar. Plut. in Vit. Numa. Serv. et Virgil Georg. l. i. v. 43.

It has been said that Mercurius Trifmegistus added five days to the Egyptian year of 360 days. And, on this footing, Thales is said to have instituted the year among the Greeks; though that form of the year did not hold throughout all Greece. Add, that the Jewish, Syrian, Roman, Persian, Ethiopick, Arabic, &c. years were all different.

In effect, considering the imperfect state of astronomy in those ages, it is no wonder different people should disagree in the computation of the sun’s course. We are even assailed by Dion. Siculus (lib. i.), Plutarch in Numa, and Pliny (lib. vii. cap. 48.), that the Egyptian year itself was at first very different from that now represented.

The imperfection of the lunisolar year became more and more apparent as the arts and sciences improved; but the necessary correction depended upon a competent knowledge of the solar year. Every nation, by degrees, invented or adopted the method of intercalating a few days at certain intervals. The author of the discovery is not certainly known: the Egyptians have claimed the merit of it; and the Theban priests have attributed it to Hermes or Thoth. It appears that they were acquainted with the year of 365 days in a very remote period. (Herodot. l. iv. c. 4. Strabo Geog. l. xvi. Syncull. Chron. p. 121.) The length of the solar year was represented in a golden circle fixed upon the tomb of Osymandases; and this circle was 365 cubits in circumference, having on each cubit a day of the year inscribed, together with the heliacal risings or settings of the stars. This Osymandases is said to have flourished either in the 13th or 11th century before the Christian era. For perpetuating the memory of this correction, though inaccurate, the first month of the year was distinguished by the title Thoth, or Sothis, which was the Egyptian appellation of the dog-star, the heliacal rising of which announced the inundation of the Nile. Hence, it is said, originated the fable, invented of the priests of Thebes, that Mercury, or Thoth, regulated the civil year by extending it, as we have already observed, to 365 days; and, in return, the first month was called by his name. See Egyptian Year, and CANONICAL YEAR.

The method of correcting the civil year, by the addition of five epagomenae, was communicated by the Chaldaans and Egyptians to other nations; but it has not been ascertained at what epoch the solar year was observed to be almost 6 hours longer than the civil year of 365 days. The priests of Thebes claimed the merit of the discovery (Diod. Sicul. l. i. p. 59. Strabo Geog. l. xvi.); but Herodotus takes no notice of it; nor Thales, who, on his return from Egypt, taught the Greeks to form a solar year of 365 days without any intercalation. Plato and Eudeus are said to have obtained it, as a secret, from the Egyptians, about 80 years after Herodotus, and to have carried it into Greece; which flew that the knowledge of this form of the year was then recent, and confined to a few of the learned, while the old form was still retained, and the Egyptians used no intercalation until the corrected Julian year was received at Alexandria by the order of Augustus; and even at this time the Greeks and Romans, who resided in Egypt, alone obeyed the imperial mandate. The superstitious nations refused to admit any addition to a form of the year which had been so long established among them.

The reformed year of the Chineese consisted of 365 d. 5 h. 20', which were divided into 24 months, each of these equal parts including 15 d. 5 h. 14.31". (Du Halde. Hyd. Relig. Vet. Peri.) The quantity of the Indian year was somewhat different from that of the Chineese: the lunar year contained 364 d. 22 gurris, 1 pul; and the solar year 365 d. 15 gurris, 30 pults, 22½ puds; 60 pults = 1 pul, 60 pullis = 1 gurri, and 60 gurris = 1 day; so that their solar or rather sidereal year consisted of 365.6 d. 12 h. 76". This mode of computation is used by the Brahmins, by the Moguls, and by other Mahometans in India.

YEAR, Solar, is the interval of time in which the sun finishes his course through the zodiac; or in which he returns to the same point of it from whence he had departed.

This, according to our account, is 365 days, 5 hours, 49 minutes; though some astronomers make it a few seconds, and some a whole minute less; as Kepler, for instance, who makes it 365 days, 5 hours, 48 minutes, 57 seconds, 39 thirds. Ricciolus, and Tycho Brahe, 365 days, 5 hours, 48 minutes.

The
The solar year is either astronomical or civil.

The year, **solar astronomical**, is that determined precisely by the observations of astronomy, and is of two kinds, tropical and sidereal or astral.

The year, **tropical or natural**, is the time which the sun employs in paffing through the zodiac, or from one equinox to another, or from one tropic to the same again; which, as before observed, is 365 days, 5 hours, 49 minutes; or, more accurately, 365 days, 6 hours, 9 minutes, 11½ seconds. This is the only proper or natural year, because it always keeps the same feaions to the same months.

In order to find the tropical year, observe the meridian altitude, \(a\), of the sun on the day nearest to the equinox; then the next year take its meridian altitude on two following days, one when its altitude, \(m\), is less than \(a\), and the next when its altitude, \(n\), is greater than \(a\), then \(a - m\) is the increase of the sun’s declination in 24 hours; also, when the declination has increased by the quantity \(a - m\) from the time when the meridian altitude, \(m\), was observed, the declination will then become \(a\); and as we may consider the increase of declination to be uniform for a day, we have \(n - m = a - m : 24\) hours, the interval from the time when the sun was on the meridian of the first of the two days, till the sun has the same declination \(a\), as at the observation the year before; and this time added to the time when the sun’s altitude \(m\) was observed, gives the time when the sun’s place in the ecliptic had the same situation in respect to the equinoctial points, which it had at the time of the observation the preceding year; and the interval of these times is the length of a tropical year.

If, instead of repeating the second observation the next year, there be an interval of several years, and you divide the interval between the times when the declination was found to be the same, by the number of years, you will get the tropical year more exactly.

The year, **sidereal or astral**, is the space of time in which the sun, going from any fixed star, returns to the same place. This consists of 365 days, 6 hours, 6 minutes, 11½ seconds.

To find the length of a sidereal year. On any day when the sun is at \(Z\) on the meridian (Plate XXI. fig. 12), take the difference, \(Zm\), between the sun’s right ascension when it paffes the meridian, and that of a fixed star, \(S\); and when the sun returns to the same part of the heavens the next year, compare its right ascension with that of the same star for two days, one when their difference, \(bm\), of right ascensions is less, and the other when the difference, \(fm\), is greater than the difference, \(Zm\), before observed; then \(bm\) is the increase of the sun’s right ascension in the time, \(t\), and as the increase of right ascension may be considered as uniform for a small time, we have \(bm / \delta Z = t / \delta T\), in which the right ascension is increased from \(b\) to \(Z\), in this time, \(T\), therefore, added to the time of the observed right ascension at \(b\), gives the time when the sun is at the same distance, \(Zm\), from right ascension from the star, which it was when observed at \(Z\) the year before; the interval of these times is therefore the length of the sidereal year. The best time for these observations is about March 25, June 20, September 17, December 20, the sun’s motion in right ascension being then uniform. Instead of observing the difference of the right ascensions, you may observe that of their longitudes.

If, instead of repeating the second observations the year after, there be an interval of several years, and you divide the observed interval of time when the difference of their right ascensions was found to be equal, by the number of years, you will have the length of a sidereal year more exactly.

The precession being given (see Precession), and also the length of a tropical year, the length of a sidereal year may be found by this proportion: 365° = 50°, 25: 360° = 365 d. 5 h. 48' 48": 365 d. 6 h. 9' 11½" the length of the sidereal year.

The year, **anomalialical**, is the time that elapses from the sun’s leaving its apogee till it returns to it; and as the progressive motion of the apogee in a year is 11°, 75', the anomalialical year must be longer than the sidereal year, by the time which the sun takes in moving over 11°, 75' of longitude at its apogee; but when the sun is in its apogee, its motion in longitude is 58° 13' in 24 hours; hence 58° 13' = 11°, 75; = 24 hours; 4' 50"; which added to 365 d. 6 h. 9' 11½", gives 365 d. 6 h. 14' 24"; the length of the anomalialical year. M. de la Lande determined this motion of the apogee from the observations of M. de la Hire, and those of Dr. Maskelyne. Caffini made it the same. This year is sometimes used by astronomers. See Anomalialical Year.

The year, **civil**, is that form of year which each nation has contrived for the computation of time; or the civil is the tropical year, considered as only consisting of a certain number of whole days; the odd hours and minutes being set aside, to render the computation of time in the common occasions of life more easy.

Hence, as the tropical year is 365 days, 5 hours, 48 minutes, 48 seconds, the civil year is 365 days. And hence, also, as it is necessary to keep pace with the heavens, it is required that every fourth year should consist of 366 days.

Hence, lastly, the civil year is either common or bixestile.

The year, **the common civil**, is that consisting of 365 days. This, therefore, has seven months of 31 days each, four of 30 days, and one of 28 days; according to the well-known canon:

Thirty days hath September,
April, June, and November.
February twenty-eight alone,
And all the rest have thirty-one.

The year, **bixistile, or leap**, is that consisting of 366 days; or it has one day extraordinary; which day is called the intercalary, or bixistile day.

This intercalary, or additional day to every fourth year, was first appointed by Julius Caesar; who, to make the civil year keep pace with the tropical ones, contrived that the six hours which the former wanted of being equal to the latter, should, in four years, make a whole day, and be added before the twenty-fourth, or to the twenty-third of February, which was their 6th of the calenders of March. Hence, as in that year, they reckon this day twice over, or add bis sexto calendis, the year itself came to be called bisextus, and Bixistile; which fee.

The intercalary day, however, among us, is not introduced by telling the twenty-third of February twice over, but by adding a day after the twenty-eighth of February; which month, in that year, contains twenty-nine days. See Leap-Year.

A further reformation in this year was made by pope Gregory. See Gregorian Year, and Calendar.

The year, **lunar**, is a system of twelve lunar months. See Lunar.

Hence, from the two kinds of synodical lunar months, there are two kinds of lunar years; the one astronomic, the other civil.

H 2
YEAR.

Year, Lunar Astronomical, consists of twelve lunar synodical months; and therefore contains 354 days, 8 hours, 48 minutes, 36 seconds; and is, therefore, 10 days, 21 hours, 0 minute, 12 seconds, shorter than the solar year. This is the foundation of the Epact; which see.

Year, Lunar Civil, is either common or embolistic.

Year, the Common Lunar, consists of twelve lunar civil months; and therefore contains 354 days.

Year, the Embolistic or Intercalary, consists of thirteen lunar civil months; and therefore contains 384 days. See Embolistic.

Thus far we have considered years and months, with a view to the principles of astronomy, on which the division is founded. By this, the various forms of civil years that have anciently obtained, or still do obtain in divers nations, are to be examined.

Year, Ancient Roman, or Latin, was the lunar year, which, as first settled by Romulus, only consisted of ten months; viz. 1. March, containing 31 days. 2. April, 30. 3. May, 31. 4. June, 30. 5. Quintilis, 31. 6. Sextils, 30. 7. September, 31. 8. October, 31. 9. November, 30. 10. December, 30. In all 304 days, which came short of the true lunar year by 50 days; and of the solar, by 61 days. Hence, the beginning of Romulus's year was vague, and unfixed to any precise season; to remove which inconvenience, that prince ordered so many days to be added yearly as would make the state of the heavens correspond to the first month, without incorporating the additional days, or calling them by the name of any month. Censorinus, Varro, and other Roman authors, agree, that the ancient Latin year was divided into 10 months, which appears from a passage in Plutarch, that two intercalary months were added to every year; which two months were not inserted in the calendar. Romulus retained the former names and number of the months; but adapted their quantity nearly to the course of the sun, affixing, as we have stated, six of them 30 days, and to the remaining four 31 days each, and he transferred the beginning of the year from April to March; December was the 10th month, as its name implies; after which the two intercalary months were inserted, but no names were affixed to them till the succeeding reign.

Numa Pomphilus corrected the irregular constitution of Romulus's year, and composed two new months, January and February, of the days that were used to be added to the former year. Thus, Numa's year consisted of twelve months; viz. 1. January, containing 29 days. 2. February, 28. 3. March, 31. 4. April, 29. 5. May, 31. 6. June, 29. 7. Quintilis, 31. 8. Sextils, 29. 9. September, 29. 10. October, 31. 11. November, 29. 12. December, 29. In all 355 days, which exceeds the quantity of a lunar civil year by one day; and that of a lunar astronomical year by 15 hours, 11 minutes, 24 seconds, but comes short of the common solar year by ten days; so that its beginning also was vague and unfixed.

Numa, however, desiring to have it fixed to the winter solstice, ordered 22 days to be intercalated in February every second year, 23 every fourth, 22 every sixth, and 23 every eighth year, making in all 90 days.

But this rule failing to keep matters even, recourse was had to a new way of intercalating; and, instead of twenty-three days every eighth year, only fifteen were added; and the care of the whole was committed to the pontifex maximus, who neglecting the trifft, let things run to the utmost confusion. And thus the Roman year flood till Julius Caesar made a reformation. See Calendar.

For the manner of reckoning the days of the Roman months, see Calendar, Nones, and Ides.

Year, Julian, is a solar year, containing, commonly, 365 days; though every fourth year, called biferile, it contains 366.


The astronomical quantity, therefore, of the Julian year is 365 days, 6 hours; which exceeds the true solar year by somewhat more than eleven minutes; which excess, in 137 years, amounts to a whole day. So that the times of the equinoxes go backward, and fall earlier by one day in about 131 or 130 years. And thus the Roman year flood, till the reformation made in it by pope Gregory.

For this form of the year, we are indebted to Julius Cæsar; who, in the contrivance of it, was assisted by Sosigenes, a famous mathematician, called over from Egypt for this very purpose; who, to supply the defect of fifty-seven days, which had been lost through the fault of the pontifices, and to fix the beginning of the year to the winter solstice, made that year to consist of 15 months, or 445 days; which, for that reason, is used to be called annus confusionis, the year of confusion. See Julian Calendar.

Year, Gregorius, is the Julian year corrected by this rule, that whereas, on the common footing, every secular or hundredth year is biferile; on the new footing, three of them are common years, and only the fourth is biferile.

The error of eleven minutes in the Julian year, little as it was, yet, by being repeated over and over, at length became considerable; and from the time when Cæsar made his correction, was grown into thirteen days, by which means the equinoxes were greatly disturbed. In the year 1582, the equinoxes were fallen ten days, and the full moons four days, more backwards than they were in the time of the Nicene council; i.e. the equinox, which in the year 325, when that council was held, fell on the twenty-first of March, was in 1582 thrown back to the tenth, and the full moon was removed from the fifth to the first of April. To remedy this irregularity, which was still increasing, pope Gregory XIII., in the year jubilament celebrated, called together the chief almoners of his time, and concerted this correction; and, to restore the equinoxes to their place, threw out the ten days that had been got from the time of the council of Nice, and which had shifted the fifth of October to the fifteenth. He exchanged the lunar cycle for that of the epacts; and in order to restore the spring equinox to the Nicene standard, subtracted ten days out of the month of October, in that year (1582), making the fourth to be the fifteenth; and by this means, the vernal equinox has been restored to the twenty-first of March. Moreover, it was endeavoured, by the omission of three intercalary days in four hundred years, to make the civil year keep pace with the solar for time to come. See Calendar.

In the year 1799, the error of ten days was grown to eleven; upon which the Protestant states of Germany, to prevent further confusion, accepted the Gregorian correction. See Reform Calendar, and Style.

Yet is even the Gregorian year far from being perfect; for we have shown, that in four centuries the Julian year gains three days, one hour, twenty minutes; but it is only the three days that are kept out in the Gregorian year; so that
that there is still an excess of one hour, twenty minutes, in four centuries, which, in seventy-two centuries, amount to a whole day.

The Gregorian year is now used in most countries in Europe. From the difference between this and the Julian year arises the distinction of the old or Julian, and new or Gregorian Style; which see.

Year, Egyptian, called also the year of Nabonassar, on account of the epocha of Nabonassar, is the solar year of 365 days, divided into twelve months, of thirty days each, besides five intercalary days, added at the end.


Hence, as the Egyptian year in every four years loses a whole day of the Julian year, because it neglects the six hours, which make a leap-day once in four years, its beginning, in the space of 1460 years, runs through every part of the Julian year; which space elaps'd, they meet again; and, therefore, it is justly called the erratic year. And because it returns to the same day of the Julian year after 1460 Julian years, this circle is called the Sothic period. See Canicular Year.

This year is used by Ptolemy, in his Almagest; so that the knowledge of it is of great use in alonomy, for comparing the ancient observations with the modern.

This defiratory form was applied by the Egyptians to civil uses, till Antony and Cleopatra were defeated; and the mathematicians and astronomers used it till the time of Ptolemy.

The ancient Egyptians, we are told by Diodorus Siculo (lib. i.), Plutarch (in the Life of Numa), and Pliny (lib. vili. c. 48.), measured their years by the course of the moon. At first, they were only one month, then three, then four, like that of the Arcadians; and then six, like that of the people of Acrania. Those authors add, that it is on this account they reckon such a vast number of years from the beginning of the world; and that, in the history of their kings, we meet with some who lived 1000 or 1200 years.

But Herodotus is silent on this point: he only says, that the Egyptian year consisted of twelve months, as we have above represented it. Besides, we learn from Scripture, that from the times of the flood, the year was composed of twelve months; Cham, consequently, and his son Mifrain, the founder of the Egyptian monarchy, must have had that custom; and it is no way probable his descendants should alter it. Add, that Plutarch speaks of it with great uncertainty, and as no more than a report; and Diod. Siculo, as only a conjecture of authors whom he does not name; and who, in all probability, might have framed this hypothesis to reconcile the Egyptian chronology to that of some other nations.

F. Kircher, however, maintains, that besides the solar year, there were some of the nomes or cantons of Egypt which used a lunar one; and that in the remotest ages there were some who took a revolution of the moon, that is, a month for a year; and others, who finding the year too short, made it two months, three others, and others four, &c. (Oedip. Egypt. tom. ii. p. 252.) A late author observes, that Varro has affirmed of all nations, what we have here quoted of the Egyptians; and adds, that Laclantius takes him to talk on that subject. We do not know in what places of Varro, or Laclantius, he has seen this: all we can say is, that Laclantius (Divin. inlt. lib. iii. c. 13.), where he gives Varro's opinion, only represents him as speaking of the Egyptians. However, St. Augustine (De Civit. Dei, lib. xv. c. 14.) feews, that the years of the patriarchs mentioned in Scripture are like ours, and not one of ours equal to ten of theirs, as, it appears, had been the opinion of some people.

Upon the Egyptians being subdued by the Romans, they received the Julian year, though with some alteration; for they still retained their ancient months, with the five ἐπαρθουμενα, and, every fourth year, intercalated another day between the 28th and 29th of August. Add, that the beginning of their year, or the first day of the month Thoth, answered to the 29th of August of the Julian year, or to the 30th if it happened to be leap-year.

This year, thus reformed, and called the fixed Egyptian year, was called the annus Aegypt., as being instituted soon after the battle of Actium.

Year, Ancient Greek, was lunar, consisting of 12 months, which, at first, had 30 days a-piece, then alternately 30 and 29 days, computed from the first appearance of the new moon; with the addition of an embolismic month of 30 days, every 3d, 5th, 8th, 11th, 14th, 16th, and 19th years of a cycle of 19 years; in order to keep the new and full moons to the same terms or feasons of the years. With this correction, though erroneous, it subsisted until the time of Herodotus and Hippocrates. Solon attempted the reformation of the calendar by the introduction of the complete and defective months; i.e. months of 30 and of 29 days; for two lunations made 59 days, nearly. Thus amended the year became lunar, and was adopted at Athens; but in other states of Greece the ancient form was retained.

Their year commenced with the new moon, the full moon of which comes next after the summer solstice. The order, &c. of their months was thus: 1. ΕΚΑΤΟΔΟΜΟΣ, containing 29 days. 2. ΜΕΣΟΣΤΕΤΗΣ, 30. 3. ΒΕΝΙΣΤΕΤΗΣ, 29. 4. ΜΕΣΟΧΕΡΝΗ, 30. 5. ΠΟΠΟΤΙΤΗΣ, 29. 6. ΠΟΠΟΤΙΤΗΣ, 30. 7. ΤΕΜΕΝΟΣ, 28. 8. ΑΝΠΙΣΤΗΣ, 30. 9. ΕΛΙΦΑΓΟΣ, 30. 10. ΜΕΡΙΩΝ, 30. 11. ΕΥΔΩΡΟΣ, 29. 12. ΕΥΔΩΡΟΣ, 30.

The Macedonians had other names for their months; to the Syro-Macedonians, Smyrneans, Tyrians; to the Cyprians, Paphians; and to the Bithynians, &c.

Year, Ancient Macedonian, is a lunar year, only differing from the Attic, in the names and order of the months; the first Macedonian month agreeing with the Attic Mæcatherion: as the Macedonian year commenced not at the summer solstice, but at the autumnal equinox. The months stand thus: 1. ΑΓΩ, 30 days. 2. ΑΓΩΘΟΝ, 29. 3. ΑΘΟΝ, 30. 4. ΠΕΡΤΙ, 29. 5. ΣΤΡΕΤΟΣ, 30. 6. ΝΑΝΟΣ, 29. 7. ΑΝΠΙΣΤΙΣ, 30. 8. ΝΟΜΙΤΩΣ, 30. 9. ΝΟΜΙΤΩΣ, 30. 10. ΛΟΚΟΣ, 30. 11. ΛΟΚΟΣ, 30. 12. ΤΕΜΕΝΟΣ.

Year, Modern Macedonian, is a solar year, whose beginning is fixed for the first of January of the Julian year, with which it perfectly agrees.

This year was particularly called the ΑΤΙΚΟ, and the intercalary month, after Pothinon, was called ΠΟΘΙΝΟΙ, or ΠΟΘΙΝΟΙ.

Year, Ancient Jews, is a lunar year, consisting commonly, of eleven months, which alternately contain 30 and 29 days.

It was made to agree with the solar year, either by the adding of 11, and sometimes 12 days, at the end of the year, or by an embolismic month.

Tradition reports, that Abraham preferred in his family, and transmitted to posterity, the Chaldaian form of the year, which originally consisted of 360 days (compare Dan. vii. 25. xii. 7. with Rev. xii. to xiv. xi. 2, 3.), and remained without any correction until the date of the Nabonassar era. If any intercalation was used by the Jews, the
Year.

Moles appears to have been unacquainted with it. After the Babylonish captivity, they adopted the solar year. When they were subjected to the Syro-Macedonian yoke (B.C. 312), they were compelled to admit the lunar year into their calendar. To adjust this year to the course of the sun, they added, at certain periods, a month to Adar, and called it Ve-Adar. They composed also a cycle of 19 years; in feven of which they inserted the intercalary month, viz. in the 30th, 6th, 8th, 11th, 14th, 17th, and 19th. The design of this correction was, to bring the 15th day of Nisan to the equinoctial point, and to regulate the course of the feasons, and of the fells, in fuch a manner, as that the corn might be ripe at the paffover, as the law required.


Note.—In the defective year, Cifileu was only 29 days; and in the redundant year, Marchexwan was 30.

Year, Modern Synaeth, is likewise lunar, confiding, in common years, of 12 months, but of 13 in embolimic years; which in a cycle of 19 years are, the 30th, 6th, 8th, 11th, 14th, 17th, and 19th. Its beginning is fixed to the new moon next after the autumnal equinox.


Year, Syriac, is a lunar year, having its beginning fixed to the beginning of October, in the Julian year; from which it only differs in the names of the months, the quantities being the fame, as follows: 1. Tifrin, answering to our October, and containing 31 days. 2. Latter Tifrin, containing, like our November, 30. 3. Canun, 31. 4. Latter Canun, 31. 5. Shabat, 28, or 29 in a leap-year. 6. Adar, 31. 7. Nifan, 30. 8. Aiyar, 31. 9. Haziram, 30. 10. Tamuz, 31. 11. Ab, 31. 12. Elul, 30.

Year, Olympic, was of a singular form, the first month commenced at the new moon, that the full moon might fall on the 15th day. Four years of 360 days contain 1440 days; 48 lunations are equal to 1417 days, 11 hours, 14 minutes; a 49th lunation added to the 4th year makes 1447 days, nearly. By this adjument, the new moon would have happened on the 8th instead of the 1st of the month. To correct this error, two days were added to the last month of every year, the 4th excepted, when one day was added. By these means, the olympic year, which consisted of 362 or 361 days, must have varied 14 days from the course of the fun in the space of an olympiad; and, at the end of 50 years, the games would have been transferred to the winter solstice; but for preventing this deviation, a month was intercalated at certain intervals. Notwithstanding this, a considerable error still remained. The olympic games were regulated by the Cycle of Clostratus; which see. See also Olympiad and Epochia.

Year, Persfan, is a solar year, of 365 days, consisting of 12 months of 30 days each, with five intercalary days added at the end.


This year is called the yezdegardic year, to distinguish it from the fixed solar year, called the gelalcan year, which the Persians began to use in the year 1079, and which was formed by an intercalation made fixe or seven times in four years, and then once every fifth year.

The yezdegardic year, it may be observed, is the same with Nabonassar's year, differing from it only in the names of the months, and the commencement of the epoch; for whereas the Nabonassaran began on February 25, this began on June 16. As to the gelalcan year, it is absolutely the belt and judekt of all the civil years yet invented, as being found, by calculation, to keep the follities and equinoxes precisely to the same days, and answering very accurately to the solar motions; which no other civil year does, not even the Gregorian, for want of so commodious an intercalation. See Persian Calendar.

Year, Arabic, Mahometan, and Turkifh, called also the year of the hegira, which (fee,) is a lunar year, equal to 354 days, 8 hours, and 48 minutes, and consisting of 12 months, which contain alternately 30 and 29 days.

Though sometimes it contains 13 months; the names, &c. of which are as follow: 1. Muharram, containing 30 days. 2. Saphar, 29. 3. Rabia, 30. 4. Latter Rabia, 29. 5. Jamoda, 30. 6. Latter Jamoda, 29. 7. Rajab, 29. 8. Shaaban, 29. 9. Ramudan, 30. 10. Shawal, 29. 11. Dulkadah, 30. 12. Dulheggin, 29; and in the embolimic year, 30. An intercalary day is added every 26th, 5th, 7th, 10th, 13th, 15th, 18th, 21th, 24th, 26th, 29th, in a cycle of 29 years.

The months commence not from the real new moon, but from its first appearance after conjunction.

Year, Ethipic, is a solar year, perfectly agreeing with the AEtis, except in this, that the names of the month are different. It commences with the Egyptian year, on the 29th of August, the Julian year.


Year, Aidian. See Ectian and Egyptian Year.

Year, Attic. See Macedonian Year.

Year, Canicular. See Canicular.

Year, Yezaedg erdic. See Persian Year and Calendar.

Year, Gelali en. See Persian Year and Calendar.

Year, Nabonassar's. See Egyptian Year and Nabo

Year, Sabatic, Anno Sabbatici, among the ancients, was every seventh year; during which the Jews let their lands lie at rest. Levit. xxv. 8.

Every seventh sabbatic year, i.e. every 49th year, was called the year of Jubile (which fee); and held with solemnity extraordinary.

Year, Anomalistical. See Anomalistical and Year supra.

Year, Climacteric. See Climacteric.

Year, Emergent. See Emergent.

Year, Enneatical. See Enneatical.

Year, Holy. See Holy.

Year, Platonick, or Great. See Platic.

Year of the Hegira. See Hegira, and Arabic Year.

Year's Day, New, or the day on which the year commences, has always been very different in different nations; and yet in all has been held in great veneration.

Among the Romans, the first and last day of the year were
were consecrated to Janus; on which account it was that
they represented him with two faces.
To them we owe the ceremony of wishing an happy new
year, which appears to be very ancient. Before the first
day was spent they not only visited and complimented each
other, but also presented freights, and offered vows to the
gods for the preservation of each other.
Lucian represents it as a practice of a very ancient standing,
even in his time, and refers it to Numa.
Ovid intimates the same ceremony in the beginning of
his Fasti;

"Pilora lux auritur, linguisque animisque favete :
Nunc dicenda bono fuit bona verba die."

And Pliny more expressly, lib. xxviii. cap. i. "Primum
anni incipientis diem haecis praeceditionibus invicem faustum
omnianurus."

In Ruffia at the new year is annually held a feast of the
dead, called Raditzli Sabol, on occasion of which every
body visits the grave of his relations, lays some viuals
upon it, and then hears masses, in payment for which the
priests get the viuals. In our own country, the ushering in
of the new year, or "New Year's tide," with rejoicings,
presents, and good wishes, was a custom observed, during
the 16th century, with great regularity and parade, and
was as cordially celebrated in the court of the prince as in
the cottage of the peasant. On the first day of the new
year, presents, called new year's gifts, were given and
received with the mutual expression of good wishes, and par-
ticularly that of a "happy new year." The compliment
was sometimes paid at each other's doors in the form of a
long; but more generally, especially in the north of Eng-
land and in Scotland, the house was entered very early in the
morning by some young men and maidens selected for the
purpose, who presented the spiced bowl, and hailed you with
the gratulations of the season. In the reign of queen Elizabeth,
the chief officers of state, and several of the queen's household
servants, gave new year's gifts to her majesty, conferring, in
general, either of a sum of money, or jewels, trinkets, wearing-
array, &c. The largest sum given by any of the tem-
poral lords was 20l.; but the archbishop of Canterbury gave
40l., the archbishop of York 50l., and the other spi-
ritual lords 20l. and 10l. Many of the temporal lords and
great officers, and most of the peers, gave rich gowns,
petticoats, smocks, kirtles, silk stockings, cuspris garters,
sweet-bags, doublets, mantels, feme embroidered with pears,
garnets, &c., looking-glasses, fans, bracelets, caskets studded
with precious stones, jewels ornamented with spars of diamonds
in various devices, and other costly trinkets. These
presents also consisted of books, and appropriate gifts from
physicians, apothecaries, &c. The queen, though she made
returns in plate and other articles, took sufficient care that
the balance should be in her own favour. In the country,
however, with the exception of the extensive households of
the nobility, this interchange was conducted on the pure
basis of reciprocal kindness and good will, and without any
view of securing patronage or support; it was, indeed, fre-
quently the channel through which charity delighted to ex-
cerce her holy influence, and though originating in the hea-
then world, became sanctified by the Christian virtues.
We shall here add, that the rejoicings on new year's tide
were succeeded by the observance of the "Twelfth-day,"
called, from the idea that the Eastern magi, who are said to
have visited our Saviour on that day, were kings, the "Feast
of the Three Kings." The "Twelfth-cake," distributed on
that occasion, was almost always accompanied by the waifal
bowl; which see. Drake's Shakespear, vol. i.

A year, civil, or legal, in England, formerly commenced
on the day of the Annunciation; i.e. on the 25th day of
March; though the historical year began on the day of the
Circumcision; i.e. the 1st of January, on which day the
German and Italian year also begins.
Stowe observes, that William the Conqueror having been
crowned on the 1st of January, that henceforth became the
first of the year for historians, &c. though, in all civil affairs,
they retained the ancient manner of accounting, which be-
gan the 25th of March.
The part of the year between these two terms was usually
expressed both ways, as 1748-9, or 1749. But by the act
for altering the style, the civil year now commences with
January 1. See New Style.
Since the Conqueror, the king's patents, charters, pro-
clamations, &c. are usually dated by the year of the king's
reign.
The church, as to her solemn service, begins the year on
the 1st Sunday in Advent, which is always that next St.
Andrew's day, or the 30th of November.
The Jews, as most other nations of the East, had a civil
year, which commenced with the new moon in September;
and an ecclesiastical year, which commenced from the new
moon in March.
The month Tifri, which began about the time of the au-
tumnal equinox, was the first month of the Jewish year, till
it was changed at the time of the coming up of the children
of Israel out of Egypt. For that happening in the month
of Abib, afterwards called Nisan, this month was for this
reason reckoned the first month of the year in all ecclesi-
astical matters. Before this period, Tifri was reckoned the
commencement of the year, because it was thought that
the world was created and first began at the time of the autumnal
equinox. And for this reason, the Jews do still in their era of
the creation of the world, as well as in their era of con-
tracts, compute the beginning of the year from the first
of Tifri, and all their bills and bonds, and all other civil acts
and contracts, are still dated among them according to the
fame computation; and from this month also they began all
their jubilees and fribatical years. And therefore, although
their ecclesiastical year began from Nisan, and all their fer-
tivals were computed from it, yet their civil year was still
reckoned from Tifri, and the first day of that month was
their new year's day; and for the more solemn celebration of
it, the feast of trumpets seems to have been appointed.
The French year, during the reigns of the Merovingian
race, began on the day on which the troops were reviewed;
which was the first day of March. Under the Carolingians
it began on Christmas-day; and under the Capetians, on
Easter-day; which, therefore, varied between the 22d of
March and the 25th of April. The ecclesiastical year in
France begins on the first Sunday in Advent. But for the
civil, Charles IX. appointed, in 1564, that for the future it
should commence on the 1st of January.
For an account of the change that took place in France,
see French or Republican Calendar. The French calendar
was of no long duration. It was abolished in the course of thirteen years; and the Gregorian was re-
formed, and ordered to be used in all dates after the 1st of
January, 1806.
The Mahometans begin their year the minute in which
the sun enters Aries. The Persians in the month answering
to our June. The Chinese, and most of the Indians, begin it
with the first moon in March. The Brachmans begin it
with the new moon in April, on which day they hold a feast
called samwai faradi paudoga, q. d. feast of New-year's day.
The Mexicans, according to D'Acolata, begin the year on
our
our 23d of February, when the leaves begin to grow green: their year consists of eighteen months, having twenty days each, which make three hundred and sixty; the remaining five days are spent in mirth, and no business is suffered to be done, nor even any service at the temples. Alvarez relates much the fame of the Abyssinians; who begin their year on the 26th of August, and have five idle days at the end, which they call pagomen. At Rome there are two ways of computing the year; the one beginning at the Nativity of our Lord; this the notaries use, dating a Nativitate. The other on the 25th of March, on occasion of the Incarnation; and it is by this the bulls are dated, anno Incarnationis. The Greeks begin their year of the world from the first of September. See Year supra.

Years are also distinguished with regard to the epochas whence they are numbered: thus, years of our Lord, are those reckoned from the birth of Jesus Christ. Years of the world, are those elapsed since the Creation. Years of Rome, of the Hegira, of Nabonassar, &c. See the difference between these years, under the article EPOCHA.

Year is also a word used by some of the chemical writers to express any product of their operations, which may serve as a medicine, whether internally or externally.

Year and day, in Law, &c. is a time that determines a right in many cases, and is in some an usufruct, and in others a prerogation.

Thus, in the case of an estray, if the owner, proclamation being made, challenge it not within a year and day, it is forfeit. In like manner is the year and day given in cases of appeal, of defendant, of entry or claim, of non-claim upon a fine, or writ of right, of the death of a man, a freehold, or wound of, protections, effuins in respect of the king's service, of a wreck, and on many other occasions.

Year, Days, and Wages, Annu, Diet, or Vafum, is a part of the king's prerogative, by which he challenges the profits of the lands and tenements of persons attainted for petty treason, or felony, for the space of a year and a day, whoever is lord of the manor to which they belong.

Formerly the king had only a liberty of committing waste on the lands of felons, by pulling down their houses, extirpating their gardens, ploughing their meadows, and cutting down their woods. But this tending greatly to the prejudice of the public, it was agreed in the reign of Henry I., that the king should have the profits of the land for one year and a day in lieu of the delCTION he was otherwise at liberty to commit: and, therefore, Magna Charta provides, that the king shall only hold such lands for a year and a day, and then restore them to the lord of the fee; without any mention made of waste. But the statute 17 Edward II. de prerogativa regis, seems to supposit, that the king shall have his year, day, and wages, and not the year and day instead of waste; which fits Edward Coke, and the author of the Mirror, before him, very jutly look upon as an encroachment, though a very ancient one, of the royal prerogative.

This year, day, and wages, are now usually compounded for; but otherwise they regularly belong to the crown: and, after their expiration, the land would naturally have descended to the heir (as in gavel-kind tenure it still does), did not its feudal quality intercept such descent, and give it by way of escheat to the lord. Black. Com. book iv.

Year-Books, in Law. See Reports.

Years, Elys, or Law, is a contract for the possession of lands or tenements for some determinate period; and it happens when a man letteth them to another for the term of a certain number of years, agreed upon between the lessor and the lessee, and the lessee enters thereon.

If the lease be but for half a year, or a quarter, or any lesser time, this leys is reputed as a lease or tenant for years, and is fo edied in some legal proceedings; a year being the shortest term which the law in this case takes notice of. An estate of this kind, even for a thousand years, is only a chattel, and reckoned part of the personal estate; and, therefore, a least for years may be made to commence in futuro, though a lease for life cannot.

With regard to emblements, or profits of land fowed by tenant for years, there is this difference between him and tenant for life: that where the term of tenant for years depends upon a certainty, as if he holds from Midsummer for ten years, and in the last year fows a crop of corn, and if it is not ripe and cut before Midsummer, the end of his term, the landlord shall have it; for the tenant knew the expiration of his term, and therefore it was his own folly to low what he never could reap the profits of. But where the lease for years depends upon an uncertainty; as, upon the death of the leysor, being himself only tenant for life, or being a husband fedeled in right of his wife; or if the term of years be determinable upon a life or lives; in all these cases, the estate for years not being certainly to expire at a time foreknown, but merely by the act of God, the tenant or his executors shall have the emblements in the same manner as a tenant for life, or his executors shall be intitled to it. But not so, if it determine by the act of the party himself; as if tenant for years does any thing that amounts to a forfeiture; in which case the emblements shall go to the leysor, and not to the leysor, who hath determined his estate by his own default. Blackl. Com. vol. ii.

YEARLINGS, in Rural Economy, a term applied to young neat cattle of the heifer kind in the second year. It is observed in the Gloucefheri Report on Agriculture, that until within these few years, it was there esteemed a bad practice to let them be put fo early to the bull, but that now it is even thought that this method improves them as milkers; and that from the increased value of flock, it is advantageous to anticipate a year, as a heifer in calf, at two years old, will be worth nearly as much as it would be if kept three. See Live-Stock.

YEAR, in Hunting, signifies to bark, as beagles properly do, at their prey.

YEARING, in Rural Economy, a term applied to runnet, used for curdling milk in some places. See Dairying and Runnet.

YEAST, Yest, or Barm, the foam or flower of beer, or other liquor in fermentation.

The yeat of beer is used for a leaven or ferment in the making of bread: as serving to swell or puff up very considerably in a little time, and to make it much lighter, softer, and more delicate. But when there is too much of it, it renders the bread bitter.

The use of yeat in bread is but of late standing among us: it is not above a century since the avarice of the bakers first introduced it; and then it was only done by stealth. Though Pliny witnessed it to have been used by the ancient Gauls.

The faculty of medicine of Paris, by a decree of the 24th of March, 1688, solemnly maintained it noxious to the health of the people; yet even that censure could not prevent its progress.

Common ale-yeat may be kept fresh and fit for use several months by the following method: Put a quantity of it into a cloth bag, and gently squeeze out the moisture in a fore-pref, till the remaining matter be as firm and stiff as clay.

In this state it may be close packed up in a tight cask, for securing
securing it from the air; and will keep fresh, sound, and fit for use for a long time.

This is a secret that might be of great use to the brewers and distillers here, who, though they employ very large quantities of yeast, seem to know no method of preparing it, or raising nurseries of it; for want of which they fullain a very considerable loss; whereas the brewers in Flanders make a very great advantage of supplying the malt-distillers of Holland with yeast, which is rendered laking; and fit for carriage, by this easy expediten. Shaw's Lectures.

Mr. Henry has repeatedly prepared an artificial yeast, by impregnating flour and water with fixed air, with which he has made very good bread, without the assistance of any other ferment; and he propofes this method of procuring fresh fermented bread at fea.

The proces is as follows: Boil flour and water together to the confidence of treacle; when the mixture is become cold, fill a small cask with it. This cask is to be filled up in the manner represented in Plate XV. fig. 7. Pneumatics, and defcribed under Pyrnnont Water, for the impregnation of water with fixed air; and the proces is to be conducten in a fimilar way, except that the cask is to be agitated as often as the mixture rises to about two-thirds of the capacity of the funnel $k$; and after each agitation, which should con- tinue during several minutes, the unabforbed air is to be let out, by withdrawing the plug from the orifice $m$, till that part of the mixture which remained in the funnel has returned into the cafl. The orifice at $i$ should also be larger than is necelfary in the other operations, on account of the superior visibility of the mixture. When, after repeated agitation, the mixture which has ascended into the funnel does not subfide into the cask, it may be suppoled incapable of abforbing more air.

Pour the mixture, thus saturated, into one or more large bottles, or narrow-mouthed jars; cover it over loofely with paper, and upon that lay a flate or board with a weight to keep it feady. Place the vefsel in a litation where the thermometer will fland from 70° to 80°, and flir up the mixture two or three times in twenty-four hours. In about two days, such a degree of fermentation will have taken place, as to give the mixture the appearance of yeast.

With the yeast in this flate, and before it has acquired a thoroughly vinous smell, mix the quantity of flour intended for bread, in the proportion of fix pounds of flour to a quart of the yeast, and a sufficient portion of warm water. Knead them well together in a proper vefsel, and covering it with a cloth, let the dough fland for twelve hours, or till it appears to be sufficiently fermented, in the above-mentioned degree of warmth. It is then to be formed into loaves and baked.

Mr. Henry adds, that perhaps the yeast would be more perfect, if a decoction of malt were used instead of flimple water.

When the operation is finished, the cask, in order to pre- vent its contracting a disagreeable taint, should be well washed. Henry's Account of a Method of preferring Water at Sea, &c. p. 26. 1784.

YEAST. Chemical Properties of. The nature of yeast has been briefly discussed under the head of fermentation. Since that article was written, however, some additional experiments have been published on the subject, which deserve to be noticed here.

The active and essential principle of yeast, as observed under the article Fermentation above alluded to, appears to be a species of gluten. When yeast is kept for some time in cylindrical glass vefsels, a white substance, not unlike curd, separates and swins upon the surface. If this substance be removed, the yeast lofes the property of exciting fermentation. This subfstance poiplies many of the properties of gluten, though it differs from it in others. Its colour is much whiter. It has not the fame elasticity, and its particles do not adhere with the fame force. It diffolves more readily in acids. Dr. Thomson confiders this as the real fermentative principle, and thinks it may be confidered as gluten somewhat altered, and rendered more much capable of decomposition. He thinks also that it exilited in the raw grain originally, but underwent considerable modifications by the malting proces, and perhaps others during the fermentation of the beer from which it separated.

The fame distinguifhed chemifl flates, in support of this opinion, the experiments of Fabroni and Thenard. Fabroni, by heating the juice of grapes, and pafling it through a filtre, separated an adhesive matter, which poiplies the properties of gluten, and deprived of which the juice refused to ferment, though it fermented as well as usual when this principle was again added. Thenard likewife found in the juices of all the fruits he examined a subfstance similar to that de- scribed by Fabroni, and which, according to him, is abso- lutely the fame with pure yeast. This subfstance is impipid, does not change vegetable blues, is infoluble in water, lofes three-fourths of its weight when dried, and is decomposed like animal subfstances. When eight parts of it were dif- tilled, they left 2.83 of charcoal, and yielded 1.61 of water, 1.81 of oil, and a quantity of ammonia, which, when satu- rated with mariatic acid, formed 1.46 of muriate of ammonia. The gas obtained weighed 0.53, and confiited of one- fifth of carbonic acid, and four-fifths of carbutted hydro- gen, requiring $\frac{1}{2}$ times its bulk of oxygen to confume it. Nitric acid, even when much diluted, converts it into a species of tallow. With potash it forms a foap, while ammonia is difengaged. When mixed with fugar and a fufficient quantity of water, fermentation takes place, carbonic acid is dif- engaged, and a vinous liquor formed. By this action, the ferment lofes the whole of its azote, and becomes incapable of exciting fermentation when mixed with a new portion of fugar. In farther corroboration of this opinion, Dr. Thomson adjoins an experiment of Kirchhoff, which he thins throws confiderable light on the nature of yeast. Barley-meal contains both gluten and flarch. Pure flarch infuded in hot water is not converted into fugar; nor does gluten become faccharine matter when heated in the fame manner. But if a mixture of pure dried pulverized wheat-gluten and potato-flarch be infuded in hot water, the flarch is converted into fugar. During the proces an acid is faid to be evolved. The gluten is little changed in appearance or quantity, and may molt of it be separated by filtration. What is singular, however, is it incapable of inducing the fame change upon flarch a second time.

The following are the constituents of yeast, according to Weltrumb, as quoted by Dr. Thomson. From 15.360 parts he obtained,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potash</td>
<td>13</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>15</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>10</td>
</tr>
<tr>
<td>Malic acid</td>
<td>45</td>
</tr>
<tr>
<td>Lime</td>
<td>69</td>
</tr>
<tr>
<td>Alcohol</td>
<td>240</td>
</tr>
<tr>
<td>Extractive</td>
<td>120</td>
</tr>
<tr>
<td>Mucilage</td>
<td>240</td>
</tr>
<tr>
<td>Saccharine matter</td>
<td>375</td>
</tr>
<tr>
<td>Gluten</td>
<td>460</td>
</tr>
<tr>
<td>Water</td>
<td>13,595</td>
</tr>
</tbody>
</table>

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Belfides
Besides some traces of phosphoric acid and silica. But it is evident, as Dr. Thomfon observes, that all these ingredients are not essentiel, and he considers the gluten only as deferving that appellation.

Some of the French chemiffs have confidered the principle of fermentation to refide in an imperfect species of fugar, which they have denominnated the sweet principle, and which they flate to exist in combination with real fugar in all fruits containing that principle. This sweet principle they suppose to differ from pure fugar, in being incapable of crytalizing. A familiar example of it we have in treacle or molasses, which, according to them, is the sweet principle of the fugar-cane. This doctrine, however, has not met with many adherents; for, as Dr. Macculloch observes, although chemiffy has not hitherto discovered the means of separating the fugar from the sweet principle, the refults of fermentation leave no doubt that the latter confifts of fugar combined with the vegetable extractive matter, or gluten, as it is denominated by moliff chemiffs. Thus molafiess confifts of a certain portion of real fugar, in such a flate of combination with a variety of subflances, and the fermentative principle among the rest, that it cannot be made to crytalize or be otherwise obtained in a separate flate. This is demonstrat led by the well-known fact, that molaffes may be made to undergo the fermentative process, and to yield alcohol, in precisely the fame manner as a simple mixture of fugar and yeast. The sweet principle of molaffes, therefore, must be in fact nothing elfe than fugar, unlefs we fuppofe two different subflances capable, by the fame means, of producing the fame refult, which is totally unprecedented in chemiffy, besides being in itelf extremely improbable.

Upon the whole then, in the prefent flate of our knowledge, we are obliged to conclude that the effential principle of yeafht, or the real fermentative principle, is either identical with gluten, or clofely allied to it. Of its real nature, however, and modus operandi, we are totally ignorant, and shall probably long remain fo.

The yeafht of beer is most generally employed, and is of the utmost importance in the manufacture of bread, and of fermented liquors from malt. If carefully dried and preserved from moisiture, it retains its properties for a long time, and it is a pity this practice is not more generally re ferred to, as fluid yeafht in warm weather soon becomes acceff and purid, and not only lofes its properties, but imparts a moft disagreeable flavour to the bread, &c. with which it is mixed. Yeafht may be readily dried by firll separating its watery parts as much as possible, and afterwards exfoping it in shallow vefsells to the air, or to a gentle heat in a flove. In this way, it may be obtained in thin lamming, and requires only to be preferved in clofe vefsells in a dry place, when it will be always ready for ufe, by diffufing it in a little warm water. A popular method of preferring yeafht is by drying it upon bunches of twigs. See Bread, Brewing, Fermentation, and Wine.

Yeafht, Medicinal Properties of. Yeafht has been highly extolled as an antifeptic remedy in difeafes, when a putrid diathesis was fuppofed to prevail; as in low typhus fevers, gangrene, &c. A good method of exhibiting it is, to mix one or two table-foopfuls of it with a quart of infusion of malt or mild porter, and to take a wine-glaflful of this mixture frequently. Many pratiffes have alfo fpoken highly of the good effects of a fomenting poultice composed partly of yeafht, when applied to foul and gangrenous ulcers. The good effects of this remedy, if in reality it poifonies any, may probably be attributed to the carbonic acid gas generated by its agency. See Fever.

Yeats, Mrs., in Biography, the celebrated tragic actres, who, in conjunction with Mrs. Brooke, the novelist, a lady of confiderable literary merit, undertook, in 1773, at all risks, the conduct and government of the opera, and all its dependencies; an enterprife for which they were but sparingly qualified. In the firft place, Mrs. Yeats, though poffefled of strong natural parts, and an inherent spirit of government, knew no language but English, was ignorant and indifferent about music, dancing, painting, machinery, and decorations. She and her husband had faved a confiderable sum by their haracies and benefits at our national theatres, and in hopes of accumulation previous to retirement, they quitted employments for which they were extremely well fitted, and in which their facces was certain, to govern a molt froward family by deputation, at the extreme hazard of being ruined.

Mrs. Brooke, who had refided some time at Quebec, after its conquest, with her husband, the Rev. Dr. Brooke, chap lain to the army in that colony, indeed knew French, had a good tarde in books, and wrote in a good fyle; but was ignorant of music, and totally unacquainted with all opera concerns. Yet it was during this female regency, that the fleft composers, the greateft fingers, and the moft capital and renowned dancers, were engaged; for during nine years, from 1773 to 1782, we had Sacchini, Truetta, and Anfolfi, to compute; Pacchierotti, Anfani, and the Gabrielli, to fing; and Madlle. Heynel, the Veefris, and Le Picq, to dance.

Mrs. Yeats did not enrich herfelf by her opera fovereignty; but she had the adresses to effcape ruin. And Mrs. Brooke, who rifked no property, loft no reputation by imprudence, or the want of talents in the persons he engaged.

Yecaty, in Geography, a town of Hindooftan, in My fore; 20 miles N. of Seeringpatan.

Yecora, a town of New Mexico, in the province of Hayqui; 50 miles E. of Riochico.

Yedacotta, a town of Hindooftan, in Myfore; 15 miles N. of Dindigul.

Yedapady, a town of Hindooftan, in the Carnatic; 8 miles N. of Sankerdurgan.

Yedapilly, a town of Hindooftan, in Myfore; 2 miles N.W. of Vencatighery.

Yedimungalam, a town of Hindooftan, in the Carnatic; 18 miles E. of Tanjore.

Yekast. See Jeekkast.

Yegue Hotux, a town of Chinefe Tartary; 418 miles E.N.E. of Peking. N. lat. 43°. E. long. 124°. 19'.

Yehenagur, a town of Hindooftan, in Lahore; 15 miles N.E. of Jallindar.

Yehungschaul, a town of Hindooftan, in Lahore; 40 miles W.N.W. of Lahore.

Yelasram, a town of Hindooftan, in Pahnaud; 20 miles W.S.W. of Timerycotta.

Yelchore, a town of Hindooftan, in the circle of Guntoor; 3 miles N.E. of Innacconda.

Yelcur, a town of Hindooftan, in the Carnatic; 15 miles N. of Chittor.

Yeldoor, a town of Hindooftan, in Myfore; 12 miles N.E. of Colar.

Yelfola, a town of Spain, in Galicia; 18 miles N. of Santiago.

Yeflon, a word used by some of the barbarous writers to express glafs.

Yell Island, in Geography, one of the Shetland islands, 20 miles long, and about 7 broad, but interfected by a number of bays, by the inhabitants called Voes, which afford good harbours. The principal part of the arable land is confined to the neighbourhood of the coast; the inland parts are moun tainous,
tainous, and covered with peat mofs: there is but little heath, but abundance of a rough sort of grass called *lubbo*, which grows naturally, and affords tolerable pasture for sheep, horses, and black cattle. Though the crops failed not sufficient for above eight months' consumption, yet the inhabitants, by the advantage of having plenty of fuel, and catching immense quantities of small fish, live comfortably, and as well as the generality of the peatlands of Scotland. N. lat. 60° 56'. W. long. 1° 20'.

**YELLAGOOD**, a town of Hindooftan, in Golconda; 45 miles S.E. of Canouul.

**YELAMOODY**, a town of Hindooftan, in the province of Madura; 25 miles W. of Madura.

**YELANG**, a town of Burmah; 14 miles S. of Mollone.

**YELLOOR**, a town of Hindooftan, in Baramaul; 6 miles N.N.W. of Namcul.

**YELLOW**, a bright colour, reflecting the most light of any after white. See Colour.

The word is formed from the Italian *giello*, or the German *gel*, which signifies the same; or from the Latin *galbans*, bright, gay.

There are divers yellow substances that become white, upon wetting and drying them again several times in the sun: such as wax, linen cloth, &c. (See Bleaching.) And the same bodies, if they be already white, and continue a long time in the air without being wetted, turn yellow.

Paper and ivory, applied near the fire, become successively yellow, red, and black. Silk, when turned yellow, is whitened again with the fumes of sulphur.

**YELLOW**, in Dyeing, is one of the five simple and mother colours. See Colour.

The only materials used by the calico-printers for the production of fine yellows are the quercitrin-corn (see Quercus), and the *Weld*, or *Rooda Luteola*, which fee. In order to obtain calicos of the finest yellow or more delicate lemon colour, it is necessary to dry the pieces in the open air, as the flow would not fail to injure such colours; flow-drying having a tendency to change a yellow into an orange.

In the operation of dunging the mordants for these pale yellows, care should be taken that it be not done at a higher temperature than 96° or 100°, as such a high temperature would impair their beauty. But besides, by dunging at this low temperature, the dyeing may be completed at about 110°, which will give a much livelier colour than if a higher temperature had been employed. For all the different shades of reds and yellows, the mordant employed by calico-printers is the acetate of alum; which is prepared by a mixture of the sulphate of alumine with acetate of lead, both in a state of solution; so that, on the theory of double decomposition, sulphate of lead is formed, which precipitates while the acetate of alumine remains in solution. Of late this article has been prepared from the pyrogallous acid, by means of lime and alum, in the following manner:—

The pyrogallic acid is first passed through a still, to distil it of a portion of the tar which is always divorced in it: it is then saturated with lime or whiting; and the acetate of lime thus formed is decomposed by a heated solution of sulphate of alumine. The result of this double decomposition is sulphate of lime, which precipitates, and acetate of alumine, which is drawn from the sediment of the calcareous sulphate, and preferred for use. Mr. Parkes cautions the manufacturer against the use of lime in the process for making acetate of alumine; and he says that the true mode of making it, though more expensive, is that recommended by Berthollet; which consists in decomposing sulphate of alumine by means of saccharum saturni, or acetate of lead. Mr. Parkes mentions a method of producing yellows on calico, which, though not often practised, has nevertheless a very good effect. The process is as follows:—A strong decoction of bark, thickened with gum tragacanth, is to be mixed with a portion of very pure muriate of tin; and this, when printed with the usual management, will produce a colour of great brightness and durability. This mode possettes one very important advantage; viz., that if it should be necessary to pad a piece in diluted acetate of alumine to obtain a pale lemon ground, the yellow figures previously done by the above process will not give out any part of their colour to the second mordant; whereas, whenever a strong yellow has been produced in the common way, the pattern is very apt to spread, and to become irregular, and often to stain the ground, when the piece comes a second time into the acetate of alumine. Parkes's Eff. vol. ii.

Turmeric likewise gives a good yellow, though not the best.

Woollen cloth, impregnated with a solution of alum and tartar, acquires on being boiled with the watery decoction, an elegant, but not very durable orange-yellow or gold-coloured dye. It is rarely made use of by the dyers, on account of its price, and the perishableness of its colour.

There is also an Indian wood that gives a yellow colour bordering on gold. This wood, called *fullick*, is a species of mulberry-tree, of a deep sulphur-yellow colour, which it readily gives out both to water and spirit. The watery decoction of yellow dye prepared woollen of a very durable orange-yellow: the colour is imbibed by the cloth in a moderate warmth, without boiling.

The *fullet* or *fullet* of the French is a yellow wood or root, very different from our *fullick*: it gives a fine orange dye to woollen, but the colour is extremely perishable in the air. This is called *colinus cortaria*, or *Ponce fumac*.

The leaves of many kinds of herbs and trees give a yellow dye to wool or woollen cloth that has been previously boiled with a solution of alum and tartar. There is, indeed, no colour for which we have such plenty of materials as for yellow.

Mr. Hollot observes, in his Art de Teindre, that all leaves, barks, and roots, which on being chewed discover a flight altrignancy, as the leaves of the almond, peach, and pear trees, ash-bark (especially that taken off after the first rising of the sap in spring), the roots of wild patience, &c. (see Leaf), yield durable yellows, more or less beautiful, according to the length of time that the boiling is continued, and the proportions of alum and tartar in the preparatory liquor: that a large quantity of alum makes these yellows approach to the elegant yellow of weld; that if the tartar is made to prevail, it inclines them to an orange; and that if the roots, barks, or leaves, be too long boiled, the yellow proves tarnished, and acquires shades of brown.

Neumann's Chemical Works, by Lewis, p. 384. 434.

The Chinese are famous for their yellows in dyeing, which neither change with washing. They make this dye of the flowers of the acacia, in a manner in which we might use several of our productions to a great advantage.

It is thus: they gather the flowers before they are perfectly ripe, and dry them in an earthen vessel over a gentle heat, till they crisp up in the manner of tea-leaves: they then add to them the ripe seeds of the same tree in different proportions; and then boiling them in river water with alum, they give the yellow in any degree that they please.

They have three kinds of yellow, which they distinguish by the names of *Ngoo-loang*, *king-beang*, and *beang* alone.

The first of these is the brightest yellow: to dye five or
fix ells ofilk ofthis colour, they use a pound of the flowers of the acacia, about two ounces of the seeds, and four ounces of alumin.

The king-baang is a somewhat deeper yellow: to dye this, they use the same ingredients in the same proportion as in the former cafe; and when the silk is dry from the dipping in this, they give it a second dipping in a flight tincture of Brasil wood: this brings it to the fine strong yellow we see.

The baang, or pale yellow, is made of the same ingredients as the first only, instead of four ounces of alumin they put in but three ounces: river water is found to be greatly preferable to any other for the extracting of these colours; but even in that there is great difference, some doing the business much better than others.

The Chince are so expert in judging on this occasion, that they can tell by the taste of water whether it will or will not do; and if it taste faint they know it is faulty; but they dip the pieces twice into it instead of once, and the colour succeeds well.

The flowers of the acacia, when they have been prepared by roasting in this manner, may be kept all the year round, and employed in dyeing as occasion requires, only there is to be longer boiling for the dried flowers than the fresh ones; and it is always found that the fresh flowers give the brightest colour. Obs. fur les Coutum. de l’Abe, p. 254.

Greens are usually made of yellow and blue mixed. With yellow, madder red, and goat’s hair-prepared with madder, are made the golden yellow, Auraora, panly, nacreate, Isabella, and chamois colour, which are all cafts or shades of yellow.

Mr. Peter Woulfe has given the following receipt for making the yellow dye:— Take half an ounce of powdered indigo, and mix it in a high glass vessel, with two ounces of strong spirit of nitre, which should be previously diluted with eight ounces of water, for preventing the indigo’s being set on fire by the spirit; because two ounces and a half of strong spirit of nitre will set fire to half an ounce of indigo: let the mixture stand for a week, and then digest it in a land-heat for an hour or more, and add four ounces more of water to it; filter the solution, which will be of a fine yellow colour. If the indigo be digested twenty-four hours after the spirit of nitre is poured upon it, it will froth and boil over; but after standing about a week, it has not that property.

One part of the solution of indigo in the acid of nitre, mixed with four or five parts of water, will dye silk or cloth of the palest yellow colour, or of any shade to the deepest, and that by letting them boil more or less in the colour. The addition of alumin is useful, as it makes the colour more lasting: according as the solution boils away, more water must be added. None of the colour in the operation separates from the water, but what adheres to the silk or cloth; and consequently this colour goes far in dyeing.

Cochineal, Dutch litmus, orchil, cudbear, and many other colouring substances treated in this manner, will all dye silk and wool of a yellow colour.

The indigo which remains undissolved in making Saxon blue, and collected by filtration, if digested with spirit of nitre, dyes silk and wool of all shades of brown, inclining to a yellow.

Cloth and silk may be dyed green with indigo; but they must first be boiled in the yellow dye, and then in the blue. Phil. Trans. vol. lxi. part i. p. 129, &c. See Dyeing.

Painters and enamellers make their yellow of mafficot, or as some write it, malicoot, which is croule raised to a yellow colour by the fire; or with yellow ochre. Limners and illuminers make it with saffron, French berries, orzette, &c.

Mr. Boyle tells us a moft beautiful yellow may be procured by taking good quicksilver, and three or four times its weight of oil of vitriol, drawing off, in a glass retort, the false meniftrum from the metaline liquor, till there remains a dry low-white cake at the bottom: on pouring a large quantity of fair water on this, the colour changes to an excellent light yellow.

He says he fears this colour is too costly to be used by painters, and he does not know how it would agree with every pigment, especially oil colours. Works abr. vol. ii. p. 91. See Vitriol.

Branton observes, that it was anciently the custom to paint a man’s door yellow, and threw his house with falt, to declare him a traitor to his king.

Yellow and other Colouring Matters of Flowers, in Rural Economy, the different colouring matters thus produced. The nature of the colouring matters of flowers has not yet been much examined into. Such colouring matters are in general very transient, especially those of the blue and red kinds. The yellow colouring matters of this fort are said to be the most permanent. It is noticed by a late writer, that the carthamus contains a red and a yellow colouring matter; that the yellow is easily diffolved by water; that from the red, rouge is produced by a process which is kept secret; that the colours of most flowers are changed by alcalies to green, and by acids to red; that an imitation of the colouring matter may be made by digesting solutions of gall-nuts with chalk; a green fluid is produced, which becomes red by the action of an acid; and that has its green colour refored by means of alcalies.

Yellow Copper, in Mineralogy, copper pyrites. See Copper Ore.

Yellow Earth, a soft yellow mineral substance, found at Weiraw, in Upper Lufalia, associated with clay and argillaceous iron-oxide: it is sometimes used as a yellow pigment. The characters given of this substance do not seem to entitle it to be regarded as a different species from some of the ochreous clays which occur in the coal-strata in England. It is classed by professor Jameson with the lithomarge family, and is thus described by him. Its colour is ochre-yellow, of different degrees of intensity; its texture friable; it is dull in the crofs fracture, but glittering in the parallel fracture. In the large, the fracture inclines to flat; in the small, the fracture is earthy. The fragments are tubular, or indestructively angular. It becomes shining in the fire: it is opaque and very soft, passing into friable; it foils the fingers slightly, and adheres to the tongue; its feel is rather gritty; it is rather light, but the specific gravity is not given. Before the blow-pipe, yellow earth is converted into a black and shining enamel. We have no analysis of this earth.

Yellow Tellurium Ore, an ore of tellurium, hitherto found only at Nagyag, in Transylvania. See Tellurium.

Yellow Cow-Wheat, in Agriculture. See Weed.

Yellow Dead Nettle. See Weed.

Yellow Devil’s Bit. See Weed.

Yellow or French Berries. See Avignon, and Lycium.

Yellow Fever, an epidemic disease of frequent occurrence in America and the West Indies. See Fever, Yellow.

Vegeta arriving in Great Britain or Ireland, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, from places where the yellow fever is known to exist, or where it is deemed likely to break out, are subjected by various laws and orders of his majesty in council to the restraint of quarantine; the same as ships arriving from countries subjected
to the Phuge, for the details of which, see that article in the Addenda.

**YELLOW-Hammer**, in Ornithology, the name of a very common English bird, called by authors *emberiza lutus*; and by Linnaeus *emberiza citrinella*; and by some *hortulanus*; by others *lutes*; and by others *chlorus*.

The bill is of a duffey hue; the crown of the head is of a pleasant pale yellow; in some almost plain, in others spotted with brown; the hind-part of the neck is tinged with green; the chin and throat are yellow; the breast is marked with an orange-red; the belly yellow; the latter coverts of the wings are green; the others dufky, edged with rust colour; the back of the face colours; the rump of a rufly red; the quill-feathers dufky, edged on their exterior sides with yellowish-green; the tail is a little forked; the middle feathers are brown; the two middlemoft edged on both sides with green, the others on their exterior sides only; the interior sides of the two outermost feathers are marked obliquely near their ends with white.

This species makes a large flat nest on the ground, near a bush or hedge, of mosses, yellow roots, and horfe-hair; it lays six eggs, of a white colour, with dark purple veins; and in winter frequents our farm-yards with other small birds. Pennant.

There is besides this another kind, which is much smaller, and of a browner colour on the back; this is called by some authors *rivo*.  

**YELLOW Hawkweed**, in Agriculture. See Weed.

**YELLOW Jaundice**, in Medicine. See Jaundice.

**YELLOW King's**, is a pure orpiment, or arsenic coloured with sulphur, used for painting in oil and varnish; of an extreme bright colour, and when good a true yellow: when used alone, it will fand well; but mixed with white lead, and several other pigments, its colour fifies or changes. It is sometimes mixed with blue pigments, to form a green colour. This pigment may be prepared by mixing sulphur and arsenic by sublimation: taking of arsenic powdered, and flowers of sulphur, in the proportion of twenty parts of the fift to one of the second, and putting them into a fublimer, and subliming them in a land-heat by means of a furnace particularly adapted to the purpohe. When the operation is completed, the king's yellow will be found in the upper part of the glafs, which must be separated with care from any foul parts adhering to it in the glafs, and levigated into an uniform powder. It may be alfo obtained from common orpiment by subliming it in the fame manner. This pigment may be rendered warmer, or more inclined to orange, by increasing the proportion of the sulphur, and vice verfa. Handmaid to the Arts, vol. i. p. 17.

**YELLOW Ladies' Bed Straw.** See Weed.

**YELLOW Meat**, in Rural Economy, that which is much tinged with a yellow colour. It is faid to be a pedicular property in fome forts of animals, of both the sheep and cattle kinds, to afford meat which has a yellow caff or appearance.

It is fuppofed that this defect must be hereditary, as no pafture or particular food can either produce or remove it, as sheep which have been tried in the manner here defcribed and found yellow have been fent to the Thames marfes, kept there a year, and when flainted have proved as yellow as gold. It may probably depend upon some phyfiological principle, which mere examination after death has not yet fhewn. These remarks are equally applicable to beef as mutton, and are the refult of information on the subject derived from a well-experienced Smithfield faffman.

**YELLOW, Naples.** See Giallolina.

**YELLOW Out-Gras**, in Agriculture, a fort of gras which thrives well in meadows and paftures, as well as upon hills where the foil is of a calcareous nature, flowering in the middle of fummer. It is a rather coarse gras, which, though tolerably fweet, is thought by many to be much inferior to the meadow and fuce grasfes; and which Withering has fett out not to be relifted by cattle; but which Swayne thinks one of the beft grasfes of this kind for the use of the farmer.

The proportional value which the grasf, at the time the feed is ripe, bears to that at the time of flowering, is as 9 to 15.

The proportional value which the grasf of the latter-math bears to that at the time of flowering, is as 5 to 15; and to that at the time the feed is ripe, as 5 to 9.

It is remarke that this species of gras is pretty gene rally cultivated in many districts and parts of this country; and that it would appear from the above details to be a valuable grasf, though inferior to many others. See Avena Flavefcenta, Grass, and Grass-Land.

**YELLOW Ochre.** See Ochre.

**YELLOW Rattle.** See Weed.

**YELLOW Scour or Milk**, a disease in lambs, which takes place while they are young, and in which they appear quite dull and spiritless; their ears instead of being upright lie flat and afunder on their heads; they are very lank in the fides and bellies, and their breathing is very short and unequal. Thefe appearances are proceeded by a purging of a yellowish milky coloured matter, which, in fome cafes, has come on before the disease is noticed; but at other times, the lambs die without having had any or only a flight discharge of excrement. The body or carcase appears well fed; the excrement in the intestines, which laft are sometime in some degree fwell, refembles in colour that paffed at the anus, while the fomach is particularly full of coagulated milk.

It is a disease which never appears or fhews itself in hard feafons, but only when the weather is warm, growing, and genial, and there is great plenty of new gras. In general it does not affect them after they are three weeks old. It is mollly ascribed to their fucking more milk than they can digef; and it is even faid, that they not unfrequently fuff until their stomachs burft.

The lambs being young, and of little value, remedies to prevent or remove the disease are feldom tried; but thofe of the aromatic cretatious kind, with a little opium, may often be used with much advantage in preventing and curing the complaint.

**YELLOW Vetchling**, in Agriculture, a plant of the tare kind, that may be cultivated by the farmer in many cafes with profit. The writer of the Essays on Rural Affairs flates, that it grows with great luxuriance on iffic clayey foils; that it continues annually, for any length of time, to afford a great weight of produce, which is of the very beft quality; that it is equally fit for pafture herbage or for lay; and that it may be applied to one or other of these purpofes at any period as convenient; that it has likewife this advantage, that as it continues to grow with equal strength in the end as in the beginning of the fummer feafon, it may admit of being paftured upon in the early fpring, when neceffary, without endangering the loss of the hay-crop, which cannot be the cafe with any other plant usually cultivated, except clover, which is unfit both for early pafture and for hay; and that it is fit more valuable, as growing to the greatest perfection on fuch foils as are wholly unfit for producing fain-foin, the only fort of plant yet cultivated in the
the field, which seems to have qualities approaching to those of this plant.

The principal objection to its cultivation is the difficulty of procuring the seeds of it in plenty, which may probably be obviated by proper management. It is, however, an abiding plant, and one which increases fast by its running roots, and which may readily be propagated in this way in the field. See Lathyrus pratensis.

Yellow-Berry Waft, is a solution of the gum of the French berries in water; and may be prepared by boiling a pound of the berries in a gallon of water with half an ounce of alum, in a pewter vessel, and filtering the fluid; and by evaporating the fluid in the boiler till the colour appears to be of the requisite degree of strength.

This is used as a washing colour in water-painting; it will stand extremely well, and being more diluted, or laid on thicker, will, in consequence of its transparence, give a variety of shades.

Yellow Waft of Saffron. See TinTue of Saffron.

Yellow Waft of Turmeric. See Turmeric.

Yellow Breecher Creek, in Geography, a river of Pennsylvania, which runs into the Susquehanna, N. lat. 40° 13', W. long. 76° 52'.

Yellow Creek, a township of Ohio, in the county of Columbiana, with 491 inhabitants.—Also, a river of America, which runs into the Ohio, N. lat. 40° 34', W. long. 80° 44'.

Yellow River, a small river of Ireland, in the King's county, which joins the river Boyne.

Yellow River. (See Hoang.) Mr. Barrow, supposing, without the possibility of exaggeration, that the breadth of the Yellow river, where Macarney's embassy passed it, about 70 miles from the sea, was only three-fourths of a mile, the mean depth five feet, and the velocity of its course four miles an hour, concludes, from these data, that the river discharges into the Yellow sea, in every hour, a volume of water equal to 418,176,000 solid feet, or 2,563,000,000 gallons of water, or 1100 times as much as appears to be given by the Ganges. By another computation, he estimates the quantity of mud wafted into the sea by this river in every hour to be equal to 2,000,000 solid feet, or 48,000,000 in every day, or 17,520,000 in every year. Supposing the mean depth of the Yellow sea to be 20 fathoms, or 120 feet, the quantity of earth brought down by the Yellow river would, if accumulated together, be sufficient to fill up, even to the surface of the sea, an island one mile square in 70 days. By extending the calculation, a curious inquirer may find in what space of time the Yellow sea itself might be filled up by the successive depozitions from the Yellow river alone; for supposing that sea to extend northward from that river, and to include the gulfs of Pe-che-lee and Lea-tong, the number of square miles on the surface of this extent would be about 125,000, which, multiplied by the number (70) of days necessary for consolidating one mile square, would make 8,750,000 days, or 24,000 years.

The velocity of the Yellow river at the place where the embraffed it was so great, as to require, agreeably to the superfluous notions of the Chinee crews, a sacrifice to the Spirit of the river, in order to ensure a safe passage over it. With this view, the master presented a cock, and having wrung off his head, which he threw into the sea, consecrated the vessel with the blood spouting from the body, by sprinkling it upon the deck, the masts, the anchor, and the doors of the apartments, and stuck upon them a few of the feathers of the bird. Various kinds of provisions were then ranged across the deck; and when the captain had made three profound inclinations of the body with his hands uplifted, he muttered a few words, as if of solicitation to the Deity. The loo, or brazen drum, was in the mean time beaten forcibly; lighted matches were held towards heaven; papers, covered with tin or silver-leaf, were burnt; and crackers fired off in great abundance by the crew. The captain afterwards made libations to the river, by emptying it into the vessel's prow the several cups of liquors which he had provided, and concluded with throwing in also that which held the falt. All the ceremonies being finished, and the bowls of meat removed, the people feak'd on it; and afterwards launched with confidence the yacht into the current. As soon as she had reached the opposite shore, the captain returned thanks to heaven, with three inclinations of the body. Sacrifices are also offered to obtain a fair wind, and to avert any impending danger.

Besides these offerings, great exertions were necessary to overcome the violence of the Yellow river, and to transport large yachts in safety to the opposite shore. Embaffy to China, vol. ii.

Yellow Sea, an extensive but shallow inland sea between Corea and China, hardly any where exceeding forty-five fathoms in depth, and often not more than twenty; with a bottom of clay or mud: the alluvion, without doubt, of the rivers that are poured into it from the mountains and plains of China. See Leao-tong.

YELLOWs, in Animals, is a disease which is incident to horses, neat-cattle, and sheep, in which there is a yellow jaundice-like appearance, especially in the eyes.

It is a disease that takes place in horses in all states of them, but which in those of the young kind is often unaccompanied with fever, or any sort of irritation. It shews itself by a particular yellowness in the eyes and the inoff of the mouth, with a considerable degree of congestion of the bowels in some cases.

The complaint is frequently much relieved by the use of a ball composed of one ounce of aloes in powder, with one drachm of calomel, and half an ounce of Caffle soap, made up with a sufficient quantity of treacle; and the second morning afterwards giving one constituted of half an ounce each of nitre, reinf, and Caffle soap, made up with honey; and if the yellowness should continue in the eyes and mouth, repeating the latter after an interval of four days.

Some, however, advise to have first recourse to bleeding, clysters, and purges; in the last of which intentions the composition directed below may be found useful: One ounce and a half of Indian rhubarb, two drachms of saffron, and six drachms of socotrine aloes, formed into a ball with syrup of buckthorn. But if the rhubarb should be thought too expensive, it may be omitted, and the fame quantity of cream of tartar, and half an ounce of Caffle soap, with four drachms more of aloes, be added. This may be repeated two or three times, giving immediately the remedies directed below: Half an ounce of Ethiopis' mineral, and one ounce of Caffle soap, formed into a ball, and one of them given every day, washing it down with a pint of the following decoction: Madder and turmeric-root, each four ounces; burdock-root sliced, half a pound; monk's rhubarb, four ounces; and liquorice sliced, two ounces; boiled in one gallon of forc'e-water to three quarts; the liquor then strained off, and sweetened with honey.

In this disease, balls of Caffle soap and turmeric alone are likewise often had recourse to, even to the quantity of three or four ounces or more in the day; and not unfrequently succeed in recent cases.

By means of this fort, the disease for the most part abates
Y E L

abates in the course of a week or ten days, which may be
known by the alteration in the eyes and mouth of the horse;
but the remedies are to be continued until the yellowness
is wholly removed. Should, however, the disease prove
obstinate, and not give way to such modes of treatment,
it will be necessary to have recourse to more powerful remedies,
such as those of the mercurial purging kind, repeated two
or three times at proper intervals, and then to give the balls
composed of the substances directed below: Two ounces
of salt of tartar, four ounces of cinnabar or antimony, three
ounces of filings of steel, and soap half a pound, formed
with honey into balls the size of a pullet’s egg, giving one
night and morning in a pint of the above decoction drink.

On the recovery of the horse, some advise two or three
mild purges; and if he be strong and fat, to put in a
towel.

He should have mashes and warm water frequently, and
be exercised daily, and warmly covered with cloths.

In order to prevent a relapse, the first purging-ball may
sometimes be used with great advantage; and a powder
formed of the following ingredients be mixed, with the seeds
of corn every night for a fortnight: 'Ethiops’ mineral, nitre,
and aniseeds, each half an ounce, mixed together.

Salt-mashes, too, have often been found very useful in
the cure of this disorder, and when taken in time rarely fail
in restoring the animal.

The yellows in neat-cattle is a common disease, arising
from obstruction in the gall-ducks, and consists in a diffusion
of the obstructed bile through the whole body of the animal.
It is first distinguished in the white of the eyes, which has
a particular yellow appearance; and as it increases, the
whole of the skin becomes tinged with the same yellow
colour: but the ears, tail, eyes, and mouth, are the parts in
which it is the most conspicuous. The animals are affected
with great weakness and debility in every fringe of the
disease, and there is a little discernible, with indisposition to
move, and a want of appetite for their food. When in the pastures, they
most often wander about by the sides of the hedges, or other
fences, in a lonely manner. Milch cows are particularly
subject to the disease in the spring and at the fall of the
year; though they are not exempt from having it at all
other seasons. The most unfavourable state of the disease
is when it proceeds from an induration of some part of the
liver, as there is then but little hope of the disease being perma-
nently removed. As the changing state of the weather
has often a great effect in retarding or halting the re-
move of the disease, care should be taken to house the
animals in all unfavourable seasons.

On the first appearance of the disease, it may often be
removed by the composition directed below: Salt of tartar,
Caffile soap, and grains of Paradise, each one ounce;
turmeric-root, and coriander-seeds, in powder, each two
ounces; the whole being made into a drink, by pouring
three pints of hot ale upon the ingredients in a proper clo-
celestial, firstrones and then in a thin manner, and covering
them well up until they become about new milk warm,
when two ounces of honey or treacle may be added, and
the whole given as a drink. It must be repeated at the
distance of every day or two, for two or three times, or as
there may be occasion.

Where the beast is strong, a little blood may sometimes
be taken away with advantage; but it should not be turned
out into the pasturage the same day.

When the disease does not give way to these remedies, it
may be necessary to have recourse to a strong purge or two.
After which a drink composed as below may be given:
Salt of tartar, one ounce; Caffile soap sliced, two ounces;
well rubbed down with an ounce of balm of copaiva, and
then two ounces each of valerian-root, ginger-root, and
Peruvian bark in powder added, and the whole given in ale
or gruel as above, repeating it every other day.

It is necessary to keep the bodies of the animals well
open through the whole of the disease; in which intention
a drink composed as below may often be useful: Barba-
does aloe, in powder, one ounce; caffor-oil, four ounces;
lyrup of buckthorn, two ounces; mixed and given in a quart
of oatmeal-gruel when about new milk warm, and repeated
until the proper effect be produced, using the first fapon-
aceous drink at the same time.

When this complaint is removed, the general health of the
animals may soon be restored by the proper use of cor-
dial strengthening drinks, formed of the different aromatic
pectoral feeds in the powdered state.

The yellows is not a very common disease among theep,
and consequently has not been very accurately described;
but probably confounded with many other affections to
which they are subject. It is supposed by some to be in
general confined to the South-Down and new Leiceste
breeds, which, from their more tender constitutions, are
more liable to complaints.

The appearances of the disease are a yellowness over
the whole body, but particularly discernible in the white
of the eye. The wool, too, has a little of the tinged, and
is slightly hard. The pallidess of the belly are of a white
colour, and the urine is found to tinge any thing immersed
in it of a yellow hue. Sometimes there is a degree of full-
ness and hardnees in the right-side, about the seat of the
liver. The caules are any thing which has a tendency to
obstruct the gall-ducks, but they are by no means evident;
their effect, however, seems generally to harden the liver,
and invariably to impede the passage of the bile from it into
the bowels. In some cases, small fomes, formed in the gall-
bladder, produce it; and at other times, it is caused, as in
the rot, by the swelling of the glands impeding the flow
of the bile in the duets, in which case it is mostly incurable.

The removal of the disease is to be attempted by the
use of strong purgatives, and such remedies as act strongly
on the bowels. A strong solution of purging salts will
partly tend to produce this effect; and ten grains of
ipeacuana, given every three hours in a little watered
strong beer, is said to be attended with the most beneficial
effects, when continued for five or six days together, and a
dose of purging salts given after it, so as to clear the bowels.
Calomel and soap may likewise be often given with great
benefit, as well as some of the above faponaceous remedies.

Y E M

YEMANA, or JEMAMIA, in Geography, a country and
city of Arabia, which M. D’Anville, probably misled by
some map and uncertain accounts, places on a river called
Altan, and which he represents as a stream in Negeb,
though Niebuhr mentions it merely as a wall or brook, which
runs after rains. D’Anville says, that Jemama is in Al
Kardje, which is the grand province of Kerje of Niebuhr,
on the E. of Hedjaz and Yemen; and in this province,
according to the Danish geographer, is the city of Amam
or Iumama, renowned for the prophet Moeflama, whom
the historian Gibbon ascribes to Yemama, and which town is
in the district of Surfa. But this cannot correspond with
D’Anville’s Jemama, which is in the province of Ared,
bounded only by that of Lahia on the E. Niebuhr also
informs us, that Aijana, a town of Ared, is remarkable for
the new prophet Wahlab; and therefore Gibbon feems
to have erred by supposing it to be the same with Yemama,
the latter being probably a town of Kerje, not far to the
E. of Hedjaz. After all, the province and city of Jemama
are
are probably mere fictions, which should be excluded from the maps, together with the river of Aftan, which, if it exited, would certainly be followed by the caravans from Lahfa to Mecca, while they seem to prefer a sandy desert.

Pinkerton's Geography.

YEMBA. See Emba.

YEMELLA, a town of Hindooftan, in Golconda; 24 miles E.N.E. of Rachore.

YEMEN, a province of Arabia, comprehending the finest and most fertile part of Arabia, representing, as Gibbon has observed, the Arabia Felix of antiquity, surrounded by the Red sea, or Arabic gulf, and by the province of Hadramout, Nedsjed, and Hedsjas. Yemen is naturally divided into two parts, differing greatly in soil and climate: that bordering on the Red sea is a dry and sandy plain, nearly two days' journey in breadth, and is harassed by the moist torrent heats; the other, extending immediately beyond this, is a high-lying country, full of precipitous yet fertile hills, and enjoying a much more temperate air. Yemen is, like the rest of Arabia, parcelled out among a number of different sovereigns in unequal portions. Some of them are princes of considerable power; but many are petty chieftains, who are, however, perfectly independent: the most considerable of these princes is the imam, who resides at Sana. There are several other independent states, as Aden, Kaukeban, Kobaib or Hafchid-u-Bekil, Abu-Arifch, a large district between Abu-Arifch and Hedsjas, inhabited by free Bedouins; Khaulan, Sahban, comprehending the principality of Saade; Nedsjeran, Kachtan, Nehmm, Eaff Khaufan, Dsjoj or Mareb, Jafa, and several others. The fame mixture of fertile and barren territory, and the fame productions, appear every where through the whole province: the imam, however, seems to be master of the richest, the most agreeable, and the most interesting part of this tract of country. It would not be easy to explain distinctly the extents and limits of this sovereign's territories, as they are so intermixed by the domains of a number of petty princes. The general division of Yemen into Tehama the Lowlands, and Djebal the Highlands, obtains in the imam's dominion as well as elsewhere. Upon this grand division depends the subdivision of the kingdom of Sana into thirty governments or counties. Tehama contains six of these governments, and the Highland country twenty-four; the small governments are not all alike populous or remarkable. There are in the territory of the imam many chieftains dispersed among the mountains, who acknowledge not his authority, and are but in a very slight degree dependent upon him. From the expulsion of the Turks in the year 1630, the reign of the imams began; their great ancestor Khallam Abu Mahomed was the chief author of that revolution. The throne of Yemen is hereditary; if generally approved of by the subjects, the eldest legitimate son of an imam is his rightful successor. But in the despotic governments of the East, indeed, no order can be closely observed, because there are no fundamental laws. The imam is an absolute prince, and the more so by uniting in his own person supreme authority, both spiritual and temporal, over his subjects. His jurisdiction in ecclesiastical matters, however, extends not over the dominions of other sovereigns of the same sect: these states have each a mutri, or cadi, for its spiritual use. Although the imam be absolute, he is checked in the exercise of his authority by the supreme tribunal of Sana, of which he is only president: this tribunal, consisting of a certain number of cadis, possesseth the sole power of life and death. The imam may not order any of his subjects for execution, but such as have been condemned in consequence of a criminal prosecution before this court.

The cadis are generally esteemed to be persons of incorruptible integrity, of blameless lives, and devoted to the faithful discharge of their duties: they are not changed here so often as in Turkey, but hold their offices usually for life. Every petty district in the dominions of the imam has its governor: if not a prince, or one of the highest nobility, this governor is called wali and dola, or sometimes emir, when he happens to be a person of low birth. In every little town, a sub-dola, with a small garrison, confining sometimes of five or six soldiers, refides to maintain order. The chief of a large village is a schieck; he of a small one a hakin. Every city in which a dola refides has also a cadi, dependent on the chief cadi of Sana; the cadi is sole judge in civil and ecclesiastical affairs, nor may the dola interfere to contradict his sentences, or render them inefficacious. The cadis in the provinces, no less than in the capital, are in high reputation for wisdom and integrity. The revenue of the imam is fluctuating and precarious; Niebuhr states it at about 500,000 crowns a month. This revenue arises from a land and poll tax, and from duties payable upon articles of merchandise. The military force consists ordinarily of 4000 infantry and 1000 cavalry. These armies use no artillery, nor do the Arabs know how to manage cannon. As the imam has no dread of enemies or corsairs upon the Arabic gulf, he has no occasion for a naval force; and his subjects are therefore generally unskilled in navigation. The fishermen venture far to sea in small canoes scarcely furnished with oars. The manufactories of a people of so little industry cannot but be very trifling: no fabrics are manufactured in Yemen, nor any edged weapon, except a kind of crooked knives, called jembea. The making of match fire-locks has been attempted here within these few years: it succeeds but indifferently. It is only of late that glass works have been established at Mocha; some coarse cloth is manufactured here, but not so much as is required for the use of the country: broad cloths are neither made nor worn here. The English brought some goods of this sort to Mocha, but were obliged to carry them back to India unfold. A country which affords so few articles for sale cannot have a great trade. Coffee is almost the sole article exported from Yemen; a valuable commodity, in exchange for which many of those things which this country needs from abroad may well be obtained. All the commerce of Yemen is carried on by Mocha, except only that some small quantities of coffee are exported by Loheia and Hodeida. Agriculture seems to be farther advanced in Yemen than in the other parts of the East. Wheat, in the belt cultivated districts, is sown to yield an increase of fifty-fold; durra, in the Highlands, 140; and in the Tehama from 200 to 400: and the inhabitants of Tehama reap three successive crops from the same field in the same year. In many parts of Yemen, whole fields are cultivated like a garden, and watered in the rainy season by canals from the hills. The inhabitants of the plain are obliged to encompass their fields with dykes, that the water may remain for some time upon the surface of the ground. In the upper parts of Yemen, the inhabitants collect the water necessary for their fields in dams formed at the foot of the hills. In some districts of Yemen, maize and durra are planted with the hand. The husbandry of Tull and Du Hamel, says Niebuhr, although novel in Europe, is very old in Arabia. In order to guard their fields from depredation of birds and other destructive animals, the peasants watch them by turns. In the Highlands, he who watches feeds himself on a tree; in the Tehama, on a fort of scaffold, with a roof raised over it. Niebuhr's Travels.
YEN, a river of China, which runs into the Hoang, 17 miles S.E. of Yen-tchang.

YEN-CHIN-TCHING, a town of China, in Canton; 45 miles E.S.E. of Tei-naan.

YENDON, a river of England, in the county of Stafford, which runs into the Churnet.

YENGLI IMAN, a town of Curditian; 70 miles S.E. of Kerkuk.

YENGE, a town of Corea; 25 miles N.E. of Kang.

YENISSEI, or YENISEI, or ENISEI, a river of Russia, which the Tartars and Mongoles, who inhabit the superior regions of it, above the Tunguika, call Kem, and the Oliftaks, Gub or Khefes, figuring the Great River, and which is at first composed of two rivers, the Kambara and the Veikerm, originating in the Chinefe Songaaria, or Bucharia, and forming a conjunction in N. lat. 51° 32', and E. long. 111°. About the mouth of the Bom-Kemféryeg it enters on Russian ground, and hence first takes the name of Yenisfély. After various windings it turns northward, and in N. lat. 70°, and E. long. 103° 30', forms a bay containing several islands; and at last, in 3° 30' of length, falls into the Frozen ocean. In autumn, when its water is at the lowest, its breadth, 5 gr. at the town of Yenifesfe, is about 570 fathom, whereas in the spring it is 750 fathom and upwards. The coasts of the Frozen ocean, between the mouths of the Yenisfély and Oby, are called the Yuratzkoi shore. The more considerable streams taken up by the Yenisfély are the following: on the right, the Ufs, the Tüban, the Kan, and the three Tunguikis, &c. the Upper, the Middle, and Podkamenaia, and the Lower Tunguika; on the left, the Abakan, the Velovi, and the Turukhan. In its superior regions, the Yenisfély flows over a very flabby bed; and its shores, particularly the eastern, are mostly befted with lofty mountains and rocks. Its course is in general very rapid, though near its mouth it flows so gently, that the current is hardly perceptible. In the neighbourhood of Turukhana and elsewhere it forms some considerable islands; and between the cities of Yenifesfe and Krafnoyarska, several cataracts are to be seen. The Yenisfély is navigable from its mouth as far as Abakan, and affords abundance of the best fish. Near this river, as well as in some other parts of Russia, are ftones, which represent in rude sculpture human faces, camels, horfemen, with lances, and other objects. Between this river and the Oby, or Ob, is a vast space extending from the north of Tomik to the Arctic ocean, which is regarded as a tepee, being a prodigious level with no appearance of a mountain, and scarcely of a hill. The fame term is applied to the wider space betwixt the Yenisfély and the Lena, between the Arctic ocean in the N., and the river Tunguika, or Angara, in lat. 65°; and to the parts beyond the Lena as far as the river Kolyma or Covina. Tocke's Ruil, vol. i.

YENISSEISK, or ENISSEIK, a small town of Russia, in the government of Toboliik, situated on the above described river, the forges of which yield a considerable tax to the Russian revenue. Its jurisdiction is extensive, and it pays annually a tribute in skins to the crown of Russia; 400 miles E.N.E. of Kolvan. N. lat. 56° 16'. E. long. 91° 50'.

YENITE, in Mineralogy, Livicite, Werner, a mineral found in the island of Corflca, which from the great quantity of iron that it contains might properly be classed with the ores of iron. It is arranged by professor Jamefon with the chryfoite family, but it differs greatly in the proportions of its constituent parts from all the other species which he has claffed with this family. The appearance of this mineral resembles hornblende, or rather black epidote:

it occurs both cryftallized and massive. The form of the cryftals is that of a rhomboidal prism, the alternate angles of which measure about 113 and 67 degrees; the prisms are terminated by low four-fided pyramids, the faces of which are set on the lateral plane of the prism. It is also cryftallized in rectagular prisms, bevelled on the extremities, and the bevelling planes set on the obtuse edges. These figures are also variously modified by the edges or angles being bevelled. The cryftals are sometimes very minute or acicular, and sometimes half an inch in thicknefs; they are frequently aggregated in diverging radii, and sometimes imbedded. The prisms are inserted longitudinally. The structure is imperfectly lamellar, with joints parallel to the sides, and to the short diagonal of the rhomboidal prism. The fracture of yenite is uneven, and imperfectly conchoidal, with a luftre between vitreous and resinous. The colour is black passing into brown; it does not change its colour in the firebox. The hardnefs of yenite is about equal to that of common felpar; it is easily flangible. The specific gravity of yenite varies from 3.62 to 4.061.

It is flamble with ease by the blow-pipe into a black glafs, which has a metallic aspæct, and is attracted by the magnet, but does not possess polarity; it diffolves with bafax with a flight ebullition. It is acted upon by the mineral acids, but does not gelatinize with them. When exposed to heat it becomes magnetic. Its colour is changed by heat from black into dark reddish-brown, and it lofes about two per cent. of its weight.

The conflituent parts of yenite are,

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<tr>
<th>Mineral</th>
<th>Weight</th>
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<tr>
<td>Silex</td>
<td>28-30</td>
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<tr>
<td>Alumine</td>
<td>1</td>
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<tr>
<td>Lime</td>
<td>12-14</td>
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<tr>
<td>Oxid of iron</td>
<td>51-58</td>
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<td>with manganese</td>
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Yenite decomposes gradually on exposure to the air, and is reduced to a yellowish-brown ochre. According to Brongniart, yenite occurs in diipersed cryftals and groups, and in compact kidney-shaped masses, in a thick bed of a greenish fulidence nearly resembing yenite, but which has not been accurately examined. It is accompanied with epidote, quartz, and arsenical pyrites. This bed at Rio la Marino, in Corflca, covers a rock of primitive marble mixed with tate. At the Cap de Calamite, it is accompanied with magnetic iron-stone, garnets, and quartz.

YEN-KING, in Geography, a city of China, of the second rank, in Pe-tche-li; 82 miles N.N.W. of Peking. N. lat. 40° 30'. E. long. 125° 30'.

YENLADIE, or STAY, a channel between the Thames and Medway, which separates the island of Grane from the coast of Kent. It was formerly the usual passage for vessels to and from London.

YENNE, a town of France, in the department of Mont Blanc, near the Rhone, supposed to be the ancient Epamna, where Sigismund, king of Burgundy, assembled a council at the end of the fifth century; 14 miles N.W. of Chambery.

YEN-NGAN, a city of China, of the first rank, in Chen-fê, on the river Yen; 390 miles S.W. of Peking. N. lat. 26° 44'. E. long. 108° 49'.

YEN-PING, a city of China, of the first rank, in Fokien; 820 miles S. of Peking. N. lat. 26° 40'. E. long. 117° 44'.

YEN-TCHOU, a city of China, of the first rank, in Tche-kiang. Near this town are mines of copper, and trees that yield varnish, which give a value to the cabinet-work so much esteemed in Europe; when this varnish is once dry, it never melts again, and will bear boiling water.

The
The paper manufacture of this place is in equal esteem, and for which they have a great demand. Six towns of the third order are under its jurisdiction; 650 miles S.S.E. of Peking. N. lat. 29° 53'. E. long. 116° 14'.—Alto, a city of China, of the first rank, in Chantong. The territory depending upon this capital is interposed between two considerable rivers, which abound with fish, and make the soil very fruitful. The country is very well cultivated, the mountains are covered with woods, and the air is mild and temperate. There are twenty-seven towns within the jurisdiction of this capital; four of the second order, and twenty-three of the third; 267 miles S. of Peking. N. lat. 35° 44'. E. long. 116° 36'.

YENTCHERU, a town of Hindoostan, in the circuit of Cuddapa: 20 miles N.N.E. of Combam.

YENTCHING, a town of China, in Chantong, where a peculiar species of glass is manufactured, of so delicate a nature, that it will not endure the inclemency of the air; 45 miles S.E. of Tien-nan.

YEOMAN. See Yeovil.

YEOMAN, the first or highest degree among the plebeians of England; next in order to the gentry. The yeomen are properly the freeholders, who have land of their own; so called from the Saxon geman, or geman, common.

The word yeoman is used for yeoman in the statute 33 Hen. VIII., and in old deeds it is sometimes also written geman, which, in the German, signifies anybody.

According to Sir Thomas Smith, a yeoman is a free-born Englishman, who can lay out of his own free land in yearly revenue to the sum of forty shillings sterling.

The yeomantry of England are capable of holding lands of their own to a good value; are adjudged capable of certain offices, as constables, churchwardens, jurymen; and are also to vote in elections to parliament, and to serve in the army, and to do any other act where the law requires one that is produs et legalis homo.

The yeomen were famous, in ancient times, for military valour, being particularly expert at the management of the bow; whence the infantry was composed chiefly of them.

They frequently constituted the body-guard of our kings; and in process of time gave rise to the institution of yeomen of the guard.

In many cafes, the law conceives a better opinion of the yeomantry than occupant lands, than of tradesmen, artisans, &c.

By a statute, 2 Hen. IV., it is enacted, that no yeoman shall take or wear a livery of any lord, upon pain of imprisonment, and a fine at the king's pleasure.

Yeoman is also a title of office in the king's household, of a middle place or rank between a gentleman and a groom. Such are the yeoman of the buttery; yeoman of the feuilly; yeoman of the wine-cellars, ewry, wood-yard, &c.

There are also the yeoman of the mouth, yeoman of the kitchen, yeomen-porters, &c.

Yeoman, in Sea Language, an officer under the boatswain or gunner of a ship of war, usually charged with the1 flowage, account, and distribution of their respective stores.

Yeomen—Warders. See Warders of the Tower.

Yeomen of the Guard, properly called yeomen of the guard of the king's body, were anciently a body of men of the best rank under gentry, and of larger stature than ordinary; every one being required to be six feet high.

Their number has varied in almost every reign, and formerly consisted of a certain number in ordinary, and an indefinite number extraordinary; and in case of a vacancy in the former, it was supplied out of the latter number. In the reign of king Edward VI. this corps was very numerous. In the reign of queen Elizabeth, the yeomen attending her in her different progresses were occasionally mounted. In the reign of queen Anne, the arms of half this band were arquebuses, which are paid by Chamberlain to have been diffused ever since the reign of king William; the other half had partisans, and those of both classes had swords. They had their wages and diet allowed them; so that in a MS. of the expenses of the royal establishment for the year 1727, the charges of the table of the yeomen of the guard were 273l. 15s. But their diet has been discontinued since that reign. Their duty was to wait upon the queen in her flaming-houses; forty by day, and twenty by night. At St. James's, they waited in the first room above stairs, called the guard-chamber. It is also their duty to attend the foreigner abroad by land or water.

At present there are but one hundred yeomen in constant duty, at 39l. 11s. 3d. per annum each; eight of whom are called ushers, who have 10l. per annum each more than the other yeomen; six are called yeomen hangers, and two, yeomen bed-guards, who have the same pay as the ushers; and seventy more not on duty; and as one of the hundred dies, his place is supplied out of the seventy.

The officers are a captain, who has 100l. per annum; a lieutenant, at 500l. per annum; an ensign, at 300l.; and four ensigns, at 150l. per annum each; and a clerk of the cheque at the same salary.

Their origin is traced to the year 1485, when king Henry VII. ascending the throne, immediately after his coronation, instituted a guard of fifty archers to attend him and his successors. They were probably then, as they are now, called the yeomen of the guard.

It is observed, that this is the first instance of any established or permanent military guard in England: its kings, till that time, except in times of war and insurrection, contenting themselves with the guard of their proper domestics and retainers. And Hist. Com. vol. i. p. 302.

Most of the writers, however, against standing armies commence that establishment with the jerjeans at arms, who were first instituted by king Richard I. Their drefs is that which was worn in the reign of king Henry VIII., and which on many occasions was put on by that king: it consists of a scarlet coat reaching down to the knees, guarded with garter blue velvet, and with badges of the rose and crown on their breasts and backs; their breeches also are scarlet, guarded with blue velvet; their caps are of black velvet, with broad round crowns, adorned with ribbons of the royal colours, viz. red, white, and blue.

The officers and yeomen are at the disposal of the captain; but the captain is at the appointment of the king.

Yeoman of the Salt Stores. See A catalogue.

Yeomanry Cavalry, a denomination given to those troops of horse which were levied in the late war among the gentlemen and yeomen of the country, upon the same principle with the volunteer companies. The yeomanry cavalry were to be allowed pay when called out on actual service, and each corps was liable to be put upon duty within its district: all contingent expenses, properly and unavoidably incurred, were to be reimbursed after an investigation at the war-office. One jerjeant and a trumpeter per troop were to have constant pay, with the same allowances as jerjeans and trumpeters of regular cavalry. Some accoutrements were to be furnished by the ordinance, or an equivalent
YERIL, in Geography, a large and populous market-town in the hundred of Stone, county of Somerfield, England, is situated on the confines of the county, at the distance of 9 miles S.E. from Somerton, and 122 miles W.S.W. from London. It derives its name from the river Yeo, which rises near Sherborne, and passes this place under a stone bridge of three arches, separating the counties of Somerfield and Dorset. The town of Yevil consists of upwards of twenty streets and lanes; many of the former are of considerable width: the houses in general are respectable, and many of them are built of stone. Part of the town is called the Borough, and is governed by a port-reeve and eleven burgesses, out of whom the portreeve is annually chosen. Here is a spacious market-house, seventy feet in length, and twenty in breadth, supported by stone pillars, in the centre of which are the remains of an ancient crofs. A considerable market is held on Fridays for corn, cattle, pigs, butter, cheese, and flax: here are also two annual fairs. The woollen trade was formerly extensive here, but has decreased: the chief business of the town is the manufacture of leather gloves. In the return of the year 1811, the population of this parish was estimated at 4118; the number of houses at 459. The church, a large ancient structure, consists of a nave, chancel, two aisles, and transept: the length of the whole is 146 feet; the breadth 90. At the west end is a plain tower, ninety feet high, with a stone balustrade at the top. Dillentors have several meeting-houses in the town. Here is an almshouse, founded in the year 1476, by the Rev. Mr. Woburne, minor canon of St. Paul's, London, and by him endowed with considerable landed property for the maintenance of a master, two wardens, and twelve poor persons of either sex. He also built a chapel for the use of his poor, and ordained divine service to be performed in it every day.—Collinson's History of Somerfield, vol. iii. Beauties of England and Wales, vol. xiii. Somerfield.

YEOUNGBENZAHA, a town of Birmah, on the Irrawaddy; 36 miles N.N.W. of Rangoon. N. lat. 17° 30'.

YEOUN TUN OUEI, a town of Chinese Tartary. N. lat. 47° 8'. E. long. 121° 9'.

YEOUN YU, one of the small islands in the Chinese Archipelago; 62 miles S.W. of Macao.

YEOWAH, a town of Birmah; 15 miles S. of Penangmew.

YEPES, a town of Spain, in New Castile; 17 miles E. of Toledo.

YERAPATTA, a town of Hindoostan, in Myerox; 8 miles S. of Dalmacherry.

YERCO, a town of Thibet; 90 miles S.E. of Lassa.

YERE, a river of France, in the department of the Lower Seine, which runs into the English Channel, at Eu.

YERCHEN. See Yarkan.

YERK, in Horser, a term signifying to strike out backwards. A horse is said to yerk, or strike with the hind legs, when he flings and kicks with his whole hind quarters, striking out the two hinder legs near together, and even to their full extent. Horses of this fort are very dangerous, and should be parted with as soon as possible, whether they are of the farm or the faddle kind.

YERKIE, in Geography, a town of Russia, on an island at the mouth of the Volga, where vessels take their departure for the Caspian sea. Here ships formerly entered and cleared, but the island is now almost overflowed, and the trade of the place much decayed since 1747; 60 miles S. of Astrachan.

YERMA. See Jermai.

YERMUK. See Yarmuck.

YERTNAGOODAM, a town of Hindoostan, in the circar of Rajamundry; 17 miles S.W. of Rajamundry.

YERVAMAORA, in Botany. See Bosea.

YERVILLE, in Geography, a town of France, in the department of the Lower Seine; 12 miles N.E. of Caudebec.

YESCOKING CREEK, a river of North Carolina, which runs into Pamlico sound, N. lat. 35° 29'. W. long. 76° 14'.

YERG. See Yezd.

YERD, a town of Peria, in the province of Lar, 40 miles N. of Lar.

YERDCAST. See Jezzkast.

YERID, a town of Peria, in the province of Chufitan, or Kuzifan; 18 miles N. of Toftar.

YEST. See Yeast.

YETCHERADAW, in Geography, a town of Hindoostan, in Myerox; 9 miles E. of Rydroog.

YTEOPAUK, a town of Hindoostan, in the circar of Celeccole; 15 miles S.W. of Coflincoita.

YETHAN, a river of Scotland, which runs into the German sea, 10 miles N. of Aberdeen.

YETHOLM, or ZET-HAM, a market-town in the district of Kello, and shire of Roxburgh, Scotland, is situated nine miles S.E. from Kello, on the small river Bowmont, which divides it into two parts, respectively named Town Yetholm and Kirk Yetholm. A weekly market is held on Wednesdays; and two fairs annually. Many tinkers and gypseys reside in this town. The parish extends about four miles in length, and two in breadth; and is bounded on the east and south by the English border. The surface is hilly, but the hills are covered with verdure, and pattered by a very considerable number of sheep. In the population return of the year 1811, this parish is rated to contain 273 houses, and 1138 inhabitants. King Robert III. granted the barony of Yetholm in the fourteenth century to Archibald Mac Douglas, whose descendant still enjoys it.—Carllie's Topographical Dictionary of Scotland, 1813.

YETTUS, in Natural History, a name given by the writers of the middle ages to a species of marble of a deep red, which was used by fome as a touch-floe.

YEU, in Geography, a small and insignificant isle, situated on the W. coast of France.

YEVA CHARRUM, in Natural History, a name given by the people of the East Indies to a kind of litharge, which is very common in that part of the world, and is said to be made partly from lead and partly from zinc. It is less heavy than our yellow litharge, and of a paler colour. It is used as a cautery in all the occasions of surgery there.

YEVERING, in Geography, a village of England, in the county of Northumberland, where the Scots were defeated in 1415, by Sir Robert Humphrevel and the earl of Wiltmoreland. Near it is a mountain called Yevering Bell, belonging to thefe called Cheviot; 6 miles W.N.W. of Wooler.

YEULA, a town of Hindoostan, in Baglan; 5 miles E. of Bahbelgong.

YEVRE LE CHATEAU, a town of France, in the department of the Loiret; 6 miles S.E. of Pithiviers.

YEW, or EUGUS, in Botany. (See Taxus.) De Thris traces thefè English words, whose antiquity cannot be doubted,
doubted, to the Celtic *if* or *law*, green, alluding to the
evergreen foliage of this tree. The French have retained
*if* unaltered to the present day.

*Tree*, as some say, may be derived from the Greek *teza*,
to hurt; and probably became before the invention of guns
our ancestors made their bows of this wood: they therefore
took care to plant the trees in the church-yards, where they
might be often seen and preferred by the people.

*Yew* is also a term used by the salt-workers of Lymington,
and some other parts of England, to express the first
rising of a scum upon the brine in boiling.

In the places where they use this term, they add no
clarifying mixtures to the brine, for it ferments in the cist-
terns; and all the founkleaks to the bottom in form of a
thin mud; they admit only the clear liquor into the pan,
and boil this briskly till it yews, that is, till a thin skin of
salt appears upon its surface; they then damp the fire, and
carefully skim off this film, and clear only the feratch or
calcareous earth, which separates to the bottom.

They do not collect this into feratch-panes, as at many of
the other works, but they rake it up to one side of the pan,
and take it out; they there add a piece of butter, and con-
tinue the fire moderately strong till the salt is granulated.
They keep a brisker fire on this occasion at Lymington
than in most of the other works; so that they will work three
pans in twenty-four hours. See **SALT**.

*yew-tree*, in **Agriculture and Rural Economy**, a well-
known evergreen tree, the timber of which is much esteemed
for different uses and purposes in husbandry, and where
toughness, elasticity, and durability are required.

Trees of this sort may be easily propagated, in moss cates,
by fowring their berries when divested of the pulp in au-

tumn, as soon as they are ripe, upon a bed of fresh un-
duged foil, either over the whole or in droils, covering them
over about half an inch thick with the same earth: but
the latter is the better mode. In the spring, the bed must
be carefully cleared from weeds, and if the fowen prove
dry, it will be proper to refreh it with water now and
then, which will promote the growth of the seeds; many
of which will come up the same spring, but others will re-
main in the ground until autumn or spring following; but
when the seeds are preferred above ground till spring before
they are sown, the plants never come up till the year after,
so that by fowring the seeds as soon as they are ripe there
is often a whole year faved.

The plants, when they come up, should be kept con-
stantly well cleared from weeds, which, if permitted to
grow amongst them, would cause their bottoms to be
naked, and frequently destroy the plants when they con-
tinue long undisturbed.

In this bed, the plants may remain two years; after
which, in autumn, there should be a foot of fresh unduged
foil prepared, into which they should be removed about the
beginning of October, planting them in beds about four or
five feet wide, in rows about a foot and half, and six inches
distant from each other in the rows, observing to lay a little
litter or mulch upon the surface of the ground about their
roots, as also to water them in dry weather until they have
taken root; after which they will require no farther care,
but to keep them clear from weeds in summer, and to train
them according to the purpose for which they are designed,
—for timber in a straight manner.

In these beds they may remain two or three years, ac-
cording as they have grown, when they should again be re-
moved into a nursery, placing them in rows at three feet
distance, and the plants eighteen inches asunder in the rows,
observing to do it in the autumn, as before directed, and
continue to trim them in the summer for what they are in-
tended; after they have continued three or four years in
this nursery, they may be transplanted where they are to
remain, always observing to remove them in autumn when
the ground is very dry; but on cold moils land it is better
in the spring.

These trees are very flow in growing, but there are many
very large trees upon some barren cold foils.

It is observed in the Gloucestershire Report on Agri-
culture, that the yew-tree should not be suffered to grow in
or near cow-pastures. The leaves are poisonous to horned
cattle and horses, though the berries are esteemed inoffen-
sive. In January 1805, in consequence of some fences
being broken down by a violent wind during the night, a
number of cows belonging to a farmer in Sandhurst entered
an inclosed shrubbery, where there were many yew-trees

growing, and continued in it till the morning. Soon
after they were driven out, all of them were seized more
or less with a kind of madness, or such acute pains as made
them run about in a very furious manner, sometimes leaping

to a considerable height, then beating their heads against
whatever opposed them, and at last falling instantly dead.
Oils of different forts were poured down their throats, as
there was an opportunity of securing them, which seemed to
produce a good effect on some; but notwithstanding
every effort, nine out of thirty died in a few hours after
they were discovered. On their being opened, it appeared
that the whole quantity they had eaten, put together, would
not have filled a peck.

An opinion prevails, that the leaves are not poisonous in
the summer; this, however, is probably erroneous, at least
it is not confirmed sufficiently by fact to justify the farmer
in subjecting his cattle to the experiment. If cattle come
within reach of the yew-tree at that time of the year, they
may perhaps reject it altogether, giving the preference to
other green food, more palatable, and in plenty around
them.

These trees should therefore in all cases be carefully kept
out of the hedge-rows and all other parts of fields, where
cattle are suffered to feed and pasture.

**YEYEAPOUR**, in **Geography**, a town of Hindooftan,
in Lahore; 16 miles S. of Nagorco.

**YEZD**, or **Yezd**, a large and populous city of Per-
fsia, situated in a sandy desert, contiguous to a high range
of mountains running nearly E. and W. This is the grand
mart between Hindooftan, Bucharia, and Perfsia, and is,
therefore, a place of considerable trade. The bazaar is
well supplied, and the city contains 20,000 houses; besides
those of the Guebres, or worshippers of fire, which are esti-

*ated at 4000. The Guebres were an indolent people, but
are greatly oppressed, being taxed at twenty puliaires a-
head, in addition to the various other exactions of the Per-
fsian government. Many opulent Hindoos formerly resided
*here; but the late governor, wishing to enrich himself by
plundering their property, they all fled in one night to-
wards Candahar, where they have since established them-

*elves. The present khan has, in vain, endeavored to re-
*call them, and there are now only nine Hindoos in Yezd.
The city imports the greatest part of its corn from the
*neighbourhood of Ifpanh. Cattle are also scarce, and an
*ars will sometimes fall as high as fifty taunos. The ma-
*nufacture of silk stuffs is superior to any in Perfsia; and
*the muslins or thick felts of Tuft, a small village, distant eight
*miles, are equally famous. The fort of Yezd has but a
*mean appearance; and the town is destitute of a wall.

That
That territory which lies between Yezd and Isphahan is the most arid part of Irak. The soil is poor, light, and sandy; and here is a general scarcity of water and wood; the climate also is hot, though not unhealthy. The small towns of Ardistan, Nain, Aujdah, Myboosh, and Sezabad, are badly built, and contain from 100 to 200 houses each. McKenzie’s Persia.

YEZDEGERDIC Year, in Chronology. See Persian Year.

YEZDICAN, in Geography, a river of the Persian empire, in the province of Azerbaijan, which has its source about 60 miles to the E. of the lake of Van, and which, pursuivit a N.E. course, passes under the walls of Yezdican and Kurs, and meets the Araxes a little to the N. of Nuch-ihvan.

YEZEDI, the name of a Persian sect, of which several tribes inhabit the mountains of Sinjar, about eight or ten miles from Nisibis. They are numerous in the vicinity of Moful, and are said to worship, or rather to adore, the devil, entertaining an idea that he possesseth an unlimited power over mankind. They even dislike to hear the name of the evil spirit mentioned in their presence. They are the descendants of those Arabs who followed the banners of Yezid, and fought against Houssein, in the battle of Kerbel; and sheikh Ade, the founder of the sect, is interred near Moful. They adore one Supreme Being as the creator and benefactor of the human race, drink wine and other strong liquors, and circumeice like the Mahometans. The Yezedi are hated by the Turks, to whom they are mortal enemies, and who have never been able to subdue them. They lie in ambush behind the rising grounds which skirt the road between Moful and Merv; and as travellers are obliged to pass a lonely wild, twenty furlongs in length, they are liable, if not numerously attended, to be murdered by these miscreants. Sinjar affords abundance of pasture, and also yields a sufficient quantity of grain for the consumption of its savage inhabitants. McKenzie’s Persia.

YFFINIA, a town of France, in the department of the North Coasts; 6 miles S.E. of St. Brieuc.

YGERA, a town of Spain, in Old Caftile; 12 miles S. of Calahorra.

YGGEDE, or Uggade, in Ancient Geography, a place of Gallia Lyonnensis. Anton. Itin.

YGIN, in Geography, a town of Corea; 28 miles S.S.W. of Hamen.

YGROMETER. See Hygrometer.

YGUALADA, in Geography, a town of Spain, in Catalonia; 28 miles N.W. of Barcelona.

YGUISET, a small island among the Philippines, near the north coast of Panay. N. lat. 11° 35'. E. long. 122° 32'.

Y-HO, a river of China, which rises in Shan-tong, and runs into the Hoang, near Sou-tcheou, in the province of Kiang-nan.

YIAN-KANTH, a town of Corea; 28 miles E. of Hetfian, or Efian.

YICHKENISH, one of the smaller Western islands of Scotland; 1 mile N. of Benbecula.

YIELD or Slack the Hand, in the Manege. See Slack.

YIELDING and Paying, a law phrase, formed by corruption from the Saxon geldan, or gildan, to pay. Hence, in Domclday, gildare is frequently used for solvere, reddere; the Saxon g being easily converted into y. See GELD, and GILD.

YIETI, in Geography, a town of South America, in the province of Paraguay; 120 miles S.E. of Asuncion.

YIN, a word used by some of the chemical writers to express verdigrife.

YISSER, in Geography, a river of Algiers, anciently called Serbetis, which runs into the sea at Jinnett.

YKINA, a town of Sweden, in the province of Finland; 45 miles N. of Bironenborg.

YLACE, a town of Sweden, in the government of Abo; 27 miles N. of Abo.

YLAY. See I.JA.

YLIGAN, a town on the north coast of Mindanao.

YLKANNUS, a town of Sweden, in the government of Wahf; 24 miles E.N.E. of Gamla Karleby.

Y-LIN, a city of China, of the second rank, in Hou-kuang; 617 miles S.S.W. of Peking. N. lat. 30° 52'. E. long. 110° 44'.

YLISTARO, a town of Sweden, in the government of Wahf; 24 miles E.N.E. of Wahf.

YLIVIESKA, a town of Sweden, in the government of Uleca; 38 miles S. of Uleca.

YLO, or ILO, a sea-port town of Peru, in the diocese of Arequipa, situated near the mouth of a fresh-water river of the same name, which is dry from the beginning of October to January; 25 miles W. of Moquegua. S. lat. 17° 38'.

YLST. See Ist.

YLUM OF, a small island of Denmark, in the Little Belt. N. lat. 55° 8'. E. long. 10° 7'.

YLWISKA, a town of Sweden, in East Bothnia; 28 miles S. of Brahefjord.

YNATILAN, a town on the west coast of the island of Suma. N. lat. 10° 21'. E. long. 121° 22'.

YNCA, YNCAH, or INCA, an appellation anciently given to the kings of Peru, and the princes of their blood; the word signifying literally, lord, king, emperor, and royal blood.

The king himself was particularly called capas yncas, i.e. great lord; his wife, pallas; and the princes simply yncas. These yncas, before the arrival of the Spaniards, were exceeding powerful. Their people revered them to excesses, as believing them to be sons of the sun, and never to have committed any fault. If any person offended the royal majesty in the smallest matter, the city he belonged to was totally demolished.

When they travelled, whatever chamber they lay in on the road was walled up as soon as they departed, that nobody might ever enter in after them. The like was done to the room in which the king died; in which, likewise, all the gold, silver, and precious furniture, were always immured, and a new apartment was built for his successor.

His loved wives, domestics, &c. likewise sacrificed themselves, and were buried alive in the same tomb along with him. See the History of the Yncas, by Garcilaso de la Vefia. See also INCA.

YN, or YN, in Geography, a city of China, of the second rank, in Chan-fu. N. lat. 39° 40'. E. long. 112° 49'.

YNIESTA, a town of Spain, in New Caftile; 20 miles S.E. of Alarcon.

Y-NING, a town of Corea; 33 miles E.N.E. of Tin- tcheou.

Y-PING, a town of Corea; 38 miles S.W. of Kiang- tcheou.

Y-TCHENG, a town of Corea; 25 miles E. of Outchuen.

YN-YUEI,
YN-YUEI, a city of China, of the second rank, in Yuen-nan; 1300 miles S.W. of Peking. N. lat. 25° 58'. E. long. 98° 24'.

YOAK, in Agriculture. See Yok, and Yoking.

YOAK, Jugum, in Antiquity. The Romans made the enemies they subdued pas under the yoke, which they called sub jugum mitter; that is, they made them pas under a fort of force patibulares, or galbous, confining of a pike, or other weapon, laid across two others planted upright in the ground. This done they treated them with humanity enough, and sent them home again. See Furca.

The fame meafure was sometimes dealt them by their enemies upon the fame occasion. Thus Caesar (lib. ii.) observes, that the conful L. Caflius had been killed by the Swifs, and his army defeated, and made to pas under the yoke.

YOAK of Land, jugata terre, in our Ancient Cufomus, was the space which a yoke of oxen, that is, two oxen, may plough in one day. See Hide, Yard-Land, &c.

YO-Chin, in Geography, a town of Corea; 10 miles N.E. of Han-techou.

Yocket. See Jocket.

Yocom Creek, in Geography, a river of Virginia, which runs into the Potomack, N. lat. 38° 6'. W. long. 76° 30'.

Yocote, a town of Hindooftan, in Dowlatabad; 27 miles S.S.W. of Mahur.

Yogeswar, in Hindoo Mythology, a name of the Hindoo god Siva; which fee. It means lord of ages, or of time; yug, or yog, being vast periods of time into which Hindoo chronologifts arrange the past. The addition of Ifwara, the powerful, a name of Siva, seems to give a satisfactory derivation. (See Iswara.) For an account of those periods, fee Jogues. Some have derived the name of Yogefwara from lord of Yogis, supposing the feft of fanctifie Beggars fo designated as being more immediately under the protection of Siva; but this is in fact nearly the fame thing, for yog signifies union or junction, and these periods of time re-unite all things in the Deity; and the Yogi by intenfe contemplation effects a fimilar union. But this metaphysical dogma cannot be explained here. See Kalpa, Yogi, and Yug.

Yogi, a description of wandering faints, much re-

spected by many of the natives of India, though by others they are strongly suspected to partake more of the impolter than the enthufta. There are many defcriptions of these itinerants among the Hindoos; and we are not aware that the diftinctions between them have been accurately pointed out. The appellation Yogi means a devout man, devoted to spiritual things, especially to the contemplation of the attributes of the Deity. It is derived from yog or yug, which, among very many significations, means primarily union or junction, and is applied in this fenfe to one who by intenfe meditation is united to the divine nature; a mysticifc easily understood by the initiated and enthusiastic Hindoos, though not recognizable by others. There is a defire, we believe, between the Yogi and Saniaffy, but we cannot exactly fay in what it conffits. In the latter part of the article Sects of Hindoos, some particulars of these two will be found. Perhaps the Yogi may be the defignation of the Vaihnnava, and Saniaffy of the Saiva feft. (See Saiwa, Vaisinawa, and Yogeswar.) Both proffefs poverty, purity, and auffection. When the latter are carried to any extent, the zealot is honoured with the title of Tapawi, of whatever feft he be. Of fuch, and their affections, fee under Tapas. We fometimes read of female anchorets denominated Yogni; but they are, we believe, merely enthusiatic females, who become afceftics and not

the wives of the fanctifie males. Among the oriental manuscripts preffented to the Royal Society by fr W. Jones, is one entitled "Hatha Prapidaca, or Inftruclions for the Performance of the religious Discipline called Yaga."

In the Gita, Krishna defcribes the Yogi as being "more exalted than the Tapawi, the zealot who harraffes himfelf in performing penances: he is refefted above the learned in science, and superior to thofe attached to moral works."

This paflage is quoted in the latter part of our article Sects of Hindoos, but being erroneoufly pointed is fearcely intelligible. This article being thence referred to, we take the opportunity of correfting another error or two in it:—In the fecond column, the name of the Maharatta Brahman general, Purferam Bhow, is twice spellfed Bbon; in the fifth column, the name of Vopadeva, the author of the Sri Bhagavata, is spellfed Vapadeva; in the next column, line 21 from the bottom, a comma is wanted after Krishna. Having referred above to the article Tapas, we will here correct an error in that alfo:—In fecond column, line 11, for infexions read infickions.

Yohogany, in Geography. See Youghiogeny.

Yoides, in Anatomy, the bone of the tongue, commonly called hyoides. See Hyoides.

Yoinit, or Joingt, in Geography, a town of France, in the department of the Rhone and Loire; 7 miles E. of Roanne.

Yaitsbach, a river of Silesia, which runs into the Ouis, near Friedberg.

Yoke, in Agriculture, a fame of wood hellowed out and lined for receiving the neck part of the ox or other cattle in working. Yokes are confructed in different manners, as single and double, in order to be used differently. They are fixed with bows over the necks of the oxen or other cattle when in use; by which means, in the latter fort, the two animals are coupled together, and attached to the plough or other vehicle. See Yoking.

Yoke, in Sea Language, a name formerly given to the tiller, when communicating with two blocks or fheaves affixed to the inner end of the tiller. It is now applied to a caif board or bar which fits on the upper end of a boat's rudder at right angles, and having two small cords extending from its opposite extremities to the ftern-forets of the boat, by which thefe is feered as with a tiller.

Yoked Leaf, in Botany, folium conjugatum, or bina-

tum. See Leaf.

Yo-Keou, in Geography, a town of Corea; 38 miles S. of Haimen.

Yoking, in Agriculture, the practice of putting the animals into the yoke or other fort of team.

In the bufines of yoking or harnecfing oxen for the purpofe of draught, different methods have been followed by different farmers. And the modes of harnecfing and yoking oxen are even different in different counties, and districts of the fame county. The moft common practice in the southern parts of this kingdom, is that of working them in harnes in the manner of horses; while in the northern counties, the yoke and bows are ftil much employed. On the continent, as in France, Portugal, &c. the head is the part to which the draught is chiefly attached.

In the firft cafe, the fhoolder is made the principal point of draught; but in the fcond method, the neck and fhoolder conjointly have the weight of the draught; and in the laft mode, the principle of draught is, in one cafe the head, and in the other the joint power of the neck and bafe of the horn, which lord Somerville has confidered a purchase as great perhaps as can be given to the animal.

It is "effected by a long leathern strap, wrapped round the
YOKING.

the bafe or bottom of the horns, and again fastened to the yoke." It has been observed by a writer in the ninth volume of the Agricultural Magazine, that with respect to the second method which has been noticed above, the "usual form of the yoke is a frame of wood fittet over the necks of the oxen, by which they are coupled, and harnessed to the plough. It consists of several parts, as the yoke properly so called, which is a thick piece of wood, lying over the neck; the bow, which compasses the neck about; the fitchings and wreathings, which hold the bow flat in the yoke, and the yoke-ring and ox-chain," which is sup- posed "a method which is evidently founded on a total mistake in the anatomy of the ox."

And that in the first we have "imitated the gear used with the horse, without considering that the strength and agility of the ox are placed by nature in a different situation. The neck of the ox is a tower of strength; if the foil reftit, he projects this part of his form with that prodigious muscular force with which nature has provided him for his own defence; but without attending to her operations, we impose a load of timber on his withers, we lacerate his flesh, and prefs him down to the earth."

The third or French mode of yoking is thus described in the words of Mr. Hughes. "The labourer passes a piece of wood, of about one-sixth of the weight of the English yoke, across the forehead of his cattle, having previously neatly hollowed out the extremities of it to fit the mould of the head, and lined tho' hollows with a piece of woolly sheep-skin, to answer the purpose of a soft pad or cushion. This light and easy yoke he braccs to the horns with a small thong of leather, attaches the beam of his plough to the middle part of it, and the animal is completely equipped for his labour."

It has been obsered by lord Somerville, in his System of the Board of Agriculture, that oxen, "whether worked in harness, or in the yoke and bow, as in England, by the joint power of the yoke and horn, as in Portugal, or by the head, as in France, they cannot fail to benefit their employer. As, however, the yoke and bow have prevailed for a con- siderable length of time, it is probable that the practice may still prevail, in which case the Portuguese mode of draught will apply with the utmost ease and success to our yoke and bow, fo as gradually and imperceptibly to cheat the ox into its use. This in itself is an obvious advantage, because it gives two points of draught instead of one, and thereby relieving each admits of a lighter yoke, which in this country has ever been far too heavy and oppressive; and if hereafter the French method should be preferred, for which there are not wanting advocates, it is the belt preparatory step to its introduction. It would be almost superfluous to remark that the strong points of an ox are in his head and neck. It is ordained by nature, that where the strength of an animal lies, there he will resort for defence; the horse to his heels, the man to his arms, and the ox to his head; and in cafes of the greatest exertion, the beast ever puts his nose close to the ground."

In objection to the harnessing of oxen, it has been obsered in the paper noticed above, that "the article of gear is an oppressive annual charge, from the pernicious nature of the commodity employed." The tackle there recommended for twelve oxen would not amount to fix-and-thirty shillings, whereas the leathern harness for the fame number of animals, according to the new method, would cost fix-and-thirty pounds, and the annual expense of repairs would exceed thrice the original cost of the former."

And that "by the French mode of yoking, at least one-third more of the power of the animal is obtained. In the common way, the shouder being bruised by the unyielding bow, no vigour is exerted, excepting what is imparted by the goad; and the fineews of the neck are not brought into employment: hence the sublime and gigantic force with which he is endowed is not rendered subservient in the important duties he has to perform for the supply of human subsistence. The cattle proceed in the French team bold and erect: no pain opprefis them, and they chew the cud cheerfully as they pace along the furrow. On the contrary, in this country the painful prefecture obstructs the progress of the animals, they lean against each other, fearcely capable of supporting their own weight, and the fine intelligent eye which nature has given them to express the generosity of their temper is clouded with anxiety." That "the trial of this method has at least two recommendations; it may be made at very little expense, and under the fair expectation of succees."

See TEAM.

The methods of yoking cattle in ploughs are also dif- ferent in different places; but the only circumstance worthy of being considered is, whether the cattle should be yoked in pairs, or in a line before each other. It may, therefore, be useful to consider the advantages and disadvantages attending each mode, and to compare them.

The moft common way of yoking cattle in ploughs is in pairs. There are fome disadvantages attending this way that are obvious. In ploughing the furrows betwixt ridges, the land-cattle go upon the ploughed land, and tread it down with their feet: this, especially if the land be wet, poaches and hurts it very much. And there is another disadvantage which is very obvious. When there is but as much of the ridge unploughed as to allow the land-cattle to go upon it with difficulty, they are frequently either going into the opposite furrow, and thereby giving the plough too much land, or, which is worse, they are jolting the furrow-cattle upon the ploughed land.

In order to remove the inconveniences which attend the ploughing with cattle yoked in pairs, some yoke them in a line before each other. It is obvious, that cattle yoked in this manner, going always in the furrow, neither tread upon the ploughed land nor jolte one another. In these repects, the yoking the cattle in a line before each other seems to have the advantage. It is to be observed, however, that this method is not quite free from inconveniences. When examined, it may, perhaps, be found attended with as great inconvenience as the other. Where cattle are yoked in a line, they go all in the furrow. This makes it necefly to give the plough more land than ordinary, either by the fock or the muzzle; for if this be not done, the head and fock being in the fame direction with the beam, and the cattle yoked to the middle of it, the plough will direcly follow the cattle without taking any thing off from the land. Now it is inconvenient to be obliged to give the plough land either by the fock or muzzle; for when the fock is turned out of the plane of the beam, it makes the plough heavy to draw; and when the muzzle puts the draught too much to one side of the beam, it prevents the plough from going upright. The yoking of the cattle in pairs is attended with none of these inconveniences; for in this case, the quantity of land which the plough has naturally, when right made, is sufficient to make it take off a proper furrow.

There is another inconvenience that attends yoking cattle in a line, arising from the nature of the animals, which is, that as they like their cafe, they are disposed to throw the burden upon their fellows. This they have a better opportunity of doing when yoked in a line before each other than when yoked in pairs. When yoked in a line,
line, each pull by the traces of the one behind him; and therefore, though it may be known when the foremost neglects his work, by the slackening of his traces, it cannot be known when any of the rest neglect their work; for though one of them does this, yet by the pulling of the one before him his traces may be fully stretched. But this is easily discovered when the cattle are yoked in pairs; for then every one of them has a separate draught.

There is still another inconvenience that attends the common way of yoking cattle in a line before each other. When the fore cattle are all yoked to the traces of the hindmoist, it is obvious, that as the beam to which the draught is fixed is much lower than his shoulders, by which the rest pull, such a weight must be laid upon his back or shoulder, as must render him incapable of giving any assistance. Besides, as the whole force is applied in the direction of the traces of the hindmoist, it cannot have such influence on the plough, as when a part of it is in a direction more horizontal. When a body is to be moved forward in any direction, the nearer that the direction of the force applied approaches to the direction of the body, it acts with greater influence; and, therefore, as the plough moves horizontally, and as the direction of the united draught of a plough with the cattle yoked two abreast is more horizontal than the direction of the draught in a plough with cattle yoked in a line, the force applied will have greater influence.

When these two different ways of yoking cattle in ploughs are thus considered and compared together, it is difficult to determine which ought to be preferred. Each of the two seems preferable to the other in a certain situation. When the land is stiff, and the labour severe, the yoking the cattle in pairs seems preferable, as it is certainly the strongest draught; and when the land is wet, and in danger of being much hurt by the treading of the cattle, the yoking them in a line before each other seems preferable; as thereby they are confined to the bottom of the furrow, which is the firmer part of the land, and prevented from doing harm.

In wet lands and seafolds, as long teams answer best, for the moat part, collars and trace-chains become of considerable utility in most cafes in yoking of cattle; and in whichever way neat cattle are geared for work, they should constantly have bridles or bit-halters, with blinders, as by such means they are rendered docile, tractable, and easy to manage in the bufnife of team labour. Much information on this subject may be seen in the Corrected Report on Agriculture for the County of Suffolk.

YOKULS, in Geography, the highest mountains in Iceland, perpetually clothed with snow. Of these, Snoefal, hanging over the sea on the S.W. part of the island, is said to be the highest, its height being computed at 6860 feet. The mountains are said to be chiefly sandstone, pudding-stone, with porosilix, flextite, and argillaceous schistus.

YOLK, or YEIK, in Natural History, the yellow part in the middle of an egg. See Egg.

The chicken is formed out of and nourished by the white alone, till it be grown to some bulk: after which the yolk serves it for nourishment; which it likewise does, in part, after it is hatched. For a good part of the yolk remains after exclusion; being received into the chicken's belly: and being there revered, as in a flore-houte, is by the ductus intestinius, as by a funnel, conveyed into the guts, and serves instead of milk. Willughby's Ornithol. lib. i. cap. 3.

This was even known to Pliny:—"Ipsum animal ex albo liquore ovi corporatur: cibus ejus in luteo eft." Lib. x. cap. 53.

Yolk, in Rural Economy, the peculiar munificent secretion which exudes through the skins of sheep, and which by intermingling with the pile of the wool renders it soft, pliable, and in proper condition. It has somewhat the same effect on it which oil has upon a thong of leather, when kept in and perfectly faturated with it. The disposition to the production of this subtile in sheep is favourable to the valuable properties of the wool, and should be attended to by the shepherds in fixing and regulating his flock. It is noticed by a late writer on Agricultural Chemistry, that wool often washed in calcareous water becomes rough and more brittle than usual, as the carbonate of lime has the power of diffusing or decomposing the yolk of it, which is an animal sap that naturally defends it; that the finest wool, such as that of the Spanish and Saxen sheep, is most abundant in yolk; that M. Vanquelin has analysed several different species of yolk, and has found the principal part of all of them a sap, with a basis of potassa, that is, a compound of oily matter and potassa, with a little oily subtile in excess; and that he has likewise found in them a notable quantity of acetate of potassa, and minute quantities of carbonate of potassa and murate of potassa, and a peculiar odorous animal matter.

The fame chemical writer has stated, that he found some specimens of wool lofe as much as forty-five per cent. in being deprived of their yolk; and that the smallest los in his trials was thirty-five per cent.

It is suggetted above, that the yolk is the most useful to the wool on the back of the sheep in cold and wet seafolds; and that probably the application of a little sap of potassa, with excess of grease, to the sheep brought from warmer climates in our winter, that is, increasing their yolk artificially, might be useful in oases where the fineness of the wool is of great importance. A mixture of this sort is more conformable to nature, it is thought, than that ingeniously adopted by the late Mr. Bakewell; but that at the time his labours began, the chemical nature of the yolk of wool was not known. See Wool, Washing Sheep.

Yolk of the Seed, Vitellus, in Botany and Vegetable Physiology, a part first described by Gærtner, and thus named by him, from its supposed analogy with the yolk of an egg. This analogy, and even the existence of the part in question, have been disputed, as Mr. Brown hints, in Prodr. Nov. Holl. v. 1. 306, by M. Correa de Serra, and by the writer of the present article. We have never at any time communicated on this subject with our learned and sagacious friend, now the Portuguese minister at New York; to that we are ignorant how far his objections extend, or on what they are founded. Nor does Mr. Brown know more of this matter, than a simple record of M. Correa's opinion, in De Candolle's Flore Francaise, v. 1. 157. This coincidence, however, from such a quarter, gives us great confidence in our own opinion, which was first offered to the public in Introd. to Botany, chap. 19, published in 1807. On a more attentive and full consideration of the question, the same sentiments were more explicitly detailed and defended in a paper read before the Linnean Soc. Nov. 3. 1807, and printed in that Society's Transactions, v. 9. 204.

Gærtner states the Vitellus, or Yolk of the Seed, to be "difficult from the Coatledons, as well as from the Albumen, and for the most part situated between the latter and the Embryo." (See Seed, where a reference is made to Vitellus, under which head the subtiltude of the present article..."
was designed to have been infected.) Gærtner considers
the part of which we are about to treat, as "of all the in-
ternal parts of a feed the most singular, and by far the most
unfrequent." Its importance therefore cannot be very
considerable. The principal diagnostics of the Vitellus,
according to this eminent carpologist, are the following:
1st, "It is most closely connected with the Embryo, so as
to be inseparable therefrom, without injury to its own
substance. 2dly, Notwithstanding this intimate connection,
never rises out of the integuments of the feed, as the
Cotyledons usually do, in germination, so as to become a
fecial leaf; but, rather like the Albumen, its whole sub-
stance is destroyed by the feeding plant, and converted
into its nourishment. And 3dly, If the Albumen be likewise
present, the Vitellus is always situated between that and the
Embryo, in such a manner, however, that it may be separated
from the Albumen with great ease, and without injury." For
these reasons, Gærtner considers the organ in question
as "allied on the one hand to the Albumen, on the other to
the Cotyledons," but truly distinct in nature from both.

We premise to divert from this decision of the great
writer, whose words have just been quoted, for the follow-
ing reasons: 1st, The Vitellus is certainly not more closely
connected with the Embryo than the greater number of
Cotyledons are, as any person may find by examining feeds
in the first stage of their germination, and as the faithful
delineations of Gærtner himself everywhere shew. 2dly,
That the Vitellus never rises out of the ground, is a circum-
stance likewise common to many Cotyledons, allowed by
Gærtner to be "such, as in various leguminous plants, as
well in Aesculus, Cyanus, Trapa polum, and many others.
The difference between Cotyledons which grow up into
feminal leaves, and those which remain and decay under
ground, is of so little importance as to the classification
of plants, that the most natural order of Papilionaceæ, or Legu-
minosæ, contains decided instances of both; Lupinus and
Vicia affording examples of the former mode of growth, La-
thyrus of the latter. And 3dly, The situation of the Vitellus,
between the Albumen, if the latter be present as a separate
organ, and the Embryo, is only a necessary consequence of
the more intimate connection between the Vitellus and the
Embryo, than either of them has with any other part, ex-
cept that of the Cotyledons and Embryo, which is as strict as
it can possibly be. Hence we cannot consider the Vitellus of
Gærtner to differ from the subterraneous Cotyledons above
mentioned. We" premise their offices must be exactly
similar, to perform the necessary functions relative to air or
oxygen, till the leaves come forth, and assume those func-
tions in greater perfection, with the co-operation of light.
This appears to us more satisfactory than the hypothesis of
Gærtner, that the organ of which we are treating affords
nourishment to the Embryo; because this is abundantly
supplied by the copious Albumen of a multitude of feeds,
while Vitellus is very inconsiderable, such as grasses; and
it is recurring to two canes to explain what is evidently ac-
counted for by one alone. If the vegetation of corn be
observed, the Vitellus will be found to dwindle away, with
fearcely any change in its very inconsiderable bulk, when
the first leaves are unfolded, exactly as happens to the sub-
terraneous Cotyledons of Lathyris odoratus, &c. The same
thing very often takes place as speedily in Cotyledons which
rise out of the ground. Some which are more permanent,
as in cruciferae and umbelliferous plants, being only more
of the nature of leaves. In grasses, the calæ taken by
Gærtner for a Vitellus is most slippery and uninfusíngual,
as not possibly to contain any material portion of nourish-
ment; ample supplies of which are furnished by the plen-

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The Albumen of those plants. But its expanded figure
is very well calculated, like that of the leaves, for functions
analogous to vegetable respiration; and it has the evident
aspect of a subterraneous leaf, quickly rendered superfluous
by the production of real leaves, and withering away, as
the first of those leaves themselves do, when more vigorous
ones come forth. It is remarkable, that the pretended Vi-
tellus appears not to be necessary to all plants furnished
with this distinct kind of Albumen, as Palms and Orchideæ
have it not; while, on the other hand, no instance presents
itself of a supposed Vitellus, and a real Cotyledon, or Cotyle-
dons, in the same plant. Gærtner takes the Plumula for
Cotyledons in Rbizophora (see his t. 45.), as well as in some
of the Scitamineæ; for we cannot conceive the tubular
part, embracing the Embryo, in Amomum, (see Gært. t. 12,
which he erroneously calls Zingiber,) to be any thing but a
Cotyledon, notwithstanding the opinion of our learned friend Mr. Brown, who, like Gærtner, terms it a Vitellus.
The name would be of little importance, if the supposed
use of it did not convey, as we presume to think, an erro-
neous idea; in attributing to these seeds two distinct and
separate sources of nourishment. That such distinct parts exist in this natural order, and perhaps, as Mr. Brown
observes, in Nympheæ and Nuphar likewise, we are ready to
admit; and we are therefore more satisfied to attribute to
each a separate and appropriate office. We have had no
opportunity of observing the germination of Amomum, or
any true feminates plant; but as far as we have been
able to judge, it appears that the Albumen of every feed,
when separate from the other parts, is always totally ab-
sorbed, or removed, leaving its skin empty; whereas a
Cotyledon withers and shrinks in its whole substance, like a
decaying leaf. If the albuminous matter, necessary for the
temporary nourishment of perhaps every feed, in one form
or other, be lodged in the substance of the Cotyledons, as
in Zania, the leguminous and curcurbitaceous tribes, and
many others, such parts shrink the more, but do not lose
any particular portion of their substance, so as to have
only a skin left behind. Perhaps a confusion of ideas has
arisen, from the first consideration of this subject, in con-
sequence of the term monocotyledonous as contrasted with
dicotyledonous. The first had an evident reference to the
Albumen, in corn, palms, &c.; and when Gærtner had emancipated himself from this error, he seems to have trans-
furred the idea to the Embryo, which he calls monocoty-
ledonous, as if he meant by that word to express its own simple
form. Prepossessed with this idea, when a separate organ
manifested itself, as in the Scitamineæ, he thought a new
appellation requisite. Mr. Brown objects to the term Coty-
ledon in this cafe, because he says there is no point of union
between the part in question and the Embryo. If such be
the case, which we cannot understand, it would be not at all
less difficult to conceive how this part could, as a Vitellus,
supply the Embryo with nourishment, than it would be to
imagine how it could perform any services towards that
organ with respect to air, in its capacity of a Cotyledon.

It seems to us, that by considering the Vitellus of Gærtner
as a Cotyledon, all ambiguity respecting the anatomy or
component parts of any feed is removed. When the Cotyl-
edons are two or more, the albuminous matter is either
lodged in their substance, or forms a separate part. In the
latter case, it has no more connection with the Embryo than
is absolutely necessary, being in fact not an organic part, but
merely a reservoir of food or nourishment, immediately under-
going a chemical change, after which its whole substance is
speedily absorbed. Such is the economy of corn and
palms; even the large Albumen of the cocoa-nut soon dis-
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appearing, for the evolution and sustenance of the little Embryo, lodged in a cavity of its bale; while the Cotyledon of the not very dainty genus Zania shrinks indeed considerably, from losing the albuminous part of its substance, but does not disappear; because the remaining part defined to perform the essential office of a Cotyledon, respecting air, merely decays when its purpose is answered, and sloughs off, like any other dead portion of the vegetable body.

We have already (see Germination) adverted to these two different situations of the albuminous matter. That substance must be present, in some shape or other, for the nourishment of the young Embryo, at the first period of its evolution, when so great an alteration of bulk takes place, till it can supply itself from the earth. The idea of this nutritious substance, whether of an oily, mucilaginous, or farinaceous nature, being always, when not a distinct body, lodged in the Cotyledons, throws additional light on the nature and physiology of these last-mentioned parts, and in a very beautiful manner confirms their analogy with leaves. The sap of plants (see Circulation of the Sap) being carried into the leaves, and there acted upon by air, light, heat, and moisture, is returned in the form of various secretions, into the different parts of the vegetable body. Under the influence of light, the upper surface of their leaves absorbs carbonic acid gas, and the under gives out pure oxygen. But in the dark, leaves absorb oxygen. So the Cotyledons of seeds, in their dark subterraneous situation, being moreover often guarded expressly from light by a brown or even black skin, absorb oxygen, which, as we have said in the article above cited, is known to be necessary to germination. They are already flored with albuminous matter, abounding with the carbonic principle. This, by the action of oxygen, becomes saccharine and milky, fit to be transmitted, through the returning vesseis, which the Cotyledons, in common with leaves, poulpe, into the stem of the Embryo; all these important parts having already begun to swell, from the absorption of moisture, and the tumultuous effects of heat. Hence we see why light proves harmful to incipient germination, and why carbonic acid gas may be given out by seeds during that process. It is evident that the proper functions of the Cotyledons are best performed under ground, and that when they rise into the air and light, it is not till after their primary definition is fulfilled, and then only because, being fundamentally of the nature of leaves, they are more capable of affording a series of those organs, with respect to light. Cotyledons of seeds are subterraneous leaves, just like the scales of a bulbous root. Both are flored with albuminous or nutritious matter, and when acted upon by oxygen perform under ground those functions, which leaves perform in the open air, with the assistance of light. It is worthy of notice that the Cotyledons are so placed, in all seeds, that the oxygen gas must be imbied by their under surface only, that very same part which, in leaves, gives out this kind of gas during the day, and probably absorbs it at night. "It would," as we have elsewhere observed, Tr. of Linn. Soc. v. 9. 213, "have evinced a strange contrariety in the constitutions of two organs otherwise so analogous, the Leaves and Cotyledons, if the upper surface of the latter, while in the unexpanded seed, had been preferred to receive the oxygen gas."

By taking the Vitellus of Gartner for a Cotyledon, we throw no new difficulties in the way of the classification of plants by this organ. Its form is always, as far as we know, simple and indivisive, so that the plants in which it occurs remain only the more steadily fixed in their place of Monocotyledons, as opposed to the Dicotyledons; witness Gramina, Sittainima, &c. thus indeed acquiring a right to such an appellation, which they could otherwise scarcely claim, having, according to Gartner's principle, no Cotyledon at all.

YOLOTOU, or YULUZ, or Cyalis, or Chialis, in Geography, called by the Turks Kerathir, or the Black City, a town of Little Bucharia, situated in a country abounding with springs and fine meadows; 85 miles N. N. W. of Hami.

YOM-NIM-KIEN HOTUN, a town of Chinae Tartary, on the E. coast of the gulf of Leao-tong; 263 miles E. of Peking. N. lat. 40°. E. long. 121° 34'.

YOM-TA-HOTUN, a town of Corea; 648 miles E. N. E. of Peking. N. lat. 42° 55'. E. long. 129° 37'.

YON, a river of France, in the department of the Vendée, which falls by La Roche fur Yon.

YONGHELAHE, a river of the island of Madagascar, which runs into the sea on the west side of the island, S. lat. 23° 20'. E. long. 42° 4'.

YONG-LI, a town of Corea; 30 miles S. E. of Koang-tehou.


YONG-NGAO, a small island near the coast of China, in Quang-tong; 20 miles S. S. E. of Macao.

YONG-NING, a city of China, of the first rank, in Yun-nan, on the borders of Thibet. A little to the E. of this town is a lake; 1095 miles S. W. of Peking. N. lat. 27° 50'. E. long. 106° 24'.—Also, a city of China, of the second rank, in Quang-fi; 977 miles S. S. W. of Peking. N. lat. 23° 36'. E. long. 104° 14'.

YONG-NING, or Yung-ning, a city of China, of the second rank, in Koei-tehou; 1027 miles S. S. W. of Peking. N. lat. 25° 55'. E. long. 104° 57'.

YONG-PE, a city of China, of the first rank, in Yun-nan; 1150 miles S. W. of Peking. N. lat. 26° 42'. E. long. 100° 34'.

YONG-PING, a city of China, of the first rank, in Pe-tche-li, on a river which runs into the gulf of Leao-tong. This city is advantageously situated, but its jurisdiction is not very extensive; it contains but one city of the second order, and five of the third. It is environed by the sea, by rivers, and by mountains, covered for the most part with forests; this makes the country less fertile, but the neighbouring bay favours its want with great plenty of all the necessaries of life. Not far from this city stands a fort named Chun-bai, which is the key of the province of Leao-tong. This fort is near the beginning of the great wall, which is built, for a league together, in a hilly marsh, from the bulwark in the sea; 115 miles E. of Peking. N. lat. 35° 55'. E. long. 118° 34'.

YONG-SIN, a town of Corea; 113 miles E. of Han-tehou.

YONG-TCHANG, or Yung-tchang, a city of China, of the first rank, in Yun-nan. This city is large and populous, and is built in the midst of high mountains, on the borders of the province, in the neighbourhood of a savage people, whose genius and manners the inhabitants of this country partake of. The country produces gold, honey, wax, amber, and a vast quantity of fine silk. It has within its districts one town of the second order, and two of the third; 270 miles S. W. of Peking. N. lat. 25° 6'. E. long. 99°.

YONG-TCHEOU, a city of China, of the first rank, in Hon-quang; 882 miles S. S. W. of Peking. N. lat. 26° 10'. E. long. 111° 15'.
YONG-TONG, a town of Corea; 40 miles E. of Het-fin.

YONI, in Metaphysics, the name of a mysterious symbol among the Hindoos; which, although contemplated with respect and awe by that superstitious race, is yet of such a nature as not to be divulged without difficulty in the living language of a country which has happily shaken off the trammels of priestcraft; and views with pity, mixed with just abhorrence, the idolatrous propensities of those still retained in mental bondage; accompanied, as we find they were, among many ancient peoples, by the indecencies of impure rites, scarcely yet diffused, even in Europe, and existing in almost undiminished grossness in the still unenlightened regions of Asia.

The reader is supposed to be more or less aware of the nature of the orgia incident to the worship of such deities as Pan, Priapus, Bacchus, Venus, &c. We do not here inquire particularly into the origin of such rites. In their earlier stages, they were probably an innocent ebullition of gratitude for the experienced bounties of nature. In the lapse of time, a concourse of people of both sexes, warmed by exercise and beneficent feelings, at a genial season most likely of the year, found, as is ever the case, their unrestrained devotion sublimed into enthusiasm; and hurried by such feelings beyond the scope of unaffiffed reason, gave themselves up to the extravagances of mysticism, and in the end to excesses which not only Christians, but the decent of every sect and country must unite in reproving. These Bacchic phrenzies were accordingly suppressed or mitigated as to their offenfive usages and tangible abominations. Nature, in the pharaeology of certain sects, was no longer propitiated through the indulgence of feelings of her own prompting, excited farther by the presence of unequivocal exhibitions. She, still perfomined, was more decently represented by certain symbols substituted for the earlier types. The cunning priest no longer daring to exhibit their obscenities in shameless nudity, permitted only a portion of indecency to remain in the hands and eyes of their deluded votaries, and concealed their origin and meaning in the various mysteries and hieroglyphics designated Bacchic, Eleusinian, Phallas, Linga, Yoni, Cone, &c. &c. Some notice of these things, and of the ordinary course and consequences, will be found under the appropriate articles of our work; also in Mystery, Mystics, and others whence referred to.

By such people Nature was contemplated chiefly under her attribute or property of fecundity; and symbols of generative allusion were those under which her prolific potencies were exhibited. These prone, like the Hindoos, to resolve all things into sexual allegory, of course fancied the male and female pudenda omni-archetypal. These, in the early days of such perverted devotion, were probably portrayed in India, as elsewhere, without reserve; but were, in most cafes, soon corrected into the comparative decency of the hieroglyphics; and the deluded people were cajoled by mummery and mystery, that became less and less understood, and therefore, perhaps, the more reverence. We have said in most cafes; for in Egypt and Greece the grotesqueness of Phallism is known only in the remains of antiquity; in India it doubtless exists, but divested of obtrusive or conspicuous indecency; and too true it is that among Christians was the primal infamy of the symbol and usage most tenaciously retained. We can but just allude to the discovery of this curious though lamentable fact, by Sir William Hamilton, in the neighbourhood of Naples. His communication, with ample commentary and illustration, has been printed, but very properly not published; concealed, though not supressed; and we therefore make no direct reference to the sufficiently instructive, though too disgraceful volume, in which this disgusting worship is proved to exist in Christian Europe, and is traced almost all the world over.

Among the Egyptians, Greeks, and Romans, the Phallus and the Cone seem to have been the earliest of the grocer and corrected emblems; the latter contained both the Linga and Yoni, nature active and passive; and familiar, or recondite meanings and allusions were thus readily revived in the minds of the vulgar and the initiated, suitable to the eteric or isoteric nature of their capacities and feelings. These foolishers, to give them no harsher name, thus found to have existed among the people just mentioned, and others, have, with great appearance of reason, been supposituously derived from the still more ancient usages of India. Much might be said in support of this, were it worth while; and thus far the inquiry will probably be repaid, that it may bring to light many strange coincidences. If such writers as Colebrooke, Wilford, Faber, and others, who bend their minds to the development and elucidation of Eastern literature and mysteries, continue for a while in the same line of research, we anticipate a confirmation of the surmises long entertained, that nearly all the learning, science, and art, as well as the religion of Egypt and Greece, originated in India, or at least with the Bramhans; however much they may have been improved or embellished by the hands through which they reached us.

India then, or the country of the Bramhans, wherever that was, being in our judgment the region where the superstitious practices now under our consideration originated, we may expect to find its early history teeming with allusions to it. This is indeed the case; though such allusions are not, perhaps, found in its earliest works on theology. But as no people have changed so little as the Bramhans and their flock by the innovations of strangers, or the lapse of time, (for frequent subjugations by conquests seem to affect them but little, and perfections serve only to confirm their prejudices,) we may expect to find their religious institutions and practices more in accordance with those of their early days than the usages of other people who have not disdained to become wiser by the operation of reason and philosophy; and who have been taught to look on the follies of their ancestors with the pity they deserve. In India, we thus find certain hieroglyphics still receiving the external adoration so little their due. There we find the infidious Brahman still teaching his ignorant supplicant to fall down and worship the Linga and Yoni; symbols, in whatever shape exhibited to the public eye, no doubt fitter for the brothel than the temple. The former of these is the attribute of Siva, the Maha-deva, or great divinity presiding over reproduction, or regeneration in the abstract; and the other of his confort Devi, or Parvati, the Magna-Mater, the Bona Dea of the East.

In preceding articles, we have necessarily touched on the character and attributes of the two just mentioned grand divinities of the Hindoos; and refer our readers to Parvati and Siva for our remarks thereon, and to Linga for a brief notice of the Phallic worship of India. In this article, we propose to discuss that still offered to the Juno, the Venus, the Isis, the many-named all-absorbing goddess of the Hindoos, whose emblem is the Yoni.

Writers on this subject generally, perhaps unavoidably, commix their speculations on the Linga and Yoni. Crude nature
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nature is personified, and called Prakriti; she is declared to be nature, or the earth, the womb of nature; she is thence any thing conceiving or containing, or the power or fakti of such faculties. In its first state that power was rather a tendency, an aptitude, and laid dormant until excited by the bija, or vivifying principle, the aura of nature personified in Siva, who in this character is called Parvathi, or the primeval male. Here we find nature passive and active: the power or aptitude of nature is symbolized by the Yoni; the vivifying principle by the Linga. Prakriti is found to be one of the names and forms of Par- vathi, as Parvathi is of Siva. Under these names we have seen some notice of their character; but it is not easy, in the short articles to which, in these matters, we must refer, ourselves, to explain fully, were we able, the nature and allusions of these abstract personifications.

The faculty or power of containing, of which the Yoni is the type, is also called Argha by Hindu mystics. The name is given to a cup or dish, or vessel, in which fruits and flowers are offered in oblation. These vessels, they say, ought always to be boat-shaped; and so they frequently are, but sometimes round, oval, or square; mostly, however, circular. All this is mysterious and profound. The rim of the Argha is more especially the Yoni, while the contents of the vessel represent the Linga, which is sometimes more unequivocally figured by an image of Siva standing erect in the centre of the Argha. Hence one of his names is Arghanatha, or lord of the boat-shaped vessel. We may stop a moment here to remark how readily Bryant, Faber, and the race of Noetics, would have recognized the ark, in the arga or arka, or ark, as it may without much licence be written, of the Hindoos. We do not hesitate to hint our belief that many of the fables connected with Calchas, Juno, Io, Ionia, Jonah, &c. are traceable upwards to Hindu words: many also connected with the names of places or persons, beginning with Col or Kal, or containing its root, that are scattered in unmeaning profusion throughout the geography and early biography of Europe. But this is not the place to enlarge on this subject.

The Argha, as a type of the power of conception, excited and vivified by the Linga or Phallus, Mr. Wilford (Af. Ref. vol. iii.) supposes to be one and the same with the ship Argo, which, according to Orpheus (Argon. v. lxvi.), was built by Juno and Pallas, or, according to Apollo, (b. ii.), by Pallas and Arga, at the instance of Juno. The word Yoni, as it is usually pronounced, nearly resembles the name of the principal Etruscan goddes; and the Sanskrit pharse Arghanatha Isvara seems accurately rendered by Plutarch (on Isis and Ophis), when he affirms that Ophis was command-er of the Argo. That the Sanskrit words p'aka, meaning fruit, and p'bullet, a flower, had ever the sense of phallus, is not affirmed; but as these are the chief oblivions in the Argha, and are confessed to be a representation of the Linga, their founds may easily have been transferred. We have seen, too, that Mahadeva himself, the prototype of the Linga, is sometimes placed erect in the Argha: this is to complete a mythical trinomin of powers; for Vifhnu, the principle of humidity and of conservation, is symbolized by a convexity or embolon in the centre of the Argha, over which the image of Mahadeva, or the p'aka and p'phulla, as representing the Linga or Phallus, are placed. The idea that the Sanskrit p'pha or p'phulla may in feme as well as found be cognate with and the source of the Greek phal- lus, derives strength from the fact that Mahadeva, in his character corresponding with that of Jupiter, or Neptune, bears, like his Roman kinman, a trident, called Triflula, and sometimes Triphala, denoting trification and triflorence. Jupiter Triphylus is thus identified with the three-eyed Siva, who in this form is named Trilokin and Triflula.

That the Sanskrit language is very widely spread, and is traceable in various dialects, we have the authority of Mr. Colebrooke for believing. In the names of places, we are inclined to think its extension is proved as much as in any point: and we do not deem the idea very extravagant (fays our correspondent) that derives the name of Trafalgar, the scene of the last grand triumph of the British Neptune, from the mythological language of our fellow-subjects of India.

To return to the Yoni or Argha, we have seen that the vessel under the latter denomination is boat-shaped, and a type of the world. In the general Deluge, the generative powers of nature, male and female, reduced to their simplest elements, the Linga and Yoni, assumed this shape for the preservation of mankind. Brahma, the creative power, is represented to have been asleep at the bottom of the abyss. This alludes, we fuppofe, to the destruction of mankind; man being represented in the abtracif by Brahma. The Yoni becoming boat-shaped, the Linga was the mast, and protected by Vifhnu rode upon the waters. This, though sufficiently gros, is doubtles an arkte allegory. Every thing hollow or concave having the property of containing, remind mystics of their type the Argha or Yoni, as aspir- ing objects do of the Linga. Enthusiasts fee thefe two principles; that is, they fay, nature passive and active, dormant and redivivified, every where and in every thing,—the earth, the sea, a boat, a well, a pond, the hollow of the hand, clefts in rocks, excavations, caves, commiffures of branches, &c. partake of relationship with the one,—mountains, especially if inflated and conical, pyramids, cones of any fort, fire, a mast, a tree, especially if denuded of branches, obelisks, &c.—all these connect themselves with ideas of Mahadeva and the Linga. The earth is tipified by a boat; the Argha of the Hindoos, and the Cibium of the Egyptians. Ophis is represented in a boat carried by men: in India, Mahadeva erect in the Argha refers to the same allegory. All over India, the Argha, and Linga of stone inferted in it, is found an object of worship. It is fmeared with flowers, and water is poured on the Linga, and conveyed off by the rim or Yoni; the yofa navicularis or mystical boat of Ifes.

Caves we have noticed as types of the Yoni, from their property of hollownefs or containing, and also from the shape of their mouth. It will be recollected, that the most ancient oracle and place of worship at Delphos was that of the earth in a cave, which was called Delphi; an obsolete Greek word, synonymous, according to Mr. Wilford (Af. Ref. vol. vi.), with Yoni in Sanskrit. Similar superitions have prevailed farther westward. Perforations and clefts in bones and rocks were called Cumi Diaboli by early Chris- tians, who usually believed the appellation of devils on the deities of the heathens. One of the wonders of the peak in Derbyshire retains an appellation still coarser: but Mr. Wilford thinks improperly; for this wonderful cave, or one he fays very like it, particularly noticed in the Puranas, is declared to be the sacred Yoni. The cleft called Gulya- thi, in Nepal, answers fully and literally to the curious appellation of its relative in Derbyshire, (Guhya, or Podex,) and is devoutly worshipped by numerous pilgrims from all parts of India. Perforated rocks or bones, as well as the mouths of caves, are mystically contemplated in India. A regeneration is effected by pelfing through them; or, if the hole be too small, a hand or a foot thrust through, with a sufficient faith, will nearly answer the fame purpoze.
It is difficult to discuss such subjects as these, without feeling a certain degree of contempt, pity, and wonder, at the foolishness of creatures called rational. But when we recollect that many millions, hundreds of millions probably, of our fellow mortals are, or have been, thus misled, and have been similarly misled in all parts of the world, the origin and spread of such fables become a subject not unworthy the inquiry of the philosopher: as connected probably with the history of fabulous events in sacred history, it claims also the attention of the theologian; and the total diversity of all such irrational superstition among ourselves is a matter of gratulation to us as reformed Christians. We are dispofed, however, to view it in all cases as an invention and engine of priesthood, and not much more to be charged on the religion of the Hindus and others, than the mummeries practiced at Loretto, Naples, and elsewhere, are justly chargeable on Christianity.

Connected with the symbols and rites of the Yoni, we had prepared to offer some remarks shewing the spread of similar superfluities almost all over Europe, as well as in other regions. And, indeed, although their origin and allusion are now wholly forgotten, curious observers may discern in still existing usages occasional relics of this species of devotion even in England. It is inexpedient, however, to indulge in this extended view.

Adoration of stones is found similarly spread through the superfluous ages of all nations. The Hindoos retain it with undiminished bigotry; and will affirm, and indeed go nigh to prove, that such objects, from the sacred monolithic subject of the Kaaba at Mecca, or the obelisks of Egypt, to the trilithic temple at Stonehenge, with many intermediate, are no other than their Linga, under various forms and denominations. The Battista of antiquity are nearly related to it. Under Baetilos, Croniche, Kissvaen, Stonehenge, and other articles of this work thence referred to, the reader may, if disposed, see the extent of speculation to which the superflition connected with Lithism, if such a term may be allowed, has given rise.

Clefts in rocks, rent by the hand of nature, may therefore be supposed to be profoundly venerated by such enthusiasts as are Hindoo mystics. One of the most celebrated in India, as far as we have heard, is at the promontory on the island of Bombay, called by the English Malabar point. The promontory itself, thrusting its apex into the sea, which there forms a fandya, or junction, (see Junctions,) is Lingat. It used to be much referred to, and its sin-expelling potency much relied on, before its purity and privacy were polluted and interrupted by the presence of strangers, and the increasing population of the island. The unequal density of its present population, and the extending prevalence of foreign manners, have heaved the sanctity of this spot, now the constant resort and abode of persons who look on the local superfluities with an eye too rational or curious—or severe—shall we say?—to encourage their continuance. Like the Lithic Linga temple of its neighbouring island of Elephanta, as the English call it, the Yoni of Malabar point will soon cease to be referred to. Its fine temple is levelled to the rock whence it arose, and some of its spoils adorn the Museum at the India House. The neighbourhood of Bombay was in former times a grand assembly of Hindoo temples. The great beauty and fulness of the situation, the forms of the hills and islands, and other real and fanciful advantages, combined to give it high charms to the tasteful and cunning Brahman. An island rising conically is, we have seen, itself a Linga, its shores a Yoni, the ocean an Argha. The de-moralizing effect of this perverted philosophy on the mind of the simple Hindoo might be exemplified by a citation from our great dramatic poet, slightly altered:

—And this their life, exempt from public haunt,
    Found Lingas in stones, Arghas in running brooks,
    Yonis in rocks, and gods in everything.

Passing through such clefts as we have just noticed with a peculiar or expiatory view is, or rather has been, of extensive prevalence. We could shew it to have existed in many parts of Europe. Relics of it still exist in England. And indeed such is the recent rage of theological innovation, and the amazing increase of credulity, that a zealous sectarian need not diphair of feeling the same, or usages equally ridiculous, revived among us. But it would not suit the crafty Brahmans to allow rich delinquents to empty an expiation as the passage through a cleft or Yoni of rock. In certain cases of defilement, it is required that an image of pure gold be made of the female power of nature, either in the form of a woman or of a cow: in this statue, the person to be regenerated is enclosed, and is protruded through the usual channel. As this evidently must be enormously expensive, it is of course rarely referred to. An instance is given in the Hindoo Pantheon, p. 398, of a recent case where a Yoni of gold was the medium of regeneration to two Brahmans, who had suffered pollution by coming to England. The defilement of a natural birth is done away by the protraction of the person or head through a facred thread called Zennar. (See that article.) This regeneration is essential to Brahmanical purity, and is also required of the two next tribes. The individuals thereafter are denominated twice-born. The fourth tribe is not allowed to be thus purified, and is therefore considered as base and unclean. See Sects of Hindoes.

Enough has been said under this article to shew the mysterious bearing of its title. It is a subject which, connected with the Linga, meets the observer or inquirer directly or allu-tively, though not oftentimes, or very often in an offensive form, at every step he takes in the investigation of Hindoo literature or antiquities. Respectful the non-offensive views of their appearances, we refer to our article Linga; of which indeed this may be considered as a continuation. The subject is inexhaustible, but to us not inviting, though it must have been so to others. It might not be exaggeration, if it appear so, to say, that more speculation exists hereon in the languages of India than would fill a volume equal to our whole Cyclopedia! Reference to earlier articles descriptive of the Yoni and its attributes and allusions enables us to abide this, which is, however, even combined with what is said in those articles, still and necessarily incomplete. See Kamalayoni, Lieswara, Lotos, Meru, Patra, Radha, Saiya, Sami, Sami-devi, and Sects of Hindoes. From the article Sami reference is made to this, and we take this occasion to correct an error in the former: in col. 2, line 24 from bottom, for fiction read friction.

Individuals, chiefly of the sect called Sakti, meaning worshippers of the Sakti, or female energy of Mahadeva, the deity of reproduction, propitiate the gods under the form of the Yoni, the mystical matrix of nature. Of this, see under Sakt and Sakti. Such individuals have the fraternal appallation of Yonja. In what they differ from the Sakti, if they differ at all, we are not informed. These sects may be supposed to comprise but few persons; but this is a point on which information is obtained with difficulty. Respectable individuals, if there be any such belonging to it, are ashamed to avow being Saktas; and from persons of a different fort information is not to be relied on.
Writings, too, on these subjects, are very obscure; their endless Scholia equally so, and can be critically understood by very few Europeans, even with the assistance of a learned native, who, admitted probably of what he is desired to explain, will, with almost laudable delicacy or decept, gloss over the half-revealed obscurities of his brethren.

The common tendency in the nature of the adoration of the Linga and of the Yoni might, one would think, have united their worshippers in a community of object and view. But such are the anomalies and perversities of the human mind, that it appears to be an historical fact, that the Lingajas and Yonijas have actually not only disputed and quarrelled respecting the comparative merits of their respective hieroglyphics, or, in other terms, the paramount potentiality of the archetypo; but that bloody wars have arisen between them on the question, which, as far as now appears, seems really to have been one of physiology: the only influence, probably, in which such a question hath ever operated as a cause of holy war, manifold as those causes unhappily have been. The Yonijas infisted, it seems, on a superior influence in the female over the male nature in the production of a perfect offspring. The consequent disputes and warfare the Hindu writers have, as usual, recited in extravagant allegories, which we should call obscene, but which they consider as awfully facred.

"This diversity of opinion," says Wilford, "seems to have occasioned the general war which is often mentioned in the Puranas (see Purana), and was celebrated by the poets of the West as the basis of the Grecian mythology: I mean that between the gods led by Jupiter, and the giants, or gods of the earth, or, in other words, between the followers of Vishnu (see Iswara) and the Yonijas, or men produced, as they affected, by Prithu, a form of Vishnu (see Prithu and Yonijas); for Nonnus (Dionys. b. xxxiv. v. 241.) expressly declares, that the war in question arose between the partisans of Jupiter and those who acknowledged no other deities than water and earth. According to both Nonnus and the Hindu mythologists, it began in India, whence it was spread over the whole globe, and all mankind appear to have borne a part in it.

"These religious and physiological contests were disguised in Egypt and India under a veil of the wilderde allegories and emblems. On the banks of the Nile, Osiris was born in pieces; and on those of the Ganges, the limbs of his consort Ivi, or Sat, (see Osiris, Isis, 1st, and Sati,) were scattered over the world, giving names to the places where they fell, and where they are still superstitiously worshipped. In Sanskrit books, we find the Grecian story concerning the wanderings of Bacchus; for Iswara, having been mutilated through the imprecation of some offended Munis, (see Muni and Sama-dev,) rambled over the whole earth, bewailing his misfortune; while Iswara also through the world king mournful ditties in a state of distraction. There is a legend in another book, of which the figurative meaning is more obvious. When Sat, after the close of her existence as the daughter of Dakha, sprang again to life in the character of Parvati, or mountain-born, (see Mera and Mena,) she was re-united in marriage to Mahadeva. This divine pair had once a dispute on the comparative influence of sexes in producing animated beings, and each resolved, by mutual agreement, to create apart a new race of men. The race produced by Mahadeva was very numerous, and devoted themselves exclusively to the worship of the male deity; but their intellects were dull, their bodies feeble, and their compositions of different hues. Parvati had at the same time created a multitude of human beings, who adored the female power only. These were well-shaped, with sweet aspects, and fine complexions. A furious contest ensued between these Lingancias and Yonijas: the former fought their ground pretty well at first, but were in the end defeated, and shamefully routed in the battle, through the potency of the sacred Yoni. Mahadeva enraged was about to deliver them by the fire of his eye; but Parvati interposed; and appeased him, made use of the same artifice that Bahu did to put Ceres into good humour, and showed him the prototype of the Lotos. Mahadeva smiled, and relented on condition that the Yonijas should instantly leave the country.

"It is evident that this strange tale was invented to establish the opinion of the Yonijas, or votaries of Parvati or the Yoni, that the good shape, strength, and courage of animals depend on the superior influence of the female parent, whose powers are only excited and put into action by the male aura. But the Lingancias maintain an opposite doctrine. There is also a sect of Hindoos, by far the most numerous of any, who, attempting to reconcile the two systmes, tells us, in their allegorical style, that Parvati and Mahadeva found their concurrence essential to the perfection of their offspring; and that Vishnu, at the request of the goddess, effected a reconciliation between them: hence the name of Vishnu, by which they mean the as tinea, is worshipped as one and the same with the sacred Yoni." Wilford, in At. Ref. vol. iii.

YONIIA, the name of a sect of Hindoos, who worship the hieroglyphic of Parvati, called Yoni; which see.

YONKERS, in Geography, a post-township of the rate of New York, in Westchester county, on the E. bank of the Hudson, above New York island, 20 miles N. of New York, extending near eight miles along the Hudson, and having a medial breadth of near three miles. The surface is broken, but the lands are cultivated and productive. In 1810 the whole population consisted of 965 persons, with 93 electors, and 204 taxable inhabitants.

YONNE, a river of France, which rises about four miles S. from Chateau-Chinon, in the department of the Nyevre, pafles by or near to Monceaux, Clamency, Coulanges, Cravan, Auxerre, Joigny, Villeneuve, Sens, Pont fur Yonne, &c. and joins the Seine at Montoire.

YONNE, one of the nine departments of the central region of France, formerly Yonne, E. of Loiret, in N. lat. 47° 30', about 70 miles long, and from 30 to 40 broad, containing 7740 kilometres, or 372 square leagues, and 333,278 inhabitants; bounded on the N. by the department of the Aube, and on the S.E. by the department of the Cote d'Or, on the S. by that of the Nyevre, on the W. by that of the Loiret, and on the N.W. by that of the Seine and Marne. The river Yonne, from which it receives its name, crocetis from S.E. to N.W. It is formed of the Auxerrois, formerly reckoned a part of Burgundy. Its capital is Auxerre. It is divided into five circles, or districts, 34 cantons, and 484 communes. The circles are, Sens, comprehending 57,285 inhabitants; Joigny, 81,933; Auxerre, 103,882; Tonnerre, 47,394; and Avalon, 42,784. According to Hasselrat, its extent in French leagues is 29 in length, and 25 in breadth: its circles are 7, its cantons 69, and its population consists of 364,969 persons. In the 11th year of the French era, the total of its contributions was 3,093,023 fr.; and its expenses, administration, judiciary, and for public instruction, were 297,935 fr. 66 cents. The soil is various; it has some dry and indifferently fertile tracts, diversified with little hills; the western part is of a clayey soil, covered with woods and pools:

YON
poles: the cantons to the S. and E. are planted with vineyards; and the northern district is tolerably cultivated. The department, in general, is fertile, producing grain in abundance, with wine, fruits, and excellent pastures.

Yool Islands, a cluster of small islands in the Pacific ocean, so called by captain Forrest, in the year 1774. In 1788 they were by Mr. Meers called Tattea islands.

Yoo-Miou, a large town of the Birman empire, situated on a small river, which enters the Irrawaddy at a place called Yoo-va. An extensive tract of country is inhabited by a people called Yoo, who are said to be exceedingly ugly, having protuberant bellies, and white teeth. These Yos are subjects of the Birman state, and observe the same religious worship. They speak the language of Tayy, which is merely a provincial dialect of the Birman tongue. Symes's Embassy to Ava, vol. ii.

Yopa, a town of Mexico, in the province of Culiacan; 150 miles E.N.W. of Culiacan.

Yopas, Las, or Topes, a river of Mexico, which rises in Tlaicala, and runs into the Pacific ocean, N. lat. 1° 10'.

Yo-Ping, a town of Corea; 33 miles S.W. of King-ki-tao.—Also, a town of Corea; 28 miles S.S.E. of Tsin.

York, the Eboracum of the Romans, is the capital of the great county to which it gives name, the see of an archbishop, who is primatial and metropolitan of England, and the second city in rank in the kingdom. It is of unquestionable antiquity, and notoriously distinguished in English history by the important political, ecclesiastical, and military transactions which have occurred within its walls, or with which it has been in other ways intimately connected. Seated in the midst of a vast plain, by the side of a river which was navigable for the largest ships of ancient times, and too remote from the open sea to be immediately exposed to predatory invasion, York must have early attracted the attention and become the favourite abode of the chiefs of the northern tribes, and of their successful invaders from foreign lands. Eboracum was accordingly selected by Roman emperors and commanders as a principal refuge during their protracted contests with the ungovernable inhabitants of the northern parts of Britain. The metropolis of a shire unparalleled in the kingdom for extent, population, and productions, York is placed at the point of junction, although independent of them all, of the three ridings or districts into which the shire is subdivided. The cathedral is situated in N. lat. 53° 58', and in W. long. from Greenwich 1° 7'. The city is distant, by the shortest roads, from London, N. by W. 198 miles; from Edinburgh, S.S.E. 201 miles; from Durham, S. by E. 67 miles; from Hull, N.N.W. 38 miles; and from Liverpool, E.N.E. 100 miles. The nearest point of the sea-coast on the E. is at Bridlington bay, distant 33 miles, and on the W. at Lancaster 200 miles. The position of the city is central, with respect to both the limits of the county, and the great body of the population, industry, and commerce, by which it is distinguished. The ancient station of Eboracum was confined between the river Ouse on the W. and the collared stream, the Fos, on the E., which falls into the Ouse at the southern extremity of the old city. In later times, however, the limits were extended considerably on the opposite sides of both rivers. Such a position, defended on three sides by rivers and marlhes, and accessible by an enemy on the N. side alone, although in the midst of a plain, but consequently overlooked by no neighbouring eminence, would, even in the modern art of war, be susceptible of powerful defence: in ancient times it might have been rendered nearly impregnable. In constructing the walls, and laying down the streets, on ground previously occupied by their camps, it was the practice of the Romans to preserve as much as possible the form and distribution of the prior intrenchment. Of this practice frequent instances are found in Britain, as well as in Gaul, and other parts of the continent. The fame, notwithstanding the many changes to which the city has been subjected, may still be traced in York, where evident remains of Roman architecture are yet preferred, and where monuments of antiquity of various clavses have often been discovered.

In its present state, the plan of York forms an irregular pentagon, extending from S. to N. about 1340 yards, and from W. to E. about 1360 yards: the area within the walls is therefore about 300 acres. It is divided into four wards, which take their names from the four gates. Boothamgate-ward, in the N.W., contains three parishes; Micklegate-ward, on the W. side of the Ouse, contains six parishes; Monk-ward, in the N.E., five parishes; and Walmgate-ward, on the S.E., seven parishes. But the close of the cathedral is not included in any ward. Some of these parishes extend beyond the walls; and the two churches of St. Lawrence and St. Maurice, situated on the outside of the city, are still commonly reckoned to belong to it. The number of churches, exclusive of the cathedral, is therefore twenty-three. In former times they amounted to forty-five. Although no regular plan can now be traced in the distribution of the streets, yet some of them are of respectable appearance, having of late years been much improved by widening and paving; and new and handsome buildings, public and private, have been erected. The river Fos, long a piece of flagnated water, has again been rendered navigable, and now materially contributes to the ornament of the city as well as to the health of the inhabitants.

York, still inhabited by many genteel families, maintains its importance in no inconsiderable degree; but in point of population and wealth, it has been far excelled by many manufacturing and trading towns in the county, of comparatively modern foundation. According to the reports of the population of the kingdom in 1811, the inhabitants of York were then only 18,217, and the houses 7437.

Civil History.—York, under its romanized name, Eboracum, early appears in British history. In the year 208, the emperor Severus, with his sons Caracalla and Geta, visited Britain; and returning from an expedition against the northern insurgents in the following year, Severus resided at Eboracum, while his troops were employed in constructing across the isthmus, between the mouths of the Eden and the Tyne, the great wall of defence still known by his name. In this enterprise, he followed the example and completed the fortification of his predecessor Hadrian, which had been formed in the year 121. While Severus's great work was in progress, the emperor died at York in 210; and his successor Caracalla, more intent on the destruction of his envious brother Geta than on the enlargement of the pretensions of the Roman dominion in Britain, soon afterwards returned to the continent. During his residence in York, Severus struck money, on which he styled himself Britannicus; and also issued a decree respecting the recovery of slaves, which decree is still preserved in the Roman code, dated at Eboracum, on the 31 of the nones of May, in the consulate of Paulinus and Rufus, corresponding to the year A.D. 209.

Turning his arms against the Caledonians, and other Britons, who struggled for freedom in the north, Constantius fixed his head-quarters in York, and there ended his life in 306. York was also the scene of the inauguration of his son
ton and successor Constantine, who, learning in Asia the indisposition of his father, hastened to York, where he arrived in time to receive his last instructions; and was there proclaimed emperor by the army.

Among the towns specified in the geography of Ptolemy, the Itinerary of Antoninus, and the much later work of Richard of Cirencester, Eboracum is ranked first as a colony, and afterwards as a municipal town. As a colony, or settlement of veteran troops, the inhabitants were citizens of Rome, and governed by the laws of the State. When advanced to the highest station, that of municipium, the inhabitants retaining the privileges of Roman citizens were no longer under those particular laws, but invested with the power of self-government, under magistrates of their own appointment. Besides Eboracum, Britain contained but one other municipal town, Verulamium. In the list of Roman troops stationed in York, the fifth legion, called the victorious, appears to have been there for three successive centuries, down to 446, when the Romans finally renounced all dominion in Britain. The British name of York is Iulii; but although softened into Eboracum by the Romans, and by their colonists, who copied from them, traces of the original may still be perceived in the Kair-Ebrac of Nennius and Henry of Huntington, and in the Cair-Efric, or Erfric, of the Welsh. In British compounds appellations of places, the descriptive part precedes the proper name; in the language of the Saxons a contrary mode prevailed. Hence Cair-Efric was by them converted into Erfric-wyc, and Yevor-wyc, from which the present name of York seems to be derived.

York was the capital of Deira, one of the districts into which the Provincia Maxima of the Romans, or the county of Northumberland, was divided; and there, in the beginning of the seventh century, reigned Edwin, who united those kingdoms, and acquired the principal ascendency over Saxon-England. To this prince are ascribed the construction of the castle, and the foundation of the city of Edinburgh (Edwyru’s burgh), now the capital of Scotland. He also founded a cathedral in York; but in 633 he fell in the defence of his dominions, against the combined attack of the Saxons of Mercia and the Britons of Wales. Under Oswald, who came to the crown in the following year, Northumberland was again united into one kingdom; and afterwards governed by the celebrated Egbert, who, in 827, out of the Saxon heptarchy, formed the great kingdom of England. After a long series of disasters from Danish invasion, and the internal disorders of the kingdom, York was exposed to utter destruction from the memorable expedition of Harold Hardrada, king of Norway. On the death of Harold of England, an unsuccessful attempt was made by the people of York to place Edgar Atheling on the throne. For this step, William of Normandy besieged the city in 1070, which, after many months, was compelled by famine to surrender. The conqueror inflicted the most horrible vengeance on the inhabitants, the surrounding country was laid waste, and cattle were erected within the walls, to keep the conquered citizens in subjection. With the exception of the contests between the metropolitans of York and Canterbury, little is recorded of the former city until 1137, when the cathedral church, thirty-nine parish-churches, and the greater part of the houses, were accidentally burnt down. About 1160, one of the first parliaments of England was held there by Henry II.; and in the reign of his successor, Richard I., in 1190, occurred the horrible massacre of the Jews, which was perpetrated and accompanied with circumstances of peculiar atrocity. In 1290, the courts of justice were removed from London to York by Edward I. during his expeditions against Scotland. In his reign this city was cladded among the sea-ports of England, and required to furnish one ship for his use. In the languidary contests between the houses of York and Lancaster, the former city naturally espoused the cause of the white rose; and in 1483, Richard III. was a second time crowned in the cathedral. The year 1529 was distinguished by the establishment of a printing press in the Minster-yard of York, near the place where the royal privileges were afterwards erected in 1642, while King Charles resided in the city. Nothing of moment relative to York is afterwards recorded until the 31st year of Henry VIII., when commissioners were appointed there to conduct the suppression of the northern monasteries. Adhering to the royal cause, the city was, in 1544, beleaguered by the parliamentary forces under Sir Thomas Fairfax. But on the approach of Prince Rupert, the siege was raised; and on the 23d of July, the important battle of Marston-moor, about five miles off, was fought, in which the royal party was completely defeated. Returning to the siege, Fairfax, at the end of six weeks, obtained possession of the city, on most honourable terms for the garrison and inhabitants. Notwithstanding the zeal for the royal cause manifested by the citizens of York, their charter was suppressed by Charles II., and never restored. A new charter, however, confirming all the former rights of the city, was granted by his successor James II. in 1685. Down to the 30th of July, 1688, the inhabitants of York continued to express their determined attachment to James; and on that day, the mayor, aldermen, and commons, congratulated him, in the most energetic terms, on the birth of a young prince.

Civil Government.—The government of York is vested in a mayor, who, like the mayors of London and Dublin, and the provost of Edinburgh, is authorized by the act of Richard II. to assume the title of lord; a recorder, a city-council, twelve aldermen, two sheriffs, seventy-two common-council-men, and six chamberlains. What is styled the privy-council, or the upper house, consists of the lord-mayor, aldermen, and sheriffs, together with those citizens who have puffed the office of sheriff. This body, whatever may be its number, is usually called the twenty-four. The mayor, whose office ceases on the 3d of February, is chosen annually from those aldermen who have not borne that office twice, nor within the six preceding years; and during his mayoralty takes precedence of all persons within his jurisdiction. York was early distinguished among the cities of England: in the Domesday-book it appears to be exempted from the payment of geld, except when the same is paid by London and Winchester, and from paying relief. In 1396 King Richard appointed two sheriffs, instead of three bailiffs, for the government of the city, which was then constituted a county within itself. The earliest charters of York now preferred are, one granted in 1199, and another by Henry III., who died in 1272; but both recite preceding charters of Richard I., Henry I., and Henry II. Representatives in parliament for the city of York appear in the summons and returns of the 23rd of Edward I. For the parliament called to assemble at Shrewsbury, on the 30th of September 1283, which was but the 11th year of Edward, two representatives were summoned from a number of cities and towns, among which York stands the fourth in order; those before it being London, Winchester, and Newcastle-upon-Tyne. Under the jurisdiction of the lord-mayor, aldermen, and sheriffs, besides the city, is a considerable district on the W. of the river Ouse, called the Ainstey, in ancient writings, Ancility; but its origin and import are now unknown. This tract was once a hundred or wapentake of the Welf Riding of Yorkshire; but in the 27th year
year of Henry VI. it was annexed to the jurisdiction of the
magnates of York, and has ever since been comprehended
in the county of the city of York. The whole district was
anciently a forest, but laid open in the reigns of Richard I.
and John: it contains 22 parishes subdivided into a number
of townships; the inhabitants of the whole amounting, in
1811, to 8205 persons. In all parliamentary affluences the
city is called on for three-fifths of the amount, and the
Ainfley for two-fifths. Doubts having long been entertained
whether the inhabitants of this district could vote for the
representatives of Yorkshire in parliament, a decision was
obtained in the house of commons in 1735, declaring, "that
the persons whose freeholds lie within that part of the
county of the city of York, which is commonly called the Ainfley,
have a right to vote for knights of the shire for the county
of York."

Ecclesiastical History.—The earliest notice respecting
the recognised establishment of Christianity in Eboracum, or
York, exists in the list of bishops, or patres, who composed
the synod or council of Arletace, now Arles, in the fourth
of France, about A.D. 314. The bishops who then appeared
on the part of the British church were, Eborius de civitate
Eboracenei, Restitutus de civitate Londinensii, and Adel-
fius de civitate Colonia Londinium. By the retreat
of the Romans in the middle of the 5th century, and the
subsequent overwhelming invasions of the Saxons, Christianity
was almost entirely suppressed in the northern parts of
the kingdom. At last, about 628, Edwin, king of Northumbria,
having married Ethelburga, the sister of Eobald, the converted
king of Kent, was, by her persuasion, aided by Paulinus, who
attended her to York, induced also to embrace the Christian
religion. Paulinus was consequently publicly appointed
bishop, or, as some say, archbishop of the renovated church
of York. The appointment was confirmed, and the new
prelate formally invested with the ensigns of his office, by
pope Honorius. In former times, jealousies and contentions
occasionally took place between the metropolitans of York
and Canterbury; to appease which it was often necessary to
appeal to the pope. Under the archbishop of York are
placed the bishops of Durham, Chelmer, Carlisle, and the Isle
of Mann; and he is styled in general primate and metropo-
latin of England; but the archbishop of Canterbury
assumes the same titles over all England. At the coronation
the latter crowns the king; but the queen has that ceremony
performed on her by the archbishop of York. By the re-
moval of the seat of government to the southern parts of
the kingdom, and particularly after the Norman Conquest,
the prelates of Canterbury and Winchester, situated near
the throne, soon acquired an ascendancy over their brothers
of York in political favour and power. Among the latter,
however, were many men of eminence in the history of the
church and of the State. Wilfrid, appointed in 669, founded
the celebrated monastery of Ripon. Egbert, the brother of
Eadbert, king of Northumberland, was the patron of Al-
cuin, the enlightened secretary of Charlemagne. In 930
Wulstan was deprived for aiding Anlchof, the Danish king
of Northumberland, against Edred of England. Aldred,
who succeeded in 960, was the last primate of the Saxon
race; for dying in 1079, he was succeeded by Thomas, a
Norman. Gerard, appointed in 1100, as well as his pre-
decessor, refused obedience to the fee of Canterbury; but
pontifical authority compelled him to submit. Obedience
was again denied by Thurstan, who had been appointed
in 1114; but at last he retired to a monastery. In 1153
succeeded William, afterwards canonized. Roger, suspec-
ted of being privy to the death of Becket, was acquitted on his
oath of purgation. In 1190 the fee was filled by Geoffrey

Plantagenet, son of Henry II. and the Fair Rosamond. His
successor, Walter de Grey, is said to have transmitted a pro-
digious sum to Rome for his installation; but for this apparent
finesse he stoned by purchasing the manor of Thorpe for
the country-residence of the archbishops of York, and by
contributing materially to the erection of the cathedral.
While the fee was occupied by John Thoresby, appointed
in 1352, in order to remove the contentions between the two
archbishops, pope Innocent VI. established the distinction
before-mentioned in the metropolitan dignity. Richard
Scorpe, who succeeded to the fee in 1398, was, in 1405,
behindhand for the active part he took in opposition to
Henry IV. after the murder of Richard II., who, on var-
ious occasions, had flown a particular favour for York.
The fifty-second prelate, appointed in 1464, was George
Neville, brother of the famous earl of Warwick, and dis-
tinguished by the misfortunes of his latter years, no less
than by the unbounded magnificence of his installation.
Christopher Bainbridge, appointed in 1508, and ambas-
dador to Rome, was created a cardinal; but was soon after poisoned
by an Italian priest, his steward. His successor, in 1514, was
the celebrated cardinal Wolsey. By the exertions of arch-
bishop Heath, appointed in 1555, the fee recovered a great
part of the revenues it now enjoys, which had been alienated
by the arbitrary and avaricious measures of Henry VIII.
As a Roman Catholic, he was deprived of his dignities by
Elizabeth, who, however, respected his merits, and allowed
him to retire to his estate at Cobham. In 1541 the fee was
filled by John Williams, who, after warmly expounding the
royal cause, openly joined the parliament. After him the fee
remained vacant for ten years until 1665, when, on the
restoration of Charles II., it was conferred on archbishop
Frewen. Archbishop Dolben, who succeeded Richard
Sterne, was an enigma in the army in his youth, and bled in
the royal cause at Marlton-moor: he died in 1688. The
latest primate was Dr. Markham, who had been head-master
of Westminster-school, and preceptor to the prince of Wales.
Dying in 1808, he was succeeded by the present archbishop,
the honourable Edward Vernon.

Antiquities.—That Eboracum possessed temples, palaces,
threries, and the other public edifices with which the politic
Romans were in the habit of adorning the principal, and
even in some cases the minor cities within their dominions,
cannot be doubted; but all such structures have long dis-
appeared. The most remarkable monument of Roman oc-
cupation now to be seen is what is called the multangular
tower, being a polygon forming the N.W. angle of the Ro-
man wall, near the N.E. bank of the Ouse. The lower
part of this tower is faced with rows of regularly squared
stones, separated at broad intervals by layers of flat bricks.
The upper part of the tower, pierced with loopholes, is of
much later date. Various Roman inscriptions have been and
continue to be discovered in York: some are mentioned by
Camden, who was the first to record them. In digging for
a cellar, in the beginning of the last century, in a place
called the maron, or the ruins of St. Mary's abbey, on the
outside of Bootham-bar, was found a small bush in bronze.
In the environs of the city, particularly on the London
road, which follows the course of the ancient Roman way,
feveral urns of various kinds have been discovered. Coins,
seals, fibulae, and many other relics of Roman antiquity, are
abundantly found within and around the city. The coins
bear the names of all the emperors, from Augustus to Gra-
tian. In 1807 a small vault of Roman construction was
discovered, four feet below the surface, on the outside of
Micklelegate-bar, containing a stone coffin, with a human
skeleton entire, a lacrymatory, &c. In 1813 two large
M

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...and coffin was found without Bootham-bar; and are now preferred in the cathedral. In 1814 was laid open a beautiful tessellated pavement, within Micklegate-bar, but without the Roman town; but unfortunately a part of it only was preserved: this was the first ever found in York. The walls of the city, which probably succeeded to the Roman fortifications, and which are now in rapid and disgraceful decay, still retain sufficient evidences of their ancient strength and importance. When they were erected is now unknown; but their construction on the Roman foundations is generally ascribed to Edward I., about 1280: in the time of Henry VIII. they were in complete repair. The eldest part of the present walls appears to be that adjoining to Walmgate-bar, at the S.E. corner of the city, on the road to Hull, where the remains of the Red tower are still visible. During the last siege of York, in the civil wars, by Sir Thomas Fairfax, in 1644, these walls were so shattered as to require three years to repair them; but since that period they have been shamefully neglected by those whose duty it is to preserve them.

York is distinguished among the cities of England for its ancient gates, or bars, as they are termed. Of these, Micklegate-bar, on the S.W. side of the present city, under which is the road from London, is the most remarkable. It consists of a lofty square embattled tower, with loop-holes, &c. and guarded by an adored work, with battison-turrets, &c. Bootham-bar, at the N. entrance of the city, not far from the Roman tower, is almost wholly constructed of materials formerly employed in Roman buildings. Monk-bar, on the N.E., and the Walmgate-bar on the S.E., seem to be of equal date, and were probably erected by Edward III. The whole circuit of the ancient walls is nearly two miles and three-quarters.

Castle: Clifford’s Tower.—Nearly at the junction of the Ouse and the Foss, on an eminence, is the site of the ancient castle, accessible only from the city on the N., and strengthened on the other sides by the Foss, carried round it in a deep moat. Prior to the Norman Conquest, York possessed a castle, by some supposed to have stood on the W. side of the Ouse. It is, however, much more probable, that the principal fortresses occupied the position here described, on which William of Normandy erected his castle, which was restored by Richard III. Ceasing to be regarded as a place of strength, it was converted into the prison for the county of York; but becoming ruinous, the whole was, in 1701, taken down, and the present grand structures, still retaining, although very incongruously, the original name, were erected. Within the inclosure of the ancient castle on the N.W. is a high mount, surrounded by a deep ditch, rising 90 feet above the river Ouse, and 50 above the feite of the castle. On the summit stands Clifford’s tower, consisting of four segments of circles joined together, and so called, it is said, from the first governor, after its erection by William the Conqueror, to whose castle it served as the keep. In the time of Henry VIII. this tower was in a ruinous state: but on the commencement of the disorders in the reign of Charles I., it was repaired and fortified by the earl of Cumberland, who mounted some pieces of artillery on the platform. In the year 1684, the powder-magazine within the tower exploded, and the building was reduced to its external walls, as now existing. Corresponding to Clifford’s tower, on the W. side of the Ouse, is another mount, called the Old Bailey, or Vetus Ballium; also the site of an ancient fortres.

Public Buildings.—At the head of the public edifices of York is necessarily placed the venerable minster, or cathedral, which, considered in its totality, is unparalleled in England. The earliest erection of a stone edifice for the service of the Christian religion in York was always ascribed to Edwin, king of the Northumbrians. This church was founded about A.D. 628; but it was completed by Bishop Wilfrid, after 669, who covered the roof with lead, and filled the windows with glass. This last invaluable substance must have been imported from the continent; for it was not till 674 that glaziers-makers were first introduced into England by Benedict Biscop, to glaze the windows of his new monastery at Bishops-Wearmouth. That the cathedral of York suffered with the other parts of the city by the ravages of the Danes in 867 is most probable: but it is not noticed until 1069, when it was destroyed, with a great part of the city, in a conflagration occasioned by the Norman garrison, when attacked by the united Danes and Northumbrians. To punish the refractory people of the city and vicinity, William of Normandy expelled the ecclesiastics, and feized the revenues of the fee: but these were restored to their chaplain and treasurer, Thomas, a Norman, was promoted to the archbishopric. By this prelate the cathedral was rebuilt in a magnificent style; but in 1137 it was again destroyed by fire, together with the abbey of St. Mary, and 39 parish-churches. Having for a number of years lain in ruins, archbishop Roger, the fiery opponent of Becket of Canterbury, began in 1171 to rebuild the choir with its crypt, which he lived to finish. In 1227, his successor, Walter de Grey, erected the transept, with the exception of the N. part, which was the work of John le Romaine, the treasurer, who also raised a central steeple in 1260. In 1291, the friars of the preceding being advanced to the fee, commenced the nave, which, together with the two noble west-end towers, was completed by archbishop William le Melton. In 1361, the present beautiful choir was commenced by archbishop Thoreby, who contributed largely to defray the charges of the work. More money having been collected than was required, the surplus was, in 1370, employed to construct the present noble central tower, in the place of one erected by John le Romaine. Thus, in the course of 150 years, the cathedral of York was brought into a form nearly as it now appears. It is a grand and interesting edifice; and consists of a nave with side aisles, a large and lofty transept with aisles, a choir with aisles, and a large space east of the choir, called the lady-chapel, with aisles. Beneath the altar is a crypt; on the south side are three apartments called vestries and treasury; and at the end of the north transept is a fine chapter-house, with a corresponding vault. The west end is adorned by two elegantly ornamented towers, whilst another, of larger dimensions, rises at the centre of the transept. All these parts of the church are on a large and magnificent scale; and though not in an uniform style, yet the nave and choir are of corresponding height and width, and very similar in their windows, columns, and other members. The W. front is more richly adorned than any other part of the edifice. Its two towers diminish in dimensions as they ascend, and have been ornamented with several statues, of which now only very few remain. Each tower is surmounted by eight pinnacles; and in the south tower is a set of celebrated bells. In the front are three entrances; that in the centre is divided into two by a pillar. The entire length of the cathedral is above 524 feet; that of the nave, from the west end to the sjeer at the entrance of the choir, is 250 feet; the length of the choir to the altar-screen is 150 feet; and that of the lady-chapel, at the east end, 65 feet. The transept is in length 222 feet. The breadth of the nave, with its side aisles, is 103 feet; that of the nave itself being 63. In the centre of the nave the height to the roof...
is 91½ feet; in the transept 103 feet; and in the choir 101 feet. The elevation of the central tower or lantern is 213 feet; that of the towers at the W. end 196 feet. The great windows which occupy the principal part of the W. and E. ends of the church are particularly beautiful. The great E. window, especially, is of uncommon dimensions and richness. It was executed about 1405, at the expense of the dean and chapter; and the glais painted, &c. by John Thornton, of Coventry, glazier, who engaged to finish it in three years, and for which he was paid four fillings per week. Spacious, lofty, and light, the interior of this cathedral has a most imposing effect. For although the choir be separated from the body of the building by a screen surmounted by the organ, fill from the W. end the eye ranges over all, quite to the great terminating window in the E. The nave consists of a double range of eight lofty pointed arches, supported by slender clustered columns. A similar arrangement prevails in the choir; but the transept is of a different age, style, and character, to all the other parts of the church.

Great labour has been bestowed on the carving of the stalls of the choir, which are of oak. The screen behind the altar is stone, divided into eight pointed arches, the upper parts of which are perforated and glazed. At the entrance of the choir is a very elaborate screen of tabernacle work, perhaps of the time of Henry VI. It is covered with niches, canopies, pediments, pinnacles, &c. and contains statues of fifteen English monarchs; i.e. eight on one side of the entrance, and seven on the other side. The whole has been of late years suitably repaired. The central tower, or lantern, as it is usually called, is supported by four lofty arches resting on strong massive clustered piers.

Among the monuments of prelates and other eminent persons preferred within the cathedral of York, is distinguished that of archbishop Walter Grey in the south transept. It exhibits his effigy in his pontificals, covered by a magnificent canopy, supported by slender pillars. The whole was enclosed with a handfome railing by the late Dr. Markham. But the most elegant of all is the monument of archbishop Bowet, appointed in 1423, of great height, and in the most florid style of the pointed architecture. A full-length statue, with emblems and an inscription, commemorates the late Sir George Saville. Attached to the south side of the choir is a range of low buildings, styled the vestries; in one of which are preferred fundry emblems of the ancient metropolitan dignity of York cathedral. Among these is a famous antique horn, as it is termed, although formed out of an elephant's tooth, by the presentation of which the church holds lands of great value, said to have been granted by Ulphus, a Saxon prince of Deira. In the same place is preferred the silver pastoral staff, presented by Catharine of Portugal, dowager of Charles II.; to her confessor, who had been appointed popish archbishop by James II. in 1697. Adjoining to the S.W. angle of the transept was a small building, formerly used as a library. A library for the use of the ecclesiastics of the cathedral is believed to have been founded by Egbert the archbishop in 740, and his successor Albert; but the whole was consumed by fire in 1609. By this misfortune no small loss was sustained by the lovers of learning; for according to certain writings of Alcuin, the secretary of Charlemagne, many valuable classical and other works were contained in it. To supply in some measure its place, another library was collected by archbishop Thomas, the Norman; but that also was destroyed by the flames in 1137. From this period, the cathedral is not known to have been furnished with many books until the private collection, consisting of upwards of 3000 volumes, of archbishop Matthew, was bestowed on it by his relish in the beginning of the 17th century. By various subsequent bequests, presents, and purchases, a large collection of valuable books and manuscripts has been formed, and placed in what was formerly the chapel of the archiepiscopal palace, on the north side of the cathedral. This building has been lately repaired in a style suitable to that of the church, and commodiously adapted to its present destination. Connected by a short passage or vestibule with the N.E. angle of the transept of the cathedral is the chapter-house, an octagon room, 63 feet in diameter, and nearly 68 in height. This building differs from many others of the same kind, in having no central pillar to support the roof; but the prelure of the arched roof upon the walls is effectually counteracted by buttresses at each external angle. From the similarity of the style of building with that of the nave of the cathedral, founded in 1291, the chapter-house is supposed to have been erected about that time. The buildings belonging to the cathedral were formerly separated from the city by walls; and some remains of the gates of communication may still be discovered. Of those buildings, the principal was the archiepiscopal palace, situated on the north of the church. It was erected by the first Norman prelate appointed in 1070; but after a lapse of about 500 years, the great hall was taken down by the Protestant archbishop Young, for the fake, it is said, of the lead on the roof. Since that time other parts of the palace have been leaved out. In former times to the fee of York belonged various places of residence; but now that of Bishopthorpe alone is occupied. This is agreeably situated on the site of the river Ouse, about three miles south-west from the city. It was purchased and appropriated to the fee by archbishop Walter de Grey, in the early part of the 13th century; since whose time it has undergone many important alterations and improvements. The principal front and the vestibule are in the pointed style of architecture, and in the interior are several spacious and elegant apartments, besides the chapel and library. In the minster-yard still remains the residence of the dean of the cathedral, a spacious and convenient edifice of respectable appearance.

Of the parish-churches in York, that of St. Margaret in the south-east quarter of the city is remarkable for the porch attached to it, but which is of much higher antiquity than any other part of the edifice. It was removed from the church of St. Nicholas, formerly situated without Walmgate-bar, but ruined during the siege of York in 1644. The arch of the porch is lenticular, and exhibits alternately the signs of the zodiac and the emblems of the months. The churches of St. Denys and St. Lawrence have also an appearance of considerable antiquity. Next to the cathedral, the church of St. Michael-le-Belfrey is the largest and the most regular in the city, supported by light pillars and pointed arches. The present building was erected on the removal of the former in 1235. The church of All Saints, on the pavement, is distinguished by its open octagonal turret, erected on a square tower, in which, according to tradition, a large lamp was suspended in the night, to guide travellers over the broad forest of Galtres, which extended on the north and east of the city. York contains places of meeting for various classes of dissenters from the established church; that for the Society of Friends, lately erected, is large and commodious. A handfome chapel for the use of the Roman Catholics was built in 1782.

Of the numerous religious establishments formerly existing in and near York many vestiges still remain. Of these,
the principal was St. Mary's abbey, situated on the bank of the river Ouse, on the outside of the city wall. The foundation of the monastery is of uncertain date; but the church, of which some considerable ruins still remain, was rebuilt in 1270. Having fallen to decay after the general suppreffion of religious houses, Henry VIII. ordered a palace to be erected out of the ruins, for the residence of the lord-president of the north of England, to be designated the 'king's manor.' This was enlarged by James I. Previously to the Revolution it became an object of popular outrage: but some years afterwards the king's Mint was established in it, and much gold and silver, distinguised by the initial letter V, was struck there for William III. The site of the abbey and the manor have long been leased from the crown by lord Grantham and his predeceffors. Connected with the religious system of former times, it may be noticed, that adjoining to the walls of York, immediately without Micklegate-bar on the London road, is an establishment called the Nunnery. The building was originally acquired in 1686, as a place of education and living for young ladies of Roman Catholic families. The establishment at present consists of the superior and twenty affilnants, who wear the dresses and conform to the regulations of nuns in Catholic countries, with twelve lay-sisters, and a chaplain. From sixty to seventy boarders are usually accommodated in the institution.

The Guild-hall and the Manfon-houfe are situated near the river Ouse, in the north-west quarter of the city. The hall, built in 1446, is a noble room, ninety-five feet long, forty-five broad, and twenty-nine feet six inches high. In it are held the laws-courts and the courts of municipal justice. The Manfon-houfe was erected in 1725, and contains every necessary accommodation for the lord-mayor. In the same quarter of the city are the assembly-rooms, the theatre, the subscription library, the principal hotels, &c. As a fortress, York castle has long ceased to be of importance; it is now occupied by several structures. That on the W. side of the area is the county-hall, rebuilt in 1777, in which the alhizes are held, and other county business is transacted. The central building is the prison for debtors and criminals; the third building on the E. contains the record-office, and various apartments necessary for the transacting of the buifiness of the county. Of all these buildings it is but justice to say, that in their construction external elegance and taste have been properly combined with a due attention to their several definations. The arrangement and management of the prisons have been frequently the subject of commendation. The new city-gate, an extenfive stone structure near the Old Bailey, on the west side of the river Ouse, and the house of correction, are also deserving of attention.

The charitable establishments for the poor and the sick in York are very numerous, and well conducted. Among these, the county-hospital and the city-dispenfary are highly commendable. Schools for the education of youth of both sexes are not wanting in York. In 1647 a petition was presented to the crown from the inhabitants of the city and the county, and from other parts of the north, for the establishment of an university in York: but the unsettled state of the affairs of the kingdom then prevented due consideration of the request; nor has it since been renewed; although, for various important reasons, York seems peculiarly adapted for a place of literary and fcientific retirement and study. A feinary or college for the education of minifters and lay-gentlemen among Protestant diviners, which formerly subsisted at Manchester under the successive care of the Rev. Dr. Barnes and Mr. Walker, and was liberally supported by voluntary subscription, was, on the death of the latter professor removed to York, where it is conducted with great reputation by the Rev. Meffrs. Wellbeloved, Kenrick, and Turner.

Bridge.—Communication between the original city of York, and the suburb styled Micklegate-bar on the south-west side of the river Ouse, is maintained by a handfome stone bridge, which has lately been erected from the designs and under the direction of Peter Atkinson, eqq. of York. In 1154 the bridge was wood: but in 1268 it was probably of stone, for then was founded on it St. William's chapel, in atonement for the death of several perfons on the spot in a fray with the people of the town. In 1564 a flood following an intense frot swept away two arches of the bridge, with the houses built on them.

On the south-east fide of York, going out by Walmgate-bar, near the village of Hellington, is an establishment for the reception and relief of perfons disordered in mind; which has, for some time, been the fubjeft of general approbation. This was called the Retreat, founded by the repectable Society of Friends, and originally intended for members of their class alone. The firit idea of this admirable infitution was fuggelted in 1791, by the unfortunate death of one of their fociety, at a common receptacle for the infane. In 1794 land was purchased, and the building commenced, on a commanding eminence. The general arrangement, management, and fystem of treatment of the unfortunate patients, have been imitated, as the moft perfect of their kind, in various parts of the kingdom and America. See an "Account of the Retreat," 8vo.—Eboracum, or History and Antiquities of York, by Francis Drake, F.R.S. folio. 1736. Description and History of the City and Cathedral of York, 12mo. 3d ed. 1790. Description of York, 12mo. 1816. A Guide to the Cathedral of York, 12mo. 1815, is a rational and judicious vade mecum.

York, Cuffum of: See Rationebilf parti bonorum.

York, in Geography, a county of the United States, in the district of Maine, containing 23 towns, and 41,877 inhabitants.

York, a district of South Carolina, containing 10,032 inhabitants, including 5164 slaves.

York, a county of Pennsylvania, south-west of Susquehanna. It contains 22 townships, and 31,958 inhabitants.

York Borough, a town of Pennsylvania, in York county, containing 2847 inhabitants.

York, a township of Pennsylvania, in York county, containing 1649 inhabitants.

York, a county of Virginia, with 5187 inhabitants, including 2931 slaves.

York, a town of United America, in the district of Maine, and county of York, containing 3246 inhabitants; 50 miles N.N.E. of Boston. N. lat. 43° 7'. W. long. 70° 41'.

York, a township of Ohio, in the county of Belmont, containing 1340 inhabitants.

York, the capital of Upper Canada, situated on the lake Ontario. It is likely to become a city of great importance, as it possefses great facilities for commerce and navigation. It lies in about 43° 35' N. lat., within an excellent harbour of the same name, made by a long peninsula, which embraces a bay of water sufficiently large for containing a considerable fleet. Vessels may ride safely at its entrance during the winter. On the extreme of the peninsula, which is called Gibraltar Point, are erected commodious block-houses and frienders commanding the entrance into the harbour. On the main land

Opposite
York.

York, New, one of the United States of America, situated, according to the statement of Melish, between 40° 33' and 45° N. lat., and 3° 43' E. and 2° 43' W. long. from Washington; extending from N. to S. 198 miles, and from E. to W. 256; and comprehending an area of 46,085 square miles, or 28,440,000 acres. This state is bounded on the N. by lake Ontario and Canada; on the S. by Pennsylvania, New Jersey, and the Atlantic ocean; on the E. by Vermont, Massachusetts, and Connecticut; and on the W. by Upper Canada, lake Erie, Pennsylvania, and New Jersey. This territory, according to Spafford's "Gazetteer of New York," comprises an area of 46,085 square miles, equal to 29,494,720 acres; but this computation includes all the inland rivers and lakes, one half of lake Champlain, and the St. Lawrence; excluding only all the waters below New York island, and that part of the lakes Ontario and Erie which belong to this state. This statement gives 20.8 per sons to a square mile. New York is at present divided into 45 counties, and 452 townships, including four incorporated cities: viz. New York, Albany, Hudson, and Schenectady, as exhibited in the following.

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<th>Counties</th>
<th>Townships</th>
<th>Population</th>
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Carry up 372 822,792

Suffolk
Warren county was erected from the N. W. extremity of Washington, March 12, 1813. It comprises the towns of Bolton, Caldwell, Chester, Hague, Johnburgh, Luzerne, Queenbury, and Thurman, the last of which is divided into two towns, called Athol and Warrenburgh. The chief town is Caldwell, with a population of 560 persons, and 60 electors; Athol has 443 inhabitants, and its electors are 20; Bolton has 726, and 30 electors; Chester 937, and 120 electors; Hague 398, and 27 electors; Johnburgh 651, and 82 electors; Luzerne 1015, and 83 electors; Queenbury 1948, and 197 electors; and Warrenburgh 887, with 41 electors.

The face of this state exhibits a great variety. To the S.E. its surface is agreeably uneven; in the middle, mountainous; to the N.W. undulating; flat toward the lakes; and hilly toward the southern extremity.

Of the mountains in this state, the chain called Catskill, or Catskill, is the largest and most extensive, and this presents a bifurcation of the Appalachian ridge, which at the Highlands occupy a tract of about 16 miles in width, lying obliquely across the Hudson, and penetrating by that river. These ridges preserving their general direction stretch across Dutchess county, the eastern parts of Columbia and Renfilleaer counties, and exhibit some lofty summits. The Taconic mountains are lofty and very rugged, and Hoofack and Williamstown are mountains which deserve the appellation. But the Catskill or Catskill mountains present some summits that are higher than any others of the Appalachian chain, if we except the White-hills in New Hampshire. At the Highlands, the summit of Butter-hill is 1432 feet above the level of the river; that called the Crow's-nest 1330; Bell-hill 1391. About six miles N., the Round-top is elevated 3655 feet above the level of the river; the High-peak 3487. These summits are in Windham, Greene county, about 20 miles W. of Hudson, and in full view from that city. A turnpike-road which crosses this range of mountains near those summits, winds up till it reaches the alloning altitude of 2274 feet. Upon this spot the view is inexplicably grand. The general altitude of the Catskill mountains may be estimated at about 2000 to 3000 feet across Greene county. From Greene they pass into Schoharie county with ridges less rugged; and towards the southern part, their continuity is less distinctly defined. Until after forming the falls of the Mohawk, this range traverses Herkimer county, forming a rugged tract, and diminishing in altitude till they cross the St. Lawrence into Canada, at the Thousand islands. These mountains have obtained from the early Dutch inhabitants the name of Helderberg, or clear mountain, presenting, instead of lofty summits of granite and schistous mountains, an elevated plain of considerable and very uniform altitudes. About lake George, and to the W. of lake Champlain, we find the Peruvian mountains, which furnish the northern forces of the Hudson, and form the height of land that separates the waters of the Hudson and St. Lawrence. The highest of thee is probably that called White-face, which commands a view of Montreal, at the distance of near 80 miles. The altitude of this summit is little short of 3000 feet from the level of lake Champlain. These mountains obtained the name of Peru from the French inhabitants, in allusion to their supposed mineral treasures. With some few exceptions, the whole county S. of the Highlands is underlaid by rocks of granite, with superflata of other rocks, which appear in the elevated tracts. There are some tracts of lime-flone and some of sand-flone, but these are so inconsiderable in extent as to furnish no objection against deno- minating this the granite region. Some ranges of hills on the W. of the Hudson, composed of sand-flone, are underlaid by granite; and the Catskill mountains are a mass of sand-flone, similar to the Alleghany mountains in Pennsylvania, intermixed with lime; the Helderberg, with some particles of sand-flone, occasionally interperfered. N. and E. of the Highlands the rocks are chiefly schistous that form the subfratum, while calcareous ridges of great extent occupy the surface. The hills on the eastern border of Columbia and Rensalleer counties are formed chiefly of schistus, intermixed with quartz, and occasional superflata of lime-flone. On the eastern declivities of these hills lime-flone predominates, forming the marble quarries of Stockbridge, Lenosborough, &c. in Massachusetts. The northwestern continuation of the Catskill or Catskill presents a kind of calcareous granite, in which the absence of felspar is supplied by primate lime-flone. The Peruvian mountains are principally granite, though ridges of lime-flone, flate, flint, and sand-flone, appear in conglomerate masses, and these are most abundant in mineral treasures. The whole level county of the small western lakes is calcareous. The Taconic hills that border the fourth-eastern part of Columbia county are to the Hudson and the Mohawk are the most considerable rivers, to which we may add the Susquehanna, a branch of the Hudson and Saco rivers, connected with Saco and Brant lakes. The creeks of the Hudson and Mohawk are numerous. The Susquehanna rises in this state; and its western branch, the Tioga, is a river of some note, and claims distinction from several creeks belonging to the former river. The Delaware, which receives several rivers and creeks, forms a part of the western boundary of New York; and the Alleghany, a principal branch of the Ohio, has its origin in this state, and its creeks, large and small, are too numerous for our re- cital. The Chataqua lake discharges itself into Connewango creek. The Catarans and Buffalo creeks run into lake Erie; Tonawanda and Ellicott's creeks into Niagara river, forming a part of the western boundary of the state. Lake Ontario, half of which is in this state, receives the Genesee, the Oswego, and Black rivers, which convey into this lake the
the waters of several other rivers and creeks. The St. Lawrence washes more than 100 miles of the north-western boundary, and it receives a number of rivers and creeks. Half of lake Champlain also belongs to this part, and it is supplied by several streams. Each river also belongs to this part.

The climate and seasons must in such an extent of country be very various, so that it is difficult to accommodate any general observation to the whole State. In the eastern territory, or wholly of the Highlands, where the prevailing winds are south-eastly, the weather is generally very variable; and the changes of temperature governed by the winds, frequent and sudden. In the northern part of the State, the weather is less variable; but the winters are long and severe, with a clear and settled sky. This region, extending from the southern extremity of Lake George, and westward to near Lake Ontario and the St. Lawrence, may be distinguished as the region of the "northern climate." That of the "western climate" comprises the great western territory of this State, extending from the Catskill or Catskill mountains to the great lakes. Here south-westerly winds prevail in a considerable proportion throughout the year. A gentle current of air, that may be traced from the gulf of Mexico, and reaching to a distance of more than 1000 miles, prevails almost constantly from the S.W.; and northerly and easterly winds are almost wholly unknown. In this district, the average temperatures are about three degrees higher than in similar latitudes in the eastern climate. Such is the general character of the western climate of the United States, and the distinction is said to terminate, or nearly so, with the region about Lake Ontario. The western climate of this State is therefore warmer than the eastern by about 3° of Fahrenheit; and this is attributed to the greater prevalence of warmer currents of air from the S.W. In the region about Albany, the rigours of winter commence about the 20th of December, and end with February, or about the 10th of March, when the ice usually breaks up in the Hudson. From the middle of March to the end of April, the weather is very variable; the changes of temperature great and sudden, though it be generally rainy, with long-continued storms of easterly winds. May is also a variable month; June assumes a summer character; in July, southerly winds are diminished, and drought prevails; August is more showery, and more uniformly temperate, than any month of the year, and affording health and plenty. The former part of September resembles August, and terminating with mild and pleasant weather, October is an agreeable month; early frosts occur about the 26th of September, though corn ripens till the middle of October; and from the 15th to the 25th of this month the foliage of the forest-trees is destroyed, and early falls of snow commence about this time. December is usually cold and showery, and storms from the N. and E. are frequent, and of long continuance. It is observed, that a general modification of temperature, favourable to agricultural interests, has occurred within the last 10 or 15 years.

This State affords facilities for inland navigation superior to any other, combining both the objects and the means of intercourse. The connections of the rivers Hudson, Mohawk, Otsego, Delaware, Ohio, Susquehanna, Alleghany, Mississippi, and St. Lawrence, by creeks and streams, and canals with the lakes Oneida, Erie, George, Champlain, Ontario, &c. are peculiarly favourable to internal navigation and commerce. The canal at Rome, which connects the waters of the Mohawk and lake Ontario, and which was completed in 1797, deserves particular mention; and it should be noticed to the honour of this State, that the western inland lake navigation company is formed for the direct purpose of improving the navigation of the western waters; and that the project of a great western canal for connecting lake Erie and the Hudson by a boat navigation is a very important object.

The State of New York has few bays, exclusively of those of Long Island, which are very numerous. It has many islands, among which Naffau, or Long Island, claims the first place, as it affords more than 100 miles of sea-coast, many excellent harbours, and many advantages for commerce. Its bays are both numerous and large, and it has immediately dependent upon it many subordinate islands. The islands in the bay of New York, as well as that upon which New York itself is situated, and Staten Island, and those belonging to the Hudson, Mohawk, Niagara, and St. Lawrence rivers, to lake Ontario, Champlain, George, &c. might be enumerated if our limits would allow. In this connection we might also mention a variety of bridges that enable to facilitate communication and intercourse between the various parts of this State.

The soil and agriculture of New York deserve particular attention. The soil is of various characters in different parts of the State. In some districts it is deep and warm, and well adapted to grain or grass; in other parts it is of a looser texture, and is found in various proportions by the admixture of vegetable remains; forming a thick vegetable mould, with a small proportion of earth, and called by the farmers in that country "black muck." This is soon exhausted, and as it refits on a substratum, called "hard-pan" by the farmers, that is cold and stony, it is incapable of being refertilized or reclaimed by any manure or art of husbandry. The west end of Long Island is rich, fertile, and highly cultivated; but the eastern part has a large proportion of sandy barren plains. Below the Highlands, the soil is principally dry and warm, having a gravelly or sandy substratum, or granitic rock. North of the Highlands to the Mohawk, the soil is dry and warm, being either a gravelly or sandy loam in general; and both those which we have mentioned are slated to be a medium soil. But on the eastern border of the State, the rocks are principally schistose, and a schistose gravel forms most of the soil, which is warm and productive, though not deep. The alluvial plains of Columbia and some part of Rensselaer counties are very extensive and rich; and the valleys, presenting a warm gravelly soil, are also extensive, and furnish much good medium soil. West of Albany are extensive sandy plains, interperfed with marshes, and rather cold and wet till we approach the Helderberg hills. This plain is generally underlaid by clay; but the Helderberg hills are calcareous, and present a better foil, though broken and much diversified.

The agricultural products of this division of the whole territory of the State consists of all the various productions of this country. The west part of Long Island, and the counties of Westchester and Dutchess, are well cultivated. The latter is one of the best farming counties in the State. The introduction of gypsum as a manure has marked a new era in the agriculture and rural economy of this region. The west side of the Hudson is considerably behind the eastern. The southern part of Washington county has a warm gravelly medium soil, and abundant crops. Saratoga has much good but more wafe land. Its general character is more sandy, and, like that of Albany, rests on clay. Around Lake Champlain there is a large extent of clayey soil, extending to the hills that skirt the Peru mountains. With the exception of the alluvial flats, which are extensive and rich, the soil of the country of the Mohawk may be generally
generally denominated a flint loam, till we go west of the Catskill hills at the Little Falls. Here it assumes a new character. The soil of the mountainous tract of the western region is much diversified: the hills are rocky; the valleys deep and narrow, or spacious and rich. This soil furnishes considerable black muck, or deep vegetable mould, in the valleys. A very large proportion of the soil of this country may be denominated a rich mould, variously intermixed with earth of different kinds; and much of the soil is well adapted for grain and grapes. No part of the slate is more rapidly advancing in agricultural improvements than this western region. The soil of the level country east of lake Ontario, and along the St. Lawrence, is a warm sandy loam, with a large proportion of the flint rate of medium for agriculture.

The rotation of crops lately introduced into this country marks a new era in its agriculture. We shall clothe this detail with remarking, that the exertions of the agricultural society of this state have been very beneficial, though its publications need more general circulation.

The botanical productions of this state are numerous and various. Its forest-trees are luxuriant. The region of the western climate is principally wooded with deciduous trees, and of the loftiest growth. Those of the eastern or Atlantic climate are generally deciduous, but less lofty. The most common forest-trees are, oak, maple, beech, walnut, butternut, chestnut, birch, tilia or bals-wood, poplar, cherry, fycamore or button-wood, ash, elm, sassafras, hornbeam, sumach, elder, pine, spruce, larch, fir, hemlock, cedar, and in some parts, locust laurel, mulberry, black-walnut, cucumber-tree, crab-apple, and common thorn, of many varieties. The state of New York is efficiently agricultural. Wheat is the first object of the farmers; and they also cultivate rye, maize, oats, flax, hemp, peas, beans, &c. and most of the domestic grasses are cultivated with success. Fruits are abundant and various; such as apples, affording cyder of the best quality, peaches, pears, plums, cherries, &c. The garden-fruit is as various as those of any state in the Union.

The domestic zoology of the state presents the horse, the cow kind, the merino and other kinds of sheep, which furnish good wool, and swine. The wild animals, not to mention the mammoth, the moose, and the bisons, now extinct in this state, are, the deer, bear, wolf, and fox; and more rarely, the otter, the wolverene, the wild-cat, racoon, marton, the weasel, hare and rabbit, squirrel and mouse, &c. The lakes and rivers supply abundance of fish, such as the salmon-trout, trout, flurgeon, chad, herring, pike, and many others. The oysters are in high repute. The number of birds stationary and migratory is very great. Serpents are found in small numbers, and the rattlle-snake does not frequently occur; other snakes are numerous. It is needful to mention the insects, of which the number and variety are considerable.

The mineralogy comprehends iron-ore, slate, gyphsum, lime-flint, marble, flake, native brimstone, coal, ores of lead, copper, zinc, tin, albotellis, mill-flones, marble and peat, clays, alun, flwine-flone, &c. Calcaryeous petrifications are very common in the calcareous regions. Siliceous sand for the manufacture of glafs, hamboro, a variety of ochres, mica, flingflas, magnesian flones, amanthes, black flints for mufkets, molybdena, iron and copper pyrites, emery, magnetic ores of iron, ores of zinc, ores containing silver and antimony, and rock crysflals, are severally found in various parts of this state. Its mineral waters are held in high estimation.

The constitution of this state was adopted by a convention of delegates April 20, 1777, and revised in 1801; and its character is republican. The constitution of the United States was adopted in this state in 1788. The supreme executive power is vested in a governor and lieutenant-governor, elected every three years by free-holders pollfing a clear fiate of 250 dollars; as are the senators also. The supreme legislative powers are vested in a senate and house of assembly, which meet at least once in each year. The senators are elected for four years; the members, or representatives, as they are called, who compose the house of assembly, are elected annually. The number of senators is limited to thirty-two; that of members is not to exceed 150.

For the convenience of electing senators, the state is divided into four great districts: the southern, which elects five senators, and comprehends six counties; the middle, eight; the eastern, nine; and the western, twenty-two. The general election is held annually. A census of the electors is taken every seven years, and the representation apportioned according to the numbers in the respective counties, increasing the number of representatives each year by the addition of two, until they amount to 150. The senators are divided into four classes, elected at different periods, so that some new senators are chosen annually. The governor is commander-in-chief of the militia, and admiral of the navy, of this state: he has power to convene the legislature; to grant pardons and reprieves for crimes, except treason and murder; and can suspend the execution of sentences in those cases till the sitting of the legislature, which alone has a right to pardon. A council of revision consists of the governor, the chancellor, the judges of the supreme court, or any two of them, whose duty it is to revile all bills about to be passed into laws; and if they object in writing to a bill, a re-consideration takes place, and the same must be amended or approved by two-thirds of both houses before it can then become a law: and this is the negative of the executive power. If the council neglect to return a bill, in ten days it becomes a law, unless the legislature has previously adjourned. A council of appointment consists of the governor, and a senator from each of the four great districts, chosen annually by the legislature. In this council, the governor presides, with only a casting vote. The right to nominate is vested concurrently in the governor and the other members of the council. The lift of officers annually appointed by this council is enormous, and consilts of most of the subordinate officers of the state.

The chancellor holds courts of equity, and appoints the officers of his court. The supreme court is a court of law. It consists of a chief-justice and four associate judges. County courts consist of a first judge and a number of associate justices. Circuit courts are held in the respective counties by a judge or justice of the supreme court, and the judge and justices of the county. Justices of the peace have cognizance of trials for the recovery of debts to the value of twenty-five dollars; and in New York to the value of fifty dollars. The right of habeas corpus is preferred, and the trial by jury.

The great officers of state are, the governor, lieutenant-governor, a secretary of state, comptroller, treasurer, surveyor-general, attorney-general, council of appointment, commissi®neer of the land-office, the regents of the university, &c. for the department of state.

Judiciary officers of state, a chancellor, five judges of the supreme court, and a judge of probates.

For the general convenience and the better administration of justice, the whole territory of this state is subdivided into counties, and these into towns.

From the report of the comptroller to the legislature of this state in 1811, the productive funds of this state, invested
York.

vested in rock of banks, United States stock, &c. securities on lands, &c. &c. amounted to 4,101,823 dollars 25 cents, producing an annual revenue of 278,489 doll. 96 cents. To this amount of funds should be added the school fund, amounting to 483,262 doll. 29 cents, producing an annual income of 36,427 doll. 64 cents. The state also owns about 1,000,000 acres of land, which, valued at two dollars per acre, amount to 6,675,129 doll. 54 cents. The expenses of government for the year 1811 amounted to 268,160 doll. 22 cents. This estimate draws an excess of revenue amounting to 10,123 doll. 74 cents, and including the balance in the treasury, Feb. 16, 1811, of ready funds, to the amount of 34,129 doll. 86 cents.

The militia of this state consists of every able-bodied male inhabitant between eighteen and forty-five years of age; and the laws have made an honourable exception in favour of those whose religious opinions are averse to war. Agreeably to the annual return of the adjutant-general for 1809, the enrolled infantry amounted to 95,324; the artillery, 3102; the cavalry, 3642; giving a total of 102,068.

The constitution provides for the free exercise of religion in this state in the following terms: “And whereas we are required by the benevolent principles of rational liberty not only to expel civil tyranny, but also to guard against that spiritual oppression and intolerance, wherewith the bigotry and ambition of weak and wicked priests and princes have engrossed mankind: This convention doth further, in the name and by the authority of the good people of this state, ordain, determine, and declare, that the free exercise and enjoyment of religious profession and worship, without discrimination or preference, shall for ever hereafter be allowed within this state to all mankind. Provided, that the liberty of conscience hereby granted shall not be so construed as to exclude acts of licentiousness, or justify practices inconsistent with the peace or safety of this state. That no minister of the gospel, or priest of any denomination, shall ever hold any civil or military office or place within this state.” In April, 1806, a law was passed authorizing all religious denominations to appoint trustees, for the purpose of superintending the temporal concerns of their respective congregations. And these trustees become a body corporate by that general act, capable of all legal transactions in behalf of the congregation.

All denominations, therefore, are left at liberty to support their own ministrv, and maintain the order of their worship, in such way as is most agreeable; and every congregation may designate from three to nine of its members as trustees, who are, with little trouble, invested with corporate powers in behalf of the whole, and authorized to hold estates producing an annual revenue of 30,000 dollars. This free toleration has not produced more facts in this than in other states left tolerant of religious opinions. There are many facts however; and in the enumeration of those, no regard is paid to comparative numbers. There are, English Presbyterians, Dutch Reformed, Congregationalists, Episcopanians, Quakers, Baptists, Methodists, German Lutherans, Moravians, Roman Catholics, Shakers, Jews, and a few of the Universal Friends, or the followers of Jemima Wilkinson, Scotch Cameronsians, Anabaptists; and Christian charity would include all the others, because those who profess Christianitv. But it is worthy of remark, that many of the above sectarian distinctions exist merely in name, while their tenets differ less, perhaps, than those of the same religious society, in the individual opinions.

The manners and customs of this state have undergone a considerable variation during the period that has elapsed from its first settlement to the present day. Among those who planted the colony of New York, and who for many years afterwards settled in it, a large proportion consisted of Dutch families, who migrated hither from the Dutch Netherlands, and transferred to the societies which they established here, the rural economy of the population of the Netherlands, of Holland, and of the banks of the Rhine. Soon after their arrival, various parts of this state presented buildings resembling those of their native country, and habits of manners, order, industry, and frugality, which they had practiced from their youth. After the conquest of the English in 1664, multitudes flocked hither from various nations of Europe, and produced a considerable change in the original and discriminating character and customs of this colony. In 1685 it had a numerous accession of French Protestant. In 1710 it was augmented by about one hundred families of poor Poles from Germany; fifty or seventy of which settled German-town on the east bank of the Hudon, and some at Epus, now Kingston. Other early German emigrants settled on the Mohawk, in Orange county, on Long island, and in many other parts where their descendants are now found. The early English settled principally at New York and in Long island. The French, at New Rochelle, in Westchester county, and on Staten island. The Scotch fixed themselves, during the more early periods, about Albany, and in Washington county. Massachusetts supplied also the east part of Long island with inhabitants, whose politeness form a large share of the present population. But the Dutch were the original proprietors and first colonists, and therefore their possessions were the greatest and the most valuable: nor did they, or the Germans, next to them in number and importance, altogether abandon their discriminating manners and habits. The Revolution, however, produced a material change in this state, and the change, though effected by fanguinary conflicts, was not unfavourable to its general character. The prosperity that succeeded the peace widely diffused a spirit of enterprise and of emigration; and was followed by a surprising increase of population and wealth. Hence arose those various traits of national character, and those diversified habits, manners, and customs, which have distinguished this state. It is observed, that the new character imparted by the influx of emigrants is beneficial to the state; more especially as the New England people have introduced their improved agriculture, their spirit of enterprise, their megreuty in the arts, and their social habits. In this state, it is said, there are about 100,000 freeholders; and freehold estates are known to produce for their proprietors from 30,000 down to 50 dollars per annum; and this fact is alleged as forming a peculiar feature of the civil habits, manners, and customs of the population of this state.

The English language is chiefly prevalent in this state; though the Dutch and German are in use among people of Dutch and German descent; but these and other dialects are declining, in consequence of the intercourse and influence of a large majority of those who speak English. Some few influences, however, occur, in which public worship is performed in the Dutch, German, and Welsh dialects.

The tale for literature and science is gradually increasing, and is promoted by a variety of publications; and by the progressive improvement of school education, by which a liberal fund is provided, which has been already mentioned. We are informed by the writer of communications, of which we avail ourselves in the compilation of this article, that there are about a hundred printing establishments in this state, and fifty-nine gazettes, besides a very considerable number of other public journals, which contribute to diffuse various kinds of knowledge. The advancement of literature is promoted by
an institution established in 1787, intitled "Regents of the University of the State of New York;" being a society of twenty-one gentlemen, possessing adequate powers derived from the legislature for superintending colleges, academies, and schools. The university of New York is acquiring distinction, and the Columbia college claims high reputation. See COLLEGE.

In this state there are fifteen banking companies, with a very considerable sum of capital stock, which is said to have amounted in 1811 to 12,382,000 dollars; and 11 incorporated assurance companies. The manufactures of this state, consisting of woollen, linen, and cotton cloths, leather, paper, hats, iron, &c. are in an improving condition, and are said to have amounted, in 1811, to 30,000,000 dollars, of which 12,000,000 were produced by household industry and enterprise. If we judge of the commerce of this state by the returns of 1810, it must appear to be very considerable. The domestic exports of that year amounted to 10,925,573 dollars, and the foreign to 6,315,757, making a total of 17,241,330 dollars; and it is said that the port of New York yields about one-fourth of the revenue of the United States, arising from commerce. The exports, exclusive of articles from foreign countries, consist principally of beef, tallow, pork, hams, lard, wheat, maize, rye, butter, cheese, pot and pearl ashes, flax-feed, peas, beans, hogs, cattle, lumber, flour and meal, bread and biscuit. The foreign exports are composed of important articles. Wheat, which is the national flax, is exported annually to a very great amount; and about 6,000,000 bushels on an average, after deducting the supplies for the country, are sent to market from the surplus product of this state. The average annual payments into the treasury of the United States, for duties on imports, tonnage, &c. exceed 4,000,000 dollars from the district of New York.

The Societies for promoting Agriculture and the Arts in this state are numerous. It has also several Medical Societies; an Historical Society; and also an Academy of Arts lately established at New York. Bible and Missionary Societies are instituted in New York, Albany, and some other counties; and the Charitable and Humane Societies abound. In the city of New York alone there are about forty benevolent institutions; and there are societies of the same kind, as well as those of a literary nature, in Albany, Hudson, Schenectady, Troy, Poughkeepsie, Kingstown, Newburgh, Utica, and most of the large towns.

The State-Prison, or Penitentiary, is about two miles from the city-hall, in the city of New York, on the E. bank of the Hudson; it was built in 1796-7, and together with its buildings and courts comprises four acres of ground. The immediate government of the prison is committed to seven inspectors. The convicts are all dressed in uniform, the sexes kept separate, and all are comfortably clothed and fed. Great care is taken of their morals, in the benevolent hope of a reformation.

The Natural Curiosities of this state comprehend the cataracts or falls of Niagara, of the Mohawk, of the Hudson, of Well Canada creek, of Black river, Seneca river, Genesee river, and some others of lefs note. It is probable, that the southern and western parts of this state were occupied by a considerable proportion of Indians at a remote period. So long ago as the year 1655, the country about the lake Onondaga was considered as a favourite station by the wandering tribes; but their condition was not much known till about the year 1635. At that time, the Iroquois, or Five Nations, occupied the countries from lake Erie to Ontario, the St. Lawrence, around lake Champlain, and the whole of that watered by the Hudson down to the Highlands, were very numerous and warlike. Such was their ascendency, that the Indians of the lower country of the Hudson, on the Connecticut, the Delaware, and Susquehanna rivers, were in a kind of subjection to them. Onondaga was the principal settlement, and the seat of Indian power. Their combination confounded of Onondaga, Oneidas, Mohawks, Cayugas, and Senecas; and it was then so powerful as to be able to send several thousand warriors on distant expeditions. The first Christian colonists, availing themselves of Indian wars, which they promoted, taught the Indians to despoil and abhor those for their hypocrisy and perfidy whom they had first considered as beings of a superior order; and thus originated the intractable enmities which not only continued but increased when the French and British became rival nations. About the year 1690, the English erected a strong fort at Onondaga; and in 1696, the French sent a considerable force against the Indian settlement, and succeeded in destroying it. From this time, colonies of each of these nations were planted there at different periods. But we forbear, to pursue their histories, and to trace the fanatical confusions that have mutually concurred and confounded Indians and professéd Christians. At this time, the principal settlements of the Indians are at Onondaga and Oneida, on the Geneve and Alleghany rivers, Buffalo creek, and Tuscarora, besides other places which we have not room to enumerate in detail. But we must hasten to finish this sketch of the New York state by a brief abstract of its history.

Soon after the discovery of America, towards the commencement of the 16th century, the present state of New York was possessed by the Iroquois, and Canada by the Algonquins, two rival nations of Indians. About the year 1608, the French planted colonies in Canada, which they had laid claim to having first sailed up the St. Lawrence as far as the present Montreal. In 1609 Champlain, the founder, discovered lakes Champlain and George, when he defeated a small party of the Iroquois. In 1628 Hudson, an Englishman, discovered the East and North rivers, ascending up the latter as far as the present Albany; and soon after he sold his right to the Dutch. In 1644 the States General of Holland erected a fort at Albany, and granted an exclusive trade on Hudson river to the Dutch West India company; and in 1629, Wouter van Twiller, the first governor, arrived, and took the command of New Netherland, as it was then called. The English, who still laid claim to this country, objected to the sale of Hudson; and in 1663-4, the English king granted the whole to his brother James, duke of York and Albany, afterwards James II. A small armament subdued the colony for England, which then took the name of New York, as did the city also. In 1673 New York was conquered by the Dutch, but restored in 1674. The duke's grant was confirmed, and the colony alligned to the English by treaty; and this right they held till the Revolution. From the surrender of the province in 1664 to 1683, the duke of York possessed full sovereignty. He appointed the governor and the council, who made rules and orders that were acknowledged as laws. These were called the duke's laws; they were collected and arranged about 1674, and a copy of them is deposited among the records of the state. Thence, it is said, which were made in 1683, and after the duke's accession to the throne of England, when the people were admitted to a participation of the legislative power, are defaced or lost. No regard is now paid to any laws made here antecedently to 1691, when the first legislative assembly was organized. New York was then divided into nine counties, and the house consisted of seventeen delegates. The second legislative assembly was convened in 1708. We shall not minutely trace
The whole number of the churches, or houses for Christian worship, is 37; besides a Jewish synagogue. Of these, eight are Presbyterian, eight Episcopal, four Dutch Reformed, three Scots Presbyterian, three Methodist, two for Friends, or Quakers, two Baptist, two German Lutheran, one French Protestant, one Moravian, one Roman Catholic, two African. The New York hospital is an extensive establishment; the custom-house adjoins the battery at the S.W. angle of the city; the gaol and bridewell are opposite to the Park, and the Custom-house is on the same square with the gaol, bridewell, and city-hall. The college is about midway between the Park and the river Hudson; and St. John's church, reckoned the most elegant in the city, is in Hudson-square, farther north. The State-prison is two miles N. of the battery, on the bank of the Hudson. Here are also a library and theatre, fix market-houses, and many other buildings that might, if space were allowable, be enumerated. There are eight banking-companies in this city; and their houses and offices, together with those of the insurance, manufacturing, and other companies, and those of various societies, add to the number of edifices that adorn the metropolis. The population, which by the census of 1810 was estimated at 96,373, is supposed to amount to more than 100,000. The city and harbour of New York have been lately fortified against naval assaults at a very great expense; but we should be tedious in minutely describing the works which have been constructed for this purpose. The number of charitable establishments, and of schools for education in this city, is very great, and does honour to the disposition and liberality of its inhabitants. The markets, which are kept every day, are well supplied with the productions both of land and water. The public walks and amusements in the vicinity of this city afford attraction to its flated inhabitants, and to those who occasionally resort hither. The theatre, reading-rooms, public-gardens, park, and walks on the battery, afford amusement, and contribute to activity and health.

The city of New York is governed by a mayor, recorder, aldermen, and assessors, who constitute the common council. Each ward chooses an alderman and assessor. The mayor, deputy-mayor, recorder, and aldermen, are ex-officio justices of the peace, and justices of oyer and terminer; and the mayor, aldermen, and commonalty, are authorized to hold a court of record or of common pleas; and this is called the mayor's court, and deemed of great importance. For the manufactures, commerce, literature, institutions, &c. &c. of the city of New York, we refer to the account already given of the state of New York. Melish. Morde. Spafford's Gazetteer of New York, 1813.

York, New, a poll-town of Virginia; 167 miles S.W. of Washington.

York Town, or York, a township of West Cheltenham county, in the state of New York, 45 miles N. of New York, bounded by Duchess county, E. by Somers and New-castle, S. by New-castle, W. by Cortland; in length N. and S. 10 miles, and nearly 4 miles wide. The general surface is hilly, but productive, and well distributed into arable, pasture, and meadow lands. In 1810, there were 269 taxable inhabitants, 142 electors, and in all 1974 inhabitants.

York Town, a town of the state of Virginia, capital of the county of York, on the right bank of York river, about 10 miles from its mouth, containing about 800 inhabitants. In the year 1781, the British army under lord Cornwallis surrendered themselves prisoners of war to the united forces of America and France near this town, and was the occasion of a peace which followed soon after. A marble column,
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column, with a suitable inscription and trophies, was ordered by Congress to be erected on the spot in commemoration of the event; 8 miles E. of Williamshurgh.

YORKSHIRE, a county in the northern part of England, which, for extent, for its number of inhabitants, and for its natural and artificial productions, is by far the most considerable in the kingdom. In its general form the county is an irregular quadrangle; the longest diagonal extends from N.W. to S.E. about 130 miles, and the shortest from S.W. to N.E. about 90 miles. The area of the county comprehends about 5,960 square miles, or above 3,814,000 statute acres. Yorkshire, taken at its extreme points, is situated between the parallels of 53° 18', and 54° 40' N. latitude, and between 2° 40' of W. and 0° 10' of E. longitude from Greenwich. On the N., the E., and part of the S. sides, it is distinctly defined by rivers and by the sea. On the N. it is separated in its whole extent, from the county of Durham, by the river Tees. From the mouth of this river to the entrance of the Humber, the whole E. side is washed by the German ocean. By the estuary of the Humber and the river Trent, it is divided from Lincolnshire on the N. The limits between Yorkshire, and the counties of Nottingham, Derby, and Chester on the S., and those separating it from Lancashire and Westmorland on the W., are merely conventional, being indicated by no natural feature of the country; the latter, however, in a general, coincide with the mountainous range which distinguishes the northern from the southern provinces of England. At a very early period of the Saxon dominion, the great county of York was subdivided into three districts, still recognized, and still under the corrupt name of ridings. These are termed north, east, and west, in reference to their relative positions with respect to each other, and to the capital city of the county. The North Riding is subdivided into 12 wapentakes, the East into 7, and the West into 11 wapentakes; the whole county thus containing 38 wapentakes and 569 parishes. The wapentake, a division adopted in certain northern counties of England, corresponds generally to the cantred or hundred of the southern provinces. The whole county comprehends one archiepiscopal city, York, and 59 market-towns, of which 13 are parliamentary boroughs. Of those last in the North Riding are 5, viz. Malton, Northallerton, Richmond, Scarborough, and Thirsk; in the East Riding contains three boroughs, Beverley, Heydon, and Hull; in the West Riding the five boroughs are, Aldborough, Boroughbridge, Knaresborough, Pontefract, and Ripon. Yorkshire sends thirteen members to parliament; viz. two for the county, two for the city, and two for each of the boroughs just named. According to the official reports made in 1811, the number of houses and inhabitants in the county was the following:—In the North Riding 33,567 houses, and 152,445 inhabitants; in the East Riding (York city included) 31,420 houses, and 167,155 inhabitants; and in the West Riding, 129,575 houses, and 653,315 inhabitants. From this statement, Yorkshire, at that period, contained altogether 194,562 houses, and 973,113 inhabitants, or on an average 163 persons for each square statute mile.

General Appearance, Soil, and Climate.—Yorkshire is an extensive and interesting county; in its geographical features, and geological characteristics, it presents important themes for inquiry and disquisition. Its ancient history, and the numerous antiquities with which it abounds, afford other and not less interesting topics for investigation and comment. The manufactures, commerce, and trade of the county; its mineral productions, and agricultural practices, are also entitled to the most careful and critical develope-

ment of the topographer. It is, however, to be regretted, that neither of these subjects has hitherto been satisfactorily elucidated by a local historian: whence we shall be necessitated to refer to and cautiously analyse several detached and imperfect works, to render a short topographical account of this widely-extended county in any degree useful to the general reader. In the sequel these works will be referred to. Yorkshire presents a great variety of surface: mountains, hills, vales, moors, fens, rocks, coasts, and rivers, are its component parts; but these are greatly diversified. The North Riding consists principally of two hilly regions, separated by a comparatively low tract, which opens on the S. into the spacious plain of York. The hill parts are commonly termed, from their position and their nature, the E. and the W. moorlands. Tho the E. bounded by the valley of the river Tees on the N., and by the sea on the N.E., occupy a space of 30 miles from W. to E. by about half as much from N. to S. They consist in general of bleak heath, interspersed with loose blocks of stone, or with peat-mofs and bog. The whole is defitute of wood, excepting in a few interfingering dales or valleys, where cultivation is practicable. Of these dales a few are of moderate extent, particularly Eildale and B'ldale, in the eastern parts toward the sea. The western extremity of these moorlands, in the district of Hamilton, produces heath intermingled with large quantities of coarse grass. Between the N. edge of the moorlands and the river Tees is the fertile district of Cleveland. Several productive valleys intersect the W. moorlands, of which Wentleydale is the most considerable. Watered by the river Ure, the bottom of the valley furnishes rich grazing grounds, bordered on each side by sloping inclosed fields, which reach up the hills for more than a mile from the river. In the Eall Riding the face of the country, although varied, is less boldly characterized than that in the N. It is divided in the middle into two extensive plains, by the Wolds, a range of hills stretching N. and S. Towards the sea the coast of this Riding is in general low when compared with that of the North Riding; but in several places it rises to cliffs of considerable height, as at and in the vicinity of Flamborough-head. The S.E. part of this Riding consists chiefly of a tract of fen and marsh, about 20 miles in length, and four in breadth, which spreads from the sea to the Humber. This part of the Riding, forming the wapentake of Holderness, runs out to the S.E. and S., and terminates its course at the Spurn, a well-known point on the N. shore of the Humber. A succession of rocky ridings forms the eastern acient of the range of the Wolds; but on other sides they are steep; and the whole have an agreeable and peculiar appearance. Considered with respect to extent and population, to manufactures and trade, the West Riding is by far the most important division of Yorkshire. Its surface is very irregular, varying from the low marshy tracts in the E. to the rocky mountainous country in the W. The level marshes are the continuation of those already mentioned in the Eall Riding, and extend westward nearly to the great N. road through Doncaster. Still farther westward lies the middle division of the West Riding, gradually and beautifully swelling into hills, and extending to Sheffield, Bradford, and Otley. Beyond these towns, the country becomes rugged and mountainous, and is composed chiefly of black moors, which terminate in the lofty range of hills bordering on Lancashire. These hilly and mountainous tracts are not, however, without many beautiful and romantic valleys, among which are those watered by the rivers Aire, Nid, and Wharfe. Several of the smaller dales are
well-wooded and inclosed, and have numerous villages interpersed.

The soil of Yorkshire is not less variegated than the surface. In the E. moorlands of the North Riding, wherever the ground is covered with ling or heath, the upper soil is invariably black moor or peat; but the subsoil is various, and consists of clay, free-flone, and hardened sand. In that part of the moors called Hamilton, the soil consists generally of fine loam on lime-flone rock. In the interfing daleys, black moory earth, sand, and grit-rock, more or less, prevail; but the vale of Cleveland, along the river Tees, is composed chiefly of strong tenacious clay. Lime-flone, or a calcareous rock, is the general basis of the W. moorlands; and the beneficial effects of this subsoil are evident in the grasses and other useful productions with which the surface is generally covered. In the extensive tract of plain styled the Vale of York, which occupies the interior parts of the county, and comprehends portions of all the three Ridings, considerable changes of soil are found. In the N. part towards the river Tees, a rich gravelly loam prevails. The slopes of the high grounds on the E. and W. are in some places cold, and abound in springs; but in the greatest part the soil is strong and fertile. Of the East Riding, the most striking feature is the range of hills called the Wolds, composed of chalk; but the surface is in general a light free loam, interfinged with chalky gravel, often very shallow. The great plain between the Wolds, the sea, and the lower part of the Humber, contains many extensive tracts of fertile cultivable land, especially in the N. and E. quarters; but the southern districts, towards the river, are covered with marshes and fens, insupportable, where draining can be practised, of material improvement. In the continuation of these sens, situated on the W. of the Wolds, called the Levels, the soil is either clay or sand, with moorish tracts interfinged; but on the banks of the Darwent and the Ouse strong clay and loam prevail. In the extensive West Riding soils of every kind are to be found, from deep strong clay and rich loam to the poorest peat-earth. Clay and loam, but mingled with some sand and moor, prevail in the E. district of this Riding, while the middle division consists chiefly of loam on a lime-flone base. Similar soils extend through the W. parts, but are frequently interrupted by tracts of moor of different kinds.

In a country of such extent, and of such variety of soil, elevation, and exposure, as Yorkshire, an accordant variety of climate, with regard to temperature, humidity, and salubrity, must naturally be experienced. The E. moorlands, advancing high and bold into the German ocean, are necessarily exposed to the cold, moist, and impetuous winds from the N. and E. The climate there, however, is rather disagreeable than unhealthy; for the high grounds are frequently involved in mists and vapours from the sea. Among the W. moorlands the climate is still more severe; but its effects on the productions of the surface are powerfully counteracted by the calcareous rock of which those mountainous tracts consist. By their distance from the sea, combined with their much greater elevation, the snow remains on them considerably longer than on the E. moorlands. But the greatest obstacle to agricultural labours in the W. parts of the county is the almost incessant rain which falls among the mountains. On them are accumulated and condensed the vapours collected by the opposite winds, which prevail on the contrary sides of the island. By the humidity thus produced, no attempt to raise corn-crops among those high lands can succeed. In the intermediate plains and gently-swalling tracts of the centre of the county, the climate is, on the contrary, in general mild and temperate, in proportion to the remoteness from the mountainous quarters. The low grounds on the banks of the Darwent, are, however, so moist, although warm, as to be much better adapted to pasturage than to corn-land. What is said of the climate of the W. parts of the North Riding is equally applicable to the corresponding portion of the W.; for there the climate is also rainy, cold, and stormy. At Sheffield, although on the S. border of the county, the quantity of rain which falls in a year is about 33 inches. It is, indeed, found by experience, that the lofty tracts which separate Yorkshire from Lancashire and Cheshire are fully as subject to fog, rain, and storms, as any other portion of England. But notwithstanding these circumstances, the air is pure and healthy. The middle and lofty elevated tracts of the West Riding are equally healthy, milder, and less humid; holding a defirable medium between the tempestuous blasts of the mountains in the W., and the dull fogs and damps which usually befet the lower country in the E. On the opposite sides of the Wolds, in the East Riding, a different temperature is experienced; for by those hills the W. division is in general sheltered from the cold damp winds from the sea and the entrance of the Humber, which prevail over the E. division. On the Wolds themselves the air is sharp, and the snow remains for a considerably time on the ground. But the mildness of the climate in the W. Levels is abundantly compensated, in regard to salubrity, by the vapours of the marshes.

Mountains.—The E. moorlands of the North Riding form a peculiar feature in the county; for they are wholly detached by their position, and by their sublimity, from the mountains in the W. Some points of the E. moorlands rise nearly 900 feet above the level of the sea; but the most remarkable summit of the whole is Rosbrough Topping. This singular hill, situated midway between Stokelsey and Guisborough, towards the N. edge of the moors, shoots up in a conical form, to the height of 1488 feet above the sea. By its detached position and superior elevation, it commands, in all directions, a prospect at once extensive and interesting. The hill seems to rest on a basis of alum-iron, interfinged with iron flone; and its pinnacled summit indicates to the surrounding country the approaching changes in the weather; for when the summit is involved in clouds, rains seldom fail to descend on the neighbouring low grounds. It is, however, on the W. borders of the county, that the most elevated mountains are found. These are a portion of the chain, which, commencing in the S. in Staffordshire, extend northward, with increasing elevation, through Derbyshire, Lancashire, Westmoreland, Cumberland, and Northumberland, into Scotland. In that portion of this range which belongs to Yorkshire are several summits of very considerable elevation above the sea. Of these, the most remarkable are, Penningt, which rises, according to barometrical measurement, to the height of 3930 feet; Ingleborough, 3987 feet; and Whernside, 4052 feet. The last mountain is the highest in England; for Crofsell on the borders of Cumberland is in height only 3839 feet; Skiddaw, 3530; and Snowden, the highest in Wales, 3568. Benennie, a detached mountain in the N. of Scotland, and the most elevated in Britain, rises to the height of 4387 feet. Penningt, situated about 7 miles N. from Settle, is steep and towering. Ingleborough consists of a basis of lime-flone, but towards the summit the grit-rock appears. The E. and S. sides of this mountain are very steep, and of difficult access, on account of a deep morass at the bottom; but the W. and N. sides, particularly the former, may be
afecended with ease. Continually receiving vapours from the Irish sea on the W., Ingleborough is seldom free from
clouds, and the whole mountain abounds with springs: whence it is covered with verdure, and sheep graze on
the most elevated parts. In the vicinity appear Penyghent, distant 6 miles to the E., and Whernside 5 miles to the N.
On the N.W. are the mountains of Wensmoorland, and on the W. spreads out the low land of Lancashire, bounded at
the distance of 24 miles by the Irish sea, of which a great
portion may, in clear weather, be detected. In the midst
of a circle of hills rifes Whernside, on which account,
although more elevated, the views from it are not equally
interesting with those from Ingleborough. Near the
summit are several small lakes or pools, there called tarns,
one of which is about 180 yards in length by nearly an
equal breadth. In the East Riding, the only hills of note
are the Wolds, which exhibit themselves to advantage, in
rising out of the low country around them; but at no point
are they supposed to exceed 600 feet in height.

Rivers.—Along the whole length of the North Riding,
from W. to E., the county is bounded by the river Tees.
Rising in the mountains of Wensmoorland and Cumbland,
it pursues a very indirect course to the German ocean
below Stockton, where it spreads out into an estuary three
miles in breadth. The river Tees is navigable for ships of
considerable burthen up to Stockton; but the channel
is serpentine and intricate, and the current is rapid.

Commounous anchorage is, however, found at the entrance, in
winds from the W. and S. A few inaccessible streams from the
W. moorlands fall into the river Tees; but the great
body of the waters of Yorkshire take their course in the
opposite direction, and unite with the Humber. Of these
rivers, the most northern is the Swale, which, rising in the
W. moorlands, enlivens the romantic Swale dale, and, and,
afte r visiting Richmond, bends S.E. until it reaches Bo-
roughbridge, where it unites with the Ure. The latter
river, proceeding from the same moors, passes near to
Ripon, and in some part of its course separates the North
and West Ridings. Having received the Swale, about
six miles below Boroughbridge, the Ure takes the name of
Oufe, from an insignificant rivulet which joins it on the W.
side. Under this last appellation the combined stream, still
farther augmented by the waters of the Nid, traverses the
city of York, where it becomes the limit between the West
and the East Ridings; and being navigable for large barges
up to that city, it receives on its W. side the rivers Wharfl
and Aire: at last, after a very wandering course to the
southward, in conjunction with the Trent, it disappears in
the estuary of the Humber. The Aire, already mentioned,
a very considerable stream, issuing from the mountains of
Craven, facilitates by its waters the important manufactur-
ing commerce of Leeds. Receiving on the W. side the current of
the Calder, which performs the same service to Wake-
field, the joint stream conveys an important accession to the
Oufe. Still farther to the S. the Don pursues its course to the
W. mountains to Sheffield, where it bends to the N.E. by Rotheram and Doncaster, to its influx into the
Aire. Before it be lost in the Humber, the Oufe receives on the E. the Darwent, which, having its sources in the
E. moorlands, flows in general S.W. by Malton, across the
western parts of the E. district. Two small streams still
deferve notice in Yorkshire, not too much for their length of
course, or volume of water, as for their great utility in
forming the principal ports of the county. In the E.
moorlands of the North Riding rifes the Eke, which after
watering Elfdale opens into the German ocean through the

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harbour of Whitby. The river Hull traverses the East Riding
from N. to S. palling near to Beverley, and, at its influx into the
Humber, forms the creek though not capacious harbour of
Kingston, which, from the river, is generally also called Hull.

Canals of Yorkshire. See Canal.

Coast and Harbours.—The sea-coast of Yorkshire, though
very extensive, affords but very few harbours of any impor-
tance. The mouth of the river Tees, as already stated, is
frequented as a place of anchorage in winds from the south
and the west. Vessels also often resort to other spots on the
coast when the wind blows off the land, such as to Ro-
binhood's bay to the southward of Whitby, to Filey bay on the
north-west, and Bridlington bay on the south-west of Flamborough-head.

The principal harbour on this coast is that of Whitby.
(See Whitby.) Scarborough bay is serviceable in westly
winds; and the pier, a noble stone structure, furnishes easy
access and safe protection for ships of considerable burthen;
for at spring-tides, the depth of water at the entrance is
from twenty to twenty-four feet: for want of a back-stream,
however, the harbour is in danger of being filled with sand.
The entrance of the Humber affords to shipping less protec-
tion than from its locality might be expected; for the
hores on both sides of Hull, from the N.E. and of Lincoln-
shire on the S.W. are low, and the channel is much
incumbered with sand-banks and shallows. Notwithstanding
these disadvantages on its north bank, just at the point
where the estuary turns its direction from E. to S.E., is
situated the much-frequented and important harbour of
Kingston-upon-Hull. The natural accommodation of the
river has proved very insufficient for the increased shipping
belonging and trading to the port, which ranks as the fifth
in the kingdom. Docks of great capacity have therefore
been excavated, in which vessels lie afloat or dry, as may be
required. From this port, the produce of the great manufac-
turing districts in the interior of the country are ex-
ported to foreign parts; and there foreign commodities are
transferred to smaller vessels, to be in their turn distributed
over the interior of the kingdom. The most remarkable
projection of the coast of Yorkshire is the bold and lofty
promontory, called Flamborough-head. The cliffs rise
perpendicularly over the sea to the height of 150 and 150 yards.

They are composed of a mouldering lime-stone rock, of un-
common whiteness; and at the bottom are pierced by a
number of caverns, some of them entering a great way into the
rock. A new light-house is placed about 300 yards west
from the extremity of the promontory. About four by east
eleven leagues from Flamborough-head is another point
of great confluence to mariners. This is the Spurn-point,
which, running out southwards, low and narrow, forms the
north limit of the mouth of the Humber. The light-house
is situated in N. lat. 53° 41', and E. long. 8° 17'.

Agriculture.—From what has been already noticed re-
specting the mountainous and the marshy tracts compre-
ended within the capacious limits of Yorkshire, agricul-
tural improvements in them must be comparatively very
limited. In other districts, however, particularly in the
spacious plains forming the central parts of the county,
every species of amelioration of the soil which the in-
dustry of the inhabitants, availing themselves of the natural
means within their command, could apply, has been
generally brought into action. The farms are of very
unequal extent and rental, conformably to the nature of the
soil and to the situation of the farmer with respect to a mar-
ket. It is remarkable, that in the North Riding leaves are

unusual; but although the husbandman labours on so preca-
rious
tious a possession, changes of occupants of farms are by no means common. In the vale of York one-third of the land is comprised in tillage, and two-thirds in grass; but in Cleveland, along the south bank of the river Tees, the country is equally divided between corn and pasture. In the environs of Thirsk, where the dairy is the chief object of pursuit, fully three-quarters of the land are devoted to it. In the valleys or dales which intersect the East moorlands, about one-fifth of the surface is for tillage; but in those of the west, a much smaller quantity is usually ploughed: those parts although included are generally in pasture. In few districts of England have improvements in agriculture been more generally or skillfully introduced than of late years in the East Riding. The farms are comparatively large, and vary in annual rental from two or three hundred pounds to a thousand; but in the marily tracts, called the levels, they are mostly small. By drainage there, and in the flat country, in the vicinity of Hull, large tracts, formerly flooded, now produce plentiful crops of corn; the value of the land being thus increased to ten times its former worth. In the hilly ranges of the Wolds, barley and oats have in many places been superceded by wheat. In the West Riding the farms are generally small, but in the environs of the manufacturing towns a great portion of the ground is occupied by the inhabitants for the use of their families. To the eastward of Leeds, Wakefield, and Rotherham, the greatest part of the Riding is cornland; but this tract contains no small proportion of common fields. The soil, however, is good, and improvement may be easily introduced. In addition to grain of all sorts, flax is cultivated in the marshlands to considerable extent; and in the environs of York mustard is now a valuable article of cultivation; though it is still considered as the produce of Durham. The horsey of Yorkshire, and in particular those of the North Riding, have long and universally been famed. Cleveland furnishes an excellent breed for the coach and the plough; the northern parts of the vale of York others for the coach and saddle; and many of both kinds are bred in the southern parts and the marshes. The East Riding also bears horsey of peculiar value. A smaller but hardy and useful kind is bred in the dales of the east moorlands; many of an equally serviceable description are also produced in the moorlands on the west. The horned cattle of Yorkshire are of various kinds, adapted to the nature of their pastures, and to the ufs for which they are employed. The north parts of the vale of York and the district of Cleveland produce the Tees-water breed, which is ranked among the largest in the kingdom. In the plains where cattle are chiefly kept for the purposes of the dairy, the milk, and not the form or strength of the race, is the main object of attention with the farmer. The sheep in the various parts of the county are also extremely different in their nature and properties. In the North Riding, the flock has of late years been considerably improved by the introduction of the Northumberland and other breeds. The sheep of the west moorlands are small; but the wool is tolerably fine: those of the east moorlands are still smaller, but with a very coarse wool. Many of the old sheep-walks on the Wolds, in the East Riding, are now broken up, and converted into corn-land. In the West Riding, by the introduction of the Leicestershire breed, the sheep have in many places been highly improved. Those bred on the well moors and hills of this Riding, when brought down early to pasture in the low grounds, become very valuable for food.

In many parts of Yorkshire, great improvement of the soil has been produced by hollow-draining; irrigation, paring, and burning the surface, have also been advantageously adopted. In certain tracts, bones bruised in a mill are usefully employed in composts for manure. Considering its great extent, the North Riding of Yorkshire contains a small proportion of woodlands; the whole having been estimated at about 25,000 acres, of which the vale of York, with its boundary hills to the north, contains about 11,000. Large full-grown timber is accordingly very scarce, excepting on the estates of the earl of Carliole, C. S. Duncombe, &q; and some other land proprietors. But the oak, timber of this Riding, produced on hard rocky ground, if not of great size, is fold and durable; and hence the valuable qualities of the slipping built at Whitby and Scarborough. The planting of the Wolds in the East Riding has been successfully begun by several proprietors. In the West Riding, the quantity of oak and ash is very considerable; and both are much used for ship-building, and for the various demands of the manufacturers: much is also consumed in the coal and other mines. In the vicinity of Sheffield, the duke of Norfolk poleties above 1500 acres of woodland.

According to a calculation made in 1799, the waste lands in this Riding amounted to upwards of 400,000 acres, of which one-third seemed to be proper only for planting. No great progress in that operation has, however, yet been made.

**Manufactures.**—The manufactured productions of Yorkshire, especially of the West Riding, are of the very first importance to the county and to the kingdom, as well as to the multitudes to whom they furnish employment and wealth. The principal inducement for the establishment of these great works in the interior of the country was the plentiful supply of water and fuel for giving motion to machinery, and for the various other operations of the several branches of industry. Leeds, situated on the north bank of the river Aire, has long been celebrated as the centre of the manufacture of woollen cloth; and it is still the great mart for that staple article of the commerce of Yorkshire. (See Leeds, and Woollen Manufacture.) The white cloth is chiefly made at and about Dewsbury, among the hills which separate the valleys of the Aire and Calder, and in the vicinity of Wakefield. The mixed cloth is principally made in the villages comprehended in the district of Leeds to the westward of the town; in the vale of Calder west from Wakefield; and also in the environs of Dewsbury. In the year 1806, the number of yards of broad cloth manufactured in the West Riding of Yorkshire is stated at 10,795,256, and of narrow cloth at 6,193,517. But in 1810 the broad cloth was only 9,826,248 yards, and the narrow cloth had increased to 6,951,762 yards. In 1811, however, the quantity of both sorts of cloth had sensibly diminished; for the yards of broad cloth were only 8,671,422, and those of narrow cloth 6,180,181; one of the many effects produced on the industry, and consequently on the well-being of the county and of the kingdom at large, by the hostilities in which Britain was then deeply involved on both sides of the Atlantic. The cutlery and plated goods of Sheffield are in all their branches carried to a perfection and an extent of which it is not easy to furnish a satisfactory account. The cutlery, consisting of edge-tools of every description, files, anvils, faws, &c. is not confined to that town, but manufactured in all the neighbouring villages. The plated goods, consisting of teapots, coffee-pots, tankards, candlesticks, and many other articles of household use, are all prepared within the town. In it are also several founderies for iron, brass, and white metal.

**Minerals.**—Excepting the alun on the borders of the east moorlands, and the lead of the vicinity of Richmond towards
wards the opposite quarter, the North Riding of Yorkshire furnishes but few mineral substances of peculiar value. Copper of good quality, it is true, was wrought about the middle of the last century near Middleton-Tyas; but the works have for some time been discontinued. Copper was also discovered about twenty years ago at Richmond. In the vale of the river Swale, twelve miles above that town, are several very profitable lead-mines. The iron- lone of the east moorlands has not hitherto been applied to any useful purpose. It appears, however, from ancient records, that as early as the beginning of the thirteenth century, iron was wrought and forged in Rofedale. Ayton, a few miles S.W. from Scarborough, is the only place where forges are now established, and those are but incon siderable. The great alum works are principally situated on the sea-coast on both sides of Whitby, and in the vicinity of Guiborough. See WHITEBY and ALUM.

Various parts of the North Riding produce coal, particularly in the plain between Easingwold and Thirsk; and in the well moors, the coal hitherto discovered seems adapted only to the burning of lime; the north part of the Riding is consequently furnished with that mineral from the adjoining county of Durham. Good free-lone for building appears in many parts of the Riding; a few miles west from Whitby is a quarry from which have been drawn the blocks employed in constructing the new pier of that town. Lime-lone, and a species of marble not inferior to the Derbyshire, are found in different places; and loose blocks of red granite are seen on the surface in certain parts of the west moorlands.

In the East Riding, the chalk of the Wolds is the only mineral substance of importance hitherto discovered or brought into use; but the mineral productions of the West Riding are of peculiar value; for it contains lime, coal, iron, and lead, in great abundance. None of them, however, are found in the low level tracts in the east division of the Riding. The lime-lone extends all to the westward of a line running northward from Doncaster to Tadcaster. The tracts situated between the rivers Aire at Leeds and Calder at Wakefield are the principal seats of the coal-mines, which abound likewise in the neighbourhood of Bradford, Barnsley, and Sheffield. Near Bradford also there are very considerable iron-mines. Lead is principally extracted from the mines of Grassington, the property of the duke of Devonshire.

Yorkshire contains several mineral waters of great virtue and celebrity. The chalybeate and sulphuriferous springs of Harrogate have long been in high repute. See HARROWGATE.

Scarborough, on the sea-coast of the East Riding, has long been celebrated for its mineral springs, which issue from the foot of a lofty cliff on the shore, a little way to the southward of the town. See SCARBOROUGH.

Ancient History, Remains, &c.—The great county of York was but a part of the territory of the Britih tribe, called in Roman history the Brigantes: they are not however mentioned by Caesar. It appears that they were first overpowered by Cerialis, in the reign of Vespasian, in the year 71 of the Christian era. In 78, the Roman arms were carried beyond the river Tay in Scotland, where Agricola encountered the Caledonians, under Galgacus: but, contrary to the usual practice of the Romans, after a signal victory over the natives, as it is reprefented by Tacitus, his fon-in-law and professed panegyrist, the Roman commander, retreated into the southern part of the country previously subdued. Having established a chain of forts across the narrow islethmus, between the firths of Forth and Clyde, Agricola was in the year 85 recalled by Domitian. From that period, until the arrival of the emperor Adrian himself in Britain in 120, little is known of the transactions in the northern parts of the island. That Adrian should deem it necessary to repair in perfon to fo remote a portion of the empire, which then comprehended the richest provinces of the world, is however a proof that the Britons, although overpowered, were by no means reduced to patient subjection. Renouncing, therefore, a great part of the country included within the chain of forts of Agricola, Adrian constructed an earthen rampart across the island, between the mouths of the rivers Tyne and Eden. While these operations were in progress, the emperor fixed his residence in Eboracum, or York; but fearlessly had he returned to the continent when the northern Britons, breaking through the second rampart thrown up against them, joined with the Brigantes in an endeavour to regain their independence. To repel these attempts, Lollius Urbicus was sent into Britain, who, repelling the natives beyond the Roman bounds, constructed a wall and towers on the line between the Forth and the Clyde, first fortified by Agricola. From this event, which happened about 140 until 183, Britain seemed to be tranquil; but then, while the empire was subject to the monitor Commodus by the exertions of the natives, and the discontented spirit of the legions themselves, the power of the Romans in Britain was reduced to a very precarious situation. Pertinax, who had served in the island, and who, by his military talents, was fully qualified to restore the discipline and spirit of former times, was soon cut off by the licentious and disorderly Pretorian guards of Rome; and in 196; Septimius Severus became sole master of the empire. The Caledonians still continuing their efforts to rid themselves of the Roman yoke, Severus, although thus far advanced in life, and very unfit for the service of the field, found it necessary to repair to Britain. (See YORK.) In 207 he arrived at Eboracum, in the full determination to quell the reliefs spirit of the natives. After an expedition into the northern parts of the island, in which the Iofs of the Romans is admitted by their own historians to have been prodigious, he fixed his head-quarters in Eboracum; and commanded the rampart thrown up by Adrian between the Eden and the Tyne, to be powerfully strengthened, as Urbicus had done on the northern rampart with a continued wall and forts of flone. Taking advantage of his absence from the frontiers, the Caledonians again had recourse to arms; but in 211, while Severus was preparing in Eboracum to repel their affaits, he died, and his sons and succeffors Caracalla and Geta soon afterwards returned to Rome. Whatever might have been the inclinations of the Brigantes, however gladly they would have combined with their countrymen of the north, yet by the presence of the imperial court, officers, and troops, every effort on their part must have been instantly discovered and repelled. Under Carausius, Britain enjoyed some semblance of independence; but his affiliation in the midft of his spirited projects enabled Constantius to subject Britain again to the Roman arms. Dying in Eboracum in 307, Constantius was succeeded in the western portion of the empire by his fon Constantine, who was present at his death, and was immediately proclaimed emperor by the legions. For many years, the Brigantes with the other southern provinces of Britain seem to have been submissive to their masters; but in 364, the northern nations renewed their incursions, while the opposite part of the illand was harassed by the predatory defecents
Yorkshire.

Thefts of the Saxons. Tranquillity was at first restored by Theodoricus, whose son of the same name obtained the purple, and after a short reign died in 393. Diffusion within and around from without were now fast hastening on the overthrow of the mighty empire of Rome; and in the middle of the fifth century of our era, the Romans finally relinquished all possession, power, and authority in Britain. Of their long protracted residence in Yorkshire, many unquestionable evidences are found in the capital, and in other parts of the county. The roads established by that extraordinary people may yet be traced, traversing the county in various directions. The whole system of the Roman policy and discipline was certainly directed to the perfection of their military power.

One great line of probably Roman road, which traverses the county of York from S. to N., is now called the Watling-street, (a name apparently Saxon,) which was opened from the Rutupian port, in the neighbourhood of Sandwich, in Kent, in various directions, all the way to the wall of Severus. Entering Yorkshire near Bawtry, it has been traced by Doncaster, (Danum, or the station on the river Don,) over Scawby and Pigburn Leas, to Barnsdale, through Pontefract to Catterickford, supposed to be the position of the ancient Legion, a little below the junction of the river Aire and Calder. From this point, the road was conducted by Calcaria, now Tadcaster, to Eboracum, or York. From this city it probably followed the N.E. fide of the river Ouse, crossing it near to Ifurium, now Aldborough, below Boroughbridge, and thence by Leeming-lane to Catterickbridge, adjoining to which vestiges of Cataractonium are to be seen; there turning more to the northward, it passed over the Tees at Piercebridge into the county of Durham. Another military road is supposed to have been laid out from Mancunium, now Manchester, in a N.E. direction, by Wakefield, to join the former line between Doncaster and York. North-easterly from York a road seems to have been formed by or near Malton, terminating on the sea-coast at Dunleaty bay, the Danus bay of Utem. This road is still called Wades' causeway, from the Saxon chief Wada, as Camden thinks, who resided on the coast in a castle, perhaps originally erected by the Romans. A branch of this road is supposed to have led to Scarborough, when the sheltered beach furnished a convenient place for Roman shipping. The straight course of an ancient road may be traced, although over the high grounds of the Wolds pointing from York towards Bridlington bay, corresponding probably to the Sinus Gabranovicorum of the Romans; a branch has also been observed tending towards Hunmanby and Filey bay. Another line may also be followed in a direction to Patrington (Praetorium) and the Spurn-point, which seems to correspond with the Ocellum Promontorium of Utem. From Lincoln (Linodium colonia) a Roman road may be traced running N. to the S. bank of the Humber near Winningham, where are still seen vestiges of the station, ad Abum. On the N. bank, Brugh indicates the position of another ancient station, from which a branch of road probably communicated with York. This, however, is not the course indicated in the itineraries, which point out a much more convenient course from Lincoln to York, across the river Trent at Littleborough, the ancient Segelocum.

The vestiges of Roman works and occupation distributed over various parts of Yorkshire are by far too numerous to be mentioned in this place; it must therefore be sufficient to point out two, Cataractonium and Ifurium. About five miles below Richmond in Swaledale is the present village of Catterick, so named from the Cataractonium of the Romans, of which the vestiges are visible on the S. bank of the river, a little lower down the valley. Ifurium exhibits the most remarkable proofs of Roman habitation. Sixteen miles above York, and nearly one mile below Boroughbridge, on the S. bank of the river Ure, is Aldborough, so called in allusion to the old town, to which it has succeeded, named by the Romans Ifurium.

Caflie.—Of these many still remain in Yorkshire, although in several cases they are either nearly demolished, or by later alterations, bear but little resemblance to their original form and structure: in some, indeed, the name alone is preferred. Of York castle, the keep, or Clifford's tower, is almost all that is to be seen above the surface of the ground. Scarborough castle is situated on a projecting precipitous cliff, 300 feet above the sea, and cut off by a deep natural hollow from the high ground behind it. Richmond has long been distinguished by its extensive castle, which was erected soon after the Norman Conquest by Alan, a kinsman of William the Conqueror, on receiving the vatt possessions of the Saxon, Edwin, earl of Chester. Craik or Creyke castle, although belonging to the county of Durham, is situated only twelve miles N. from York, is of great antiquity; for so early as in 685, it was beseamed on St. Cuthberth by Egfrid, king of Northumberland. Six miles W. from Doncaster, are the castle and village of Conisburgh, or more properly Coningsborough. The castle, one of the most interesting edifices of the kind in the N. of England, a building of great extent and strength, is commanded by the high ground on which the village is placed. The area of the castle is in circuit about 700 feet, encompassed by a very deep ditch, now filled with trees. Of Knareburgh castle, once a fortres of importance, but few remains are now to be seen. It is believed to have been erected by Serlo de Burgh, who received the manor as a reward for his services at the Conquest. Pontefract castle, the scene of many transactions of note in English history, in particular of the murder of Richard II., is built on a lofty rock. Sheffield castle, formerly of great strength from its situation, between and at the meeting of the rivers Don and Sheaf, was levelled to the ground by the parliament in the civil wars. The ancient castle of Skipton, in the W. part of the county, is still in a habitable state. It now belongs to the earl of Thetford; but was formerly the residence of the powerful family of Clifford, of which Henry, the fourteenth lord, was, in 1525, created Earl of Cumberland. Near the E. bank of the Darwent, S.E. from York, are the remains of the magnificent castle of Wresley, supposed to have been erected by Percy, earl of Worcester, in the reign of Richard II., towards the end of the 14th century. Originally the castle formed a quadrangle, having a tower at each corner, and a fifth over the entrance. Wresley was one of the places of residence of the great earls of Northumberland, where they lived in a style of splendour and magnificence, formed on the model and with the flate of the royal household. Notwithstanding the zeal evinced by the earl of Northumberland in the cause of the parliament, the castle was, in 1650, dismantled. Three sides of the quadrangle were demolished, and an accidental fire in 1796 completed its destruction. The site belongs to the castle of Egremont.

Seats.—To describe the number of admirable structures of modern times, with which the county of York is adorned, would require a volume. In this place merely to notice some of the most eminent seats is all that can be attempted. About 13 miles N.N.E. from York is situated Castle Howard, the princely mansion of the earl of Carlisle, of the illustrious house of Howard. On the site of the ancient castle of Hinderkelf the present building was erected, about a century ago, by Sir John Vanbrugh, the celebrated architect.
architect of Blenheim. Castle-Howard, in its general arrangement and appearance, bears an evident resemblance to that superb structure, and indicates the genius of that distinguished artiff. In extent of front it exceeds Blenheim, and in exterior display of magnificence it is, perhaps, superior. The interior, spacious and lofty, is enriched with a very valuable assemblage of paintings by masters of the greatest celebrity; and the collection of antique statues, busts, &c., is particularly interesting. The surrounding park and grounds are distributed and ornamented in a way suitable to the grandeur of the structure they inclose. Duncombe-park, the feat of Charles Slingby Duncombe, eq., 22 miles N. from York, also erected by Vanbrugh, is splendid in itself, and splendidly adorned with paintings of the most eminent artists. Harewood-houfe, the residence of the earl of Harewood, six miles N. from Leeds, is a magnificent structure, commenced in 1760, in which are combined grandeur of design and ornament, with convenience and accommodation of arrangement. One of the greatest ornaments, not of Yorkshire only, but of the kingdom, is Wentworth-houfe, once the habitation of the distinguished patriot Charles marquis of Rockingham, from whom it descended to his nephew and heir the present earl Fitzwilliam. It is situated in a spacious park, four miles N.W. from Rotherham, and seven N.N.E. from Sheffield. The mansion extends in front about 600 feet, forming altogether a structure of uncommon magnificence. Nor is the interior deficient in appropriate arrangement and splendour. In approaching the houfe, the attention of the visitor is arrested by a noble maufleum, raised in 1788, by the present earl, to the memory of his uncle, the marquis. This monument is placed on an eminence, and is in itself 90 feet in height, divided into three parts. The circular Doric basement supports a similar structure of the Ionic order, with open arches on the sides exhibiting a farscopus; the whole surmounted by a cupola. Within the basement is a chamber containing a statue of the marquis, by Nollekens. Around the walls are bufls of eight of his principal political friends, C. J. Fof, Sir G. Saville, &c. Wentworth-houfe, erected by the earl of Strafford in 1730, but now the seat of Henry Vernon, eq., is a noble fabric. Towards the southern border of the county, midway between Doncaster and Wolkop, is Sandbeck, the superb mansion of the earl of Scarborough, erected nearly fifty years ago.

Ecclefiafical State.—A very important change in the condition of the ecclefiafical establishments in Yorkshire, and over England in general, was introduced by William I. Prior to the Conquest the Saxon prelates, with their archdeacons and other delegates, fat in the courts with the eufs and thiriffs for the administration of justice; receiving with the lay-judges a share of the fines imposed on offenders. According to the original charter, however, still preferred among the records of the cathedral of Lincoln, the Conqueror declared, that no bishop or archdeacon should, in future, hold ecclefiafical pleas in the hundred-court, nor suffer any cause of a spiritual nature to come under the cognizance of secular perffons. Whoever, therefore, offended against the canons of the church was to be tried by a tribunal, to be appointed by the bishop of each diocese. It was also strictly enjoined on all thiriffs, royal officers, or other lay perffons, not to encroach on the episcopal jurisdiction. These regulations were afterwards confirmed, in a general council of the nation, by the bishops, abbots, and all the principal nobility; but those nobles and prelates were then almost all Normans or other foreigners. To this artifical separation of the ecclefiafical from the civil jurisprudence, the jealousies, contrarieties, contefts, and open ruptures, by which the kingdom was, on various occasions, brought almost to its ruin, must be ascribed. In addition to the diffentions occasioned in this way, the dispute respecting the superiority of the fee of Canterbury over that of York was conducted with peculiar animosity, between the Norman prelates of both. In 1270, Thomas, a canon of Bayeux in Normandy, appointed to York, repaired to Canterbury for confirmation from the hands of archbishop Lanfranc, who had been previously installe, but refusing to swear obedience to the fee of Canterbury, the confirmation did not take place. The famous Gregory VII. making it now a rule to confer the pall on no prelate who did not appear in person before him, the two contending English archbishops were required to present themselves in the court of Rome, where the dispute was referred for decision to a synod of the clergy of England. By this council, assembled at Windlor in 1072, a sentence amounting to a compromise was pronounced. The rights claimed by Canterbury were confirmed; but Lanfranc defiended with the oath of obedience from Thomas of York. In his profession of obedience, however, Thomas acknowledged that the archbishops of York and their suffragans were bound to obey the mandate of the primate of Canterbury, when required to attend him in council, wherever it should be held. On the appointment to York of Thurlian, chaplain and secretary of Henry I. in 1115, the dispute was again revived; but in 1121, Thurlian, who had obtained favour at Rome, was permitted by Henry, whom his pertinacity had irritated, to return to York. It does not, however, appear that he ever made any satisfaction for his refiftance to the claims of Canterbury; or that a profession of obedience to that fee was ever made by any of his successors. From this time, therefore, York maintained its independence, and, a few years afterwards, had certain suffragan bishops placed under its authority. Roger of York, in 1162, procured a bull from Rome, granting him the privilege of crowning the kings of England, prolonged by some of his predecessors, and of having his crofs carried erect before him throughout the whole kingdom. But in 1163, in the reign of Henry II., the latter privilege was by pope Alexander III. restricted to Roger's peculiar province. Opposing claims were nevertheless advanced on both sides, until Edward III. by influence and management procured from Rome a confirmation of the arrangement he had accomplished between the contending prelates. Then was introduced the caufialitical and filthy diftinction, still preferred, in the titles of the two metropolitans, by which the archbishop of York is stile d primate of England, and his brother of Canterbury primate of all England.

The county of York is wholly and immediately under the superintendence of the archbishop, whose suffragans are the bishops of Carlile, Chefter, Durham, and the Isle of Man. The latter, stiled bishop of Sodor (the southern isles of Scotland) and Man, prefiging over a diocese not formerly pertaining to England, has no feast in the houfe of peers. Under the archbishop, ecclefiafical affairs are conducted by archdeacons; an office first introduced into the diocese, as it is said, by Thomas the Norman, appointed in 1270.

Fertile and extensive as is the county of York, the number of religious houses erected within its bounds, in former times, was prodigious. "These were in all," according to Burton, (Monasticon Eboracense,) "106; or. abbeys 14, priories 44; alien priories 7, cells 13, and houses of friars of various orders 28." Of those establishments the ruins of many houses still exist; some of them exhibiting very picturesque and attractive monuments of ancient devotion and liberality. St. Mary's abbey adjoining to York gives sufficient indications.
tions of its original grandeur. The abbots of St. Mary's and of Selby, both of the Benedictine order, were alone entitled to wear the mitre on the N. side of Trent. But for an account of those abbeys, and that of Whithby, the reader is referred to the description of the several towns in which they are situated. Of some others, erected in detached situations, a few may be here noticed. About three miles S.W. from Ripon are the magnificent and picturesque ruins of Fountain's abbey, of the Cistercian order, founded in 1142; and so named, not from any abundance of springs of water at the place, but from the village of Fontaine in Burgundy, where St. Bernard, the great patron of the order, was born. But the structure, of which the remains are so great an ornament to the country, was commenced in 1204. Built in the most elegant style of the ancient pointed architecture, the tower and the walls of the church still remain; the roof only being ruined. The length of the church was 351 feet, and that of the transept 186. The great tower, singularly situated at the N. end of the transept, is in height 166 feet. The whole edifice may be considered as one of the finest specimens of the simple but majestic style of the time of Henry III. and his successor Edward I. The abbey now forms a peculiar ornament to the celebrated grounds of Studley-Royal. On the N. bank of the river Aire, three miles to the westward of Leeds, are the remains of Kirkstall abbey, founded in 1147, by a colony of Cistercian monks from Fountain's abbey. The venerable remains of the Cistercian abbey of Rievaulx, or Rievaulx, are situated in a valley, about three miles northwards from Duncombe-park, from which they appear with peculiar advantage. Of the very ancient monastery of Ripon no part now exists. The collegiate church, or minster, still an interesting edifice, was partly rebuilt in the middle of the 14th century. Roche abbey, situated near lord Scarbrough's seat of Sandbeck, in a deep narrow vale, is now reduced to a few arches, and a portion of the nave.


Yorkshire Cows, in Rural Economy, a term sometimes applied to a large short-horned breed of thefe cattle, which afford much milk, but which is not of the most rich kind, and which are much produced on the fine pastures in that district. See Cow and Live-Stock.

Yorkshire White, in Agriculture, a perennial grass that thrives well in most situations, and which grows very generally on all soils, except those that are of the most barren and dry qualities. It flowers in the middle of the summer, and is well calculated for sheep, as it answers uncommonly well when closely fed down. It is said not to be much relished by neat cattle, and confirmed injurious to horeses, which, in some cases, are supposed to become affected with a profuse discharge of urine and general weakness in consequence of the use of it. But should any hay, made from this grass, be accidentally given to these animals, and produce these effects, an immediate change of the fodder will prevent any further bad consequences. Its foliage is rather soft and woolly.

The proportional value which the grass at the time the feed is ripe bears to that at the time of flowering, is as 11 to 12.

It is an useful sort of grass in many cafes of laying land down to pasture and other such purposes. See HOLCUS Lonicatus.

YO-SANPOO, in Geography. See Sanpoo.

YO-TCHEOU, a city of China, of the first rank, in the province of Hon-guang, situated on the Yang-tze river, and on the Tong-ting lake. This lake, which resembles a sea, is remarkable for the greatness of its circuit, which is more than 210 miles; for the quantity of its water, especially in certain seasons, in which the two great rivers of the provinces swell with rains, discharge themselves into it, paffing out on the other side sensibly diminished; and for its astonishing quantity of fine fish which are caught therein. The great number of banks and merchandizes which are brought thither render it one of the richest cities in the empire; its district contains one town of the second order, and seven of the third; some on the east side of the lake, and others on the west. The country round is everywhere extremely fruitful, and full of different kinds of orange and lemon trees; 675 miles S. of Peking. N. lat. 29° 23'. E. long. 112° 35'.

YOUB, EL, a town of Algiers; 50 miles S.W. of Tremercen.

YOUGLIADGES, a post-town of Maryland; 173 miles N.W. of Washington.

YOUHAL, a sea-port, borough, and post-town of the county of Cork, Ireland, situated at the mouth of the river Blackwater, in the eastern part of the county. Youghal is an ancient corporation, and sends a member to the united parliament. It is one of the towns belonging to the duke of Devonshire, as heir of the eldest branch of the Boyle family. It has a considerable corn trade, and is much frequented for bathing. There is a collegiate church, the wardenship of which is united to the fee of Cloony. Youghal is 115 miles S.W. from Dublin, and 25 E. from Cork.

YOUHIOGENY, a river of America, which rises in the north part of Virginia, and runs into the Alleghany, at Pittsburgh.

YOUIS, a town of Africa, in the county of Whidah; 9 miles E.N.E. of Sabi.

YOULE, a river of Madagascar, which runs into the sea on the west coast, S. lat. 20° 20'. E. long. 44° 40'.

YOUW, a river of China, which runs into the sea on the west coast, S. lat. 20° 20'. E. long. 44° 40'.

YOUUNG, Edward, in Biography, a celebrated poet and clergyman of the established church, was born at his father's living of Upham, in Hampshire, in 1684, and removed from Winchester school to New college, in the university of Oxford in 1703, and afterwards to Corpus Christi college. In 1708 he obtained a law-fellowship at All Souls by the patronage of archbishop Tenison, and at this time poetry was the chief object of his pursuit. His first performance in this department was "An Epistle to Lord Lovelawn," one of the twelve peers created at the same time in 1712; and this was followed in the next year by his "Last Day," to which he prefixed a dedication to queen Anne, extolling the peace of Utrecht. From this circumstance he was regarded as a court-writer with a fixed stipend, under which character Swift alludes to him in his "Rhapsody on Poetry":

"Where Y must torture his invention
To flatter knaves, or lose his pension."

O 2
His next production was "The Force of Religion, or Vanquished Love," founded on the story of lady Jane Gray; and in 1714 he inscribed a poem on the death of the queen and the accession of George I. to Additon, who was then secretary to the lords justices. In 1719 he became tutor to the elder son of the earl of Exeter; but soon abandoning that connexion by the solicitations of the duke of Wharton, he graduated doctor of civil laws in this year, and wrote his tragedy of "Bubris, King of Egypt," which was dedicated to the duke of Newcastle, and favourably received; and in the same year he dedicated in a very complimentary strain to lord chancellor Parker, his poetical "Paraphrase on Part of the Book of Job." In the year 1721 his tragedy, "The Revenge," was exhibited with great applause, and dedicated to the duke of Wharton, whom he avows as his peculiar patron, and from whom he received some pecuniary favours. His satires, entitled "The Love of Fame, or the Universal Panion," were separately published, from 1725 to 1728, and as they became popular, he derived from them considerable profit. In 1726 he addressed his poem, entitled "The Inflation," to sir Robert Walpole, on his receiving the honour of the Garter; and he availed himself, on the accession of king George II., of his recommending an attention to the navy, to compose two odes, one inscribed "To the King, Pater Patriae," introducing another under the title of "Ocean." Having attained his 44th year, he took orders, and in 1728 was nominated one of the royal chaplains; and this change of his views and pursuits induced him to withdraw from the flage his tragedy of "The Brothers," which was under rehearsal. His next publications were adapted to his new profession; and among these were his "True Estimable of Human Life," exhibiting the dark side of the picture; and a sermon preached before the house of commons on the 30th of January, entitled "An Apology for Princes, or the Reverence due to Government," a subject not unappropriate to his situation as royal chaplain. In 1730, Dr. Young was presented by his college to the rectory of Welwyn, in Hertfordshire; and in the following year he married lady Elizabeth Lee, widow of colonel Lee, and daughter of the earl of Lichfield. Before this time he had refumed his poetical pen, and written "Imperium Pelagi, a Naval Lyric;" "Two Epitaphs to Mr. Pope, concerning the Authors of the Age;" and "The Sea-Piece," in two odes, dedicated to Voltaire. By his wife, who died in 1741, he had one son; and this circumstance, together with some other domestic losses that occurred about the same period, increased that melancholy and depression of mind to which he was constitutionally inclined. When he married lady Lee, she had a son, and also two daughters, the eldest of whom, denominated by him Narcissa, falling into a decline, went to the south of France, and died at Lyons in 1736. Her husband, Mr. Temple, suppofed to be the poet's Philander, died in 1740; and his own lady died in 1741. If he referred to these events in the annexed lines, he must have taken a chronological licence hardly allowable even to a poet:

"Infatiate archer! could not one suffice?
Thy shaft flew thrice, and thrice my peace was slain; And thrice, ere thrice, my son had filled her horn."

It is certain that he began to write his "Night Thoughts" in the year 1741; and the occasion, as he declares, was real, and not fictitious. The seventh of these poems is dated in 1744; and the interval must have been occupied in the composition of them. Notwithstanding the sublime strains in which the author expresses his pious feeling, he is not regardless of the patronage of distinguished persons, for to such he inscribes them. On this work Dr. Young bestowed much attention and labour, and he valued it as the chief of his productions. Among his other works, we may mention a poem written as an expression of his loyalty in 1745, and entitled "Some Thoughts occasioned by the present Juncture, inscribed to the Duke of Newcastle;" "The Cautous not fabulous, in Six Letters to a Friend, on the Life in Vogue," an overcharged picture of the existing manners; and "A Sermon preached before their Majesties," with a dedication to the king, 1758.

Dr. Young, notwithstanding his genius and piety, and his solicitude to obtain preferment, seems to have been disregarded; and though archbishop Seeker expresses his surprise that he had been overlooked by persons in power, he declines any interference in his favour. It should be recollected, however, that the attention which he paid to Frederick, prince of Wales, during his variance with his father, was not forgotten; nor indeed would his junction of the poetical and clerical character be any recommendation to George II. But the reason of his name's being stuck out of the list of court-chaplains on the accession of his present majesty is not known; it is the more unaccountable, as he was soon after appointed clerk of the clofet to the prince's dowager of Wales.

In his retreat at Welwyn he maintained a respectable and dignified character; and though the cast of his mind seems to have been gloomy, he was an agreeable and lively companion. The close of his life, however, was rather difconsolate than cheerful. The conduct of his only son, supposed to be the Lorenzo of the Night Thoughts, who is said to have been a rake and free-thinker, afforded him renewed opportunities for reproof and sarcasm, and must have been the occasion of poignant grief; though Mr. H. Croft vindicates his character, alleging that he was only eight years old when his father began that poem. But others have asserted that he was alarmed and grieved on his account; and that, notwithstanding the favourable change which took place in his sentiments and character, his father would not admit him to any interview in his latter years: and even on his death-bed he refused to see him, though he adored him of his forfiveness, and made him his heir. Towards the close of his life, he surrendered himself to the influence of a housekeeper, and from some mismanagement in his concerns, and a growing disposition to avarice, he became irritable in temper and depressed in spirits. His last production was a poem, entitled "Reparation," printed in 1762, which indicated the decline of his mental powers. His life was prolonged to the year 1765, and he then died in his 84th year. He was interred in the church of Welwyn, and his son erected a monument near the remains of both his parents.

Dr. Young is known principally, if not wholly, as a poet; and his compositions in this department are distributed into satires, tragedies, and night thoughts. His satires are founded on the questionable principle, that the love of fame is the universal passion of mankind; and as he did not excel in judgment, they are exercises of wit and invention rather than grave exposures of vice and folly. As a dramatic writer, he is charged with not understanding or not adhering to nature, and with indulging his imagination and feeling, and running into exaggeration of character and bombast of expression. The only tragedy that has kept possession of the stage is his "Revenge," the Zanga of which is said to have no competitor for theatrical effect.
effect among the personages of modern tragedies. His "Night Thoughts" are deemed original in design and execution. Whatever were the causes that produced them, they are adapted to excite devout feeling, and to produce moral effect, though they are justly complained of as in some places unintelligible, and as affording too much scope for criticism. To many readers, the theology on which they are founded and which they express is too awful and severe, and not so well calculated to soothe and pacify the human mind under trouble as the gentler and more contemplative dictates of Chriftianity. They are sometimes tedious and prolix. They will never be neglected as long as taste and fanciopetity of virtuous and religious impressions remain. The lyric attempts of Dr. Young are said to have been singularly unfortunate. From the edition of his works published in his life-time in 4 vols. 8vo., he himself excluded several compositions which he thought of inferior merit. Biog. Brit. Croft's Life of Young in Johnson's English Poets. Gen. Bio.

You, young, (Patricius Junius, Lat.), an eminent scholar, was born in 1584, at the seat of his father, Sir Peter Young, who had been co-tutor with Buchanan to James VI. of Scotland, at Seaton in Lothian. Educated in the university of St. Andrew's, and accompanying his father in the suite of king James, he was employed for some time as librarian and secretary, by Dr. Lloyd, bishop of Chester. In 1625 he assumed the degree of M.A. which he had before taken at St. Andrew's, and entering into orders, became chaplain at All Souls' college. During his residence at Oxford he occupied himself in the study of ecclesiastical history and antiquities, and also the Greek language; and upon his removal to London, he obtained a pension of 50/. a year, and was occasionally employed by the king and persons in power in writing Latin letters. His patron was Montagu, bishop of Bath and Wells, who procured for him the appointment of librarian to the king. In 1617 he was introduced at Paris, by the recommendation of Camden, to the learned men of that city; and upon his return, he assisted Thomas Rhead in making a Latin version of the works of king James. In 1620 he married, and afterwards was advanced to several preferments in the church; and succeeded Rhead in 1624 as Latin secretary. Unknown by any publication, he was nevertheless honoured as a person of distinguished literature, who rendered acceptable and useful services to learned men. In this way, he was the coadjutor of Selden in the examination of the Arundelian marbles, and when they were published by this celebrated antiquary, he dedicated the work to Young. He was also employed in collating the Alexandrian MS. of the Bible with other copies; and as the result of his labours, he communicated many various readings to Grotius, Ussher, and other persons. It was his intention to have edited a fac-simile of this MS., but his design was never executed. He published, however, in 1633, from this MS. the "Epistles of Clemens Romanus," and he proposed editing the curious MSS. from the king's library; but the civil wars, and the seizure of the royal library, prevented the accomplishment of his purpose. During the troubles of this period, he fought an affray with a fons-in-law, at Bromfield in Essex, where he died in 1652.

Young is said to have indulged to excess a disposition to oblivion, which led him to lend valuable MSS. belonging to the royal library to foreigners and others; and he has been charged with betraying his trust, by not returning MSS. which he removed to his own house in contemplation of the pilage of the library, and these were sold among his other effects. To obviate this imputation, it has been alleged that he purchased for himself many MSS. from Greeks who visited this country. Smith's Vit. Erud. Viro. Gen. Bio.

Young is a name borne by many persons connected with and remarkable in some way or other for useful talents in the arts. Charles Young, organist of Catharine-cren church, near the Tower, father of three daughters, who were all public singers: Cuccilia, the eldest, was an effective of Geminian, spoke Italian well, sung in many of Handel's later operas, and was afterwards married to Dr. Arne; the second Mifs Young, Isabella, was married to the ingenious and excellent composer Mr. Lampe, who set the Dragon of Wantley; and the third Mifs Young, Effie, afterwards Mrs. Jobes, sung on the stage at Covent-Garden theatre as the time of their deaths. Charles, the father of these ladies, was, we believe, the son of Anthony Young, a musician and musician in St. Paul's church-yard, commonly called Tony Young, who has been paid by some of the family to have set "God save great George our King." But at the time of the rebellion of 1745, when this air was revived, which Dr. Arne's mother allowed us was written and set for king James II., when the prince of Orange was hovering over the coast previous to the Revolution; no claim was then made by the descendants of Anthony Young, or of any other composer of this air, which no one durt sing or own after the abdication of king James, without incurring the penalty of treason to king William; so that the song or hymn lay dormant, and the author concealed for near sixty years, before it was applied to king George II.

There is a quibbling glee in the first volume of Purcell's catches on two persons of the name of Young, father and son, who lived in St. Paul's church-yard; the one was an instrument-maker, and the other an excellent performer on the violin:

"You scapen that want a good fiddle well strung, You must go to the man that is old while he's Young, But if this fame fiddle you fain would play hold, You must go to his foon, who'll be Young when he's old. There's old Young and young Young, both men of renown, Old falls, and young plays, the best fiddle in town; Young and old live together, and may they live long, Young to play an old fiddle, old to fell a new song."

Another Young, of the same family, the proprietor of a music-shop in St. Paul's church-yard till the middle of the last century, had a relation, an excellent performer on the violin, known by the name of Chin-Young, from the length of that feature, who led at almost all the concerts within Temple-bar, particularly at the Blue-coat school chapel, Chrift's hospital, on a Sunday evening, where there used to be a performance of sacred music.

Mifs Young, afterwards the hon. Mrs. Scot, and her sister Mrs. Bartleman, both public singers, seem to have been the last remains of the musical family of Young.

Young. See Generation, Conception, Gestation, Embryo, Fetus, Delivery, Child, &c.

In the army, that regiment, or officer, is said to be the younger, junior, which was last raised, or whose commission is of late date, whatever be the age of the man, or however long he may have served in other capacities.

Young Plantations, Securing and Sheltering of, in Rural Economy. See Plantation and Sheltering.

Young Frederick's Island, in Geography, a small island among Queen Charlotte's islands, in Port Ingham.

Young Nick's Head, a capo on the eft coast of New Zealand, so called from Nicholas Young, a boy on board the
the Endeavour, who discovered it in 1769. It forms the south-west point of Poverty bay.

Young Point, a cape on the east coast of St. Vincent. N. lat. 13° 14'. W. long. 61° 9'.

Young's Island, a small island near the south coast of the island of St. Vincent; 2 miles S.E. of Kingston bay.

YOUNGE, NICOLAS, in Musick History, an Italian merchant, the editor of "Musica Transalpina," 1588; Madrigales of four, five, and fixe parts, chosen out of divers excellent Anlhours; with the first and second part of La Virginella, made by Maifer Bird upon two Stanzas of Arioflo, and brought to speak English with the rest. The editor having opportunities of obtaining from his correspondents the newest and best compositions from the continent, had them frequently performed at his house, for the entertainment of his musical friends.

The second collection of the same kind was published by the same editor in 1597; in which, among others, there are three madrigals by Crouse, three by Luca Marenzio, and six by the elder Ferrabosco. These three collections being selected from the works of Palestrina, Luca Marenzio, and other celebrated masters on the continent, seem to have given birth to that passion for madrigals which became so prevalent among us afterwards, and which the composers of our own country endeavoured with such zeal to gratify.

If allowance be made for the wretched state of lyric poetry in England at the time the madrigals published in Younge's two collections were translated, which was long before the publication of the sonnets of Spenfer or Shakespeare, the undertaking seems to have been tolerably executed. Indeed, sometimes with such care and felicity as to transmute the expression of the original words into that of the version. The Italians themselves, at this time, had but little melody or rhyme in their music; but their poetry having been long cultivated, and brought to a much greater degree of perfection than ours could then boast, it indicated to the musical composer traits of melody, more airy and marked, perhaps, than we could derive from the prosody or phræology of our own language. The translator of these madrigals, however, he was, for the editor does not tell us, feems in general to have imitated the original Italian measure and structure of verse, as well as ideas; and though they abound with concetti, to which not only Italian poets, but those of all the rest of Europe were then so much addicted, the general taste of the times was indulged in poetry as well as music, and metre and melody were at once furnisht with new models.

However, the perpetual double rhymes in Italian madrigals and sonnets, and, further, the transmutation of the original music obliged him to render his version tidusy syllable, his embarrasments on this account are sometimes truly ridiculous. It seems as if the constant double rhymes in Italian poetry, which throw the accent on the penultima, instead of the final syllable of a verse, gave a peculiar cast to the melody in which it is clothed, and rendered it specifically different from that of English songs, in which but few double rhymes occur. The constant and regular mixture of masculine and feminine rhymes in French poetry may likewise have had a latent effect on the vocal melody of France, different from that of the other two neighbouring nations. But, after mentioning these difficulties, we shall leave the further investigation of so subtle a subject to philosphers, not only possessed of the necessary knowledge, but an equal zeal for the cultivation of philology, poetry, and music.

No. 7 in Younge's second publication of Italian madrigals Englished, in which the old Saxon termination of the present tense of the indicative mood of our verbs is conveniently preserved, was doubtless not thought the worst, as it is applied to several compositions in the collection.

"In wayne he seekes for beauty that excelleth,
That hath not even his eyes where love feigneth,
How sweetly here and there the music she turneth.

He knows not how love heareth, and he quetheth
That knows not how the fighes, and sweet beguilith,
And how the sweetly speakes, and sweetly smilith."

These madrigals were celebrated, nearly forty years after their publication, by Peaches, who has pointed out the peculiar excellence of several, particularly those of Luca Marenzio, which, he says, "are songs the muses themselves might not have been ashamed to have composed;" and of those by Alfonso Ferrabosco, the father, he says, "they cannot be bettered for sweetness of ayre and depth of judgment." Upon the ditty (words) of one of thefe, "I saw my Lady weeping," (he says) Master Byrd and Alfonso, in a friendly emulation, exercised their invention. The words of the Nightingale, and Payre Susanna, were so much admired, that they seem to have been set by all the best composers of the times. A few lines of each will perhaps convey to the reader an adequate idea of the poetical beauty of thefe favourite songs.

The Nightingale.

"But my poore hart with sorrowes over-fwalling,
Through bondage yyle, binding my freedom short,
No pleasure takes in these his sports excelling,
Nor of his song receiveth no comfort."

Payre Susanna.

"To them the fayd, if I, by craft procur'd,
Do yeld to you my body to abuse it,
I lofe my soule; and if I shall refuse it,
You will me judge to death reproachfully.
But better it is in innocence to chuse it,
Then by my fault t'offend my God on hye."

Indeed, in more than twenty sets, published between the years 1588 and 1624, during a period of near forty years, including almost four hundred and fifty madrigals and songs in parts, it would be difficult to find any one of which the words can be perused with pleasure. The sonnets of Spenfer and Shakespare, many of which are worthy of their authors, were indeed not published till about the end of the sixteenth century; but afterwards, it is wonderful, that, except one by Shakespare, none of them were set by our best musical composers of their time.

YOUNGOULE, in Geography, a sea-port town, on the west coast of the island of Madagascar. S. lat. 23° 30'. E. long. 47° 4'.

YOUNGSTOWN, a townhip in the State of Ohio, in the county of Trumbull, with 773 inhabitants; 66 miles N. of Pittsburgh.

YOUNGSTOWN, an inconsiderable settlement called a village in Cambria, Niagara county, and State of New York, 1 mile from Fort Niagara, and 6 from Lewiston, containing about six or eight houses.

YOUNKERS, among SAILORS, are the younger sailors, other wise called fore-mast-men; whose business is to take in the top-fails, furl the sails, fling the yards, &c.

YOUNE, in Geography. See URE.

YOURS, a town in Africa, in the kingdom of Cashna. N. lat. 16° 15'. E. long. 11° 2'.

YOUTH.
YOUTH, Adolescence. See Age and Adolescence.

The renovation of youth has been much fought after by chemical adepts; and many of them pretended to various secrets for this purpose; but unluckily the death of the pretenders proved a sufficient refutation of their doctrine. Paracelsus tells of the mighty things he could do with his ens primum; and even Mr. Boyle tells us some strange things about the ens primum of balm. (Boyle’s Works abr. vol. 1. p. 73.) But Mr. Boyle gives these wonderful flories on the credit of a French chemist, and not on his own.

Youth, Juvenitum, or Juvenitas, in the Pagan Theology, a goddes worshipped among the Romans, who, together with the gods Mars and Terminus, kept her place in the Capitol along with Jupiter, when the other deities were turned out: whence the Romans drew a lucky omen for the durability of their empire. Mem. Acad. Infrerp. vol. i. p. 17. seq.

This rate of life was, by the ancients, compared to autumn. In which sense, Horace speaking of one approaching to puberty, says,

"Jam tibi lilibidos
Diftinguet autumnus racemos,
Purpureo varius color." The moderns, on the contrary, when they speak of one in the autumn of his age, mean one that is upon the decline; and choose rather to use the comparison of the spring, to denote youth.

YOWRY, in Geography, a small island in the East Indian sea, near the north coast of New Guinea, on which a nutmeg-tree was found growing by captain Forrest. S. lat. 15°; E. long. 130° 45'.

YPAPA, a river of Bohemia, which runs into the Elbe, near its source.

YPERLEE, a river of France, which rises near Ypres, and runs into the canal of Nieuport.

YPOLOTE, a town on the E. coast of the island of Paraguay. N. lat. 8° 46'. E. long. 118° 21'.

YPRES, or Ipres, a city of France, in the department of the Ly's, situated on the river Yperlee, from whence it takes its name. Before the year 1000, it was only a chateau, which was sacked and ruined by the Normans. Baldwin III. comte of Flanders, repaired the chateau, and built a town about the year 960, which was afterwards enlarged by Thierry, comte of Flanders, and Ferrand, the son of Sanchez, king of Portugal. In the year 1325, the inhabitants revolted with most part of the neighbouring towns against Louis de Nevers, comte of Flanders, and pulled down the old wall to build a new one, in which they included the Fauquibourgs, which had become so extremely populous, from weavers and other tradepeople, that in the year 1242, the number of persons amounted to 200,000. In the 14th century, the inhabitants of Ypres, for the most part weavers, were exceedingly troublesome to their neighbours, being unwilling that any people should carry on trade besides themselves. In the year 1383, the rebels of Ghent, allied by the English, under the command of the bishop of Norwich, besieged this town with great vigour for six weeks, but were compelled to retire; and the English being obliged to quit Flanders, Philip the Hardy, duke of Burgundy, having become master by a marriage with the heiress of the late comte Louis, enlarged it, and surrounded it with walls. It was erected into a bishopric under the archbishop of Malines, by pope Paul IV. in the year 1559. The town-house is a very large building, forming a square, and is said to have been built by the English, 600 feet in front; it has a very handsome tower, in which were kept their public archives from the year 1342. Besides the cathedral, it has several other churches, and some religious houses. The inhabitants carried on formerly a great trade in woollen cloth, but by the severity of the duke of Alva, the principal manufacturers were driven to England, from which time that branch of trade declined. At this time they carry on a considerable manufacture of linen of excellent fabric; 4 miles N.W. of Lille. N. lat. 50° 48'. E. long. 2° 53'.

YSILOIDES, Or Dodenhof, in Anatomy, the third genuine future of the cranium; thus called from its resembling a Greek y, or upilon.

Some also call it흡고유나, lambdoiodes. There is also a bone at the root of the tongue, called phyloides, and byades. See Hyoides.

YQUETAYA, in Natural History, a plant growing in Brazil, long used as a medicine in that country; and lately discovered to the Europeans by a French surgeon.

It has been since found in France; where, being cultivated and examined by Marchant, it appears to be not other than the common water-betony, or fcrphularia aquatica.

It has this remarkable property, that it takes away from fena all its ill taste and smell; which property of correcting the infusion of fena was before wholly unknown.

To use this plant, it must be dried ten or twelve days in the shade, and afterwards exposed to the sun, till quite dry.

YRAME, in Geography, a town of Arabia, in the province of Yemen; 100 miles N.N.E. of Aden.


YROUER, in Geography, a town of France, in the department of the Yonne; 5 miles S. of Tonnerre.

YRSEE ABBEY, a princely abbey of Germany, in the circle of Swabia, founded in the year 1182. The territory includes the village of Yrsee, and seven others. In 1800, this abbey was given among the indemnities to the elector of Bavaria; 3 miles N.W. of Kaufbeuren.

YRILLAC, a town of France, in the department of the Finisterre; 3 miles S. of Landerneau.

YRUN, a town of Spain, in Guipucos; 2 miles S. of Pontarabia.

YRVON, a river of Wales, in the county of Brecknock, which runs into the Wye, at Builth.

YS, in Ichthyology, a name given by Athenæus, and some other of the Greek writers, to the fish called mus and sus by others. It is the capricus of later writers. See Goat-Fish.

YSABRA, a word used by some as a name for hellebore, and by others to express a species of poifon prepared in Spain, of which hellebore is an ingredient.

YSARD, in Zoology, a name given to the chamois.

YSCH, in Geography, a river of France, which runs into the Dyle, 6 miles S. of Louvain.

YSENDYCK, or ISENDYCK, a town and fortress of Flanders, situated on the side or arm of the Scheldt, called
The Blie; it was built near a town called Galtersne, swallowed up by an inundation of the tea some centuries ago, whose inhabitants came to establish themselves at this place. The Dutch made themselves masters of it in the year 1634, and since that time it has been strongly fortified, which is much as if by its situation, being surrounded by marshes, which they can lay under water at pleasure; 8 miles E. of Sulys. N. lat. 51° 24'. E. long. 3° 29'.

YSIORTAM, in Ancient Geography, a place of Aria, in Armenia, which had a Roman garrison.

YSNL, in Geography. See ISNL.

YSOPUS, a term used by fome to express the chemical art of separation.

YSBR, a name by which fome of the chemical writers call iron.

YSANDON, JEAN, in Musical Biography, born at Leffart, in the Comte de Poix, wrote "A Treatise on Practical Music, divided in Two Parts." This book was become very fcarce, and deferves to be reprinted. It was first printed by Ballard in 1582. Laborde.

YSSEL, in Geography. See ISEL.

YSSENGEAUX. See ISENGEAUX.

YSTAD, or YSTAD, a fea-port town of Sweden, on the south coast of the province of Schonen, from whence a packet fails to Stralfund. It was formerly well fortified, and contained two churches. The harbour is neither large nor safe; 26 miles S.E. of Lund. N. lat. 55° 22'. E. long. 13° 44'.

YSTSA, a town of North America, in the province of Mexico.

YSTWTH. See ISTWITH.

Y-TCHANG, a town of Corea; 35 miles W.N.W. of Kang-tcheou.

Y-TCHUUN, a town of Corea; 15 miles S.S.W. of Ou-tcheou.—Alfo, a town of Corea; 55 miles N. of King-kitao.

YTHAN, a river of Scotland, a few miles N. of the Don, that joins the fes, about two miles from Aberdeen, which falls into the German ocean. The Ythan is a frem formerly celebrated for its pearl fisheries, of which fome relics are now found.

Yther, a river of Wales, which runs into the Wye, 3 miles N. of Buith.

YTERON, a small island in the gulf of Bothnia. N. lat. 69° 4'.

YTRYRA BERGON, a small island on the W. side of the gulf of Bothnia. N. lat. 61° 48'. E. long. 17° 13'.

YTRRA, or YTRIA, in Chemistry, is a peculiar elementary substance usually considered as an earth.

Ytria has been hitherto met with in a peculiar mineral named GADOLINITE, so named from professor Gadolin, who first analysed it, and in YTTRO-TANTALITE, both minerals found only in Sweden. See those articles.

Ytria has the appearance of a fine white powder, without taste or smell. It does not affect vegetable blues. Its specific gravity is considerably higher than that of the other earths, being no less, according to Ekeberg, than 4.842.

Ytria is insoluble in water, yet, like alumina, it is capable, according to Klaproth, of combining with nearly one-third of its weight of that fluid when precipitated from a folution by the muriatic acid. In solutions of the pure alkalies it is likewise insoluble; but in the carbonate of ammonia, and indeed in all the alkaline carbonates, it dissolves readily. It combines with acids, and forms with them salts, which, as far as they are known, are described below.

Ytria is not affected by light, and probably does not combine with oxygen. According to the experiments of Klaproth, it does not combine readily with sulphur.

Sir Humphrey Davy found, that when potafh was passed through red hot yttria, it was converted into potafh, while grey metallic particles were perceived mixed with the alkali, which were considered to be the metallic basis of the earth or yttrium. Nothing further, however, is known respecting this metallic basis.

The Salts of Ytria are but little known. The following only have been examined.

Nitrate of Ytria.—This salt was frift formed by Ekeberg, and has been more lately examined by Vauquelin. It may be prepared by dissolving yttria in nitric acid. The folution has a fweet astringent taste, and can scarcely be made to crystallize. Expofed to the air, it deliquesces. When fulpuric acid is poured into the folution, crystals of fulpurate of yttria are instantly precipitated.

Carbonate of Ytria.—This falt may be formed by precipitating yttria from its folution in acids by means of an alkaline carbonate. It is white tafteless infuble powder, composed, according to Klaproth, of

<table>
<thead>
<tr>
<th>Salt</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic acid</td>
<td>18</td>
</tr>
<tr>
<td>Yttria</td>
<td>55</td>
</tr>
<tr>
<td>Water</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

According to Vauquelin, however, it loses only 32 per cent. when calcined.

Phosphate of Ytria.—Vauquelin formed this falt by mixing a folution of the phosphate of foda with the sulphate, nitrate, or muriate of yttria. The phosphate of yttria precipitated in the form of gelatinous flakes.

Sulphate of Ytria.—Sulphuric acid dissolves yttria readily. As the folution proceeds, the sulphate crystallizes in small brilliant grains. Ekeberg flates these crystals to be flat fided prisms, terminated by four-fided fummits. Dr. Thomson obtained thefe in the form of long fendid rhomboidal prisms. Their colour is amethyst-red. Their specific gravity 2.791. They are foble in about 30 parts of water at 60°. A red heat partly decomposes them. Oxalic acid, prufiate of potafh, and infusion of nutgalls, occasion a precipitate in the aqueous folution of this falt. It is decomposed by the phosphate of foda. The folution of Glucina is readily diftinguished from this falt by its being colourfes, lighter, and more soluble in water. According to Berzelius, the sulphate of yttria is composed of

<table>
<thead>
<tr>
<th>Salt</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid</td>
<td>50.0</td>
</tr>
<tr>
<td>Yttria</td>
<td>50.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Arseniate of Ytria.—When yttria is dissolved in arfenc acid, and the folution boiled, arseniate of yttria precipitates in the form of a white powder. Arfenate of potafh also precipitates yttria from acids.

Chromate of Ytria.—Chromic acid dissolves yttria cold in considerable quantity, and with effervescence. The folution has an astringent and pungent taste, and, like moft of the chromates, has an orange-red colour, passing into yellow. The folution is fweet neutral. When evaporated, it forms minute prismatic and cubic crystals. It is very foble in water.

Acetate of Ytria.—Yttria dissolves readily in acetic acid, and the folution on evaporation yields crystals of the acetate of yttria, the form of which is usually that of thick fixed plates.
plates, obliquely truncated. Their colour is amethyst-red, and they are not altered by exposure to the air.

*Succinate of yttria.*—Yttria is not precipitated from its solution in acids by the succinates, unless the two salts be concentrated, in which case small cubic crystals fall, which are the succinate of yttria.

*Oxalate of yttria.*—When oxalic acid, or the oxalate of ammonia, is dropped into a solution of yttria in an acid, a white insoluble powder falls, which is the oxalate of yttria. According to Vaquelin, this salt is composed of

<table>
<thead>
<tr>
<th>Oxalic acid</th>
<th>57.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yttria</td>
<td>42.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Tartrate of yttria.*—Yttria is precipitated from its solution in acids by the tartrate of potash, but the precipitate is dissolved by the addition of water.

Dr. Thomson infers, from the analyses above-mentioned, and more especially from the analysis of the sulphate and carbonate by Berzelius and Vaquelin, that the combining weight or weight of the atom of yttria is 50, oxygen by 10, and consequently that it is composed of

<table>
<thead>
<tr>
<th>Yttrium</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

and the weight of the atom of yttrium will be 40.

With respect to the salts of yttria in general, it may be said, that many of them are little soluble; that they are capable of being precipitated from acids by the phosphates of soda, the carbonate of soda, the oxalate of ammonia, the tartrate of potash, and the prussiate of potash; and lastly, that the sulphate of yttria may be distinguished from the sulphate of lime by its greater solubility, and by its sweet taste.

**YTTRIUM**, the metallic basis of yttria. See *Yttria supra.*

**YTTRIO-TANTALITE**, in Mineralogy, Tantale yttrii, Tantale yttrithan, Brougniart, an ore of tantalum, combined with the newly-discovered earth called yttria, and found at Ytterby, near Koflagen, in Sweden. The colour of yttrio-tantalite is a dark iron-black; when pulverized it is greyish; it occurs in nodules, about the size of a hazel-nut, and also crystallized in oblique six-sided and four-sided prisms. It occurs also in granular distinct concretions. Its fracture is compact or finely granular, and it has a shining metallic lustre. Yttrio-tantalite scratches glass, but yields with difficulty to the knife. The specific gravity of this mineral is 5.13. It decomposes with the blow-pipe, but at length melts into a greenish-yellow flag. According to Vaquelin, the constituent parts are,

| Oxyl of tantalum | 45   |
| Oxyl of iron and yttria | 55   |
| **Total**        | **100** |

Yttrio-tantalite is nearly allied to gadolinite, the other mineral in which yttria is found, and occurs with it at Ytterby, in a bed of flesh-red felspar in gneifs.

**YTZAIMPATLI,** in the *Materia Medica*, a name given by some to the cedavilla, or hordeum caucicum, the caucic Indian barley.

**YU,** in Geography, a city of China, of the second rank, Vol. XXXIX.

in Pe-chie-li; 87 miles W. of Peking. N. lat. 39° 52'. E. long. 114° 14'.—Alfo, a city of China, of the second rank, in Ho-nan; 443 miles S.S.W. of Peking. N. lat. 39° 22'. E. long. 112° 38'.—Alfo, a city of China, of the second rank, in Ho-nan; 377 miles S.S.W. of Peking. N. lat. 34° 16'. E. long. 113° 14'.—Alfo, a river of China, which rises in Ho-nan, 12 miles N. of Pi-yang, and joins the Hoai, 20 miles E.S.E. of Sin-tai.—Alfo, a river of China, which rises about 26 miles W. from Ngan-fou, in Kiang-fu, and runs into the Kan-kiang, 7 miles N.N.E. of Lin-kiang.

**YUCATAN,** a province of Mexico: it is a peninsula, surrounded on the W. and N. by the gulf of Mexico, between the bay of Campeachy on the S.W., and that of Honduras on the S.E., having the little province of Tabasco on the S.W., and that of Vera Paz, in the audience of Guatemala on the S., where it is joined on the continent by an isthmus not 120 miles broad. The climate is pretty warm in summer, which begins about April, and ends in September. It rarely rains here during the winter season, though the weather is tolerably cool, except in January and February, which are almost as hot as in the middle of summer. It is, however, very healthy, especially a large mountainous tracts, extending from Salamanca on the W., to the eastern boundary, and where the natives live to a great age. The south side of this ridge is ill-peopled, and worse cultivated, for want of water; but the north part is very populous, being rendered pleasant by gentle breezes, though the sun is very hot. The days and nights are nearly equal all the year. The soil when properly cultivated produces great quantities of corn, cotton, and indigo. All sorts of cattle, wild-beasts, honey, wax, and fowls, are here in great plenty; and on the coasts are found large pieces of amber; but as no mines were ever discovered in this country, the Spaniards are not fond of making settlements here, so that it abounds mostly with Indians, subject to the Spaniards, who employ them in making salt, in the bay of Campeachy. This peninsula has very few rivers, but wells without number, and considerable lakes; and wherever they dig up the land, abundance of shells are found, which with the lownefs of the country, and shallownefs of the sea about it, has induced many to think that the greatest part of it was once under water. The capital of Yucatan is Campeachy, in the bay of which, and of Honduras, the former lying on the west, and the latter on the east side of this province, the English cut their logwood.


Gen. Ch. Cal. none. Cor. bell-shaped, in six deep, ovate, very large, equal, moderately spreading segments, connected by their claws. Nectaries none. Stam. Filaments fixed, inserted into the base of the corolla, very short, swelling upwards, reflexed; anthers minute, roundish. *Pyf.* P German
YUCCA.

Germn superior, oblong, bluntly triangular, with six furrows, rather longer than the stamens; stamens five; stigmas obtuse, with three furrows, its lobes cloven, the centre pennis. *Pursh.* Berry oblong, bluntly hexagonal, fleshy, perforated at the summit, of six cells; three of the partitions thicker than the three intermediate ones. *Seeds* very numerous, in a single row, separated from each other by transverse membranes, roundish-obovate, flat, depressed, attached, by their pointed base, to the inner angle of the cell.


Ob. We have, like Schreber, adopted Gartner's idea of the fruit, which Linnaeus does not appear to have seen in perfection, and which Dillenius confesses himself to have judged from the unenlarged *germen* only. Analogy might well lead these authors to presume it a *capsule,* which, from the structure of the *germen,* might be judged to consist of three cells. This idea was moreover supported by an account which Ray had somehow obtained from the East Indies; where indeed no *Yucca* grows wild, and therefore this account cannot implicitly be trusted. Gartner received, from professor Hermann of Strauburg, the ripe fruit of *Yucca dracaonis*; and this being the only authentic instance of the seed-veget of any one of the genus paffing under the investigation of a critical botanist, we must rely on it as affording the only certain type of the genus in this particular. Jullifc appears to have followed Linnaeus; but the discovery of the true nature of the fruit, rather favours his opinion above-mentioned, of the affinity of *Yucca* to his *Bromelie.* This is a handsome perennial genus, more or less caespitose, with numerous, long, simple, rigid or coriaceous, pungent leaves; and copious, panicled, white, lilaceous, very elegant though generally inodorous flowers. Some of the species are tolerably hardy in our gardens, but they do not very readily or constantly bloom.

1. *Y. gloriosa.* Common Adam's-needle. Linn. Sp. Pl. 456. Willd. n. 1. Ait. n. 1. Pursh n. 4. Curt. Mag. t. 1260. Andr. Repof. t. 473. (Y. five Jucca, perumum; Ger. Em. 1543. Yucca indica, folis aequos, flore albo; Barrel. Lc. t. 1194.)-Caulecente. Leaves lanceolate, straight, furrowed; their edges smooth and entire.—Native of Peru and North America. On the sea shore of Carolina, flowering in July and August; the whole plant about ten feet high. Flowers white. *Pursh.* The *film* in our gardens is seldom two feet in height, somewhat branched, thick, tough, crowned at the summit of each branch, if divided, with a profusion of crowded leaves, spreading in every direction, each a foot and a half or two feet long, tapering to a hard spiny point; contracted in the lower part, but dilated at the very base, where they half clasp the *film;* their upper surface is of a fine green, smooth, furrowed longitudinally, especially toward the end; the under paler, and more even; the edges quite even and smooth. *Panicule* terminal, compound, erect, composed of perhaps an hundred drooping flowers, not much inferior in size and beauty to those of the White Water-Lily, but more cream-coloured, tinged at the base and points with crimson, destitute of fecent. Partial *flakas* about an inch long, round, smooth, with a pair of membranous bracteas at the base. *Stigma* in three distinct spreading, cloven lobes. We cannot but think, notwithstanding Mr. Ker's opinion, that Andrews's figure belongs to this species, and not to alafoja. This is evinced by the furrows and margin of the leaves, as well as by the structure of the stigma; though we must allow the whole representation to be less happy and characteristic than that in the Magazine.

2. *Y. recurvifolia.* Drooping-leaved Adam's-needle. Saliib. Parad. t. 31. Pursh n. 3.—Caulecent. Leaves linear-lanceolate, furrowed, recurved and drooping; their edges at length somewhat filamentous.—Native of the sandy shores of Georgia, where it was found by M. Leconte, flowering in July and August. The *flowers* are of a greenish-yellow, with a tinge of purple. *Stern* about three feet high. *Pursh.* This species is recorded in the *Paradisus Londinensis,* as having flowered, in the late Mr. Swainson's garden at Twickenham, in 1805; yet it is not admitted by Mr. Dryander, or Mr. Aiton, into the *Hortus Kewensis,* or its *Epitome.* The flowers are said by Mr. Salibury to have a strong smell, mixed with something like a citron flavour. The three inner segments of the corolla are a little the broadest. *Stigma* most like the last. The edges of the leaves split off in a few disjointed filaments, in the manner of *F. filamentofa,* though far less remarkably. We have seen no specimen. Mr. Pursh having observed this, as well as the gloriosa, in a living state, in North America, chiefly induces us to admit it into our list of species; garden plants being always left to be trusted in any doubtful question.

3. *Y. alafoja.* Aloe-leaved Adam's-needle. Linn. Sp. Pl. 457. Willd. n. 2. Ait. n. 2. Pursh n. 5. Curt. Mag. t. 1700. (Y. aborecens, folis rigidioribus rectis ferratis; Dill. Elth. 435; t. 323.)—Caulecente. Leaves linear-lanceolate, even, straight; their edges bordered with fine ciliate notches.—Native of South America, according to most authors; of the coast of Carolina and Florida, flowering in August. *Pursh.* It was introduced, more than a hundred years ago, into the English and Dutch gardens, and is generally treated as a green-house shrub, though said to succeed and flower better, in mild seasons, in the open ground. The *filum* is generally simple, and rises to the height of fifteen to eighteen feet, even in our conservatories, being for the most part naked, round, three or four inches in diameter, marked with scars where leaves have been. The upper part, for the space of a foot or more, is thickly becket with leaves, spreading in every direction, the lower ones pointing downwards, the upper ones nearly upwards, a few in the middle only being horizontal. The *leaves* are all straight, narrower and rifer than in *Y. gloriosa,* and distinguished by their entire edges, as well as even surface. The *panicule* also is more dense and cylindrical, from two to three feet high. *Flowers* white, externally tinged with purple. *Stigma* abruptly of three shorter, less dilated and spreading, lobes. Mr. Ker truly remarks, in the Botanical Magazine, that this species will thrive for many years with very little earth, in pots not more than a foot deep. Its flowering is a rare occurrence, and after that event, the head decays at the top, throwing out lateral shoots, and the plant becomes branched; but its elegant simplicity is destroyed, and we believe no more flowers, at least in our gardens, are ever produced.

4. *Y. dracaonis.* Drooping-leaved Adam's-needle. Linn. Sp. Pl. 457. Willd. n. 3. Ait. n. 3. (Y. dracoenis folio, ferrato reflexo; Dill. Elth. 437; t. 324. Tacoroi; Clus. Exot. 48.)—Caulecente. Leaves linear-lanceolate, even, reflexed, crenate. Segments of the corolla spreading, somewhat recurved.—Native of South Carolina, according to Mr. Aiton, who marks this species as a hardy shrub, flowering in October and November. We have never seen an authentic specimen of the flowers, but in the very admirable plate, communicated to Dillenius by his friend Spreckelon of Hamburg, and published in the Hort. Elth. as above, the _corolla_ is represented with more lanceolate, flat, spreading,
YUCA, in Gardening, contains plants of the succulent, evergreen, shrubby, hardy, and tender kinds, in which the species cultivated are, the common Adam's-needle (Y. filamentosae), the thready Virginian yucca (Y. filamentosa), the aloe-leaved yucca (Y. aloifolifla), and the dragon-tree-leaved yucca (Y. dracena).

There are all succulent evergreen shrubby plants, some of them having a flabby nature and great regularity of growth.

Method of Culture.—These plants are all capable of being raised by offsets or suckers, from the roots and heads of the old plants, as well as by seed.

The offsets and suckers may be taken off any time in the spring or summer, being laid in some dry place for a few days, until the wounded part caused by the separation from the plant is dried and healed over; when they may be planted out separately in pots of light sandy compost, and be placed in a shady situation till they have taken root in a perfect manner. When lifted by a hot-bed, they often succed better.

The seed obtained from abroad should be sown in the spring in pots of light earth,. putting them in a hot-bed, in which the plants soon come up; and when they are two or three inches high, they should be pricked out separately in small pots of light sandy mould, replacing them in the hot-bed to forward their growth, affording them with moderate waterings and fresh air daily, and hardening them by degrees to the full air, so as to be set out in June to remain till October, when they should be removed into the green-house for the winter.

Some plants of all the sorts should constantly be preferred in pots.

They are all very ornamental; the two first after they have been hardened, in the dry borders, where the soil is light, and where the situation is warm and sheltered; and the others in green-house collections, among other potted plants.

YUE, in Geography, a city of China, of the second rank, in Yunnan; 1105 miles S.S.W. of Peking. N. lat. 25° 22'. E. long. 109° 22'.

YUEN, a river of China, which runs into the lake Tong-ting, 17 miles E. of Tchang-te.—Alfo, a city of China, of the second rank, in Hou-ouang; 850 miles S.S.W. of Peking. N. lat. 27° 23'. E. long. 105°.

YUEN-KIANG, a city of China, of the first rank, in Yunnan, on the Ho-ti river; 1250 miles S.W. of Peking. N. lat. 23° 37'. E. long. 104° 44'.

YUEN-TCHEOU, a city of China, of the first rank, in Kiang-fi; 750 miles S. of Peking. N. lat. 27° 50'. E. long. 114°.

YUEN-YANG, a city of China, of the first rank, in Hou-ouang, on the river Han; 517 miles S.S.W. of Peking. N. lat. 32° 50'. E. long. 110° 29'.

YVERDUN, or IFFERTEN, a town of Switzerland, in the Vaudois, and capital of a bailiwick, in the canton of Berne, situated on the lake of Neufchatel, otherwise called the lake of Yverdun, at the mouth of the river Ord, which divides into two branches, forming a good port, and an island, on which the town is situated. The two f luxbours communicate with the town by bridges. It is ancient, and in the Thedofian table called "Cafrum Ebredunenfis," and "Ebredunenfis," by which it is understood to have been a place of strength. The Romans maintained here a praefetus barcariorum, and there yet exist a society of boatmen, of ancient standing, and numerous, who have a particular police, privileges, and laws of navigation. From the Romans it passed to the kings of Burgundy, and afterwards to the dukes of Zahringen. In the year 1259, it was taken by Peter of Savoy, who reduced it by famine, and it continued
in that family till the year 1536. In this year, the troops of Berne, when they had reduced the rest of the Vaudois, laid siege to this town, and after a few days, became masters, since which Yverdon has been subject to Berne. The police is administered by a great and little council, composed of thirty-six members, the president of whom has the title of banniert. It has a large and strong castle, flanked with four towers, built in the 12th century, by Conrad, duke of Zähringen: other public buildings are, a college for the instruction of youth, an hospital, divers magazines, &c. and in the town-house is a library, formed not long since by contribution. The environs were formerly a morass, which has been drained, and is now become good and fertile land. Near the town is a sulphurous medicinal spring, and in the year 1736, a building, for the purpose of bathing, was erected by the magistrates. In the middle of the last century, a company was formed, for the purpose of making a navigable canal from the lake of Yverdon to the lake of Geneva, but it was never finished. The bailiwick is one of the most considerable in the canton of Berne, containing about 25 parishes and 20 lordships, and is about 15 miles in length. The fertility is moderate: the wine is not of the best quality; 34 miles S.W. of Berne. N. lat. 46° 48'. E. long. 6° 14'.

YVES, or Ivo, in Biography, bishop of Chartres, was born in the 11th century, of a noble family, in the territory of Beauvais, and studied theology under Lanfranc, prior of Bec. Being made abbot of St. Quentin, he opened a theological school, which became famous; and having superintended this institution for fourteen or fifteen years, and maintained a regularity among those who attended it conformable to the ancient canons, he was justly regarded as one of the chief founders of the order of canons-regular. Upon the death of Geoffrey, bishop of Chartres, he was chosen as his successor, and the election was confirmed by Urban II. in 1091. The discipline he maintained in his see was exemplary, and in the duties of it he was employed for 25 years, his episcopate and his life terminating in 1116. Besides sermons, a brief chronicle of the kings of France, and two collections of ecclesiastical decrees, he has left 287 epistles, from which may be learned the manners of the times in which he lived. Of these we have a summary by Dupin. A collection of his works was printed at Paris in 1647. His name is highly respected in the church of Rome, and pope Pius V. sufficed a bull in 1570, empowering the canons-regular of Latran to celebrate an anniversary for "the blessed Yves." Dupin. Moreri.

YVETOT, in Geography, a town of France, in the department of the Lower Seine. This was once a place of consequence, and the capital of a kingdom; 18 miles N.W. of Rouen.

YUFTS, or Russian Leather, as it is called in England, are the chief products of the tanneries in Russia; and the principal places in which they are prepared, next to Moscow and Peterburg, are, Arkamas, Kotroma, Yarolla, Pfcove, Kazan, Vologda, Nilhen-Nogorod, Vladimir, Ekatarinenburg, &c. Mr. Tooke has described the processes by which they are prepared:—The raw ox-hides are first laid in running water, or in large tannpits full of water dug in the earth for that purpose, to soak for a whole week; but in summer not so long. During this time they are daily taken out of the water, and scraped at a scraping-bench, or wooden horse. Having now been duly steeped, they are put into a leat, thus prepared: In other words, likewise dug in the ground, and under cover, they mix two parts of good ashes with one part of unblacked lime, in boiling water, and flink the wet hides in this leat on a grating, which being suspended by cords, can be railed or let down at pleasure. In this vat the hides are laid again for about a week, though in warm weather less, in cold perhaps even longer. The sign that they have lain long enough in the leat is, that the hair can without difficulty be rubbed off with the hand, so that none remains. If the hides, after the expiration of a week, are not in that condition, fresh ashes are put into the leat, and the skin funk in it. But if at length the hair be sufficiently loose, the hides are entirely taken out of the leat, and all the hair scraped off on a scraping-block, by means of blunt iron scrapers with two handles. The hair is washed clean, and folded for domestic uses. The hides, thoroughly cleansed from hair, are suspended in vats of clean water on a running stream, where they remain three days, diligently turned towards to and fro, in order to purge them from the ashes and leat; afterwards they are hung up, and left to drain. The hides must now be scraped on the flesh side. To this end they employ either the aforesaid scraping-iron, or others sharper in various degrees. After this treatment, the hides are trampled. But calves-hides have another sort of preparation, which the yuf-tanners, in the interior towns of the empire, who mostly practice it, call rakfisht. This preparation is performed with the white excrement of dogs dried, which is dissolved in boiling water, and to a hundred hides about four vedros full of excrement is the rule. If here the right proportion with the water be not found, the hides corrupt in this steame, the object whereof seems to be the complete freeing of the skin from the salts that adhere to it from the leat. The hides are left to lie twice twenty-four hours. With this is mixed a great quantitv of oatmeal with warm water, and to three ofnicks, or eighthts of a chetverik, three or four vedros of dreggs of the common quas, which the people make of meal and a small portion of malt, put in the thin gruel, that it may quickly four with the hides. To ten hides, the tanners usually reckon forty pounds of meal.

After the hides have foured, which is done in large vats, they are laid in other vats, and well steeped for two or three days in a strong tan-juice, fok, thoroughly boiled from good bark. When this is done they are brought straight to the tan. In the tan-pits, in which often some hundreds of hides are lying, is poured half water and half tan, or water boiled with tan, and a grating is hung in with cords, having one hide after the other spread upon it; thick itrewed with good fince-pounded tan, and the grating constantly let deeper into the pit, till it be nearly full; yet so that the tan-liquor is always above the hides, which are then again sprinkled over with tan. In this tan the hides continue to lie a week; though of full-grown animals longer. On being taken out, they are washed and trampled on, which two workmen in a summer's day can perform with three hundred hides. The next day they are laid, in the manner above-described, in fresh tan. Thus they generally get four times successevly fresh tan, and are every time rinsed clean. In the last tan they lie three weeks, or longer, are then finally washed, hung up, and, when they have tolerably drained, delivered to these workmen whole bufines it is, in particular workshops, to dye, drefs, and wash the yufts, and to deliver the goods finished. It is to be observed, that the Russian yuf-tanners seldom use oak-tan, and never willingly. The choiceest and best tan is that of the tschernotal, as they call it, or the black willow; and also the young bark peeled off from other shrubbery willows, which are collected by the boors, dried in bundles, and brought in cart-loads to market. To ten hides, the tanners compute one and a half fathom of these bundles of yellow-bark,
bark, as they are laid one upon another for sale, through all the seven. It must not, however, be imagined that the excellence of the Russian yuffs depends on this; for in Siberia, where there are no oaks, and but few willows of any size, they tan yuffs with only birch-bark, which are not much worse than the Russian. The bark is made small by either ordinary tan-mills, turned by horses or by water; or the tanner himself, in many towns where there are no mills, causes it, at unnecessary expense and labour, to be pounded in wooden mortars, or excavated blocks, with pestles, almost like those in the tan-mills, by day-labourers.

The dyeing of the yuffs is performed in two ways, and over two colours. The commonest and most natural custom of giving the colour to the hides is, by feeding them together in pairs, the hair side inwards, while they are yet moist, round the edges, with rufhes or stripes of bark, thus forming them into a bag or sack; into this sack the colour is put, the sack well shook, and the superfuous dye let to run out, whereupon the skins are dried. From this method of dyeing them, it seems to proceed that the yuffs are called and taken by pairs. The other process, whereby much trouble, time, and colour are saved, and the edges of the skin entirely preferred, is the following: Each skin is hung upon a horse over a long trough, so that the hair side, which must be stained, appears outwards, pounding the dye upon it out of the dye-kettle, till the whole skin is dyed. The two colours given to the yuffs are red and black. The red dye is thus prepared: Pound braflf wood (fandal) in the pounding-mill, or with hand-pestles, as fine as the tan, and boil in kettles. Previous to the dyeing, steep the skins in alum and water. It is calculated, that to each small yuff skin a half, and to a large one a whole pound of logwood is put. But the latter are mostly coloured black. To a hundred yuffs to be dyed red, four pounds of alum is sufficient. For dyeing black the braflf wood is likewise used; but in the red dye, to a hundred skins three pounds of good iron vitriol is dissolved. After the first tincture the skins are dried, and afterwards on tables done over again with the same dye and rolled up, that they may thoroughly imbibe the dye. For heightening the colour this tincture is sometimes thrice repeated. When the skins are now tolerably dried, by hanging, that the colour may not fade, with the flesh side outwards, the yuffs, still somewhat moist, are smeared over on tables that have ledges. There was a time when it was commanded by authority to use nothing but dolphin and seal-blobber for tinning them; but by that the yuffs are harbier, and have not that yuffs smell, which foreigner prize so much, unless the birch-tar, deggot, prepared in Russia, at least be mixed with it. At present this birch-tar alone is used for tinning. These skins are cleaned from any impurities that may remain, and are sent to the dressing-house, where skillful workmen scrape them first with slitting-irons, having two handles, with the edge crofs-wise on a stretching-bench, that a soft thin leather remains with a clear glossy surface, free from all impurities. Other workmen then take the clean-scraped yuffs on large clean tables, sprinkle them on the flesh side with a gentle flower of fresh water from their mouths, and lay them slightly rolled up to moisten. This done, the skins are taken separately one after another, folded together, and worked and calendered in all directions, to make them soft and pliant. They are then curried with a kind of wooden curry-comb, with sharp irons fixed in leathers, like a card for carding wool, the skin being folded with the hair side outwards, by which the whole surface of the yuffs acquire the cross-strokes or trellis-like marks they are always seen to have. Some work the skins with the hands first dry, not sprinkling them till they are mangled with the card. Lastly, thele skins which are too hard and stiff to the feeling, are more or less sprinkled with linseed-oil, and thus are ready for the merchant.

In this connection we shall introduce from the same account an account of the Russian method of preparing and dyeing their ollafian, maroquin, or Morocco leather, which are dyed at Astrachan of three colours, red, yellow, and black. The treatment of the red taffians, which are the most famous, is as follows:—The raw hides are first laid in large vats, and have river water poured upon them, in which they are left to soak for three or four times twenty-four hours. They are then taken out, the water is drained and fqueezed from each skin, and are scraped one by one on the stretching-bank with scraping-irons, uraki, quite gently on the flesh side, in order to take away the greater impurities, but principally for opening the skin, and to qualify it for the ensuing operation.

They now proceed to make the hair fall clean off, chiefly by the application of lime. To a hundred hides is stirred in about half a bushel of unflaked lime in vats with river water, and the hides are laid in fo as that the lime may as much as possible be equally distributed over all of them. The Astrachan Tartars let the hides lie in this lime-pit frequently three weeks; but it is well known, that their taffians are so harsh and liable to crack, and even certified by it, that they are fit for nothing, and can only impose upon an inexperienced purchaser. They then take out skins, wash them, and carefully scrape off the hair, now become loose, with wooden scrapers. It often happens, that the hair is not perfectly loosen'd by the first lime-ley, but that many tender fubs and few small hairs are left remaining. In this case, the hides must be put into fresh lime-ley, and be left perhaps two weeks in it; the hair then proves off, and the hair side of the skin gets a green and very white appearance, but the substance is then also very soft, and the taffians, by this corruption of the lime, are very little durable in comparison of other kinds of leather.

The method now for taking the lime again out of the hides, is the second treatment with dog-excrement, or white gentian, which is carefully collected for this purpose. This excrement, which is indescribably necessary, is poured into a narrow not very large vat, warm water poured upon it, the mafs thoroughly stirred, and the cleaned hides are put with it into another vat, so that the dissolved album gum is spread and infiltrated over and between every skin. In these ingredients, the skins must lie only twenty-four hours, or if the quantity of album gum prove not rich, somewhat longer. The proportion here to be observed cannot be accurately ascertained; for the taffian-makers are guided generally by eye-measure, and observe only that the water be very thick and turbid, and consequently acid enough. The hides come out of this corrosive much softer and thinner than they were, and are now freed from the force of the lime; but no time must be lost in endeavouring to extract the corrosive like-wise, that the hide may not be even more ruined by it than by the lime. They are generally very careful that the hides lie not too long in this corrosive, which they judge of by their eye from the pliancy and suppleness of them. As soon as the skins are lifted out, the unclean mois-
skin is softer and mellow. All these particulars are in some measure of no other service than to bring off the hair thoroughly clean from the skin.

Now follows the proper preparation of the skins taken out of the wheat-bran. This is done chiefly by heat. To eighty hides they take about twenty-five pounds of raw stone, boil it in a kettle, pour as much water to it as is necessary for giving it a due consistance, and stir it for a pretty long time boiling on the fire. They then let the kettle cool, till they can but just bear the hand in it, and then pour the still hot honey-water on the hides lying singly in little trays, by ladle-fulls, till they have thoroughly imbibed the honey-water. When all the skins are duly drenched, they are thrown into a dry vat all together, laying at top a board with weights upon it, and covering the whole vat with felt, carpets, or furs, that the vapour during the fermentation may not escape; and in this manner, the skins must ferment once more thrice twenty-four hours. By this means they acquire the grain. From the honey-vat they are rinsed clean in luke-warm water, wrung as dry as possibly, steeped immediately in a moderately strong pickle or brine made of common salt, in which they must be left five or six days. This time being elapsed, the skins are taken out of the pickle, and hung upon clean poles, that the brine may drain out, as it would be thought injurious to squeeze it out with the hands. This done, the skins have received their whole preparation, and may now be dyed red, but not yellow; because for the yellow faffians, as was said before, the preparation is of another kind.

For giving the red faffians the colour, nothing is used but cochineal, or, as the Tartars call it, kirmefs, and that in the following method: First, they boil a quantity of the herb falkola ericoide, by the Tartars called tchagan, plentifully growing on the arid Affercan salt-plateaus. To about four Russian quarts of water is put of this dried herb somewhat less than a pound, and it is set to boil for a whole hour, whereby the water acquires a dark greenish colour, but betrays no acrimony to the taste. The faffian-maker only takes care that the water be not too deeply tinted, and that when dropped on the thumb-nail shews only a scarce perceptible green; and in case it have adopted too many particles of the colour, it is drawn off, and fresh water put, in which the herb must boil again, till the decoction has received the due degree of saturation. The herb is then with a scoop taken clean out of the kettle, and then the previously nicely powdered cochineal thrown into a kettle of four Russian quarts to about half a pound, well stirred, and fresh fire added, in which great attention must be paid, that the red colour, which arises from boiling, does not boil over, therefore cautiously some is taken and again poured in, in order by this refrigeration to prevent the over-boiling, and to allow the foam. After boiling for about an hour and a half, the water has obtained a strong tinture; but as much of it is boiled away, the kettle is filled up again with the remaining decoction of the herb tchagan, and the thus attenuated colour boiled afresh, till it is seen that the cochineal is perfectly dissolved, and the colour become thoroughly bright. Upon this, to the whole kettle is put about two lote of pounded and burnt alum into the dye, with which it is to boil about a quarter of an hour, and then the fire is taken from under the kettle, leaving only some hot embers, that the dye may retain as much heat as the hand can but just bear. This done, the skins prepared for dyeing are taken in hand, the dye poured by ladles into trays, one skin folded together after another, with the hair side, outwards, and then are worked in their portion of dye for long, till they have unitedly absorbed all the dyeing particles, and only somewhat of a pale moisture remains. The leathers being thus for the first time flaimed are quickly squeezed out, hung up flings across poles, and when they are all done, they are directly taken for the second time, and imbued in the same manner with dye, and this treatment is repeated for the third and the fourth time, so that each skin gets four ladles of the dye. From the fourth dye the skins are no more prefixed, but hung up entirely wet, to be ventilated, upon poles.

After the dye, the skins are once more curried with the leaves of the tan-tree, which the Armenians call belge. The crushed or pounded dry leaves, which the Affercan faffian-makers get from the Terek, are stirred in broad troughs to a thick gruel with river water, and the coloured skins laid in it, between each of them, leaving a sufficiency of the leaf-ooze; the Tanner then goes barefoot into the troughs upon the skins lying on one another. In this tan, or quas, as the workmen call it, the faffians lie eight days and nights, adding fresh tan every other day; so that four tans are necessary.

Here it must be observed, that some Armenians who prepare faffians, for enhancing the quality of the red colour of their faffians, to half a pound of cochineal add two lote, or rather more of forrell, or the like, as they call it, in the dye-kettle, but it is usually omitted in Affercan, on account of its high price; for which reason the Affercan faffians are excelled by the Turcesh in beauty of colour. Secondly, it is to be known, that instead of the leaves of the tan-tree, bruised nut-galls are held to be still more efficacious for giving the faffians the tan. By this means, the colour is durable as never to pass away but with the leather; whereas the faffians prepared with the tan-tree begin soon to be discoloured. But the nut-galls are likewise too dear in Affercan to be curiously used by the fassian-makers. The Kazan Tartars colour their faffians with red wood, and tan them with the shrub uva urbi, but it makes the worst faffians of all, as they presently fade.

When the faffians are lifted out of the tan, still the hair work remains. They are first left some time in the air to dry, they are afterwards scraped on the fretch-bank with sharp scrapers on the flesh side, quite smooth and clean, then washed in running water, each skin duly stretched with pegs all round the edges, and thus left till they are dry.

The skins must now be smoothed on the hair side with a wooden instrument for that purpose; and lastly, they are laid on a thick felt, where, with an iron heckle that has blunt points, the little pickings, which the faffians are generally keen to have, are imprefsed on the same side. And thus they are ready for sale, without being finedit with linseed-oil, as is mentioned in Gmelin's travels, which would infallibly spoil them.

The yellow fassians are little made in Affercan, as the demand for them is much less, and there are but few fassian-makers who know much of the matter. The dye which they make use of for this purpose is of the berries of a sort of rhammus (perhaps lycioides), which are brought from Perita under the name of ulofherr, and usually bought for fixed nine rubles the pod. The Kazan Tartars colour their ordinary yellow fassians with the flowers of the yellow camomile, which they gather under the name tchechichak, i.e. yellow-flower.

In preparing the yellow fassians, they observe in Affercan the following difference of treatment: 1. They make no use whatever of honey in the preparation. 2. They never
YUM

ever at all put the hides into the salt brine. 4. Instead of the honey-preparation and the pickling, they lay the hides before the dyeing, in the foregoing manner, in the tan of the leaves of the kitul tree, leaving them in it eight days.

4. For preparing the dye, they have no need of the herb fshagan, but the berries alone are boiled in clear water, of which to four Russian yards of water about ten pounds are requisite, and heighten the color afterwards with three lots of alum to every pound of berries. The dyeing is performed in the same manner as has been related with the red, and after the dyeing there is no need to lay the saffins in the tan, as having before received it. Nothing more is necessary than to scrape them clean, to work them thoroughly, to polish and to ornament them. The yellow saffins usually are fold at one hundred twenty kopeks; but the red at somewhat, on account of the dearness of the dye, generally one ruble eighty kopeks.

YUG, or Yoo, the more correct mode of writing the word joyas, by which the Hindoos distinguish the poetic or mythological ages of the world. We have noticed the wild speculations under the more popular word joyas; to which, to Gentoo, Calcut, Kalpa, and Yogeswaru, we refer those defirous of further information hereon.

YUGASIRI, in Hindu Mythology, is the name of the wife of Vairava, an incarnation of Siva. See those articles.

YUHAGHIRS, in Geography, a Russian tribe, which occupies the northernmost parts of the territory of the Yakutes, bordering on the Frozen ocean, from the Yama to the Kolyma. They were known to the Russian conquerors as early as the Yakutes; but on account of their wild and impassable deferts, could not be brought into entire subjection until the year 1639. They had never seen a horse, though that species of animals was found among the Yakutes; and therefore they appear to have been for a long time confined to their cold, fenny, and mountainous districts. The whole people, at the revision before the law, pays Mr. Tooke, paid taxes only for about 1000 heads; but it was so easy for them in their deferts to evade the payment, that their entire population may be computed at a much higher number. See Yakutsk.

YVIAS, a town of France, in the department of the North coasts; 4 miles E.N.E. of Pontrien.

YVICA. See Ivica.

YUKANLOOT, a town of Candahar; 10 miles E.N.E. of Sufa.

YULDUZ. See Yolotou.

YUMA, or Yumba, or Long Island, one of the Bahama islands: about 50 miles in length, of very unequal breadth.

N. lat. 23°. W. long. 74°. 50'.

YUMA, in Mythology. See Tscheremisses.

YUMAR, the name of the object of worship among the Votians; similar probably to Yuma, Yummel, and Yummal, among other tribes of the ancient Finns.

YUMBA BAY, in Geography, a bay on the E. coast of the island of Hispaniola, S. of Cape Spada.

YUMETOS, a cluster of small islands, among the Bahama islands, about 20 miles S.W. from Yuma.

YUMFONG, a small island, near the coast of China, about three miles from the island of Tieng-ming. N. lat. 31°. 42'. W. long. 121°. 17'.

YUMMALA, in Mythology, an idol deity of the Finns, who had a rich temple in Permia, or Biroria, supposed to have extended from the White sea to the mountains of Urals. This temple was decorated with a profusion of gold and jewels. See Persians.

YUMMEL, an appellation by which the Lieflanders and Ethionians worshipped the true God; in subordination to whom they only admitted inferior deities as beneficent and malicious spirits.

YUN, in Geography, a city of China, of the second rank, in Yun-nan; 1262 miles S.W. of Peking. N. lat. 24°. 32'. E. long. 99°. 35'.

YUN, or Tong-pe, a city of China, of the first rank, in Yun-nan; 1315 miles S.W. of Peking. N. lat. 26°. 44'. E. long. 100°. 34'.

YUNA, a river of Hispaniola, which runs into the somana bay.

YUNCHA, a town of South America, in the province of Tucuman; 60 miles S. of St. Jago del Eilero.

YUNG-KANG, a city of China, of the second rank, in Quang-fi; 1190 miles S.S.W. of Peking. N. lat. 22°. 56'. E. long. 107°. 26'.

YUNG-NGAN-POU, a fortress of China, in Chen-fi, on the borders of Tartary; 110 miles N. of Ling-tao.

YUNG-NING, a city of China, of the second rank, in Chan-fi; 300 miles S.W. of Peking. N. lat. 37°. 35'. E. long. 110°. 39'.

YUNGUS, or Yungus Vicus, in Ancient Geography, a place of Gaul, on the route from Reims to Treves. Anton. Itin.

YUNG-HING, in Geography, a city of China, of the first rank, in Ho-nan. The country within its district is very large, and is partly flat, and partly mountainous, especially to the north and south; it is watered by several rivers, which render the soil very fruitful. There are two towns of the second rank, and twelve of the third under its jurisdiction; 430 miles S. of Peking. N. lat. 33°. E. long. 113°. 2'.

YUNG-LEAN-HO, a canal of China, formed of the river Pay-bo, or rather the river itself made navigable from Hiam-ho to Tien-thin, in the province of Pe-tche-li, for the purpose of conveying corn towards Tong-techeou and Peking. The name in the Chinese language is said to mean corn bearing.

YUN-NAN, a province of China, bounded on the N. by Se-etchen and Thibet, on the E. by Quang-fi and Koei-techeou, on the S. by Laos, and on the W. by Ava and Pegu; about 300 miles in length, and 250 in breadth. This province is reckoned one of the most fertile and opulent in China. Its inhabitants are brave, robust, affable, and fond of the sciences, which they cultivate with success; its rivers, gold, copper, and tin-mines; its amber, rubies, lapphires, agates, pearls, precious stones, its marble, musk, silk, elephants, horses, gums, medicinal plants, and linen, have procured it a reputation which renders it respectable to the Chinese. Its commerce is immense, as well as its riches, which are said to be inexhaustible. This province contains 21 cities of the first class, and 55 of the second and third. Sir George Staunton estimates the population at eight millions.

YUN-nan, a city of China, of the first rank, and capital of Yun-nan, situated at the north extremity of a lake. It was formerly celebrated for its extent, and the beauty of its public edifices. Here were seen magnificent buildings, vast gardens, tombs, triumphal arches, and elegant fountains; but the Tartars, in their different invasions, destroyed all these monuments; and the city at present contains nothing remarkable; it is, however, the residence of the governor of the province. It comprehends in its district four towns of the second class, and seven of the third; 1152 miles S.S.W. of Peking. N. lat. 25°. 6'. E. long. 102°. 28'.

YUNTAI, an island near the coast of China, in the Eastern
YUT

Eastern sea, 30 miles in circumference; about two miles and a half from the continent. N. lat. 34° 35’. E. long. 119° 19’.

YVOY. See Carignan.

YUPURA, a river of Peru, which branches off from the Caqueta, about N. lat. 1°, and after an easterly course of about 500 miles, runs into the river of the Amazons by many mouths, 100 miles W. of Fort Rio Negro. S. lat. 4°.

YURATZKOI, the denomination of the shore that lay between the rivers Yeniffey and Obi.

YUR Cup. See urecup.

YURE L’Eveque, a town of France, in the department of the Sartre, on the Huife; 3 miles E. of Le Mans.

YURIEF, a name given by the Russians to Dorpat, built by order of Yaroslaf in the year 1030.

YURIMAGUAS, a town of South America, in the audience of Quito, on the Guallaga; 60 miles S. of La Laguna.

YURNA, a small island on the coast of Brazil, at the mouth of the river Amazons, near the equinoctial line. W. long. 50° 40’.

YVRY, a town of France, in the department of the Eure; 11 miles N. of Dreux.

YUSDROME, in Commerce, a weight of Turkey, the ounce being the 44th part of the cantaro, quintal, or kintel, containing four yufidromes, or cheques, or 400 drums; the chequee of cotton yarn being = 11 1/2 ounces avoirdupois; the chequee of goat’s wool = 5 lbs. 10 oz. avoirdupois; and the chequee of opium = 270 oz. 10 dr. avoirdupois.

YUTHIA, in Geography, the capital city of Siam, situated on an island formed by the river Meinam. See Siam.

YZQ

YUTI, a town of Paraguay, on a river of the same name, which runs into the Paraguay, 115 miles S.E. of Assumption.

YU-YANG, a town of Corea; 15 miles S. of Kang.

YXIR, a word used by some of the old chemists to express any thing good in medicine.

YZQUAUHTLI, in Ornithology, the Indian name for a bird described by Nieremberg, and called the crested eagle.

YZQUIEPATL, in Zoology, the name of an American animal of the weasel kind, with a short slender nose; short ears and legs; black body, full of hair; long tail, of a black and white colour; its length from nose to tail is about eighteen inches. It inhabits Mexico, and perhaps other parts of America. It lives in the caves and in the hollows of rocks, where it breeds, and brings up its offspring. It feeds on worms, beetles, and other insects, and small animals: when pursued, it breaks wind backward with an inoffensive stench. See Conepatl.

Professor Kalm was one night in danger of being suffocated by one that was pursued into a house where he slept; and it affected the cattle so that they bellowed through pain.

Another, which was killed by a maid-servant in a cellar, so affected her with its stench, that she lay ill for several days; and all the provisions in the place were tainted to such a degree, that the owner was obliged to throw them away.

Nevertheless, the flesh is reckoned good meat, and not unlike that of a pig; but it must be skinned as soon as killed, and the bladder taken carefully out. Pennant.

Z.

Z, The last letter in the alphabet, and one of the double consonants, both among the Latins and Greeks.

Its pronunciation is much more soft and obtuse than that of the x; which makes Quintilian call it jucundifima, and dulceffima. Nevertheless, the sound was not always the same as it is now; which is but, as it were, half that of an s; or, that, expressed by its name iizzard or iizzard, of an s uttered with a clover compression of the palate by the tongue, as friez, froze.

It had something originally in it of the d; but only what founded very smoothly: thus, Messerinius was pronounced as if it had been Medsenius, &c.

The Z had also an affinity with the g; thus Capella,
the eighth part of an ounce, that is, a drachm Troy-weight; and it has in earlier times been used to express the third part of an ounce, or eight scruples.

On French coins, Z denotes those struck at Grenoble.

ZZ, these letters were used by some of the ancient physicians to express myrrh. At present they are often used to signify zinsiber, or ginger.

ZAAB, or Zeb, in Geography, a district of Africa, in the country of Sahara, belonging to the Algerines. It was anciently a part of the Mauritania Sittifenis, and is a narrow tract of land lying immediately under the Atlas. N. lat. between 34° 30' and 35°.

ZAARA. See Sahara.

ZAARA, a word used by the Arabian physicians, to express the *vittia morsis*, or continual watchings of persons in many illnesses.

ZAARAM, in Ancient Geography, a town of Arabia Felix, which, according to Ptolemy, was the residence of the king of the Cinaedolitcs.

ZAARON, in Geography, a mountain of Africa, on the western side of the plain of Fez, in sight of Mequinez, on which is a village consecrated to Mahometan devotion. It contains the sanctuary of Sidi Edris, who came from Medina at the end of the 8th century, introduced Mahometanism, and was the first sovereign of his race in this part of Africa. This sanctuary is an asylum for malefactors, and never violated by the emperor of Morocco.

ZAB, a town of the Arabian Itrak, on the Euphrates; 65 miles W.S.W. of Bagdad.

ZAB, Great, the Zabatus of Xenophon, and Lucius of Ptolemy, a river of the Lower Kordiulan, in the pachalic of Bagdad, which rises in the same range of hills, and contiguous to those of the Diah, mentioned in history by the names of Delos and Arba; this latter river, increased by several streams, continues its course to the south, and enters the Tigris, about 5 miles above Taouke Kofra. During the summer it is fordable at Bskooba, 9 leagues from Bagdad, on the road to Kermanshaw, and is near 150 yards wide, at the place where a bridge of boats is thrown across it, for the convenience of travellers, just before it approaches the Tigris. The Great Zab at first pursues a northerly course, when meeting with a small stream, which comes from the district of Alhak, it proceeds to the westward, unites with the Hakkar, or river of Julamerick, and then flowing in a S.W. direction, forms a junction with the Hazir fu (anciently Bumadus), and dilesembogues into the Tigris at Toprukula, 14 furfungs (or about 42 miles) below Mosul. Between Mosul and Erbille, this river can only be forded in the summer, and when low, it is so deep and so rapid that it is difficult of passage. The 10,000 Greeks commenced their retreat by crossing this river in the face of the Perivan army. Xenophon reckons it 400 feet wide; but when the Greeks passed it, it must have been fordable.

ZAB, Little, the Zabus Minor and Caprus of the Macedonians, a river of Kordiulan, formed by the junction of a great number of little brooks, which originate in the hilly country to the E. of Khoi Sindjack. At Altun Kupri, 68 furfungs from Bagdad, on the route to Mosul, it joins the Altun fu, or golden water, and terminates in the Tigris, opposite to the large and rich city of Cane, or the present village of Senn, 30 miles below Haditha. This river is narrow, winds very deep, and very rapid. That part of the Lower Kordiulan that lies N. of the Little Zab, has in every age been a rich and productive province; and it still continues to supply Bagdad, Mosul, and the other cities, with corn, cattle, cheese, butter, dried fruits, and almost every other kind of provision. Another river, the Odorneh, supposed by some authors to be the Physius of Xenophon, is also formed by the junction of many streams, which arise in the hills between Kerkuk, the largest town in the Lower Kordiulan, (N. lat. 35° 29') and Salamania (which see). Kerkuk or Kerkuk, (which see,) entitled Demetricus by Strabo, and Porca by Ptolemy, lies in the direct road from Bagdad to Mosul, 59 furfungs from the former, and 41 from the latter, on a commanding eminence, but with narrow and filthy streets and mean houses. The population is estimated at 18,000 souls, Turks, Armenians, Nestorians, and Kurds; but this estimate is supposed to exceed the truth by 5000. It is defended by a mud wall, has 2 gates, 7 mosques, 13 coffee-houses, one harem, one caravansera, one Armenian church, and 12 pieces of useful artillery. The suburbs contain 5 mosques, 9 small caravanseras, 13 coffee-houses, 3 convents, and 3 catholic churches. Around the town the country is hilly, and on the N. side a low range of barren and rocky mountains separates the district of Kerkook from the fine plain of Altun Kupri. At a short distance there is a number of naphtha pits, which supply the neighbouring country with the naphtha, which in a liquid state is raised in leather buckets, and deposited in earthen jars. The river Odorn, after pursuing a S.W. course, falls into the Tigris, 20 furfungs above Bagdad. Its bed is about 60 yards broad, and its springs contain a large body of water. Kimeir's Periva.

ZABA, or SABA manifold, (Batu-Saker,) in Ancient Geography, a considerable place, and one of the principal trading towns of India, in the peninsula beyond the Ganges; marked in the map of D'Anville, a little W. of the S.E. point of this peninsula.

ZABACHA, in Geography. See Azor.

ZABADANS, in Ancient Geography, Arabs who lived to the east of the mountains of Galaad. In the Maccabees we learn that Jonathan marched against them, and defeated them.

ZABATRA, in Geography, a town of African Turkey, in the government of Marafch; 48 miles N.E. of Marafch.

ZABDA, a large and pleasant town of Syria, situated among the mountains, and chiefly, if not solely inhabited by Christians, which furnishes 700 men fit for war. The town is divided into five districts, each having its separate schiefeck, who pays tribute to the emir of the Drufes; they complain of oppression; and the state of the place and the adjacent country show that their complaints are not unfounded. The town is sheltered by mountains, but the locusts are very destructive. Tobacco is one of the chief articles of cultivation. A rivulet, rolling from the rocks, turns the mills, and waters the ground. The air is salubrious, unmoisted with excessive heat. Near it is a long structure, apparently part of an aqueduct, called “the tomb of Noah.” It extends about 60 feet, being the nature of Noah, according to oriental tradition. The pilgrims who formerly came to worship in an adjacent mosque were very numerous; and the religious revenue is paid to amount to 300 purses annually. Browne's Travels.

ZABDICENA, in Ancient Geography, a country of Asia and one of those called by Ammianus Marcellinus Trans- tigritanae, because they lay beyond the Tigris, with respect to Periva. It was extended along the Tigris.

ZABECES, a people of Africa, in Libya, neighbours of the Marges and Zygautes, according to Herodotus.

ZABELTZITZ, in Geography, a town of Saxony, in the margrave of Meissen; 4 miles N. of Groffen Hayn.

ZABER, a river of Wurtemberg, which runs into the Neckar, near Lauffen.
ZACATECAS, a province of Mexico, bounded on the north by New Bécary, on the east by Guadalupe, on the south by the provinces of Mechoacan, Guadalajara, and樟maten, and on the west by Chametlan and Culiacan. It is well inhabited, and abounds with large villages. Part of it lies in the temperate and part in the torrid zone: it is about 100 leagues in length, and 45 in breadth. The western part of it is an arid tract, and would not be inhabited were it not for the mines, which were formerly reckoned the richest in America; but the eastern part abounds with corn, and fruits of various kinds, and its forests are full of deer.

ZACATECAS, the capital of the afore-mentioned district, the importance of which has declined with the mines. It formerly contained about 12,000 families of Spaniards and mixed breeds, though consisting chiefly of one street, in a deep passage between high rocks, crowned with cottages. Luis de Potoño on the S.E. is said by Alcedo to contain only 1600 families of Spaniards, Mulattoes, and Indians, though it has magnificent churches. The ridge of St. Peter, five leagues from the city, contained rich mines of gold and silver; but they are now in part exhausted, and the fuel has become scarce. The opulence of this city has in course declined, and the chief trade is in goatskins and tanned leather.

ZACATELAN, a town of Mexico, in the province of Tlascalá; 30 miles N. of Puebla de los Ángeles.

ZACATULA, or Zacatula, a town of Mexico, in the province of Mechoacan, on a river of the same name, near the Pacific Ocean; 95 miles S. of Mechoacan. N. lat. 18° 35'. W. long. 103°.

ZICANZA, a small but fertile province in the dominion of Mexico.—Alfo, a river of Mexico, which runs into the Pacific ocean, near the town of Zacatula.

ZACCARIA. See Tevo.

ZACCHIA, Paolo, in Biography, an eminent physician, was born at Rome in 1585, and in the progress of life was distinguished by his learning, and by his skill in music, painting, poetry, and eloquence, as well as in the more appropriate sciences relating to his own profession. He was physician to pope Innocent X., and celebrated among his contemporaries by various publications; of which the principal is intitled "Questiones Medicæ legales, in quibus omnes materiae medicae quaad legales facultates videtur pertinere, proponuntur, pertraueruntur, revolvuntur," a work which has been often reprinted. He was also the author, in Italian, of two celebrated works, "Del Vito Quadrigeniarum," 1637, the subject of which is the regimen of diet in Lent; and "De' Mal Ipocodriachi," 1639, a diffuse treatise on hypochondriacal affections. He died in 1659, aged 75. Haller. Ely. Gen. Biog.

ZACCHI, P. Lodovico, of Pæsaro, author of an ample treatise of music, entitled "Prattica di Musica," the first part of which was printed at Venice, 1592, and the second in 1596; a publication in which the author not only proposes to give instructions for the regular composition, but the accurate performance of every species of music. The idea is splendid; but the world has so frequently deceived by the titles of books, that authors are obliged to abate in their promises, in proportion as the expectations of the public are diminished. If arts and sciences could be acquired by the dead letter of silent instruction, every one who could read, in Italy, might, during the times under consideration, have been a musician. But though no ingenious occupation was perhaps ever yet completely taught by books, without a master, or by a master, without books, yet they are excellent helps to each other. It is hardly possible for a didactic work to satisfy all the doubts that arise in an inquiring mind during solitary meditation; particularly in the first stages of a student's journey through the rugged roads of science. But when he has made some progress, if he should be separated from his guide, the way becomes daily so much more straight and smooth, that by
the help of these kinds of charts, he will be enabled to advance with tolerable speed and facility by himself.

Zacconi’s work, though sometimes dry and tedious, contains much useful and practical knowledge. And as he is almost the only Italian writer on the subject of music who has not bewildered himself in inquiries concerning the system of the ancient Greeks, or the philosophy of found, he has had the more leisure for analysing the art, and facilitating the student’s progress. This author regarded Okenheim, Josquin, Hass, Jemmel, Mouton, and Seldenio, as ancients compared with Willaert, Morales, Cipriano, Zarlini, and Palestrina; and these last, ancient with respect to himself and contemporaries; and says (lib. i. cap. x.), that as the ancient Greeks and Romans produced their musical effects by mere melody, united with poetry, and Josquin and other early contrapuntists, by notes of different lengths, harmonized and worked into perpetual fugue; so the more modern, though the rules of harmony are the same, by a different disposition of concords, inversions, and other contrivances, produce a greater variety of effects.

He likewise observes (cap. xxviii.), that “every age has vainly thought its music brought to as great a degree of perfection as was possible; but it was always found that the next age continues to change, and still to think the same. Okenheim, the master of Josquin, and even in the days of Josquin, John Mouton, his scholar, had the fame ideas of their own improvements; yet, since their time, music has not flood still, but made great advances towards perfection, being more light and pleasing.”

The change in musical modes has continued to our own time, and will doubtless continue to the end of all time; for melody, being a child of fancy and imagination, will submit to no theory or laws of reason and philosophy; and therefore, like love, will always continue in childhood.

Zacconi’s chief labour and merit in the third book have been the explanation of the moods, and correction of errors in the notation of old composers, to which his work will serve as a useful collection of errata. In Book I. he dwells much on the superiority of the finging and fingers of his own time, over all that preceded them; and has a long chapter upon the manner of gracing and embellishing a melody, where he tells us, “Che file ti tenghii nel far di gorgia; dell’ufo de i moderni paffagi, come il forfchheno le cantillene; e speaks of accordanza, as the modern Italians do of ristornamenti, or graces. The divisions, however, into which he breaks paffages, in order to embellish them, if adopted by an operator of the present times, would be like a modern fine lady appearing at court in the furbelows and flounces of queen Elizabeth, or a fine gentleman in the peruke of sir Cloudesley Shovel.

ZACHAN, or Socian, in Geography, a town of Hinder Pomernania; 14 miles E. of Stargard. N. lat. 53° 13”. E. long. 15° 28’.

ZACHAREVSKAIA, a fort of Russia, in the government of Ekaterinoslav, on the Konka; 26 miles W. of Mariupol.

ZACHARIAS, Justus Frederick William, in Biography, was born at Frankenhauen in Thuringia, in 1726; and during the course of his elementary education at his native place, he distinguished himself by various poetical pieces. In 1743 he went to Leipsic to study jurisprudence, but directing his chief attention to the belles lettres, he produced his mock-heroic poem, entitled “Renommien,” which Eichorn, in his History of Literature, says, was the commencement of hero-comic poetry among the Germans. In the following year, he was admitted as an associate by the young men who contributed to the work published under the title of “Amusements of Reason and Wit.” From Leipsic, where he remained about three years, he removed to Gottingen, where, attracting the notice of professor Klapproth, he was recommended by him to be a member of the German society. In 1748 he was appointed tutor at the Caroline college at Brunswick, and in 1761 he became professor of poetry in that institution; to which, in the succeeding year, were annexed the offices of inspector of the typographic and book-selling establishment belonging to the Orphan House, and director of the Brunswick Intelligencer. From 1768 to 1774, he was editor of the New Brunswick Gazette; in 1775 he was appointed to the diocese of St. Syriac, at Brunswick; and he died in the month of June, 1777, in the 51st year of his age. His biographer states, that “he possessed a very fertile and vivid imagination, with a fine taste, improved by observation and acquaintance with the world. As a poet, he composed with uncommon facility, and tried his talents in almost every species, but was the most successful in the descriptive and hero-comic. His burlesque poems were distinguished from every thing of the kind that had before appeared in Germany.” A collection of Zacharias’s poetical works was published at Brunswick in 1763–1765, 9 vols. 8vo. Gen. Biog.

ZACHARIAH, or Zachariah, one of the minor prophets, who commenced the exercise of his gift in the 8th month of the 20th year of Darius, the son of Hystaspes; and on account of the precision and clearness of his predictions, he has been entitled “the fun among the minor prophets.” The most remarkable of his prophecies are those that relate to the advent of the Messiah, and to the destruction of Jerusalem. Dupin.

ZACHARIAS, Pope, a native of Greece, succeeded Gregory III. in 741; at a time when the Roman territory was threatened with an invasion by Luitprand, king of the Lombards, and when the sons of Charles Martel were too much engaged by domestic broils to undertake its defence. The pope, therefore, tried how far he might avail himself of the authority of religion in averting the storm; and by a solemn embassy and personal visit, he not only obtained peace, but induced Luitprand to restore to the Roman see four cities which he had taken from it. He also interposed, in 743, with Luitprand on behalf of the exarch of Ravenna, and prevailed with him to desist from an invasion of the exarchate, and to grant peace, as well as to give back the fortresses of Cesena to the exarch; and in the same year he held a council at Rome to settle some matters of discipline, particularly such as related to the clergy. During the pontificate of Zacharias in the year 746, Carloman, the eldest son of Charles Martel, who had surrendered his dominions to his brother Pepin, went to Rome, and assumed the monastic habit, with which he was feemingly invested by the pope. Rachis, the successor of Luitprand, who, upon his accession to the throne in 747, was peaceable disposed towards the pope and the Romans, took up arms against them; but his hostile purposes were averted by the remonstrances of Zacharias, and those of some of his principal clergy and nobility, who visited his camp, in order to obtain peace; nor were they successful merely in this object; but the refusal of their interview was Rachis’s renunciation of his crown, the assumption of the monastic habit conferred upon him by the pope, and retirement to the monastery of Monte Cassino, where Carloman refided. In 752 Pepin applied to the pope for permission to seize the crown of France, and to set aside Childerich III.; the pope consented, and Childeric was provided for in a monastery. Zacharias, having displayed talents in the exercise of his office, which gave him...
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him rank among the greatest of the popes, and having esta-
blished an estimable character by his liberality to the poor,
and by his munificence in public works, died in 752, in the
11th year of his pontificate. Some of his decrees and
epistles, and also his translation of the dialogues of St. Gre-
gory from Latin into Greek, are extant. Bower.
ZACHAROVA, in Geography, a fort of Russia, in the
government of Irkutsk; 32 miles N.N.E. of Kirendle.
ZACHAU, a town of Brandenburg, in the Middle
Mark; 10 miles E. of Brandenburg.
ZACHA, Freidick William, in Biography, an
able musician and organist at Halle, in Saxony, was born at
Leipzig in 1665. He had the honour and good fortune to
have Handel for his scholar. He is still celebrated by the
Germans as a master, who had established an admirable
school of music at Halle, and as one who was deeply skilled
in all the areana of composition and performance.
ZACHEO, or Descechio, in Geography, a small island in
the West Indies, between Hifapanola and Porto Rico; about
27 miles N.E. of Mona.
ZACHTLEVEN, Cornelius, in Biography, was born
at Rotterdam in 1606, and became an admirable painter of
scenes of humour, imitating the style of Bronower; but in
subjects of a more sober description, which he also painted,
such as farm-houses, kitchens, and the recreations of vil-
lagers, &c. he chose the more light and agreeable style of
Teniers for his model; and in that style attempted to
embody the same design of perions and compositions. In
neither, however, of his imitations did he attain an equal
degree of spirit or of truth with his prototypes. His
works are well composed, and the touch with which they
are executed is bold and free; they are not often met with,
but are thought deserving of a place in the best collections.
ZACHTLEVEN, Herman, was the younger brother of
Cornelius, and was born at Rotterdam in 1609. He is
said to have been the pupil of Van Goyen, but did not
follow the style of that master. His principal occupation
appears to have been in painting views of the banks of the
Rhine and the Meuse. These he executed in a very neat
manner, but with a mean and common-place style of selec-
tion and imitation. The tones and hues of his pictures are
generally cold, but fresh; and as he appears to have had
great knowledge of aerial perspective, his distances are well
preferred; and the forms drawn with great care and minute-
ness. He never left Flanders, though it has been ascertained
that he went to Italy. His drawings are numerous, and
are carefully preferred in the best collections. He died in
1683; aged 76. Both he and his brother Cornelius em-
ployed the etching-needle, and left several neatly executed
plates, from designs of their own.
ZACINTHA, in Botany, whether so called by Mat-
thiolius, the author of the name, because this plant was
originally found in the island of Zante, or for what other rea-
t. 269. Poiret in Lamarck v. 8. 851. Gærtn. t. 157.—
Gen. Ch. Common Calyx double; the outermost flord,
crec, of several lanceolate leaves, membraneous at the edges;
innermost larger, simple, furrowed, of eight permanent, li-
near, acute, converging leaves; at length swelling and very
prominent at the base. Cor. compound, imbricated, uni-
form: florets equal, perfect, of one petal, ligulate, linear,
abrupt, with five teeth. Stam. Filaments five, capillaries,
very short; anthers united into a cylindrical tube. Pef.
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GERMEN ovate-oblong; style thread-shaped, the length of
the flaments; stigma two, reflexed. Petio. none, except
the interior calyx, which becomes woody, clofed, depressed,
with a point, having eight rounded protuberant angles,
each scale enveloping one of the marginal seeds. Steels li-
tary to each floret; the marginal ones ovate-oblong, in-
curved, compressed at the fides, gibbous at the back, taper-
ing below, iliiated; longitudinally channelled, and villous,
in front; central ones oblong, slightly incurved, quadran-
gear, compressed at the back, iliiated, smooth. Down
fiddle, somewhat feathery. Recept. naked.
Eff. Ch. Receptacle naked. Seeds of the circumference
incurved; of the centre straight. Down very short, finely
feathery. Outer calyx membraneous; inner with eight pro-
tubercles.

Wild. n. 1. Ait. n. 1. Sm. Fl. Græc. Sibth. t. 820,
unpublished. (Lapsana Zacinta; Linn. Sp. Pl. 1141.
Cichorium verrucatum; Zacinta; Clin. Hift. v. 2. 144.
C. verrucarum; Gært. Ec. 398.)—Native of Italy, Crete,
Lemnos, and Zante, as well as of mount Athos. Subpref.
The root of this, the only known species, is annual. Stem
somewhat leafy, round, smooth, branched and forked,
spreading, from a span to eighteen inches high. Leaves
runcinate, smooth; the radical ones largest and mott
numerous. Flowers yellow, small. The swelling part of the
calyx, after flowering, assumes a purple colour. See Laps
ana and Rhagadiolus.
ZACO, in Geography, a territory which probably be-
longed to the province of Adiabene, and was generally
comprehended between the Tigris and the Cappad, or
Little Zab. The ridges or mountains of Zaco are a part
of the Kuridih region, on which was the road along the
Tigris, between Moful and Jezirah. Thee ridges were
lofty, steep, and rocky, and the path rugged and difficult.
of ascent. It was part of the road of the 10,000 Greeks
in their retreat. The present town of Zaco stands near
the northern part of the ridge, denominated from it; and
it is the most considerable place that occurs between Moful
and Jezirah; and is surrounded by a fertile district, which
produces a great variety of excellent fruits. Zaco stands
in an island of the river Kurnib, which descends from the
Kuridih or Carduchian mountains, and falls into the
Tigris, a few miles below the town.
ZACONDA, a town of Africa, in the country of Ante,
where the Dutch built a fort. It was a considerable town
at one time, till in a war between the people of Ante and
Adom, it was burnt down by the latter; since which it has
never been thoroughly repaired.
ZACUTO, or Zacetus Lusitanus, in Biography, a
physician, was born at Lisbon in 1557, and educated at
Salamanca and Coimbra. In his 24th year he took the degree
of doctor, and settling in his native city, practised with
reputation for thirty years. As he was a descendant of
jewish parents, his dread of the Inquisition, after the edit
of Philip IV. against the Jews was issued in 1625, induced
him to retire to Holland, where he openly professed the
religion of his family, and maintained a character highly
respectable, both in his profession as a physician, and in his
moral conduct. He died at Amsterdam in the year 1642;
and left behind him a collection of works, amounting to
2 vols. fol. The principal of his works are, "De Medi-
corum Principum Historia," lib. vi. in which he approves
himself a strenuous advocate of Galen and the Greek phy-
sicians; "Praxis Historiarum Mororum," lib. v.; and
"Praxis Medica admiranda," lib. iii. In all his works he
blends acuteness of observation with a certain degree of
superfious
superstitious credalit; but they are nevertheless consulted and quoted. Haller. Elv.

ZACYNTHUS, in Ancient Geography, an island of the Ionian sea, W. of that part of the Peloponnesus on which is the Sinus Cheloniis. It is now called Zante. Strabo makes its compass 160 stadia. It had many forts, and was very fertile. In this isle was a town of the same name, situated in the eastern part, with a citadel. According to Dionysius of Halicarnassus, it derived its name from Zacynthus, son of Dardanus, who, accompanied by a number of Phrygians, settled here. According to Thucydides, the first Greeks known in this island were Achaeans, who came hither from Achaia. It passed under the dominion of Philip, king of Macedon, who rendered it to Amyander, king of the Athamanes, who confided the government of it to Philip of Megalopolis, by whom it was transferred to Hierocles of Sicily. After the defeat of Antiochus at Thermopylae, Hierocles sold it to the Achaeans. Livy says, that the town and citadel were assaulted and captured by Leurvis, and Paunrias informs us that it was called Mipheus. According to Sclayx it had one port; and Pliny says that it was very fertile, and that its port was named Hyrie; but P. Mela distinguishes Hyrie from Zacynthus.

ZACYNTHUS, a town of Africa, in Libya. Steph. Byz. Zacynthus, an epithet used by the ancients to a liquid bitumen, from the island Zante. ZAD, in Geography, a name given to the Niger of Africa, in Bornou, which is described in Hormenan's Journal as flowing eastwards. Its breadth was given to him for one mile, and he was told that it flowed towards the Egyptian Nile, through the land of the heathens. The course here given is directly towards the Congo; and it is said, that Zad is the name of the Congo at its mouth, and that it is the name of the Congo for at least 650 miles inland.

ZADADRUS, in Ancient Geography, a river of India, on this side of the Ganges; which received the waters of the Hypsalis and Adris, according to Ptolemy.

ZADAN, in Geography, a town on the west coast of the island of Celebes. S. lat. 2° 55'; E. long. 119° 9'.

ZADON, a river of Portugal, which runs into the Atlantic, near Setuval.

ZADELSDORF, a town of Saxony, in the circle of Neufländ; 3 miles S.S.E. of Auma.

ZADONZK, a town of Roufla, in the government of Voronez, on the Don; 92 miles N. of Voronez. N. lat. 53° 4'. E. long. 35° 14'.

ZADRACARTA, in Ancient Geography, a very large town of Asia, the capital of the Hyrcania, according to Arrian.

ZADRAMA, a town of Arabia Felix, the capital of the Cirendocolptes. Steph. Byz.

ZADRAN, in Geography. See HATVANY.

ZADRIS, in Ancient Geography, a town of Asia, in the interior of the Colchide. Piol.

ZADURA, in the Materia Medica of the ancients, a name given to a foreign root, which was round and smooth, and of the colour of ginger. It was at that time imported from the Indies, and great stature esteemed in phœnicienous cafes.

ZEAI, or ZEA, in Ancient Geography, a very ancient town of Greece, near Boeotia. Steph. Byz.

ZÆTIA, or ZETIA, a town of Arcadia, N. of Megalopolis. It had two temples, one of Ceres, another of Diana.

ZÆZAR, in Geography, a town of Spain, in the province of Murcia; 22 miles N.W. of Murcia.

ZAFANIN, a town of Fez, near the coast of the Mediterranean; 35 miles S.E. of Melilla.

ZAFARANBOLI, a town of Natolia; 28 miles S. of Amastan.

ZAFFABEN, a word used by some of the chemical writers to express putty.

ZAFFEIBAHAM, in Geography, a town on the salt coast of Madagascar, S. lat. 17°.

ZAFFER, ZAFFRE, or Saffre, in Chemistry, is the residuum of cobalt, after the sulphur, arsenic, and other volatile matters of this mineral have been expelled by calcination: so that it is a kind of calx or oxide of cobalt, mixed with a portion of fuscible matter, of a grey or reddish colour; in which state it is imported from Saxony. It is used to produce a very fine blue colour, when it is melted with fusible and vitrifiable matters.

The blue colour produced by the vitrification of zaffer proceeds from the earth or calx of a semi-metallic substance contained in cobalt, called by chemists regulus of cobalt. This is proved by melting zaffer with a reducing flux, like any other roasted ore, by which means the regulus will be obtained. The fcoria in this fussion has also a blue colour, proceeding from a portion of the calx of the regulus that is not reduced, but is vitrified together with the fcoria. The calx, therefore, or metallic earth of the regulus of cobalt, is the sole cause of the blue colour produced by zaffer.

But as this is contained in cobalt in various quantities, some zaffers produce more blue than others. The heterogeneous fixed matters contained in cobalts contribute, according to their quantity, not only to the greater or less intensity of the blue colour, but also to its luster and beauty; and, therefore, those who manufacture zaffer from cobalt make frequent effays of the roasted ore, by mixing it with vitreous matters, in order to discover the intensity and beauty of the blue colour.

Good cobalt calcined would form too deep a blue, and almost a black glass, if it were not previously mixed with a certain quantity of vitreous frit. In the manufacture of zaffer, therefore, the calx of cobalt, the strength of which has been determined by previous effays, is mixed with such a quantity of sand, or of powdered flints and quartz, that with the addition of some feline flux, a deep blue glass may be formed. See Cobalt.

The zaffer that is commonly sold, and which comes from Saxony, is a mixture of oxyc of cobalt with some vitrifiable earth; it is of a grey colour, and some zaffers are clearer than others, according to the intensity of the colour which they are capable of producing.

Zaffer is employed in the manufacture of pottery and of porcelain, for painting the surface of the pieces of ware, upon which it is applied, together with some feline flux, previously to the baking or glazing, that the same fire may vitrify this colouring material.

The blue of zaffer is the most solid and fixed of all the colours that can be employed in vitrification; it suffers no change from the most violent fire. It is successfully employed to give shades of blue to enamels, and to the crystal glasses made in imitation of some opaque and transparent precious stones, as the lapis lazuli, the turquoise, the sapphire, and others of this kind.

To prepare zaffer for use in the glafs-trade, put it in grofs pieces into earthen pans, and set it hand half a day in the furnace; then put it into an iron ladle to be heated red-hot in the furnace; take it out while thus hot, and sprinkle it with strong vinegar: and when cold, grind it on a porphry to an impalpable powder, then throw this into water
water in glazed earthen pans; and when it has been well stirred about, let it settle and pour off the water: repeat this washing often, and the foulness of the saffron will be thus wholly separated. Dry the powder, and keep it for use.

**ZAFFRAM**, a word used often by authors to express saffron, but sometimes as the name of other things of a yellow colour; thus ochre was called by this name.

**ZAFFRAMEN**, a word used by some medical writers to express saffron.

**ZAFRA**, in Geography, a town of Asiatic Turkey, in the government of Marasch; 15 miles S.W. of Tarfus.—Also, a town of Asiatic Turkey, in the government of Trebifond, on the Black sea; 50 miles N.W. of Trebifond.—Also, a town of Spain, in Estremadura; 22 miles E. of Xeres de los Caballeros.

**ZAFRANIA**, in Colors, a term used by the Greeks to express the yellow of saffron. The barbarous writers of the after-ages transliterated it into the Latin *crocetas*, or saffron colour.

The later Greek writers only use it, and they have taken it literally from the Arabians, Avicenna, and Serapio. This was a term used by them to express the colour of the fine holly-aromatic of Galen, which they tell us stained paper to a fine and beautiful gold colour.

**ZAGA**, in Botany, Poiret in Lamarck Dict. v. 8. 831. (Zaga Pohon, or Corallaria latifolia, Rumph. Ambon. v. 3, 175. t. 110.)—This is one of those trees, whose hard red feeds are used for ornament, in the form of necklaces, bracelets, &c. by the natives of tropical climes, and even by the inhabitants of the most polished countries of Europe, as fashion, from time to time, is pleased, in her capricious wisdom, to ordain. Such are the beautiful red and black feeds of *Abrus precatorius*, of which there is a pearly white variety, of rare occurrence. Such also are those much larger feeds, of the same combination of colours, produced by the West Indian genus *Ormosia*. (See that article.) The *Zaga* of Rumphius and Poiret is evidently a papilionaceous plant, with pinnate leaves, composed of about three pair of elliptic-oblong, entire, stalked, rather large leaflets, with an odd one. Flowers in panicked terminal clusters. Leaves elliptic-oblong, pointed, hard and smooth, each containing one, rarely two, hard, shining, round seeds, all over of the colour of red coral, larger than those of *Adenanthera pavonia*, being as broad as the fore-finger nail, and defitute of the defined circumcised area, for which the seeds of the *Adenanthera* are remarkable.

**ZAGALA**, in Geography, a town of Spain, in Estremadura; 25 miles S. of Alcantara.

**ZAGAN**, a town of the principality of Georgia, in the province of Kacet; 3 miles N. of Tefis.—Also, a town of Persia, in the province of Irak; 12 miles S.W. of Hamadan.

**ZAGARA**, a mountain of Greece, in Livadia, anciently called Helicon.

**ZAGATHAI**, a name given from the second son of Zingia to Great Bucharia; which fec.

**ZAGATIS**, in Ancient Geography, a river of Asia, in the Colchide, according to Arrian, which fixes its mouth between Athanæ and Anchialæ Regia.

**ZAGAWA**, in Geography, a city of Africa, in Bornou, on a river which runs into the same lake, where the Niger is by some supposed to be lost. N. lat. 19° 10'. E. long. 25° 0'.

**ZAGGOS**, a mountain of Africa, in which are some mines of folt; 100 miles S. of Algiers.

**ZAGHARA**, a town of Africa, in Bornou.

**ZAGI**. See ZEGI.

**ZAGILLONETIS**, in Ancient Geography, a country of Asia, in Cappadocia. Strabo.

**ZAGING**, in Geography, a town of Austria; 3 miles N. of St. Polten.

**ZAGIRA**, in Ancient Geography, a town of Aia, in Paphlagonia, at a small distance from the sea. Ptol.

**ZAGLA**, in Geography, a town of the island of Corsica; 8 miles S.E. of Calvi.

**ZAGORA**, a town of European Turkey, in Romania, on a lake which communicates with the Black sea; 12 miles S.W. of Burgas.

**ZAGOROA**, in Ancient Geography, a town of Aia, in Paphlagonia, on the coast of the Euxine sea, between Castra and the mouth of the river Halyos, according to the Periplus of Arrian.

**ZAGOROLO**, in Geography, a town of the Popedem, in the Campagna di Roma; 3 miles W. of Palestrina.

**ZAGOROW**, a town of the duchy of Warsaw; 20 miles S. of Kalisch.

**ZAGRAB**. See AGRAM.

**ZAGROS, Mount**, a mountain of Persia, in the province of Irak, along the brink of which extends the district of Kurend, from the vicinity of Holwan to the village of Goour. It is covered with forests of oak, and inhabited by an extraordinary race of men, among whom suffit cullums familiar to those of the Kadmulia in Syria, described by Volney. It is said that in their nocturnal festivities, the garments of the fair sex, at the expiration of a certain period, are thrown into a heap, and jumbled together. The lights are then extinguished, and the clothes being regularly distributed among the men, the candles are relighted; and it is settled by the rules of the society, that the lady must patiently submit to the embraces of the person who has become possesed of her drees, whether father, son, husband, or brother. The lights are then once more extinguished, and all of this licentious tribe pass the remainder of the night in the indulgence of the most promiscuous love.

**ZAGRUS, or ZAGRIUS MONS**, in Ancient Geography, a mountain of Asia, in Media. It made a part of mount Tau-rus, commencing in Armenia, and extending as far as the Chalontide, between Media and Adiabene. Pliny. It is reckoned by Ptolemy one of the most considerable countries in Media. According to Strabo, it was this chain of mountains which touched the Niphates, and separated Media from Babylonia.

**ZAGU**, in the Materia Medica, the name given by some authors to the fago-tree, the todda pauna, or palma frutis pruniforme.

**ZAGUANANAS**, in Geography, a river of considerable length in New Mexico, which flows from the same sources with the Rio Bravo, and joins the Colorado; which see.


**ZAHARA**, in Geography, a town of Spain, in the province of Seville. In 1407, this town was taken from the Moors; about two years after the Moors retook the town, but not being able to reduce the citadel abandoned it. In 1481, it was surprized by the Moors, in a dark stormy night; most of the inhabitants were put to the sword, and the rest sent slaves to Grenada; 36 miles S.E. of Seville. N. lat. 36° 50'. W. long. 5° 33'.

**ZAHARA**. See SAHARA.

**ZAHIA**, a word used by the Arabian physicians to express a sort of dysentery, in which there was a very large
large discharge of blood from the rectum, attended with an
evident fenation of abrasion, or pain in the bowels.

ZAHNA, in Geography, a town of Saxony; 8 miles
N. E. of Wittenberg. N. lat. 51° 56', E. long. 12° 54'.

ZAHRADKA, a town of Bohemia, in the circle of
Czsaflau; 17 miles S.S.W. of Czsaflau.

ZAHRINGEN, an ancient citadel in the Brisgau,
gave the title of duke to a noble family that became
extinct in the 13th century; 1 mile N. of Friburg.

ZABAC, one of the many names by which the ancient
chemist's have called mercury.

AZA IDIR, a name by which some of the chemical writers
have called verdigris, or the rust of copper; and others,
the material itself; and some brahs.

ZAIM and TIMAR, lordships granted under those names
in the Ottoman empire for life, as military rewards and
encouragements. Those who possess a zaim, or timar, are
honoured with the title of aga; they are bound to a military
personal service, and obliged to bring with them to war one
or more gebelis, horsemens or foot-folders, armed
and equipped according to the revenue and extent of the
lordship. The timar differs in no respect from the zaim, except
that it is of less value, and that the aga who possesses it does
not arm as many horsemens and foot-folders as the other.
The number of zains in Turkey in Europe is 914, and that
of the timars is 356. Nearly the same number is reckoned
in Asia, which furnishes, with the gebelis, a militia of upwards
of 60,000 men, better disciplined, and more inured to
war than the spahis and the janizaries. This militia for a long
time constituted the principal force of the Ottoman empire;
and the annual proffes which they have performed in this little
time in Asia, in Europe, and even in Africa.

On the death of a zaimat, or a timarist, the sultan is to
draw a year's revenue from the lordship, and nevertheless,
give it up again to the son of an aga, a spahi, or any other
military man, especially to him who, by a brilliant action, has
distinguished himself in battle, who has first mounted to the
assailant, penetrated into the enemy's intrenchments, killed
a great number of infidels, or contributed to put them to the
 rout. But since the sultans prefer to the fatigue of war
and the dangers of battle the tranquillity of their seraglios,
and the pleasures of their harems; and more especially since
avarice and a love of gain have caused to be put up to
auction the places intended for the recompence of valour and
merit, the lordships become the patrimony of the rich
and of intriguers. Thus the best institutions degenerate;
thus the Mufullman, formerly intrepid and valiant, becomes
merely a vile plunderer, or a ferocious assailant; and the
Ottoman armies, so formidable to their enemies, are become
an object of contempt or pity, and this sultanic empire would no
longer exist, if some European power were not interceded in
its support.

ZAIN, in Horfés, a term used by the French to signify
a horse of a dark colour, neither grey nor white, and without
any white spot or mark upon him in any part. See Horse.

ZAINAH, in Geography, a town of Algiers, in the
province of Constantia; supposed, from some considerable
ruins, to have been Zama, an ancient and royal city of Numi-
dida; 25 miles S.E. of Setefef.

ZANE, or Wadell Berker, a river of Africa, which
runs into the Mediterranean, N. lat. 36° 54'. E. long.
9° 16'.

ZAIRA KAKONGO, an island in the Atlantic, at the
mouth of the river Zaire.

ZAIRAGIA, or ZAIRAGH, a kind of divination in
use among the Arabs; performed by means of divers
wheels, or circles, placed concentric to one another, and
noted with several letters, which are brought to answer
to each other, by moving the circles according to certain
rules.

This is also called zariah, because the circles of this
machine, which are called musmzriat, fusfak, &c. are intended to
correspond to the orbs of the planets, and the atmospheres
of the several elements.

ZAI R, or SAIRE, in Geography, a river of Africa,
which rises in the country of Matamba, about S. lat. 10°,
and takes a northerly course to lat. 5°, in the kingdom of
Congo; after which it takes a south-westary direction, and
runs into the Atlantic, S. lat. 6°. E. long. 12° 20'.

It has been an important question, with regard to which
geographers have entertained various opinions, what are
the course and termination of the Niger. The ingenious
geographer, Mr. Rennell, on comparing the various accounts
of the progress of the Niger beyond Houfia, declared his
opinion to be, that its waters had no communication, either
with the river Nile, as was thought, or with the sea, as
others imagined; but that they were spread out into a
great lake in Wangara or Ghana, and evaporated by the
heat of the sun. (See Niger.) Mr. Park, the late African
traveller, directed his particular attention to this subject,
and was induced to conclude that the Congo would be
found to be the termination of the Niger from the following
considerations: 1. The total ignorance of all the inhabitants
of North Africa respecting the termination of that
river. If the Niger ended anywhere in Africa, it
would not be easy to account for this total ignorance, and for
their generally describing it as running to the Nile; and in fact,
the country with which they had not any acquaintance.
A second consideration has been already fuggetted under
the article ZAD. A third is deduced from the general suppo-
sition that the river of Dar-Kulla, mentioned by Mr.
Browne in his "Travels," was the Niger, or at least that it
communicated with that river; and this, it is said, would
be exactly the course which the Niger ought to take in
order to join the Congo. 4. The quantity of water
discharged into the Atlantic by the Congo cannot be accounted
for on any other principle, but that it is the termination of
the Niger. If the Congo derived its waters entirely from
the S. side of the mountains, which are supposed to form
the belt of Africa, one would naturally suppose, that when
the rains were confined to the N. side of the mountains, the
Congo, like the other rivers of Africa, would be much dimin-
ished in fize; and that its waters would become pure.
On the contrary, the waters of the Congo are at all sea-
sons thick and muddy. The breadth of the river, when at its
lowest, is one mile, its depth is fifty fathoms, and its ve-
locity five miles per hour. 5. The annual floods of the Congo
commence before any rains have fallen south of the equator,
and agree correctly with the floods of the Niger, calculating
the water to have flowed from Bambarra at the rate of three
miles per hour. Mr. Park, during his residence in Scotland,
became acquainted with a Mr. George Maxwell, formerly
an African trader, who was well acquainted with the whole
western coast of Africa, more especially S. of the equator,
and had published a chart of the river Congo. Mr. M. had
been led by a variety of circumstances to conjecture that
the source of the Congo lay considerably inland, and far
to the north; and from a perusal of Mr. Park's travels
he
he concluded, that the Congo and the Niger were one and the same stream. Mr. Maxwell’s reasoning confirmed Mr. Park in his opinion; and in this opinion he persevered to the end of his life.

Since the discoveries of Mr. Park, it is very generally allowed that the course of the Niger is from west to east; and his opinion with regard to its termination in the Congo, or, as it is sometimes called, the Zaire, has received a considerable degree of confirmation from the account of the Congo given by Mr. Maxwell. “Before ever the Niger came to be the topic of conversation,” says Mr. M., “it struck me, that the Congo drew its source far to the northward, from the floods commencing long before any rains take place S. of the equator; since it begins to swell perceptibly about the latter end of October, and no heavy rains set in before December, and about the end of January, the river must be supposed to be at its highest. At no time, however, can the rains to the southward of the line be compared with those in the Bight of Guinea, where ships are obliged to have a house erected over them during these months.”—If the Niger has a feasible outlet, I have no doubt of its proving the Congo, knowing all the rivers between Cape Palmas and Cape Lopas to be inadequate to the purpose; nor need the immense course of such a river surprize us, when we know that the river St. Lawrence, contemptible in size compared with the Congo, encomasses the whole of North America, flowing through a chain of lakes. But instead of seven or eight lakes, the Congo may be supposed to pass through seventeen or eighteen; which will solve any difficulty as to the floods of the Niger not immediately affecting the Congo.” He adds, the river Congo, compared with other rivers, must rank as the third or fourth in magnitude. Considering the force of the current it produces in the sea, carrying out floating islands sixty or seventy leagues from the coast, the Amazon or Plata only can cope with it. At the distance of 650 miles from its mouth, the Congo traders report that it is as large at the place from which they came, and that it went by the name Enzaddi, as it does among all the nations upon the coast. If the shallow water opposite to Suanda should be thought to detract from the assumed size of the Congo, it should be considered, that the river there is spread out ten miles in width, the middle channel of which has never been accurately founded. “It has long been my opinion, that Leyland’s or Molynes island at Embonna, (a settlement on the banks of the Congo, distant thirty leagues from its mouth,) either of which might be rendered as impregnable as Gibraltar, at a very small expense, could be a choice station for establishing an extensive commerce with the interior of Africa. Indeed, if the idea of the Congo being the outlet of the Niger prove to upon trial, we may consider it as opening a new and richly fertilizing of the West Indies, and establishing the rude inhabitants.” The Congo appears from other testimonies to be a river of the first clafs, and larger, probably, than the Nile. The waters of the Congo, it is said, may be distinguished at sea more than thirty leagues from the coast; and the water is fresh at the distance of thirty miles. If these accounts are thought to be exaggerations, it is a general opinion among navigators that this river has a wonderful size and force. All accounts concur in representing that the stream of the Congo is of a more uniform height, and subject to much less variation from the dry and rainy seafons, than any tropical river which is known; and that on a comparison with such rivers, it may be considered to be in a perpetual state of flood. The average rising of the Ganges in the rainy seaso is flated by

major Rennell to be thirty-one feet, being almost the same with that of the Nile; whereas, the difference between the highest point of the Congo about February, and the lowest, in September, is only about nine feet; and the river, at the latter period, has all the appearance of a stranger of being in full flood. It is this remarkable peculiarity which distinguishes the Congo from other great rivers of a similar description, and which leads to important conclusions with regard to its origin and cause. “In support then of the hypothesis which identifies the Congo with the Niger, the following arguments deduced from the preceding facts and observations may be alleged: 1. The great magnitude of the Congo. 2. The probability that this river is derived from very remote sources, perhaps considerably north of the equator. 3. The fact, that there exists a great river N. of the equator (the Niger), of which the termination is unknown, and which may, perhaps, form a principal branch of the Congo.

“Such being the evidence in favour of the hypothesis respecting the Congo, the objections must be admitted to be weighty and formidable; the principal of these are, 1. That it supposes the course of the Niger to be through the salt chain of the mountains (anciently Montes Lune), the great central belt of Africa.”—It is difficult to understand how the Niger could penetrate this barrier, and form a passage southwards. 2. The course of the Niger, estimated from its source in the mountains of Senegal, (supposing it to be the same river with the Congo, and to flow by Wagara and Cafina, through the centre of Africa into the Atlantic,) would be considerably more than 4000 miles. But the course of the Amazon, the greatest river in the old or new world, is only about 3500 miles; and although the existence of a river considerably greater than any yet known may be within the limits of physical possibility, yet so improbable a supposition ought not to be adopted upon flight or conjectural reasoning, or upon any thing much short of distinct and positive proof.”

The editor of Mr. Park’s Travels, &c. in 2 vols. 8vo. 1816, which we are now citing, very laudably expresses a hope, “that this distinguished river, which hitherto has been only known as one of the greatest marts of the Slave Trade, may at length be rendered conducive to objects of civilization and science; and that some use will now be made of this great inlet into Africa, for the purpose of exploring a part of that continent which as yet is entirely unknown; or, at least, of obtaining more complete and authentic information relative to the Congo itself, which must unquestionably be considered as a very curious and interesting subject of inquiry.”

Another opinion with regard to the termination of the Niger has been advanced by M. Reiehard, a German geographer, and published in the “ Ephemereides Geographiques,” at Weimar, in August 1808. This opinion is, that the Niger, after reaching Wagara, takes a direction towards the south, and being joined by other rivers from that part of Africa, makes a great turn from thence towards the south-west, and pursues its course till it approaches the north-eastern extremity of the gulf of Guinea, where it divides, and discharges itself by different channels into the Atlantic; after having formed a great Delta, of which the Rio del Rey constitutes the eastern, and the Rio Formosa, or Benin river, the western branch. This hypothesis, though it diminishes the distance which the Niger has to flow in its course to the Atlantic, does not remove the objection arising from the Niger’s being conceived to penetrate the Kong mountains. But we must not pursue this subject any
any farther. For the lengths of the course of the most noted rivers, see River.

ZAKA. See Scharedje.

ZAKEPH GADHOL, Rex Pauperrimus, one of the Hebrew accents, sometimes denoting no kind of paucity, and marked over a letter thus (א).

ZAKEPH Katon Rex, one of the Hebrew accents, constituting either a comma or feminicolon, and marked over a letter thus (א).

ZAKERZEN, in Geography, a town of Kurdistān; 26 miles N.N.W. of Van.

ZAIEH, a town of the Arabian Irak, in the Tigris; 10 miles N. of Korna.

ZAKLIKOW, a town of Austrian Poland, in Galicia; 40 miles S. of Lublin.

ZAKROCZYŃ, or Sakrotshim, a town of the duchy of Warsaw, on the Narew. In 1794 the confederate Poles were defeated here by the Russians; 40 miles N.W. of Warsaw.

ZAL AKLESOVSKOII, a bay of the Caspian sea; 260 miles S.S.E. of Astrachan. N. lat. 43°. E. long. 51° 14'.

ZAL, in Botany, so called by Loureiro, Cochinch. 459; fromخته, a tempes; or agitation of the sea, because the plant floats, and is driven about, at the mercy of the winds and waves. This is no other than the PISTIA of Linnaeus (see that article); where the generic characters, as corrected by Schreber, come sufficiently near to those of Loureiro, to leave no doubt in the mind of the reader, allowance being made for the peculiarities of structure in fo singular a flower.

ZAL, in Ancient Geography, a town situated in the vicinity of Amasea, which was a town of the Peloponnesus, in Achaia Propria.

ZAL, in Geography. See Wadan.

ZALACA, in Ancient Geography, a town of Asia, in the interior of Media. Ptol.

ZALACUS, a town of Africa, in Mauritia Caesariana. Ptol.

ZALACUS Mont, (Van-nahb-resef,) mountains of Mauritania, at some distance from and to the S. of the river Chalnaph. Ptol.

ZALAKNA, in Geography, a town of Tranflyvania; 14 miles W. of Weißenburg.

ZALAMEA, a town of Spain, in the province of Seville; 38 miles W.N.W. of Seville.

ZALAMEA de la Serena, a town of Spain, in the province of Extremadura. This town was anciently called Hipa, and many vestiges remain of its former splendour; 27 miles N.E. of Llerena.

ZALANTZ, a town of Hungary; 10 miles S.E. of Calkau.


ZALESC, in Geography, a town of Austrian Poland, in Galicia; 32 miles S. of Lemberg.

ZALEUCUS, in Biography, a philosopher and legislator of Greece, and founder of the Locrian lute, flourished in the 7th century B.C. He was of obscure birth, and lived in servitude as a shepherd; but his extraordinary abilities and merit attracted notice even in his humble station, and advanced him to the government. His laws were deemed severe, but being adapted to the circumstances and manners of the Locrians, their constitution was for several ages highly celebrated. His discipline was rigorous, so that he prohibited the use of wine, otherwise than as a medicine;

and he ordained, that adulterers should be punished with the loss of their eyes. When his son had incurred this penalty, he blended paternal lenity with a pretense of maintaining the authority of the laws, by ordering his son to be deprived of one eye, and by submitting to the loss of one of his own eyes. In order to secure the permanent stability of his system of legislation, he required that a person who proposed a change in any one of them should come before the assembly with a cord about his neck, that he might be instantly strangled, if upon examination the old law were preferred. Valer. Max. Diod. Sic. Iaert. Brucker by Enfield.

ZALGIN, in Geography, a town of the island of Cuba; 47 miles N. of St. Jago.

ZALIKARA, the most considerable city of Mingrelia, situated on the right bank of the Hippus, which rises in the highest mountain of the Soane, not far from the source of the Phasis, flows through Lettgvani, divides Mingrelia from Iberia, and enters the Phasis near the Tredia: an open place, at the confluence of the Hippus and Phasis, well peopled by different nations, particularly Jews.

ZALISCUS, in Ancient Geography, a river of Asia, in Galatia. The mouth of this river in the Euxine sea lay between Cyptia and Galorum.

ZALISSA, a town of Aflatic Iberia. Ptol.

ZALLANT, in Geography. See Salland.

ZALSSING, a town of Afluria; 5 miles N.W. of Agripach.

ZALUZIANSKIA, in Botany, so named by Necker, in " Act. Palat. v. 3. phys. 953", according to Wild. Sp. Pl. v. 5. 538, is no other than MARSEA quadrifolia, which the reader will find in vol. xxii. The above name is designated, as we presume, to commemorate a Polish botanist, author of Methodi Herbaria, published at Prague, anno 1592, in 4to., and at Frankfort in 1604. This work is spoken of by Haller, Bibl. Bot. v. 1. 387, as a transposition of the arrangement of Dodonaeus, without any improvement or additional information.

ZAM, in Geography, a town of Grand Buccharia; 85 miles N.W. of Balk.

ZAMA, a town of Peru, in the dioecese of Arequipa; 30 miles N. of Arica.

ZAMA, in Ancient Geography, a town of Africa Propria, 5 journeys from Carthage. This town, to which ancient authors give the title of royal and a fortress, is famous in the wars of Jugurtha and Juba, and more especially on account of a battle between the Carthaginians under Hannibal and the Romans, commanded by Scipio, in the year 551 of the Republic. At the time when this town was in a florishing state, it was assigned to Numidia. Cornelius Nepos fays, that it was 300 miles from Adrumetum. Appian fays 3000 stadia. It was situated on a plain, and owed its strength to its fortifications more than to its situation. Hirtius fays, that it was the ordinary residence of king Juba, where he had his wives, children, and treasures. Pliny fays, that it became a Roman colony.

ZAMA, a town of Cappadocia, in the prefecture of Chaman.—Allo, a town of Aflia, in Meopotamia. Ptol.

ZAMAMIZON, a town of Africa Propria, between the town of Tabraca and the river Bagradas. Ptol.

ZAMBOSE, or CUMANA, in Geography, a river of Africa, which rises in the interior parts of Mocaranga, and runs into the Indian sea at several mouths: the principal of which takes the name of Luabo. S. lat. 16°. E. long. 37°.

ZAMBOZIN, a town of Congo; 24 miles S.S.W. of St. Salvador.

ZAMBRANO, Juan Luis, in Biography, a Spanish painter,
ZAM

painter, was born at Cordova in 1590. He was a disciple of Paolo de Copedez, and was a successful follower of the style
of that master. His principal works are in the cathedral at
Cordova, and in the church of the convent of Los Mar-
tyros, where he painted two altar-pieces, representing the
founding of St. Stephen, and the martyrdom of St. Acifelo
and St. Victoria. In the colegio di Santa Catalina is a
fine picture by him of a guardian angel, and a St. Christo-
pher, which Palomino describes as designed in the great
style of M. Angelo. He passed the latter part of his life at
Seville, where he painted several altar-pieces for the church
of St. Bafil, and died in that city in 1639, at the age of
40.

ZAMBROKRI, in Geography, a town of Hungary;
14 miles S.W. of Rosenburg.

ZAMBROW, a town of the duchy of Warfaw; 80
miles N.E. of Warfaw.

ZAMECH, a name given by some writers to the lapis
lazuli.

ZAMETUS, in Ancient Geography, a mountain of
Arabia Felix. Ptol.

ZAMFARA, or ZANFARA, in Geography, a town of
Africa, and capital of a kingdom of the same name; 170
miles E.N.E. of Waragara. N. lat. 18° 20'. E. long.
16° 15'.

ZAMIA, in Botany, from ζηύς, damage, or los.
This name, which first occurs, as the appellation of a genus,
in the Gen. Pl. ed. 6. of Linnaeus, is taken from Phyn, who
uses it for such cones of the fir as “split while they are
upon the tree,” and, as he says, “require to be taken off,
that they may not injure the reft.” This should seem to
apply to the male catkins, however false the physiology of
Phyn, and the practice founded upon it, may be. Our
Zamia answers to his, merely in the cone-like form of its
fructification, which, being male on one plant, and female
on another, exhibits in the former the appearance of los,
or fertility, like the male catkins of the fir.—Linn. Gen.
648. Joff. 16. Poiret in Lamarc Dict. v. 8. 831. La-
marec Illust. t. 892. Gaer. t. 3.—Claes and order,
Dioica Polyandria. Nat. Ord. Filices, Linn. Joff. Cy-
cades, Perfon, Brown.

horizontal, obtufe, thickened towards the end, permanent.
Cor. none. Stam. Filaments none; anthers numerous,
seffile, crowded on the under side of each scale, especially
towards the extremity, elliptical, smooth, of two valves and
one cell, splitting lengthwise.

Female. Cal. Catkin ovate, teffellated: scales horizontal,
obtufe, more or less peltate, permanent. Cor. none. Pflf.
Germens two, oval, seffile, horizontal, inflexed, on the under
side of each scale, near the extremity; seffile very short,
shornseal conical; sigma obtuse, undivided, pervious.
Peric. Drupa roundifh, somewhat angular, of one cell.
Nut hard, roundifh or elliptical, of one cell.

Eff. Ch. Male. Catkin teffellated. Scales abrupt. An-
thers oval, seffile at the under side of each fcale. Female,
Catkin teffellated. Scales peltate. Drupas two, at the
under side of each fcale.

Obf. Mr. Brown, to whom we are obliged for the
remark of the ftyle being finally pervious, records an idea
of the late Mr. Dryander, that the American Zamia, which
conftitutes the orifinal genus, having more perfectly peltate
scales to the male catkin, and the anthers alfembled in two
difficult masses might possibly form a different genus from
the Cape and New Holland species; more especially as in
these American plants, the leaflets are each manifefly ar-
ticulated with a projection from the main rib of the leaf;
whereas in the others they are either very obscurely jointed,
or perfectly decurrent. We conceive, however, that they
all together compose a very difficult genus, which cannot,
without violence to nature, be divided. It is nearest akin to
Cyca, but differs essentially in the female part of the
fructification being a catkin, whose fcales bear two organs
underneath; instead of an afsemblage of fronds, or leafy
receptacles, bearing an indeterminate number upon their
margins. The herbage is perennial, generally without a
fr. Leafes abruptly pinnate, fingly hard, rigid, and
often fpinous; rarely lobed. Catkin radical, falked.

It being extremely difficult to obtain and to compare
good fpecimens of the different species, as well as to de
tect and define their effential characters, authors have not very
clearly defcribed them. Jacquin has published magnificent
figures of feveral; but their molt fatisfactory marks require
be fought at an earlier period of their growth, and in more
minute parts, than he has generally exhibited.

Fragm. 27. t. 25. 26. Wild. n. 1.—Leafes very num-
berous, two-ranked, linear, entire, with fimple fpinous points;
common flalk femicylindrical, channelled, downy. Catkin
of the fruit elongated, somewhat cylindric.—Native of the
Cape of Good Hope. Cultivated in the Imperial gardens
at Schoenbrun, but not mentioned by Mr. Aiton as known
to our English collectors. The thick globular fcaley head
of the root, near a foot in diameter, bears numerous fpread-
ing peltate leaves, very much refembling, at first sight,
thofe of Cyca revoluta. The frucht of each is, in its
naked part, two feet long, as thick as a fwan’s quill, all over
downy, as is also its leafy portion, and the young leafes themfelves.
The full-grown leafes are from 50 to 80, rigid, parallel,
acute, pungent, each about three inches long; the lower
moll gradually thorter, and rather more dilant. The ripe
fruit, brought from the Cape, is ovate-oblong, about fifteen
inches in length, and five in diameter, brown, each fpale
bearing two ovate, angular, orange-coloured drupas, about
an inch long, their points directed towards the base of the
fcale. Nut not much smaller, ovate, angular.

Poiret n. 3. (Palma fobofhera aegyptia, folis leviobus,
fructa nigro; Tiff. Pfl. 129. t. 45.)—Leafes awl-shaped,
spreadd, ftraight, rigid, pointed, entire; their outer
margin rounded at the fbase; common flalk nearly cylin-
dric, unarmed.—Native of the Cape of Good Hope,
from whence it was brought by Mr. Maffon, to Kew
garden, in 1775, but has not yet flowered. The leafes are
very thick and coriaceous, much fewer than in the pre-
ceding fpecies, mostly oppofite, four or five inches long,
and one broad; their under furface somewhat ftriated; the
upper smooth and thinning; margin quite entire; point
flimpfe, fpinous, flout and rigid.

3. Z. tridentata. Three-toothed Zamia. Wildl. n. 3.—
Leafes linear, obscurely furrowed, smooth, with three
fpinous teeth at the end; common flalk femicylindrical,
channelled.—Supposed to be a native of the Cape of Good
Hope. The leafes are fourteen to fifteen pair, linear, ta-
ering at each end, with two lanceolate, pointed, terminal
teeth, and a third situation a little lower at the outer edge.
Common flalk smooth. Wildenow. No other author ap-
pears to know this fpecies. We have fpecimens in the her-
barium of the younger Linnaeus, without name, indication
of their native country, or any traces of fructification, which
anwer
answer to the above characters; except the leaflets being more numerous, sometimes with a simple spiny point only, on the same stalk with others that have two or three, very rarely four; and in one instance the leaves part of the common footstalk is flabby with soft hairs. Each leaflet is two, or two and a half inches long, thick-edged and slightly revolute, entire, except the above-mentioned points; smooth on both sides; furrowed beneath; tapering at the base, and somewhat decurrent at its insertion. See n. 15.

4. Z. angustifolia. Narrow-leaved Zamia. Jacq. Coll. v. 3. 263. Te. Rar. t. 636. Wild. n. 4. Poiret n. 6.—Leaves linear, elongated, entire, obtuse, with two terminal callous points; common stalk feemicyindrical. Fruit ovate, pointed.—Native of the Bahama islands; cultivated at Schoenbrunn, where it was raised from seed, and bore flowers and fruit, the catkins being about eight months in going through their different stages. The root is scarcely bigger than a large radish; its ovate crown enveloped in a few pointed, very broad, scales. Leaves about a yard high, with slender flanks and leaflets; the latter drooping, a span long, and two lines broad. Catkins three inches long, on flanks about the same length; the male ones most slender, and nearly cylindrical. Fruit three inches long, of a thick ovate, or elliptical figure, with a blunt point. Drupae concealed, red.

5. Z. tenuis. Slender Zamia. Wildn. n. 5.—"Leaflets linear, obtuse, somewhat revolute; tapering at the base; with one or two obsolette teeth near the extremity; common stalk triangular, smooth."—Native of the Bahama islands. Willdenow saw a living male plant. Leaflets about fourteen pair; the upper ones furnished, near the point, with one or two very inconspicuous teeth. An intermediate species between the last and the following; agreeing nearly with Z. angustifolia in the form of its leaflets, but they are broader, and their stalk is triangular; the leaflets are narrower than those of the following, neither are they minutely furrowed towards the point; but the flanks are similar. Willdenow.

6. Z. media. Intermediate Zamia. Jacq. Hort. Schoenbr. v. 3. 77. t. 397, 398. Wildn. n. 6. Poiret n. 7.—Leaflets linear-lanceolate, obtuse, flat; obliquely furrowed towards the petiole; common stalk triangular, smooth.—Native of the West Indies; cultivated at Schoenbrunn. The crown of the root is as big as the stilt. Leaves two feet long, besides the naked stalk, which is half as much, Leaflets from fourteen to twenty pair; five inches long, and one-third or half an inch broad, flat, for the most part entire, except a few shallow diffuse furvatures towards the extremity, which is bluntish, and without any spiny termination. Female catkins on short thick flanks, ovate, with a blunt point. Fruit oval, brown, rough, three inches long, Jacquin. That author considers the present species as allied, on the one hand, to his angustifolia (see n. 4.), and on the other to integrifolia, n. 8. Still we cannot question its being specifically distinct from both.

7. Z. debilis. Lax-leaved Zamia. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 478. ed. 2. n. 2. Wildn. n. 7. (Palma prunifera humilis non spinosa, infulia: Hipanolea, fructui jujubino simili, officulo triangulo ; Commel. Hort. v. 1. 111. t. 88.)—Leaflets lanceolate, acute, pointless, ferrated towards the point; common stalk triangular, smooth.—Native of the West Indies, from whence it is said to have been imported, in 1777, by the late Messrs. Kennedy and Lee. It flowers in the flore, in July and August. The leaflets are five or fix pair, half an inch broad; though only two and a half or three inches long, and are distingiuished from all the foregoing by their conspicuous ferratures, all indeed near the end, the greater part of the leaflets being entire; the upper side is smooth and shining; under furrowed or ferrated. Commelin originally raised this species from seed in the Amsterdam garden, and was informed that the fruit was reddish, growing partly underground.

8. Z. integrifolia. Dwarf Zamia. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 478, ed. 2. n. 3. Wildn. n. 8. Pursh n. 1. Poiret n. 5, excluding the reference to Commelin. Jacq. Coll. v. 3. 261. Ic. Rar. t. 635. Lamarck t. 892, copied from Jacquin. (Z. pumila: Linn. Sp. Pl. 1659, excluding all the synonyms).—Leaflets smooth, ferrated, lanceolate; rounded, obtuse, and finely ferrated at the end; tapering at the base. Common stalk smooth, somewhat quadrangular.—Native of East Florida, from whence it was introduced into the English florists, by the celebrated John Ellis, eq. in 1768. Jacquin says it grows also in Hilpaniola. The crown of the root is sometimes as thick as a man's arm, dividing below into several stout branches and fibres. Leaves usually about eighteen inches long; sometimes twice as much. Leaflets from ten to twenty pair, opposite or alternate, each two and a half or three inches long, varying in breadth from one-quarter to three-fourths of an inch, entire, rather shining, strongly ferrated on both sides, with many parallel ribs; the extremity rounded and pointless, with a greater or less number of flight tooth-like ferratures in proportion to its width. Catkins on short flanks, ovate, clothed with brown pubescence; the male ones about two inches long. Fruit three inches long, elliptical, pointed, downy; its flanks finally widely separating, each of them peticate and angular, supported by a rather slender angular flalk, above an inch in length, and remaining long after the fruit is fallen. Each drupa is elliptical, about half an inch, or more, in length, with a small quantity of sweet orange-coloured pulp, and a large, rather pointed, nut. The leaflets are too strongly ferrated in Lamarck's plate; and rather broader and more luxuriant than usual in Jacquin's, otherwise admirable, representation. The male catkins are very frequently produced; the female ones we know only from dried specimens, and the works of Jacquin.

9. Z. muricata. Prickly-footstalked Zamia. Wildn. n. 9.—"Leaflets oblong, pointed, smooth, ferrated from the middle to the extremity; common stalk spinous."—Gathered by Humboldt and Bonpland, in South America, near Porto Cabello. Leaflets about four pair, fix inches long; tapering at the base; ferrated and ribbed on both sides; sharply ferrated in their upper half. Footstalk channelled, armed with very short, blunt, scattered spines. Willdenow.

10. Z. surfuracea. Broad Furry-leaved Zamia. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 477, ed. 2. n. 4. Wildn. n. 10. Poiret n. 2. (Palma americana, foliis polygonatibus brevioribus, leviter ferratis, et nonnihil spinosis, trunco erasto; Phuk. Phyt. t. 105, f. 2. and t. 309, f. 5. P. americana, cassis rigidique foliis; Herm. Parad. t. 210. f. 260. Palmifolia fructu elevato polyppyrreno; Trew Ehret, t. 26.)—Leaflets elliptic-oblong, pointless; coarsely ferrated from the middle to the extremity; ferrated and hairy beneath; common stalk spinous.—Native of the West Indies. Plukenet saw it in the royal gardens at Hampton-Court in king William's time. It is still preserved in our florists, flowering towards autumn. The crown of the root is often a foot in diameter. Leaves from one to two feet long, exclusive of their prickly stalks. Leaflets usually eight or nine pair, three or four inches long, and one or one and a quarter broad, very rigid and corious; shining, and roughish to the touch, on the upper side; more or less furrowed,
furrowed, and clothed with shaggy, chaffy pubescence, which gives them a rufly or tawny hue, underneath. Their ferratures, or teeth, are numerous, obtuse, very irregular. Catkins ovate, hoary and downy, about three inches long, on flalks about the same length. Herrmann says this plant produces a white infidel gum.

12. Z. spiralis. Spiral Zamia. Salib. Prodr. 401. Willd. n. 11. Ait. n. 5. Brown n. 1.—Leaflets numerous, linear, very few, somewhat curved, with a few spiny teeth at the extremity. Catkins smooth, with pointed scales; those of the male ones wedge-shaped. Native of New South Wales, from whence seeds were sent, in 1791, by Dr. John White, to the writer of this, and plants were raised from them in the following year, by the late Mr. Fairbairn, in Chelsea garden, being the first introduction of this species into Europe. The whole cone, filled with these nuts, was about half as large as a man’s head; the nuts themselves about the size of small chestnuts. They were said to be eaten roasted by the natives of New South Wales, but on being tried by our English settlers, occasioned sickness. Their flavour is certainly inferior to a chestnut, and even to the nuts of Cycas revoluta, ripened in the bishop of Winchester’s flove at Farnham castle. The plants soon grew to a considerable size, and, according to Mr. Aiton, this species flowers in the flove, in July and August. The leaves are very smooth, of a fine greer, a yard or more in length, spreading, each composed of from thirty to forty pair of long narrow leaves, tipped with three to five spiny teeth. Fruit flalks said to be somewhat spiral. The catkins are stalked, cylindrical, about five inches long, and two in diameter, squarrose, smooth, not downy nor hairy: scales of the male ones obovate-wedge-shaped, an inch long, with a short, broad, sharp, ascending, polished point; their upper side smooth and naked; under nearly covered with an uninterrupted heart-shaped aflemblage of crowded, oval anthers, the size of poppy-flake: scales of the female catkins stalked, gibbous, two-edged and depressed, larger than the male ones, each tipped with an erect, fword-shaped, pungent, smooth point, an inch long, and, as the fruit ripens, extended to three inches, the gibbous flaky part of the sacle being then also much enlarged. Germen two, ovate, fefible, close together, at the inner edge of this flathy part of the sacle, and directed horizontally inward. Drupea roundish, gibbous, an inch or more and a half in diameter, orange-coloured, with a rather thin pulp, at least in the dried state, and a large, ovate, hard nut, not burbling, whole kernel, after keeping twenty-five years, is horny, ftematransparent, and as hard as the shell. Mr. Brown fuppects there may be two species confounded under Z. spiralis; one found in the neighbourhood of Port Jackson, to which our description and Shorns entirely belong, and which is from two to four feet in height, noticed by Mr. Brown in the southern coast of New Holland, and which we have never seen. Mr. Brown remarks, that in both, the catkins, ufually solitary, fometimes grow two together.

13. Z. lanuginosa. Woolly-caled Zamia. Jacq. Fragm. 28. t. 32. Wild. n. 13. Poiret n. 9.—Leaflets lanceolate, smooth, fpinous-pointed, with a few unilateral fpinous teeth. Radical fcales woolly.—Native of southern Africa, from whence a fingle plant was brought long ago to the Imperial flove at Schoenbren. After twelve years’ culture, it had made but slow progres, and flowed no figns of fruftification. The root consists of numerous, very thick, tap-shaped radicles; its crown being as large as a man’s head, and covered with imbricated, deltoid, pointed fcales, two or three inches broad, all clothed with foft, dense, hoary wool. Leavea a yard high, or more, dark green, very smooth and fhiming, with unarmed quadrangular flalks, and from twenty-five to thirty pair of linear-lanceolate leaflets, each four inches long, with a short fpinous point; their margins all entire, except being often furnished with one, two, or three broad, fpinous, tooth-like lobes, always at the lower edge of each leaflet, by which this species is at firft light readily diltinguished. Professor Wildenow fupected it might not be fntinét from Z. cycadis (feco our 15th fpecies); but we fee no reafon to concur in that opinion.

14. Z. borrida. Grey Thorny Zamia. Jacq. Fragm. 27. t. 27. 28. Wild. n. 14. Ait. n. 6. Poiret n. 8.—Leaflets lanceolate, glaucescent, acute, fpinous-pointed, with a few unilateral, lanceolate, fpinous teeth. Radical fcales smooth. —Native of southern Africa, a hundred miles above the Cape of Good Hope. Cultivated at Schoenbren, and introduced into the English green-houses, in 1800, by John Liptrap, esq., who polifhed, for several years, a fplendid collection of exotics at Mile end; but it does not feem to have bloomed either here or in Germany. The fcaly crown of the root is as large as the preceding, but the fcales are not woolly. The leaves and their flalks are all over finely glaucous, which diltinguishes the plant from the rest of its genus. The leaflets, as well as their lateral fspinous lobes, are longer, and more pointed, than in Z. lanuginosa; the points and facles green, as the whole furface becomes when rubbed. A ripe female cone, brought from its native country, is fifteen inches long and eight thick, brown, feoffated, and warty, but not fpinous. Drupea orange-coloured, oval, each with a thick, elongated, obtuse point, in the place of the flake. Nut oval, fomewhat triangular. This species is, as Wildenow obferves, very nearly related, in size and general habit, to the laft, but differs in its smooth crown of the root, and glaucous colour of the barkage.

15. Z. cycadis. Bread-tree Zamia. Linn. Suppl. 443. Ait. n. 7. Poiret n. 4. (Cycas caffra; Thunb. Nov. Act. Upsal. v. 2. 284. t. 5.)—Leaflets lanceolate, fpinous-pointed, smooth, entire; tapering at the base. Scales of the catkins abrupt, obtuse, pointles.—Native of the north-east part of southern Africa, far above the Cape of Good Hope, from whence living plants were fent to Kew, by Mr. Maffen, in 1775. This is the species figured by Gartner. It grows on the sides of hills, in dry open spots, especially where the ground has been cleared by burning, and flowers in August, or the following months. The crown of the root is round and large, imbricated with scales, and, according to Linnaeus,
ZAMOŁKYS, in Biography, a celebrated person among the Scythians, was, as some have supposed, a slave of Pythagoras, who, having attended him into Egypt, obtained his freedom, and taught his master's doctrine among the Getæ. It has been also said, that in order to enforce the belief of the immortality of the soul, he dug a subterraneous apartment, and concealed himself in it for three years; but re-appearing as one risen from the dead, he there established his authority as a teacher. But Herodotos, who relates this fabulous story, as a common tradition, gives it no credit, but expresly says, that so far from being a Pythagorean, he flourished at a much earlier period than Pythagoras. The general testimony of the ancients furnishes reason for concluding, that Zamolxis was a Thracian, who, at a very remote period, taught the Scythians the doctrine of the immortality of the soul, and that after his death, they enrolled his name among the divinities, with whom they affurded themselves they should associate in the invisible world. Herodotos relates, that at certain festivals, they chose several persons by lot, who were to be deputed as messengers to Zamolxis; and that they put them to death, by throwing them up into the air, and catching them, as they fell, upon the points of their spears; and this story is thought to be the more credible, because it is well known, that the practice of offering human sacrifices prevailed among the Scythians and the Thracians. Herodotos. Brucker by Enfield, vol. i.

ZAMORA, a town of Spain, in the province of Leon, on the Duero; the see of a bishop, suffragan of Compoilella. In the year 967, this town was taken by the Moors, and destroyed; but afterwards rebuilt and fortified. It is now a frontier town against Portugal, and place of arms. The streets are narrow, and the general appearance of the town is gloomy; 120 miles N.W. of Madrid. N. lat. 41° 50'. W. long. 6°.—Alfo, a town of Algiers, founded in honour of a Mahometan saint. Here is a small garrison; 28 miles W. of Seteef.—Alfo, a town of Mexico, in the province of Guadalajara; 80 miles N.W. of Mechocan. N. lat. 20° 54'. W. long. 103° 40'.—Alfo, a town of South America, in the audience of Quito, on a river of the Amazons. In the neighbourhood are some gold-mines; 200 miles S. of Quito. S. lat. 4°. W. long. 78° 46'.

ZAMOSCIE, or Samostaj, a town and fortress of Audriuen Poland, in Galicia, built by the famous great chancellor, John Zamoytski. It has a stately cathedral, and several other churches, a decayed university, a charitable foundation called Mons Pictatis, and several valuable privileges; but the fortifications are now in a bad condition. The proprietor of this town, &c. filled himself prince Zamolcis. It now belongs to Auffria; 60 miles N.W. of Lemberg. N. lat. 50° 31'. E. long. 23° 15'

ZAMPALA, a river of Mexico, which rises in the province of Tlafiaca, and runs into the gulf of Mexico, N. lat. 10° 40'.

ZAMPOLA, Champana, or Zampola, a city of Mexico. When Cortez landed in the year 1519, the chief or lord of this place, who was tributary to Montezuma, offered his service to the Spaniards. It was at that time a large city and exceedingly populous, the lowest account reckoning the inhabitants at 20,000 or 30,000. It was the capital of a country called Totonaapan, now the N.E. part of the province of Tlafiaca; 90 miles E. of Puebla de los Angeles. N. lat. 20° 10'. W. long. 17° 50'.

ZAMPERINI, Ann, in Biography, of Venice, arrived in England in 1767, as a bufiainger, a parte equale, with the

LINNAEUS, downy; with age, the plant acquires, like the palm tribe, a thick scaly stem, as tall as a man. The leaves are from a span to two feet long, of rather numerous and crowded leathel, each two or two and half inches in length, and one-quarter or one-third of an inch in breadth; smooth and even above; striated beneath; the younger ones, or rather those of young plants, tipped with a sharp tooth or two, besides the terminal spine. Common flats smooth. Catkin ifalked, ovate: the male a span long; its scales somewhat triangular, very obtuse, rugged, smooth; flat on the upper side; keeled underneath, and covered with anthers the size of millet-seed: female catkin larger than the male, near a foot long, green and smooth; its scales ifalked, with a quadrangular, peltate, thick termination, lodging a pair of ovate angular drupes, with a red pulp. Nut of each the size of an acorn, not very hard, with a white solid kernel. Thunberg says, the older plants, which have acquired a stem, are broken off, or cut down, by the Caffres and Hotentots; and the pith, which is of considerable thickness, being tied up in the skin of a sheep or calf, previously well rubbed with greasé, is buried in the ground. After remaining there a month, or longer, it is taken up in a purifying flate, and being bruised between two flones, and moistened with water, forms a fort of palte, which is made into little round cakes, about an inch in thickness. These are baked in wood-afles, and are esteemed a great luxury; though, as the author observes, not very tempting to people of more refined habits, especially if they happen to have witnessed the whole proeess of preparation.

We are not without a suspicion that Willdenow's Z. tridensata (see n. 3) may be this very species. This is more probable, at least, than his own conjecture, of Jacquin's lanunigina, n. 13, being Z. cyczadis.

Authors, even the most intelligent, use the term frond, instead of leaf, in their descriptions of this genus, because Linnaeus considered Zamia as either a Palm, or a Fern. But its botanic name is by no means cryptogamic, or obscure; nor do the leaves bear the flowers of either sex. There is a curious coincidence of structure and appearance between its anthers, and the supposed capsules of some of the spikcd or racemose Filices, especially of Bathyecium (the Osmanda lunaria, &c. of Linnaeus) indeed the likeness is so great, that we can scarcely persuade ourselves that the two parts in question are not designed to answer the same purpose.

ZAMIA, in Gardening, comprises some low plants of the tender palm kind, among which the species chiefly cultivated in this climate are, the dwarf pinnaed palm (Z. pumila), the thorny dwarf palm (Z. spinoa), and the entire leaved palm (Z. integroifolia).

The first is the finest sort, but the other two are occasionally preferred in some flove collections among other plants of the same class.

Method of Cultivation. They may be raised from seeds, and by other means; in pots plunged in the bark-beds of hot-houses and floves, where they must constantly be kept in light rich earth or mould, having the management of other exotics of similar kind.

They afford variety in all such collections of tender plants.

ZAMIANSK, in Geography, a fort of Ruffia, on the Volga; 20 miles N.W. of Altrachan.

ZAMIN, a town of Grand Bucharia; 50 miles N.E. of Samarcand.—Alfo, a river of Asia, which rises about 70 miles S. of Kogend, and after a N.W. course of about 150 miles, loies itself in the earth.

ZAMIRÆ, in Ancient Geography, a people of India that were Anthropophagi, near mount Möcander. Ptol.
the Guadagni, father to the great finger and actor Guadagni, who had been here in early youth.

The Zamperini was a very pretty woman, coquettish, and an affeéted finger. Her first appearance on our stage was in La buona figliuola Mariana of Piccini, of which the music was so difficult to perform, and not easy to hear, that it was never sufficiently repeated for the public to be familiarly acquainted with it. They were glad, therefore, as well as the performers, to return to La buona figliuola, for their own relief from too serious attention.

The finger of Guadagni, an elegant finger, and graceful actress, the original performer of the part of Coccinia in Italy, being superfed in that part by the Zamperini, occasioned a great rupture between Guadagni just arrived here in 1760 for the second time, and the honourable patente and impresario of the opera; which generated faction and a party spirit that destroyed the comfort of the opera, serious and comic, at a time when the public, in a state of tranquillity, would have been more delighted than at any other period.

We never heard the Zamperini sing serious music, but are told by M. Laborde (Effis fur la Mufi.), that "having a natural talent for music, and great spirit and fire in her action, though her excellence of performance was principally manifested in comic operas, yet the fire equally well in the serious. After performing with great applause in London, Lisbon, and Italy, she quitted the stage, and was well married."

ZAMPIERI, DOMENICO, called Domenichino in the History of Painting, was born at Bologna, in 1581, and placed when very young under the tuition of Denis Calvert; but being ill treated by him, he prevailed upon his father to permit him to enter the school of the Carracci, at the time when Guido and Albano were both students there. He soon distinguished himself, but more by his care and industry than by brilliancy of talent. He here attached himself to Albano, and, when he left the Carracci, they travelled together to Parma, Modena, and Reggio, to study the works of Correggio and Parmeggiano, and soon afterwards they both went to Rome. In that city his first patron was cardinal Agucchi, who employed him in his palace, and commissioned him to paint three pictures for the church of S. Onofrio, of subjects from the life of S. Jerome. His former master, An. Carracci, also employed him for some time to affix in his great work at the Farneze gallery; and he painted from his own designs, in the loggia in the garden, the Death of Adonis, when Venus springs from her car to affix her unfortunate lover.

As the health of A. Carracci became rapidly impaired, and he was necessitated to refuse many commissions offered to him, he recommended them to his scholars; and had the satisfaction of seeing Guido and Domenichino employed by the cardinal Borghies to paint the frescoes in S. Gregorio, which have subsequently become so celebrated, and of which the flagellation of S. Andrea by the latter is so justly admired. The cardinal Farneze also employed him to paint some frescoes in the chapel of the abbey at Grofetto Ferrata; among them is that picture of the Cure of the Demonic Youth, which has been compared with and by many preferred to the one of Raphael in the Transfiguration. Another cardinal, Aldobrandini, availed himself of the established renown of Domenichino, and engaged him to paint in fresco ten pictures of the history of Apollo, in his villa at Fraccati, which added greatly to his reputation. Soon afterwards he completed the work which more than any other has served to immortalize his name, his well-known picture of the Communion of S. Jerome, painted for the principal altar of the church of S. Girolamo della Carità. This fine production ranks with the best of any age. It is said with great semblance of truth, that the arrangement of its composition was borrowed of Agostino Carracci, who painted the same subject for the Certosì at Bologna. But if Domenichino did borrow the thought, he has amply made amends by the mode in which he has adorned it. It received its due meed of applause at the time, and was ranked as the work next in value to the Transfiguration by Raphael; but while the merit of its author thus excited the admiration of the public and most of the artists of Rome, it elicited in the minds of several, and among them of Lanfranco, the bitter spirit of envy and malignity, which was actively exerted against him. He was reviled as a plagiarist, and the execution of his pictures condemned as heavy and ungraceful; and in spite of their powerful effect, the influence of his adversaries so far prevailed, that for a time he failed of commissions, and had serious thoughts of changing his profession for that of sculpture. The celerity and freedom with which Lanfranco invented and painted, and all those machinists who applauded the means of art above the end, were opposed to the slow and uncertain power of invention possessed by Domenichino. But upon this subject Lanzi judiciously observes, that if Domenichino had had the good fortune which he merited, he would, like the Carracci in Bologna, have soon triumphed over his adversaries, admitting that he was an imitator, but not a servile one, and that if his works were more flow in their birth than those of his enemies, they merited a much longer existence. "The public," he adds, "is just in its judgment, but before its tribunal a good can not be sufficient of itself unless able pleaders give it credit. Domenichino timid and solitary, master of little, had not then sufficient means to protect himself against the torrent which overwhelmed him, and report deemed to verify the remark of the cardinal Agucchi, that his worth would not be duly appreciated till after his death. Impartial policy does him justice, and there is now no gallery which is regarded as complete without some specimen of his talents."

The virulence of these perjuries disfigured and disturbed Domenichino so much, that he returned to Bologna, and there he tranquilly passed some years in the delightful practice of his art. Among the most renowned of his productions about this period are his pictures of the Martyrdom of S. Agnes, for the church of that saint, and the Madonna della Rosario, both large works, and of sufficient merit to attract the infidelity of the French, and for a while they adorned the walls of the Louvre; but they are now returned to their original destinations. When malice and envy had exhausted themselves, and fame added fresh laurels to the brow of Domenichino, he was invited back to Rome by pope Gregory XV., who appointed him his principal painter, and architect to the pontifical palace. The cardinal Montotto engaged him to paint the vault of S. Andrea della Vallet, where he represented the four Evangelists with Angels; and in the chapel of cardinal Bandini, in the church of S. Sylvestro, in the Quirinal, he painted four pictures, which rank among his best; the subjects are, Esther before Ahasuerus, Judith with the Head of Holofernes, David playing and singing before the Ark, and Solomon and his Mother Bathsheba seated on a Throne. The former are certainly of a very high class of art, and though lacking the simplicity and grandeur of M. Angelo or Raphael, yet they are full of rich and fine forms, particularly those of the angels, &c. which accompany the figures. The latter are not of so elevated a style, but are more familiar, and wrought with fine colour: they are engraved by Jacomo Frey.
Frey. About the same time he painted four of the Cardinal Virtues in the angles of S. Carlo Catena!, which have been preferred to us by the graver of G. Andran.

Domenichino not only excelled in historical painting, in works both great and small, but he has also left us many landscapes of extraordinary excellence in point of tone; seldom can so much be said of their compositions. They are generally faint in scenery, of a grave and dignified character, and are executed with boldness and freedom, and enriched with figures. A very fine one may be seen in the collection of the marquis of Stafford. He is universally esteemed as the best among the disciples of the Carracci, and Niccolo Poussin is said to have preferred him before them; but that favour, if we except the Communion of St. Jerome, his works will scarcely be found to support. M. Fuseli has remarked, that "expansion which had languished after the death of Raphael seemed to revive in Domenichino; but his tenability was not supported by equal comprehension, elevation of mind, or dignity of motive." His forms are by no means so pure or graceful, or his actions so natural and unconstrained, as those of that divine painter. His invention does not appear to have been vivid, but his study was unremitting, and with all his defects he well deserved the title of a great painter, and certainly has not since been equalled. He died in 1641, aged 60.

ZAMPOGNA, in the Italian Music, is used to denote any instrument that sounds like a flute; and particularly a bagpipe, being an assemblage of divers pipes of different sizes. It is also taken for a common flute.

ZAMRECOTTA, in Geography, a town of Bootan; 34 miles S.E. of Damfong.

ZAMZEVRIZI, a town of the principality of Georgias, in the province of Carduel; 15 miles S.W. of Gori.

ZANA, a river of Peru, which runs into the Pacific ocean. L. lat. 7°.

ZANAATHA, in Ancient Geography, a town in the interior of Arabia Petrea. Ptol.

ZANCHI, BASILIO, in Biography, an elegant Latin poet, was born at Bergamo in 1501, and purfied his studies under Giovita Rapicio with so much ardour, that at the age of seventeen he made a collection of Latin poetical epithets, which was afterwards published. Before he had attained the age of twenty he visited Rome, and was much noticed by the poets of that city. According to the practice which then prevailed he changed his baptismal name Pietro into L. Petreus; but afterwards, returning to Bergamo, and entering, in 1524, among the canons-regular of Lateran, he assumed that of Basil, devoting his attention to sacred literature, and publishing some works on the scriptures. In the progress of his life he frequently changed his residence; and was every where respected, on account of his learning and talents, by the principal scholars of the age. Under the severe decrees of pope Paul IV. issued in 1558, which commanded, under the threatened penalty of the priso or galleys, all the religious to return to the cloisters to which they belonged, Zanchi was imprisoned, and fell a sacrifice to the rigour of confinement. One of his biographers says, that he had few equals in the sweetness, and fewer in the elegance of his poetry; specimens of which occur in his eight books of poems, one of which bears the title of "De Horro Sophistic," and describes the most remarkable facts and doctrines of the Catholic religion. Some of his poems are inserted in the "Deliciae," and the "Carmina Poetarum Italorum." He also published a kind of lexicon, entitled "Latinorum Verborum ex variis auctoribus Epitome." Moret. Gen. Biog.

ZANCHI, CIROLOMO, an Italian Protestant, was born in 1516 at Alzano, in the territory of Bergamo, and entered among the canons-regular of Lateran at the age of fifteen, in which connection he remained for ten years. But Peter Martyr having communicated to him, and others of his fraternity, the opinions of the reformers, he departed with him from Italy in 1530, and went to Geneva. From Geneva he removed to Straflburg upon an invitation to supply a vacancy in the professorship of sacred literature, which he accepted in 1533, and which he occupied for about eleven years. Having signed the Augsburg confession, with some restrictions, he was aggregated to the chapter of St. Thomas, in Straflburg. Although his disposition was moderate and conciliatory, he was engaged in some disputes with the zealous Lutherans, who determined to procure his expulsion. With this view, they acquired his signature of a formulary, to which he assented in the following terms: "Hanc doctrinam formulam ut piam agnoscatur, etiam recipiatur." The ambiguity of this declaration was not satisfactory to his adversaries, and he was therefore induced to resign, and to accept an invitation to a church in Chiavenna. The articles with regard to which he was suspected by the Lutherans were predestination, the perseverance of the saints, the church, unity, images, antichrist, and the end of the world. Having refused at Chiavenna from the year 1563 to 1568, he removed to the theological chair at Heidelberg, when he took the degree of doctor. When Frederick III., who was a zealous Lutheran, succeeded the elector palatine, and removed the Heidelberg professors, Zanchi declining offered settlements at Leyden and Antwerp, took a place in count John Caimir's college at Newldt. Upon the restoration of the expelled professors, Zanchi, on account of his age, was declared "emeritus," and having lost his sight, died at Heidelberg in 1590.

Highly esteemed among Protestants in general on account of his learning and invincible attachment to their principles, John Sturmius affirmed of him, "that he should not be at all anxious for the cause of reformed religion, if Zanchius alone were to dispute in the council of Trent against all the fathers present." Bayle.

ZANCLE, in Ancient Geography, a town of Sicily, on the tract which separates this island from Italy. According to Herodotus, the Messenians, driven from the Peloponnesus by the Lacedemonians, transplanted themselves into Sicily, took possession of Zanclce, and gave it the name of Megara, whence Mellina.

ZANDENDORF, in Geography, a town of Germany, in the margravate of Anspach; 2 miles S.W. of Cadolzburg.

ZANDHOP, a town of Prussia, in Ermeland; 16 miles S.E. of Heilberg.

ZANE, a town of Virginia; 9 miles S.E. of Winchester.—Also, a township of Champaign county, in the district of Ohio, with 654 inhabitants.

ZANES, in Ancient Geography, a town of Upper Media, fortified by Justinian, so as to render it one of the strongest bulwarks of the empire.

ZANESVILLE, in Geography, a township of the slate of Ohio, in the county of Muskingum, on the Scioto, with 2154 inhabitants.

ZANETTI, ANTONIO, in Biography, of Venice, maestro di capella to the duke of Modena, the latter end of the 18th and beginning of the 19th century, for whom, and for the theatres in Venice, he produced six or seven operas that were much esteemed in those days.

ZANETTI, FRANCISCO, was born in the year 1740, maestro di capella in the cathedral at Perugia in 1770. He had previously passed some time in London, where some elegant and sprightly sonatas of his composition were published by
by Bremner. He lost his place in the church at Perugia, by having appeared on the Alberti stage at Rome, as a singer in an opera of his own composition, and that, merely to supply the place of the principal tenor, who had run away, and to prevent the piece from being stopped: he however married afterwards a pretty woman, who fung well, and indemnified him for the loss of his place.

Since his marriage he has composed several successful operas, in which Signora Zanetti has performed the principal female part, particularly one at Milan in 1785, in which she was much applauded, as well as her husband’s music. He has composed much natural and pleasing music for instruments; as six violin trios, six quartets for three violins, and two violoncellos, &c.

ZANFARA, in Geography. See Zamfara.

ZANGARISA, a town of Naples, in Calabria Ultra; 6 miles N.E. of St. Severina.

ZANGESAIR, or Sanguseer, a sea-port of Hindoostan, in Concan, with a good harbour, but not much frequented; 15 miles S. of Severndroog. N. lat. 17° 39’. E. long. 73° 55’.

ZANGUEBAR, a name given to a large territory of Africa, bordering on the Eastern sea, including many kingdoms; the name is said to import “the coast of the negroes,” all the inhabitants being blacks, with curled woolly hair; extending from two degrees north to the twenty-first degree of south latitude. The principal kingdoms on the coast have been separately spoken of and described. Of the country in general little is known; the whole tract is represented as barren and unhealthy, the lands lying low, and intersected with rivers, lakes, thick woods, forests, and marshy grounds. The fruits of it are very unwholesome, their rivers, for the most part, covered or choked up with weeds, bulks, and thickets; all which so flagrante the air, and corrupt the products of the earth, and render the inhabitants so sickly and indolent, that they receive little or no benefit from its produce. The Bedouin Arabs are the only people who make advantage of it by breeding multitudes of cattle, and living mostly upon their flesh and milk; whilst the negroes, or Zangas, content themselves with feeding upon wild beasts and fowl, which swarm all over those parts. To supply the want of corn, pulse, roots, and other wholesome food, of which they are defitute, the Divine Providence hath interposed that whole country with mines of gold, easily got, by the help of which they can purchase all the necessaries and conveniences of life from other parts: but this is the very circumstance that makes them so extremely jealous of letting strangers penetrate into the inland; more especially since the Portuguese have made themselves masters of such a number of places along this coast. They are in their nature fierce and riotous, ignorant and brutal, without religion, especially the negroes; upon which last account they have the name of Caffers. As for the Bedouins, they have some kind of religion, or rather observe a variety of superstitious rites, but are no less ignorant and uncivilized than the Caffers; yet they chiefly herd among themselves, and live at a great distance from the coasts, and by the sides of lakes and rivers, for the convenience of pasture for their numerous herds. They go all naked, both Caffers and Arabs, excepting that they wrap a piece of cotton cloth round their middle, which descends a little below the knee; but these who live along the coasts are somewhat more civilized, affecting a little more finery in their dres, and instead of cotton cloth cover themselves with the skins of wild beasts, more or less rich, according to their rank, with the tails of animals trailing behind on the ground; they likewise adorn their necks, arms, and legs, with a variety of beads, bugles, and other trinkets, of amber, jet, glass, and other materials, which they purchase from the merchants with their gold, furs, ivory, and other commodities. There are among these coasts a great number of Mahometans, but a much greater number still among the islanders along the coast; they being for the most part descended from those Arabs who were banished out of their country. The countries are, Melinda, Mongala, Jubo, Mofambique, and some others.

ZANHAGA, or ZANZAGO, or Zenbaga, a province of Africa, in the country of Sahara, bordering on the Atlantic.

ZANIA, in Ancient Geography, a town of Asia, in the interior of Media. Ptol.

ZANNA, the name of a medicinal earth, described by Oribasius: he says it is found in Armenia, in that part which borders on Cappadocia; and that it is very drying, and of a pale colour, and easily diffused by water, falling into a fine powder like lime.

It is called by the natives zarina, and the mountain from which it is taken is near the city Bagamonza. It is of a drying and astringent nature.

ZANNICHELLI, John Jerome, in Biography, a physician and naturalist, was born at Modena in 1662, and settling in the medical department at Venice, he published a work on the preparation of chemical medicines, entitled “Promptuarium Remediorum Chymicorum.” In 1702 he was created, by a patent of the duke of Parma, doctor of medicine, surgery, and chemistry. He afterwards formed a museum of natural history, and made many journeys in order to collect fossils and other subjects for this repository. Some of his excursions were undertaken by public authority, as he was nominated by the chamber of health, physician-naturalist to all the states of Venice. He died in 1729. During his life-time he published several tracts relating to botany and lithology; and after his death his son John James edited from his MSS. “Opuscula Botanica Posthuma,” 1730, and “Italiae et Piante che nascono nel lidi intorno à Venezia,” 1735, being a description, with figures, of the plants on the Venetian shores. Haller. Eloy.

ZANNICHELLIA, in Botany, was so named by Micheli, in compliment to John Jerome Zannicchelli, an eminent apothecary at Venice, who spared no expense or labour, even at an advanced age, in the study of botany, on account of which he undertook several hazardous and difficult journeys. He was particularly devoted to the observation of marine productions, as well animal as vegetable. In pursuit of these he was Micheli’s companion and guide, among the islands and shores of the Adriatic; and has wrote an account of the plants there to be found, which, with the history of some of his mountain tours, were printed after his decease. Zannichelli published a pamphlet on the medical qualities of Rufus, as well as various chemical and geological works. He died in 1729, aged 67. His son, John Jacob Zannichelli, wrote on the properties of the horse-chestnut, as well as an account of his own and his father’s museum. — Mich. Nov. Gen. 70. t. 34. Linn. Gen. 476. Schreb. 616. Willd. Sp. Pl. v. 4. 181. Mart. Mill. Diet. v. 4. Ait. Hort. Kew. v. 5. 229. Sm. Fl. Brit. 955. Prodr. Fl. Gracc. Sicibh. v. 2. 225. Pursh 4. Juif. 19. Poirct in Lamarck Diet. v. 8. 836. Lamarck Illusfr. t. 741. Gartn. t. 19. (Gramimolio; Dill. Gen. 168.) — Caffs and order, Menocia Monandria. Nat. Ord. Inundatae. Linn. Najades, Jaff

Female, close to the male. Cal. Perianth of one leaf, inferior, hollow, swelling, oblique, with two or three teeth. Cor. none. Pet. Germens from four to eight, flaked, oblong, converging; styles as many, simple, rather spreading; stigmas ovate, peltate, flat, spreading outwards. Peric. none. Seeds as many as the germens, naked, flaked, oblong, compressed, a little incurved, beaked with the permanent styles, tuberculated at the back, with a simple coriaceous coat.

Ob! Schreber speaks of some solitary, dispersed, male flowers, furnished with a single-leaved calyx, whose orifice is oblique, acute at the posterior part, and entire. He follows Gartner in considering the coat of each seed as a capsule; but the latter allows there is scarcely any internal coat, or integument, to the kernel, and the outer one is deficient of valves; so that although the style be permanent, we rather follow Linnaeus than other authors; and we conceive that if the existence of a naked seed be admitted in any instance, it must be in the present; there being only a simple covering to the embryo, which is indispensible.


Female, Calyx of one leaf. Corolla none. Germens four or more. Stigmas peltate. Seeds flaked, naked. 1. Z. palustris. Marsh Horned-Pondweed. Linn. Sp. Pl. 1375. Willd. n. 1. Brit. Fl. t. 844. Pursh n. 1. Mill. Ill. t. 77. Fl. Dan. t. 67. (Z. palustris major, foliis gramineis acutis, flore cum apice quadricapulatis, embryonis clypeolis integris, et virculo non barbatum, capulis feminis ad collem dentatis; Mich. n. 1. t. 34. f. 1.) Potamogeton filifolius, graminifolius, ramafolius, ad geminac polyceratos. Pluk. Phyt. t. 132. f. 7.)—Anther of four cells. Stigmas entire.—Native of ponds, ditches, and rivulets, in Italy, as well as other parts of Europe, from Sweden to Contantine, flowering in summer. It is found also in Virginia, near the sweet springs, according to Clayton and Pursh. The root is annual. Stem slender, floating, branched, round, leafy, and smooth, with the habit of a Potamogeton. Leaves linear, grassy, febrile, narrow, acute, and entire, two or three inches long. Bractea membranous, tubular, axillar, including a pair of green flowers, one male, the other female. Anther tawny. Seeds blackish when ripe, rugged and toothed at the back.

2. Z. dentata. Toothed Horned-Pondweed. Willd. n. 2. Poiret n. 2. (Z. palustris minor, foliis gramineis acutiflimis, floribus minimis cum apice capiculatis, embryonis clypeolis circumcrenis, et virculo barbatum, capulis feminis ad collem albis; Mich. n. 2. t. 34. f. 2.)—Anther of two cells. Stigmas toothed.—Found in the neighbourhood of Florence, with the foregoing, as well as in mountains pools in the adjacent country. Rather smaller than the former species, with shorter leaves; but most essentially different in having one cell in the anther, and remarkably toothed stigmas. The seeds also are tuberculated all over, not merely toothed at the back, or infal.

Loureiro has a Z. tuberculata, Fl. Cochinch. 543, to which he attributes "ovate-oblong single-feeded berries." It grows in the waters of Cochinchina, and has tuberous perennial roots, radical, sword-shaped leaves, spikèd flowers, the calyx of the female in five deep segments. We agree with M. Poiret that it would be too hazardous to admit this species without examination. Loureiro had probably never seen a real Zanichellia.

ZANOE, in Ancient Geography, a town of Palestine, in Vol. XXIX.
and Makelbranche. But being desirous of studying the works of Aristotle and Plato in the original language, he applied with diligence to acquire a knowledge of the Greek, so that he became able not only to read but to write. Thus furnished, he obtained leave to give lectures in philosophy; in the course of which he instituted a comparison between the system of Descartes and that of Newton, avowing a decided preference to the latter; more particularly as it respects optics and astronomy. It was by his advice, and under his direction, that Algarotti undertook to compose a popular treatise on light and colours. Declining to go to Padua for the purpose of giving lectures, he was appointed librarian to the Institute at his native place, and afterwards secretary, in which office he drew up in Latin an account of the transactions of the academy, with a history of its institutions, which he continued till the year 1766. This work was rendered peculiarly pleasing and instructive by the clearness of his arrangement, and the excellence of his style; in both which respects he seems to have formed himself on the model of Fontenelle. To these transactions he was himself a contributor; communicating a method of squaring different spaces of the hyperbola, and several important discoveries with regard to the circle, sphere, and circumfering figures. Of these discoveries he transmitted an account to the Academy of Sciences at Montpellier, of which, as well as of the Royal Society of London, he had been elected a member. He also discovered a method of separating indeterminate quantities, detected several errors in philosophy, and professed a variety of experiments; on these and other subjects he delivered papers to the Bologna Institute, which were published in his commentaries. Several of his papers on the central forces were also inserted in the Transactions of the Academy. His theorem on the means of determining the velocity of a body drawn or repelled from its centre, in any point of its orbit, were held in high estimation by Paul Florius, who ascribed himself of it in the composition of his work on universal gravity. On the subject of the "Vis viva," which in his time engaged particular attention, he wrote three dialogues in Italian, distinguished for peripetiae and elegance. In these he adopted the opinion of Delcarles in opposition to that of Leibnitz, who conceived that this force was not to be estimated from the velocity, as he asserted, but from the square of the velocity. The properties of numbers likewise engaged his peculiar attention; and he showed, that if any multiple of the number 9 be taken, the sum of the figures forming that multiple will be also a multiple of 9. In his speculations on moral philosophy, he defended the Peripatetics against Maupertuis; and his adversary Anfaldy, in his "Vindicatio Maupertusi," accused him of depreciating the Catholic religion, as he ascribed too great influence to the Stoic philosophy in alleviating the misfortunes of human life. This controversy gave occasion to many publications. Zanotti was a poet as well as a mathematician and philosopher, and wrote verse both in the Tuscan and Latin languages; aiming, in imitation of the most celebrated poets of Italy, to blend the fulness of Petrarch with the energy and vigour of Dante. Many of his Italian poems were published by Eufabio Manfredi; and some of his Latin elegies were edited by J. Antonio Vulpi; who says of them, that Catullus himself would not have been ashamed to acknowledge them. Both his Italian and Latin poems were afterwards published separately, first at Florence, and lastly at Bologna; and in this edition are contained imitations of Tibullus, Ovid, and Virgil, as well as of Catullus. After the death of Beccaria, Zanotti, whose modesty was no less conspicuous than his talents and acquirements, accepted the office of president of the Institute, which he deemed peculiarly honourable, as it was a token of esteem conferred upon him by his countrymen. Among the learned men with whom he maintained intercourse of friendship or correspondence were the famous anatomist Morgagni, Voltaire, and pope Benedict XIV. He died in the month of January 1777. For an account of his works, which, besides those to which we have already referred, were numerous, we refer to "Fabrioni Vite Italorum Doctrinae excellentissimorum," and for an abridgment of their titles, and time and place of publication, to Gen. Diog.

ZANOTTI, GIOVANNI PIETRO, was born at Paris, though of Italian parentage, in 1674. He was sent young to Bologna, and became a pupil of Lorenzo Paffinelli. Under that master he acquired an agreeable tone of colouring, a mellow pencil, and an intelligent acquaintance with the principle of the chiaro o scuro. He painted several altar-pieces for the churches at Bologna, of which the most esteemed are, the Incredulity of St. Thomas, in the church of S. Tommaso del Mercato; the Resurrection, in S. Pietro; the Nativity, in La Purita; and a large picture in the palazzo publico, representing the ambassadors from Rome swearing fidelity to the Bolognese. He readied great part of his life at Cortona, where he also distinguished himself by several pictures painted for the churches, particularly Chiritt appearing to the Magdalen, Chirilt bearing his Cross, and the Murder of the Inhabitants.

Zanotti was a laborious and intelligent writer on art. Of his numerous publications the most considerable is his "Storia dell' Academia Clementina de Bologna," published in two vols. 4to. in 1739. He died in 1765, aged 91.

ZANOTI, L'ABATE GIACALISTO, of Bologna, a disciple of Padre Martini, was born in 1779, of whose composition at the annual performance of the musical Students, who were members of the celebrated Philharmonic Society in Bologna, founded in 1666, we heard a dixit, in which there were all the marks of an original and cultivated genius. The movements and even passages were well contrived; and to make use of the language of painters, there were discernible in it not only light and shade, but even mezzo tints. He proceeded from one thing to another by such easy and inoffensive gradations, that it seemed wholly the work of nature, though conducted with the greatest art. The accompaniments were judicious, the ritorneli always expressed something, the melody was new and full of taste, and the whole was put together with great judgment, and even learning. We have very seldom been more pleased or completely satisfied than by this production; and yet the vocal parts were but indifferently executed, for there were then no great singers at Bologna. We expected to have heard of future works by this most promising young composer, who was one of the maestri di capella in the church of San Petronio; but as that has not happened, we fear he did not long survive this performance.

ZÁNOW, in Geography, a town of Pomerania; 6 miles E.N.E. of Cofolin.

ZANTE, an island in the Mediterranean, near the coast of the Morea, about 12 miles in length, and six in breadth, chiefly inhabited by Greeks, till lately under the Venetians, who appointed a governor, called provveditore, and two councilors. The Greeks have 40 churches, besides convents, and a bishop; the Roman Catholics have three convents and a bishop. By the treaty of Campo Formio, Zante was given to France; but in 1799 it was taken by the united fleets of Russia and Turkey, and in the year 1800 connected with other neighbouring islands, to form a republic of the Seven islands, named the Ionian, which are to pay a tribute to the...
the Porte, and guaranteed both by the Turks and Russians. Corfu, Cephalonia, and some others lately in the possession of Venice, were of this number. The island produces excellent wine, and that species of grapes called currants, olives, figs, melons, peaches, and other choice fruits; towards the coasts, the island is in general mountainous, but level in the interior parts. It is much subject to earthquakes. N. lat. 37° 40'. E. long. 21° 4'.

ZANTE, a town and capital of the island of Zante, situated on the N.E. side, with a harbour safe and commodious for vessels of any size. The town stretches between the harbour and the foot of a mountain about a mile in length, but narrow; the streets are not paved, and the houses in general low. On a mountain above the town is a citadel, which commands the harbour, and contains a little city within its walls. It is to be ascended with difficulty, is strong, and well supplied with stores, and furnished with a garrison. This is the residence of the governor and officers. Zante is the fee of a Greek and Latin bishop. There are several churches, and the Jews have a synagogue; 21 miles S.S.W. from the town of Chiarenza. N. lat. 37° 50'. E. long. 21° 8'.

ZANTHENES, in Natural History, a name given by the ancients to a fossile substance found in Media. Pliny quotes Democritus for saying, that if rubbed in palm wine and saffron, it became soft as wax, and yielded a very sweet smell.

ZANTHER, in Geography, a town of Pomerelia; 10 miles S. of Marienburg.


ZANTHOXYLUM, Linn. Gen. 519. See Xantho-

ZANTHOXYLUM, in Gardening, contains plants of the hardy and tender exotic shrubby kinds, in which the species cultivated are, the Canada tooth-ache-tree, or Hercules's club (Z. clava Herculis), and the Chinefe tooth-ache-tree (Z. trifoliatum).

The frift is a plant of the tree kind, of which there is a variety; the aften-leaved tooth-ache-tree, with oval-oblong folioloes, and prickly mid-rib.

And laft is a woody branching plant.

Method of Culture.—These plants may be increased by seeds and layers. The seeds should be sown in the spring, either in an east border, or in pots placed in the morning sun all the summer, being sheltered in a frame in winter; and in the spring following removed to the full air till October, giving proper waterings all the summer; and towards winter be placed again under shelter from frost till March, when the young plants may be potted separately; and thus continued for a year or two, being sheltered in the winter, when they may be transplanted into the shrubbery, where they are to remain.

The layers of the young wood may be laid down in autumn or early spring, and when they have striken root be taken off and managed as the seedlings.

They also succeed by cuttings in spring or summer, planted in pots, affilied by a hot-bed, in which they soon strike, when they should be transplanted into the full air; and the young plants will be fit for planting out in the autumn, or the spring following.

The frift is a very ornamental plant in the borders and other dry parts of shrubberies, and the latter among potted plants in the green-house collections.

ZANTOCH, in Geography, a town of the New Mark of Brandenburg; 8 miles E. of Landberg.

ZANZALUS, in Biography. See Baradus.

ZANZIBAR, or Zangibar, in Geography, an island of Africa, in the Indian sea, near the coast of Zangiebarg, governed by a king, which is tributary to the Portuguese. S. lat. 6°. E. long. 42° 15'.

ZANZOUR, a town of Africa, in the country of Tripoli; 15 miles W.N.W. of Tripoli.

ZAOIE, a town of Egypt, on the left bank of the Nile; 15 miles N. of Beniuef.

ZA-OSTROG, a town of Morlachia, near the coast; 15 miles S.E. of Macarfa.

ZAOZERSKOI, a town of Ruflia, in the government of Novgorod, on the Slu; 28 miles W. of Tschepovetz.

ZAPATA, or Zapata, a kind of feaf, or ceremony, held in Italy, in the courts of certain princes, on St. Nicholas's day, in which people hide presents in the shoes or flippers of those they would do honour to; in such manner, as to surprize them on the morrow, when they come to dress.

The word is originally Spanish, capata; and signifies a shoe, or slipper.

It is done in imitation of the practice of St. Nicholas; who used, in the night-time, to throw purfes of money in at the windows, for portions to poor virgins in their marriage.

F. Menehrier has described these zapatas, their origin, and different usages, in his Traite des Ballets Anciens et Moderns.

ZAPATERO, in Geography, a small island of Mexico, in lake Nicaragua, near the west coast; 30 miles S.E. of Grenada.

ZAPATILLA LAGOON, a bay on the east coast of Yucatan. N. lat. 18° 52'. W. long. 89° 32'.

ZAPETECA, in Ancient Geography, a town of Asia, in the mountains of Comagene, upon a small river, which discharged itself into the Euphrates, S. of that town.

ZAPPENDORF, in Geography, a town of Bavaria, in the bishopric of Bamberg; 9 miles N. of Bamberg.

ZAPHOR, a name given by some writers to Zaffer; which feee.

ZAPOROGIAN COSSACKS, in Geography. See Cos-

ZAPOTITLAN, a town of Mexico, in the province of Tlalaca; 62 miles S.E. of Puebla de los Angeles.

ZAPOTLAN, a town of Mexico, in the province of Mechoacan; 25 miles N. of Colima. N. lat. 26° 10'. W. long. 104° 36'.

ZAPPANIA, in Botany, was so named by Scopoli, in honour of Paul Anthony Zappa, an Italian botanist, to whom the public garden at Pavia was indebted for many valuable communications. The French, not always exact in orthography, will have it Zappania, and they have mislaid our more accurate countryman Mr. Brown, who follows Jaffieu and Lamarck in adopting this genus, in his Prod. Nov. Holl. v. 1. 514. Scopoli published it in his Delicia Flore et Faune Infributes, v. 1. 24. t. 15. The species, on which he founds the genus, and which he erroneously suspected might be the Lantana involucrata of Linnaeus, is the Verben a globifera of L'Heritier. (See Verbena, n. 3.) We do not find it necessary or expedient to retain Zappania as a distinct genus.

ZAPUNTELLO, in Geography, a town of the island of Melada, which sometimes gives name to the island.

ZAUQLAPAN, a town of Mechoacan, in the province of Mechoacan; 6 miles S. of Zacatula.

ZARA, a city and sea-port of Dalmatia, fee of an archbishop, situate in a district, called "The Count of Zara," which was purchased of the king of Naples, in the year
ZAR

1499, by the Venetians, in whose hands it afterwards continued. Zar is surrounded on all sides by the sea, except that it has a communication callward with the continent, by means of a draw-bridge, commanded by a fort. It is reckoned one of the best fortifications of Dalmatia, and deemed almost impregnable. The citadel is divided from the town by a very deep ditch, hewn out of a rock. The harbour, which lies to the north, is capacious, safe, and well guarded. The rain is carefully preferred in citizens, to supply the want of fresh water. In the cave refides the governor or provost of Dalmatia, whose office is only tituual. It now belongs to the kingdom of Italy; 28 miles N.W. of Scardona. N. lat. 44° 22'. E. long. 15° 38'.

Zara Vexieia, Old Zara, or Biogrado, or Alba Marina, a town of Dalmatia, now little better than a village. In the time of the Romans it was a place of considerable figure, and received a new set of inhabitants by a numerous colony of that people. In the middle ages it was called Belgrad, or Alba Maria. According to some it was burned by Attila; but we know with more certainty, that it was destroyed in the war between the Venetians and the Hungarians, by the doge Ordelaffo Falceri. Some banditti afterwards mixing with the inhabitants that remained, the republic, to check their excesses, ordered a general massacre of the robbers, in which the ancient inhabitants were not spared. Here was also a bishop's see, which, on the demolition of the town, was removed to Scardona; at present its inhabitants confine only of a few peacans; 18 miles S.E. of Zara.

Zara, see Scareda.

Zara, in Ancient Geography, a town of the Moabiters, taken by Alexander Jannus.—Alfo, a town of Asia, towards Armenia, upon the route from Arabiffum to Satata, between Evmeu and Dagollaffum, Anton. Itin.

ZARAK, in Geography, a town of Ruffia, in the government of Riazan, on the Ofer; 24 miles S.W. of Riazan. N. lat. 54° 30'. E. long. 3° 24'.

ZARAMA, in Ancient Geography, a town of Asia, in the interior of Media. Ptolemy.

ZARANDA, a name anciently given to the Euphrates.

ZARANG, the Zarange of Ptolemy, in Geography, a populous city of Perfa, in the province of Segesta or Scillan, situated pleasantly on the banks of the Heurnord. This was the customary residence of Jacob Ben Lath, the conqueror of the caliph of Bagdad, and flood a long siege against Timur, by whom it was at last taken. Zarang is supposed to be the same with the present Doothak, the old name having been lost in the revolutions to which this province has been subject for more than a century, and to which its present desolate state may, in a great measure, be attributed. For a further account of it, see Segestan.

ZARANIS, in Ancient Geography, a town of Asia, in the interior of Media. Ptolemy.

ZARATE, Augustine de, in Biography, a Spanish historian, was sent by Charles V. in 1543 to South America, as comptroller-general in Peru and Terra Firma; and having collected all the memoirs he could procure, he composed his work "Del Descubrimiento y Conquista de la Provincia del Peru," first printed at Antwerp in 1555, 8vo; and reprinted at Seville, 1577, folio: the first edition being regarded as most authentic. It has been translated into Italian and French, and is commended as a work of reputation and credit by Dr. Robertson. Moreri. Robertson's America.

ZARATE, in Geography, a town of South America, in the province of St. Martha; 15 miles S. of Teneriffe.

ZARAYOS, or Sharayos, a supposed lake of America, in the course of the river Paraguay, which only exils during the annual inundations, that are on a far greater scale than those of the Ganges, and may be fated to deluge whole provinces.

ZARCA, a town of Egypt, on the east branch of the Nile; 10 miles S. of Dametta.

ZARCHAS, or Tcharkas, a town of Perza, in the province of Chorasan, or Khorasan; 150 miles N. of Herat.

ZARCOIA, a town of Perza, in the province of Segestan; 12 miles W. of Zarang.

ZARDAK. See Sardak.

ZARE, a town of Perza, in the province of Chorasan, or Khorasan, on the north side of a lake so called; 70 miles S. of Herat.—Alfo, a lake of Perza, in the province of Segestan; 60 miles N. of Zarang. See Zerrein.

ZAREED, in Ancient Geography, a torrent beyond Jordan, on the frontier of the Moabiters. This torrent had its source in the mountains, E. of the country of Moab, and proceeding from the E. to the W. discharged itself into the Dead sea. The Israelites passed it 38 years before their departure from Kadeh-Barna. Numb. xxi. 12. Deut. ii. 3. 4.

ZAREPHATH. See Sarepta.


ZARETH, ZARETH. E, or ZAREF, a people comprized under the name of Scythians, on this side of the Imaus, south of mounts Maeaix and Alani. Ptol.

ZAREX, a port of Laconia, on the Argolic gulf, S. of Cyphanta. Near this port was a temple of Apollo, with a statue of this god, holding in his hand a lyre. To the south, and parallel to the coast, was a mountain called Zarex.

ZARFA, in Botany, a name given by Leo Africanus, and others, to the lotus, or nettle-tree.

ZARGIDAVA, in Ancient Geography, a town situated on the bank of the river Hieraus, in the interior of Lower Media, a little above Tamaflava.

ZARIASPARA, or ZARASPE, a town of Asia, in Baetaria, watered by a river of the same name, which discharged itself into the Oxus. Strabo. It was also called Baetra. Steph. Bry.

ZARIFU, a word by which some of the chemical writers have expressed tin.

ZARIK, in Geography, a town of European Turkey, in the Morea; 22 miles E. of Militra.

ZARIMA, a town of South America, in the province of Quito; 220 miles S. of Quito. S. lat. 3° 30'. W. long. 70° 30'.

ZARJON, a town of South America, in the government of Buenos Ayres; 300 miles N.W. of Buenos Ayres.

ZARLINO, Giuseppe da Chioggia, maestro di capella of St. Mark's church at Venice, and the most general, voluminous, and celebrated theorist and writer on music in the Italian language during the 16th century, was born in 1549, and author of the following musical treatises, which, though separately printed, and at different periods, are generally bound up together in one thick folio volume: — "Institutioni Harmoniche," Venice, 1558, 1562, 1573, and 1589; "Dimostrazione Harmonica." Ven. 1571, 1589; and "Sopplimenti Musica li," Ven. 1588. We discover by these dates, that Zarlino first appeared as an author at the age of 18; and from that period till he had arrived at 49, he was continually reviving and augmenting his works. The
The musical science of Zarlino, who died in 1599, may be traced in a right line from the Netherlanes; as his master Willaert, the founder of the Venetian school, was a disciple of John Mouton, the scholar of the great Josquin.

A commentary upon the voluminous writings of this author would occupy too large a portion of our work; and to refer the reader to the analysis of his several treatises by Artusi would be doing him little service, as the writings of Artusi would be difficult to find. There are few musical authors whom we have more frequently consulted than Zarlino, having been encouraged by his great reputation, and the extent of his plan, to hope for satisfaction from his writings concerning many difficulties in the music of the early contrapuntists; but we must own, that we have been more frequently discouraged from the pursuit by his prolixity, than enlightened by his science; the most trivial information is involved in such a crowd of words, and the unpractised, which it occasions, is so great, that patience and curiosity must be invincible indeed to support a musical inquirer through a regular perusal of all his works.

He begins his Institutes with a panegyrick upon music, in the usual strain; then we have its division into mundane and humane, faithfully drawn from Boethius; after this, there is a great wafe of words, and parade of science, in attempting to explain the several ratios of greater and less inequality, proportion, and proportionality, &c. where, in his commenting on Boethius, we have divisions of musical intervals that are impracticable, or at least inadmissible, in modern harmony.

In his account of the ancient lyre, he discovers much reading; and that is what he chiefly wishes the reader should know.

In describing the diatonic genus, in which the tetrachord is divided into tone major, tone minor, and major femitone: \( 3^1, 3^2, 3^3 \), and \( 3^4 \), for which division, commonly called the Pythagorean, or intende of Ptolemy, he constantly contends, we have the substance of his dispute with Vincenzo Galilei, which will be mentioned hereafter. The second part of his Institutes is chiefly employed in measuring and ascertaining intervals by means of the monochord, and an instrument called the mefolab, which is said to have been invented either by Archytas of Tarentum, or Eudoxenes, for the purpose of halving an interval. Whether the practical musicians of antiquity applied these calculations or imaginary divisions to their flutes and lyres, we know not; but of this we are most certain, that the greatest performers of modern times are Aristoxenians, and make the ear the only instrument of calculation; which, by means of harmony, and the constant opportunities of comparison which the base or other accompaniment affords them, during performance, is rendered a much more truly guide than it could be in playing a single part. It seems, however, as if the ancient instruments, upon which all the tones are fixed, had more need of the assistance of calculation and mathematical exactness in regulating their intervals than those of the violin-tribe at present; which, except in the open stringings, which often lead the performer to erroneous intonation, depend on the strength and dexterity of the musician's hand, and accuracy of his ear, during performance. See an ingenious and useful work, called "Essay upon Tune," published at Edinburgh, 1781; where the imperfections in the scales of modern instruments are clearly shown, and remedies for correcting them preferred.

The elements of counterpoint, and fundamental rules of composition, which chiefly concern the practical musician, are given in the third part of the Institutes; and these are more ample, and illustrated with more examples, than in any preceding writer; particularly the laws of canon and fugue, for which no instructions have been given by Fanchinus, though they were in such high favour during his time. P. Aaron and Vicentino have indeed started the subject, but the pursuit of it was left to Zarlino.

In the fourth part of the Institutes we have a short historical account of the inventors of the several ecclesiastical modes: it is, indeed, a mere skeleton of affections or conjectures without proof, more derived from traditional than written evidence. He here likewise gives instructions for composing in all these modes, in which he religiously keeps within their legal limits, and submits to all the restraints which antiquity had prescribed.

Padre Martini, faggio di contrappunto, in recommending the study and imitation of ancient masters, has well described the difficulties they had to encounter; where, after confronting the ecclesiastical scales with the secular, we have the following passage: "From an attentive and comparative view of these scales, any one desirous of learning the art of counterpoint for the service of the church, will see what diligence and efforts were necessary to unite the different qualities of canto-fermo and canto-figurato; and by carefully examining the examples given of both, will discover what artifacts were used by ancient masters to avoid such sounds as differed from the canto-fermo, and with what paraphony they admitted such accidents as canto-figurato requires, particularly in the third and fourth tones: where, instead of modulating into B flat, the 5th of the mode or key, as is constantly prakticed at present, they have passed to the key of A in the fourth tone, and C in the third, by which means they have been able, dexterously, to unite the different qualities of canto-fermo with those of canto-figurato."

He gives excellent rules for composing motets and madrigals; but it is remarkable, that he advises the composer to make the tenor proceed regularly through the sounds of the mode he shall choose; and above all, that this part be so much the more smooth, regular, and beautiful, as the rest are to be built upon: whence, says he, its sounds may be called the nerves and ligaments of all the other parts: by which it appears that the cantilena, or principal melody, was not given, as it is by modern composers, to the sopranus, or highest part; that cadrisi were not so common as at present; and that the tenor being the kind of voice most easily found, and more generally good than that of any other pitch, was judiciously honoured with the principal melody.

Zarlino says, that so great was the rage for multiplying parts in musical compositions, that some masters, not content with three or four, which sufficed to their predecessor, had increased them to fifty; from which, he truly observes, nothing but noise and confusion could arise. However, in another part of his book, he tells us, that Adriano Willaert had invented mafles à Due Cori, over a tre, or, as some call them, à Cori Spezzati, which had an admirable effect. We know not how Okenheim disposed his thirty-six parts in the motet already mentioned; but they would have furnished nine choirs of four voices each. In the large churches of Italy, where the performers are divided into two bands, placed in opposite galleries, all the imitations and fole parts are distinctly heard, and when united in at least eight real parts, completely fill the ears of the audience with all the charms of congregated sound.

ZARMISOGUSIA REGIA, in Ancient Geography, a capital town of Dacia, upon the river Sargetia. When this city became a Roman colony, it joined to its ancient name "Colonia Ulpi Trajana," or that of "Augusta Dacica."
ZAR

ZARN, in Geography, a town of the duchy of Berg; 4 miles E. of Durlburg.

ZARNAB, in the Materia Medica, a term used by Avicenna and Serapio to express the carpusia of the ancient Greeks.

ZARNACH, the name as the word zarnich, the name of the ornament of the Arabians.

It was not confined, however, to this sense alone, but was used as a name for other things used in painting, and particularly for the laps armens. However, Dioscorides and Theophrastus call the laps armens by the name of armenion, and the zarnich by that of arvencon, that is, ornament.

ZARNAK, in Geography, a town of Turkestan, on the Sirr; 100 miles W. of Teonate.

ZARNATA, a town of European Turkey, in the Morea; 16 miles S.W. of Militra.

ZARNAW, a town of Poland, in the palatinate of Sandomirz; 32 miles N. of Sandomirz.

ZARNICH, in Natural History, the name of a genus of foils, the characters of which are these: They are inflammable substances, not composed of plates or flakes, but of a plain, simple, and uniform structure, not flexible nor elastic, fusible in oil, and burning with a whitish flame, and noxious smell, like garlic.

That these foils are really sulphurised arsenic is evident from many experiments. When let on fire, the arsenical as well as the sulphurous smell is plainly distinguishable. If triturated with quicksilver, and exposed to a suitable heat, the sulphur is detained by the mercury, and a pure white arsenic sublimes. A mixture of fixed alkaline salt, with any vegetable or animal sublimate, as the compound called by the affayers black flux, in like manner keeps down the sulphur, and at the same time revives the arsenic into its reguline or metallic form. These native minerals have been used as medicines in the eastern countries, and by some imprudently recommended in our own. Lewis.

Of this genus there are four known species: a red one, which is the true Sandarach; a yellow one, found in the mines of Germany, and brought to us under the name of ornament; a greenish one, common also in the mines of Germany, and sold in our colour-shops under the name of a coarse ornament; it is also found in the tin-mines of Cornwall; and a whitish one, which has the property of turning black ink into a florid red, common in the mines of Germany, but of little value. Hill.

ZARNOWITZ, in Geography, a town of Prussian Pomerania, on a bay of the Baltic; 40 miles N.N.W. of Danzig.

ZARNOWNO, a town of Austrian Poland, in the kingdom of Galicia, on the Dnieper; 15 miles N.W. of Halicz.

ZAROW. See Soraw.

ZARP, a river of Asia, which runs into the Tigris, 40 miles below Moful.

ZARPANA, or ROTA, or St. ANN, one of the La-drone islands, about 40 miles in circumference, with a port on the S. coast, and another on the N.W. coast; 21 miles from Guam.

ZARUANA, in Ancient Geography, a town of Asia, in Greater Armenia. Potemiany.

ZARUBINA, in Geography, a town of Russia, in the government of Irkutsk; 60 miles N.W. of Ilmuk.

ZARUMA, a town of South America, in the audience of Quito.

ZARUTHAN, in Surgery, a word used by some to express a hard and unequal tumour of the breast, attended with a burning heat, and a violent but not continual pain.

This is by some referred to the cancer, and accounted a species of that terrible disorder: its cause is supposed to be a sharp ichorous humour in the blood.

ZARZA, in Geography, a town of Spain, in Extremadura; 22 miles S.W. of Placentia.

ZARZEDO, a town of Portugal, in Extremadura; 20 miles N.E. of Calfel Branco.

ZARZINA. See Sarina.

ZASAWA, a town of Bohemia, in the circle of Kauzim; 8 miles S.W. of Kauzim.

ZASHIVERSES, a town of Russia, in the government of Irkutsk; 1320 miles N.N.E. of Irkutsk. N. lat. 67° 25'. E. long. 138° 14'.

ZASLAW, a town of Poland, in Volhynia; 24 miles N. of Confitantinow.

ZASMUKI, a town of Bohemia, in the circle of Kauzim; 4 miles S.S.E. of Kauzim.

ZASNAARAS, a town of Transylvania; 16 miles S.W. of Weilimbus.

ZASPEL, in Commerce, a measure for linen and yarn at Leipzig; where a piece of woollen or cotton yarn consists of 4 filums, or 12 zafpel, and a piece of linen yarn consists of 6 filums, or 12 zafpel. A zafpel contains 20 gebinde, 400 fadens, or 1000 ells.

ZATEETZ, in Geography. See Saatz.

ZATHAG, or ZATAG, a town of Arabia, in the province of Hedjas; 40 miles S.E. of Karae.

ZATHUA, in Ancient Geography, a town of Asia, in Greater Armenia. Potol.

ZATIBA, in Geography, a town of South America, in New Grenada; 36 miles N.N.W. of Colofvar. N. lat. 47° 47'. E. long. 22° 24'.

ZATOR, a strong town of Austrian Poland, in Galicia; 22 miles W.S.W. of Crestow.

ZATSCIT KABANOVSKAIA, a fort of Ruffia, in the government of Kollivin; 20 miles S. of Bilk.

ZATUENEBO, a town of the island of Cuba; 65 miles S.S.E. of Havana.

ZATURCE, a town of Poland, in Volhynia; 20 miles W.S.W. of Lucko.

ZAUALA, a town of Mexico, in the province of Mehcoacan; 110 miles N. of Mehcoacan.

ZAUARA, a river of Africa, which runs into the Indian sea, S. lat. 24° 15'.

ZAVARA. See Asia Sava.

ZAUDNITZ, a town of Silefia, in the principality of Tropoua; 9 miles N.N.E. of Tropoua.

ZAVESCES, in Ancient Geography, a people of Africa, in the western part of Libya, and in the vicinity of the Libyans Meycans. According to Herodatus, when these people went to war, their wives conducted their cars or chariots.

ZAUED UL BAIHI, in Geography, a town of Egypt, on the left bank of the Nile; 8 miles S. of Shabur.

ZAVEL, a river of Perufla, which passes through Chopfahan, or Khorafan, and lores itself in lake Zare, or Zarreh.

ZAVELSTEIN, a town of Wurtemberg, near which is a medicinal spring; 2 miles N. of Bulach.

ZAVIDEI, an island of Russia, at the entrance of the gulf.
gulf of Tchauflskia, in the Frozen sea; about 60 miles in circumference. N. lat. 71° 50' to 72° 20'. E. long. 156° 14'.

ZAVODE Biruleva, a town of Ruffia, in the government of Irkutsk, on the Argunia; 121 miles N.E. of Stretenfsk.

ZAVODE Dutcharfskoi, a town of Ruffia, in the government of Irkutsk; 88 miles S.E. of Stretenfsk.

ZAVODE Gazimurskoi, a town of Ruffia, in the government of Irkutsk; 44 miles S.S.E. of Stretenfsk.

ZAVODE Irbinfskoi, a town of Ruffia, in the government of Kolivan; 40 miles E. of Abakansk.

ZAVODE Kutamorfskoi, a town of Ruffia; 100 miles E.S.E. of Nertchinsk.

ZAVODE Lainina, a town of Ruffia, in the government of Irkutsk, on the W. coast of the Baikal lake; 80 miles N.E. of Irkutsk.

ZAVODE Midnoi Kuruzulcefskoi, a town of Ruffia, in the government of Irkutsk; 32 miles S. of Nertchinsk.

ZAVODE Niznei Suzuzskoi, a town of Ruffia, in the government of Kolivan; 32 miles S. of Nertchinsk.

ZAVODE Novopavlovskoi, a town of Ruffia, in the government of Kolivan; 80 miles S.S.E. of Kolivan.

ZAVODE Popovo, a town of Ruffia, in the government of Kolivan. N. lat. 55° 31'. E. long. 95° 32'.

ZAVODE Sibiriia Koosa, a town of Ruffia, on the Argunia; 100 miles E.S.E. of Stretenfsk.

ZAVODE Tifova, a town of Ruffia, in the government of Irkutsk, on the river Poin; 124 miles N.N.W. of Niznei Udinsk.

ZAVODE Perchoturova, a town of Ruffia, in the government of Irkutsk, on the Argunia; 132 miles N.E. of Stretenfsk.

ZAVOLOCZE, a town of Ruffia, in the government of Polotfsk; 50 miles N.E. of Polotfsk.

ZAURGATCH, a town of Ruffia, in the government of Tobolfsk, on the Iritych; 80 miles E.S.E. of Tobolfsk.

ZAUROS, in Ichthyology, a name given by the ancient Greeks to that fish which we call saurus and lacetus, and which is called at Rome the tarantula.

It is distinguished by Artedi by the name of ofmerus, with eleven rays in the pinna ani; and in the Linnean figured it is the salmo saurus, with ten rays in the pinna ani.

ZAURZAN, in Geography, a town of Perfla, in the province of Chorafan; 70 miles N.W. of Herat.

ZAWAJA, a lake of Abyflania, in the southern extremity of the kingdom, which is the chief source of the river Haivas.

ZAWEH, a district or province of Perfla, bounded on the N. by Karafm, on the E. by Chorafan, on the S. by Mazanderan, and on the W. by the Capfian sea.—Alfo, a town of Perfla, and capital of a district, on the river Tedjen, about 24 miles from the Capfian sea; 81 miles N. of Mefchid.

ZAWICHOST, a town of Poland, in the palatinate of Sandomirz; 8 miles N. of Sandomirz.

ZAWIEH, a town of Asiatic Turkey, in the government of Diarbekir, on the Euphrates; 24 miles E. of Anah.

ZAWILA. See Zurela.

ZAWLOW, a town of Austrian Poland, in Galicia; 20 miles N.E. of Halicz.

ZAXO SUHAF, a town of Asiatic Turkey, in the government of Diarbekir; 5 miles S. of Rahabeh.

ZAYRE. See Zaiee.

ZAYTE, a river on the W. side of the island of Celebes, which runs into the sea, N. lat. 30°. E. long. 120° 15'.

ZAZIMOWICZE, a town of Lithuania, in the palatinate of Brezsk; 32 miles N.E. of Brezsk.

ZAZIVNOI, a fort of Ruffia, in the government of Upha, on the Ural; 68 miles W. of Orenburg.

ZBANITZ, a town of Bohemia, in the circle of Chrudim; 5 miles E. of Hohenmunt.

ZBARAS, a town of Poland, in the palatinate of Braclaw; 36 miles N. of Braclaw.

ZBIOROW, a town of Bohemia, in the circle of Berann; 12 miles S.W. of Berann.

ZBORRI, a town of Hungary; 16 miles N.N.E. of Szebeu.

ZBORROW, a town of Austrian Poland, in the new kingdom of Galicia, near which an obstinate battle was fought between the Poles on one side, commanded by their king John Caifmir, and the combined army of the Costacks and Tartars on the other. In this engagement the latter were defeated, and left 10,000 men dead on the spot; but the day after, a treaty of peace was concluded on terms disadvantageous to Poland; 63 miles E. of Lemberg.

ZBRAŚLAWIIZ, a town of Bohemia, in the circle of Czlaus; 10 miles S.W. of Czlaus.

ZDANICA, a river of Ruffia, which runs into the Chatanga, N. lat. 70° 40'. E. long. 98° 14'.

ZDAUNSKY, a town of Moravia, in the circle of Hradifch; 15 miles N. of Hradifch.

ZDIAR, a town of Bohemia, in the circle of Prachatitz; 8 miles N.W. of Horaclicowiz.

ZDISLAWSIIZ, a town of Bohemia, in the circle of Kauritzim; 10 miles S.E. of Benechow.

ZDZIECIOI, a town of Lithuania, in the palatinate of Novogrodock; 12 miles W. of Novogrodock.


Gen. Ch. corrected by Schreber. Male flowers disposed in different spike. Cal. Glume two-flowered, of two ovate-oblong, swelling, pointed, bearded, the outermost rather the longest. Cor. Glume of two oblong bearded valves, about the length of the calyx; the outermost swelling, obtuse; the innermost terminating in two teeth. Nectary of two very short feathery scales, dilated upwards, abrupt, furrowed at the summit. Stam. Filaments three, capillary; anthers somewhat prismatic, cloven, burrowing at the top.

Female flowers in a very dense spike, below the male, on the same plant, concealed by the leaves. Cor. Glume single-flowered, of two permanent, roundish, thick valves, membranous and fringed at the margin; the outer one thicker. Cor. Glume of four unequal, membranous, transparent, broad, short, permanent valves. Pfl. Germ. very small; style thread-shaped, extremely long, pendulous; stigma simple, downy towards the summit. Petals none. Common Receptacle very large and long, with five or more angles, and as many rows of cells, tranversely excavated, in each of which are imbedded the fruits of two flowers, surrounded with their own calyx and corolla. Seed solitary, roundish,
roundish, falked, longer than the glumes; angular and compressed at the base.

Obi. Two out of the four valves of the female corolla appear to belong to an abortive flower. Schrèber.


Female, Calyx a glume of two valves. Corolla of four valves. Style one, thread-shaped, pendulous. Seeds solitary, imbedded in an oblong receptacle.

1. Z. mays. Common Maize, or Indian Corn. Linn. Sp. Pl. 1378. Willd. n. 1. Ait. n. 1. Pursh n. 1. (Frumenontum indicum; Camer. Epit. 186. F. affaticum, turcicum et indicum; Ger. Em. 81, 82. Morif. feft. 8. t. 13. f. 1, 2, 3.)—Leaves entire.—Native of America. Cultivated there, as well as in the southern countries of Europe. One of the largest of the family of corn or grasses. 

Root annual, of innumerable fibres. Stem erect, somewhat branched, round, stout, jointed, leafy, from five to ten feet high. Leaves sheathing, lanceolate, concave, acute, ribbed, two or three feet long, and three or four inches broad. Male flowers in numerous, aggregate, terminal spikes, each three or four inches long, greyish, downy, with purple anthers. Female ones below, in a generally fimple, cylindrical spike, covered by the large sheaths of the upper leaves. Styles six or eight inches long, very numerous, of a shining yellowish or reddish hue, hanging down like a long filken tassel. Seeds white, yellow, red, or purplish, forming a heavy, teffellated, cone-like, naked spike, from six to ten inches long. There are innumerable varieties, in the fize, figure, colour, and qualities of the grain, which, though valuable for many purposes, and yielding an abundant crop, is far inferior to wheat as a bread corn. It requires a richly manured foil. Mr. Pursh mentions a variety, brought lately by governor Lewis from the Mandan nation, on the Mifflouri, which promises to be particularly valuable, as ripening earlier than any other fort, and yielding an excellent produce. See MAIZE.

2. Z. Curagua. Chili Maize. "Molina Chil. German edition, 107." Willd. n. 2.—Leaves ferrated.—Native of Chili. Annual. Smaller in all its parts than the foregoing. Molina. Of the qualities or history of this fpecies, we have no further account.

ZEA, in Gardening, contains a plant of the hardy herbaceous annual kind, of which the fpecies cultivated is the maize, or Indian corn (Z. mays).

It has a large frong, herbaceous falk, which sometimes rises to the height of ten or twelve feet; and there are varieties with yellowish-white feeds, with deep yellow feeds, and with purple-blue feeds. This plant is mostly cultivated in the garden and pleasure ground for the fake of its fingular tall growth.

Method of Culture.—These plants may be raised by fowing feed in the fpring, as March or April, in a dry warm fitation, where the plants are intended to remain, in patches of two or three feeds or more in each, about an inch and a half deep: when the plants are come up, they should be thinned out to one or two of the ftongft. But to have the plants more forward, fo as to produce ripe feed:spikes more effectually, same should be fown in a hot-bed at the fame time, and when the plants are three or four inches high, be forwarded by pricking them out upon another hot-bed, either under a deep frame, or an opening of hop arches, to be covered with mats occasionally, allowing them plenty of free air; and when they have sufficient growth, as in May, they may be transplanted, with balls of earth about their roots, into the full ground in the borders or shrubbery clumps, in warm funny situations, being well watered; and when the summer proves warm and dry, they often produce perfect heads, and the feeds ripen in a good manner.

As the plants mostly run up in tall falks, it is proper to support each with a tall neat flake, especially where much exposed to wind and rain.

These plants in the different varieties have a fine effect in the back parts of borders, clumps, and other places, in warm sheltered situations.

It is observed by a late writer, that he has planted a small quantity of this fort of grain in his garden, and it turned out fuperior to his expectations; and he is of opinion, that this crop may be raised to advantage in the field on some light foils, particularly the poor fands of Norfolk and Suffolk, or on any hot burning lands; as the countries where it grows naturally are light hot foils. And he adds, that he prefers the drill method of culture for it in this country; as the small hillocks in planting the feeds separately make the land unfighly and improper for other crops. But to raise the greatest produce in corn, the hills are, he conceivefs, the belt way; however if the crop is intended chiefly for fodder, then drills are best. The feed is to be put about an inch deep in the ground. And that when the corn firft appears above the surface, the hillocks or drills must be examined, to fee whether it all comes up properly; and if it has not, there must be fresh feeds put into the vacant places to prevent a fofs in the crop. And as soon as the plants take root in the ground, the crop fould be examined again to fee whether any have died away, or the birds have taken the feed. The plants must alfo be thinned to two on a hill, and good plants fubstituted for weak ones.

In the cultivation while growing in the hill-way, the hoe must be used at every operation to the plants, and earth be given to them, as the land cannot be made too light for this crop; but when in drills, the corn must be hoed in the fame manner as garden peas.

He alfo further observes, that when the corn gets out of the milk, the blades below muft be all pulled off while green: tie them up in small bunches, about the size of a birch-broom, and hang them on the top of the falks of the corn; for at the fame time that the blades are pulled, the tops must be cut off, and let up in round bunches to dry, and tied round the topmoft part to keep them from falling: when these are dry, they muft be harvefted. The blades are generally ready in four or five days, but the tops take longer: when these blades and tops are properly harvefted, they are excellent food. And it is fuggelted, that as these proceeds will be fiftned about the end of August, the land might be ploughed and then fown with rye. If feeds were required, he is of opinion that it would be very proper to fow the feeds at that time on this poor hot land; as the warm feafon would be over, and the feeds would have fufficient time to take root before winter. If only rye was wanted, he would eat it with fheep in the fpring or during the winter. But the falks muft, he fays, fland, for the corn to ripen after the rye is fown; and the corn ought to hang on the falk till it is hard. In America, it is often December before the white corn can be pulled, or September for the yellow corn: if it is pulled before it is hard, and the cob is perfectly dry, it will mould and spoil, and the corn will be apt to rot, therefore great care fould be taken not to pull it too soon.

This fort of corn is, it is faid, given to hofles, cattle, and hogs, without shelling, and only hulked in the ear; but when given to fowls, or intended for sale, it is rubbed off by burning a cob in the fire till hard, and then rubbing the corn
with it. It is a sort of grain which is sometimes given to pigs, but more frequently when ground to fowls. Count Rumford has shown in his Essay on Food, that this is perhaps the most nutritious grain, except wheat, either as human sustenance, or as provender for brute animals. See MAIZE.

**Zeal, in Geography.** See ZIA.

**ZEAGONG,** a town of Birmah; 12 miles N.N.W. of Raynangong.

**ZEA,** ZELUS, ZLOG, the exercise of a warm animated affection, or passion, for any thing.

Some will have jealous zeal to be properly a mixed or compound sensation, where one affection is raised or inflamed by another. On these principles, jealousy may be defined an affection arising from love and indignation, which cannot bear a thing to be given to another, that a person desires for himself, or one whom he loves and favours. Others make it consist in an eager and lasting desire, to keep any thing inviolate, or a fervour of mind, arising from an indignation against those who abuse or do evil to a person beloved.

The Greek philosophers make three species of zeal. The first, of envy; the second, of emulation, or imitation; the third, of piety, or devotion; which last makes what the divines call religious zeal.

Josephus speaks much of a party, or faction, called the Zealouz, or Zealots, which arose among the Jews during the war with Vespasian and Titus. Lib. xiv. cap. 6. Antiq. and lib. iv. cap. 12. de Bello Judaico.

**ZEALAND,** or ZEALAND, or Seiland, (in Danish Sjælland,) in Geography, the largest island belonging to the kingdom of Denmark, bounded on the north by the Scagerrac, on the east by the Sound, on the south by the Baltic, and on the west by the Great Belt; about 85 miles in length from north to south, and where widest 60 from east to west, though in some parts scarcely 30, and in no part above 200 miles from the sea; reckoned about 700 miles in circumference. The coast is much interlaced with large bays; and within the country are several lakes, which, as well as the rivers, abound in fish. The country is pleasant; the soil is generally fertile, and produces corn, chiefly barley and oats, more than sufficient for the inhabitants, with excellent pastures; and in most parts is plenty of wood, except towards the centre of the island, where the inhabitants generally use turf for fuel. The fields are separated by mud-walls; the cottages are of brick or white-walled: fand-hills are sometimes destructive on the coast; and the belt protection from their ravages, says Catteus, is the elymus anemaria. Copenhagen is the capital. N. lat. 55° 2' to 56° 0'. E. long. 10° 58' to 12° 40'. See DENMARK.

**Zealand, State of,** one of the former United Dutch States, and now part of the recently established kingdom.

It consists of islands which are formed by those branches and outlets of the Scheldt, called Zeeuwsche Stromen, or Sea Streams; on the north it is bounded by Holland, eastward by Brabant, southward by Flanders, and westward by the North sea: its name sufficiently indicates its natural position and situation. The islands of Walcheren and Schouwen, on the western coast, are defended against the violence of the sea, by downs or sand-hills, and on the other sides, like the rest of the islands of Zealand, by vast dykes, which, at the bottom, have a breadth of 25 German ells, and at the top are 10 wide, that two carriages may pass abreast; the height is also proportioned to their thickness; notwithstanding which, in high tides and stormy weather, the waves in many places force a passage, or even flow over them; the first formation of these dykes must have been attended with immense expence, the very repair and maintenance of them requiring large sums. Emanuel van Meteren, in the sixteenth book of his Commentaries, says, and confirms it by the attestations of the workmen employed in them, that the dykes in this province alone, if placed in one direction, would form a length of 40 miles, each mile to be reckoned at 1400 rods, and that the expence of one rod with another was a pound Flemish, or six Dutch guilders. Thus the charge of the outward dykes taken together amounts to 340,000 l. sterling. Though the inhabitants of the other provinces, and foreigners in general, complain of the air being heavy, disagreeable, and unhealthy, yet no people look better, or enjoy a more confirmed state of health, than those natives who are born and bred up in it. The soil too is very fruitful, and famed for its excellent wheat, as likewise for madder, the cultivation of which furnishes out great employment for the inhabitants of Zealand: it abounds also in good fruits, and its rich pastures are covered with fleeces of fine sheep. The waters around the islands supply them with plenty of fish, particularly with oysters, lobsters, and mussels, of an uncommon size and goodness. Zealand enjoys likewise an affluence of all kinds of provisions, but fuel is very scarce there, especially turf, which, being brought from other provinces, bears a high price; great quantities of English coals are used here. In the whole province are 121 towns and villages, some of which are very large. The inhabitants are reckoned the most wealthy in all the Netherlands, which is, in a great measure, owing to their traffic by sea, and for this, indeed, they have every convenience that can be desired. (See Holland.) The right bank of the Scheldt, called the East Scheldt, divides this province into two quarters, viz. into that on the east and that on the west of the said river. The quarter on the West Scheldt is composed of five islands, viz. Walcheren, South Bereland, North Bereland, Wolderdyk, and St. Joostland. The quarter of the East Scheldt contains four islands, viz. Schouwen, Duiveland, Tholen, and St. Philip's Land.

**Zealand, New,** two islands in the South Pacific ocean, first discovered by Tasman, a Dutch navigator. In the year 1642, he traversed the easterly coast from lat. 34° to 43°, and entered the strait called Cook's Strait; he was attacked by the natives soon after he came to an anchor in the place; to which he gave the name of Murderer's Bay, and never went on shore; he gave the country the name of Staaten Land, in honour of the states-general, and it is now generally distinguished in our maps and charts by the name of New Zealand. As the whole of this country, except that part of the coast which was seen by Tasman from on board his ship, had from his time to the voyage of the Endeavour, in the year 1770, remained altogether unknown, it was by many supposed to be part of a southern continent. It is, however, now known to consist of two large islands, divided from each other by a strait or passage, which is about four or five leagues broad. The northernmost of these islands is called by the natives Haehimanaue; and the southernmost Tovy, or Tavai Pzannamoo. The latter is the name of a lake, and signifies the water of green tale. This lake is situated in the northern part of the island, and the country adjoining it only is known to the natives under this name. From my observation, says captain Cook, and from other information, it appears to me, that the New Zealanders must live under perpetual apprehensions of being destroyed by each other; there being few of their tribes that have not, as they think, sustained wrongs from some other tribe, which they are continually upon the watch to revenge; and perhaps the desire of a good meal may be no small incitement. They will even prepare their enmity from father to
fam, and the son never loses sight of an injury done to his father. The method of executing their horrible designs is by fealing upon their enemies in the night; and if they find them unguarded, (which is but seldom the case,) they kill every one indiscriminately, not even sparing the women and children: the dead bodies they either devour on the spot, or carry them home for that purpose. If they are discovered before they can execute their bloody purposes, they generally flee off; and sometimes are pursued and attacked by the other party in their turn. They never give quarter, or take prisoners. This perpetual state of warfare renders them fo circumjacent, that they are never off their guard either by night or day. According to their fyllogism of belief, the soul of the man whose flesh is devoured by the enemy is doomed to perpetual fire; while the soul of him whose body has been reftored, as well as those who die a natural death, ascend to the habitation of the gods. They do not eat the bodies of their friends who have been reftored. Their common method of disposing of the dead is by burning in the earth; but if they have more of their slaughtered enemies than they can eat, they throw them into the sea. They have no such things as cemeteries, or other places of public worship; nor do they ever assemble together with this view. But they have priests who alone alone address the gods in prayers for the prosperity of their temporal affairs. Whatever the principles of their religion may be, they are strongly inculcated in their infancy: of this I had a remarkable instance in the youth who was first defined to accompany Taveiharaooa. He refrained from eating the greatest part of the day on account of his hair being cut; though every method was tried to induce him to break his resolution; and he was tempted with the offer of such victuals as he was known to like best. He said, that if he ate any thing that day, the Eatooa would kill him: however, towards evening the craving of nature got the better of the precepts of religion, and he ate, though but sparingly. Notwithstanding the divided and hoffile state in which the New Zealanders live, travelling strangers who come with no ill design are well received, and entertained during their stay; which, however, it is expected will be no longer than is requisite to transact the busineses that they come upon. Polygamy is allowed amongst the people: the women are marriageable at a very early age; and one who is unmarried is in a forlorn state: the man with difficulty get a subsistence, and is in a great meafure without a protector, though in continual want of a powerful one. The New Zealanders feem to be perfectly satisfied with the little knowledge they are masters of without attempting in the leaft to improve it; nor are they remarkably curios either in their obervations or inquiries. Tony Poonamooa is for the moft part a mountainous, and to all appearances a barren country, and thinly peopled. Eaeheinomauwe has a much better appearance; it is indeed not only hilly, but mountainous, yet even the hills and mountains are covered with wood, and every valley has a rivulet of water; the foil in these valleys and in the plains, of which there are many that are not overgrown with wood, is in general light, but fertile, and fit for every kind of European grain, plants, and fruit. From the vegetables that were found here, there is reason to conclude the winters are milder than in England, and the summer not hotter, though it was more equally warm: dogs and rats are the only quadrupeds that were seen, and of the latter only a few. The inhabitants breed the dogs for the sole purpose of eating them. There are fables and whales on the coaft, and a lea-hion was once seen. The birds are, hawks, owls, quails; and there are fong-birds, whose note is wonderfully melodious. There are ducks and

flags of several forts, not unlike thofe of Europe; and the gazette, which is exactly the fame. The sea-coal is visited by abalofrees, fheer-waters, pintados, and penguins. The infects are, fheer-flies, beetles, butter-flies, and flies, and mafquelettes; and the neighbouring sea abounds with fish, which are equally delicious and wholesome food. Captain Cook seldom came to anchor but they caught enough, with hook and line only, to supply the whole ship's crew; and when they fifted with nets, every mesh in the fhips, except those who were too indolent, falted as much as supplied them when at sea some time after. The fish was not less various in kind than plentiful in quantity; there were many forts they had never before seen, but the failors readily gave names to all of them. The highest luxury which the sea afforded was the lobster, or sea cray-fish. Here were also feveral species of the fkat, or ftringray: foles, fnaunders, and shell-fish, were abundant. This country abounds with froups filled with very large, ftraiight, and clean timber. There is one tree about the size of an oak, which was diftinguished by a fcarlet flower, that appeared to be composed of feveral fibres; the wood of which was hard and heavy, excellently adapted to the ufe of the mill-wright: and another which grows in swampy ground, very ftraiight and tall, bearing small bunches of berries, and a leaf re¬fembling that of a yew-tree; the wood of which is very tough, and thick enough to make mafs of any fize: about 400 species of plants were found, all of which are unknown in England, except garden night-shade, low-thifle, two or three kinds of fern, and one or two forts of grafs. They found wild eelery, and a kind of creffles, in great abundance on the fia-shore, and of eatable plants fifted by cultivation, only cocaas, yams, and sweet potatoes. There are plantations of many acres of thefe yams and potatoes. The inhabitants likewise cultivate the ground; and the Chinefe paper mulberry-tree is to be found, but in no abundance. There is only one shrub or tree in this country which produces fruit, and that is a kind of a berry almost talteles; but they have a plant which answers all the ufe of hemp and flax. There are two kinds of this plant, the leaves of one of which are yellow, and the other deep-red, and both of them refeemble the leaves of flags; of these leaves they make lines and cordage, and much ftronger than any thing of the kind in Europe. These leaves they like¬wise split into breadth, and tying the slips together form their fihing-nets. Their common apparel by a fimple pro¬cés is made from leaves, and their linen by another prepa¬ration is made from the fibres. This plant is found both on high and low ground, in dry mould, and deep bogs; but as it grows largest in the latter, that feme to be its proper foil.

The men of this country are as large as the largest Euro¬peans. Their complexioin is brown, but little more fo than that of a Spaniard. They are full of flesh, but not lazy or luxurious, and are ftrout and well fhaeped. The women po¬nfts not that delicacy which diftinguishes the European ladies, but their voice is finguflarly foft, which, as the drefs of both fexes is similar, chiefly diftinguishes them from the men. The men are active in a high degree; their hair is black, and teeth are white and even. The features in both fexes are regular; they enjoy perfect health, and live to a very advanced age; they are of the gentlef difpo¬fitions, and treat each other with the utmost kindness, but they are perpetually at war, every lilie drofis being at en¬tity with all the relf, and towards their enemies they are implacable, never giving quarter. They have neither black cattle, sheep, hogs, nor goats; fo that their chief food being fish, and that not at all times to be obtained, they are
in danger of dying through hunger: they have a few, and but a very few dogs; and when no fish is to be got they have only vegetables such as fern-root, clams, yams, and potatoes to feed on; and if by any accident these fail them, their situation must be deplorable. This will account for their shocking custom of eating the bodies which are slain in battle, for he who fights through mere hunger will not scruple to eat the adversary he has killed. The inhabitants of New Zealand are modest and reserved in their behaviour and conversation. The women, indeed, were not dead to the fofter impressions; but their mode of content was, in their idea, as harmless as the content to marriage with us, and equally binding for the stipulated time. If any of the English addressed one of their women, he was informed, that the consent of her friends must be obtained, which usually followed on his making a present. This done, he was obliged to treat his temporary wife at least as delicately as we do in England. They anoint their hair with oil, melted from the fat of fish or birds. The poorer people use that which is rancid, so that their smell is very disagreeable; but those of superior rank make use of that which is fresh. They wear cloaks, both of bone and wood, which are considered as an ornament when stuck upright in the hair. The men tie their hair in a bunch on the crown of their head, and adorn it with the feathers of birds, which they likewise sometimes place on each side of the temples. They commonly wear short beards; the hair of the women sometimes flows over the shoulders, and sometimes is cut short. Both sexes, but the men more than the women, mark their bodies with black stains called Amoco; in general the women stain only the lips, but sometimes mark other parts with black patches; the men, on the contrary, put on additional marks from year to year, so that those who are very ancient are almost covered. Exclusive of the Amoco, they mark themselves with furrows; these furrows make a hideous appearance, the edges being indented, and the whole quite black. The ornaments of the face are drawn in the spiral form, with equal elegance and correctness, both cheeks being marked exactly alike, while the painting on their bodies resembles filagree work, and the foliage in old chased ornaments, but no two faces or bodies are painted exactly after the fame model. These Indians likewise paint their bodies, by rubbing them with red ochre, either dry, or mixed with oil. Their dres is formed of the leaves of the flag, split into slips, which are interwoven, and made into a kind of matting, the ends which are seven or eight inches in length hanging out on the upper side. One piece of this matting, being tied over the shoulders, reaches to the knees; the other piece, being wrapped round the waist, falls almost to the ground. These two pieces are fastened to a string, which, by means of a bodkin of bone, is passed through, and tacks them together. The men wear the lower garment only at particular times. What they consider as the most ornamental part of their dress is the fur of dogs, which they cut into stripes, and few on different parts of their apparel. As dogs are not in plenty, they dispose these stripes with great economy. They have a few dreses ornamented with feathers; and one man was seen covered wholly with the red feathers of the parrot. The women never tie their hair on the top of their head, nor adorn it with feathers; and are less anxious about dres than the men. Their lower garment is bound tight round them, except when they go a-fishing, and then they are careful that the men shall not see them. The ears of both sexes are bored, and the holes stretched so as to admit a man's finger. The ornaments of their ears are, feathers, cloth, bones, and sometimes bits of wood: a great many of them use nails, which were given them by the English for this purpose; and the women sometimes adorn their ears with the white down of the albatrosses, which they spread before and behind the hole, in a large bunch. They likewise hang to their ears by strings, chiefl, bodkins, the teeth of dogs, and the teeth and nails of their deceased friends. The arms and angles of the women are adorned with shells and bones, or any thing else through which they can pass a string. The men wear a piece of green tace, or whalebone, with the resemblance of a man carved on it, hanging to a string round the neck.

The houses are from sixteen to twenty-four feet long, ten or twelve wide, and six or eight in height. The frame is of flight flicks of wood, and the walls and roof are made of dry grass, pretty firmly compacted. Some of them are lined with bark of trees, and the ridge of the house is formed by a pole, which runs from one end to the other. The door is only high enough to admit a person crawling on hands and knees, and the roof is sloping. There is a square hole near the door, serving both for window and chimney, near which is the fire-place. A plank is placed near the door, adorned with a fort of carving, and this they consider as an ornamental piece of furniture. The side walls, and roof, projecting two or three feet beyond the walls at each end, form a sort of portico, where benches are placed to sit on. The fire is made in the middle of a hollow square in the floor, which is inclosed with wood or stone. They sleep near the walls, where the ground is covered with straw for their beds. Besides the fern-root, which serves them for bread, they feed on albatrosses, penguins, and some other birds. Whatever they eat is either roasted or baked, as they have no vessels in which water can be boiled. No plantations of coca, potatoes, and yams, were seen to the southward, though there were many in the northern parts. The natives drink no other liquor than water, and enjoy perfect and uninterrupted health. When wounded in battle, the wound heals in a very short time, without the application of medicine; and the very old people carry no other marks of decay about them than the loss of their hair and teeth, and a failure of their muscular strength, but enjoy an equal share of health and cheerfulness with the young.

The canoes of this country are not unlike the whole-boats of New England, being long and narrow. Those of the larger fort seem to be built for war, and will hold from 30 to 100 men; one of these measured near seventy feet in length, six in width, and four in depth. It was sharp at the bottom, and confined of three lengths, about two or three inches thick, and tied firmly together with strong plaiting; each side was formed of one entire plank, about twelve inches broad, and about an inch and a half thick, which were fitted to the bottom part with equal strength and ingenuity. Several thwarts were laid from one side to the other, to which they were securely fastened, in order to strengthen the canoes. These vessels are rowed with a kind of paddles, between five and six feet in length, the blade of which is a long oval, gradually decreasing till it reaches the handle; and the velocity with which they row with these paddles is surprizing: their tails are composed of a kind of mat or netting, which is extended between two upright poles, one of which is fixed on each side. Two ropes fastened to the top of each pole serve instead of heedles. The vessels are steered by two men, having each a paddle, and sitting in the stern; but they can only sail before the wind, in which direction they move with considerable swiftness.
ZEB

There the Indians use axes, adzes, and chisels, with which theylikewise bore holes. The chisels are made of Jasper, or of the bone of a man's arm; and their axes and adzes of a hard black stone. Their tillage of the ground is excellent, owing to the necessity they are under of cultivating, or running the risk of starving. A long narrow flake, sharpened to an edge at bottom, with a piece fixed across, a little above it, for the convenience of driving it into the ground with the foot, supplies the place both of plough and spade. The soil being light, their work is not very laborious, and with this instrument alone they will turn up ground of fix or seven acres in extent. Their fishhooks are of shell or bone; and they have baquets of wickerwork to hold the fish. Their warlike weapons are, spears, darts, battle-axes, and the pato-patoo, in which they chiefly confide. This is fastened to their wrists by a strong strap, left it should be wrenched from them, and the principal people generally wear it, flicking in their girdles, considering it as a military ornament and part of their drapery, like the poinard of the Afield and the sword of the Europeans. The spears, which is pointed at each end, is about twenty-fix feet in length, and they hold it in the middle, so that it is difficult to parry a push from it. Whether they fight in boats or on shore, the battle is hand to hand; their contests must be bloody. The war-dance consists of a great variety of violent motions and hideous contortions of the limbs, during which the countenance and tongue perform their parts. This horrid dance is always accompanied by a song, every strain of which terminates with a deep and loud lisp.

The employment of the men is supposed to consist in cultivating the ground, making nets, catching birds, and fishing; while the women are engaged in weaving cloth, procuring fern-roots and shell-fish, and dressing food. With regard to religion, they acknowledge one superior being, and several subordinate. Their mode of worship could not be learned, nor was any place proper for that purpose seen. There was indeed a small square area, encumbered with plants, in the middle of which hung a balkeet of fern-roots on one of their spades. This they said was offered to the gods, in the hope of a plentiful crop of provision. The inhabitants of the southern district said they dispersed of their dead by throwing them into the sea; but those of the north said they buried them in the ground: captain Cook's crew, however, saw not the least sign of any grave, or monument; but the story of almost every inhabitant bore the marks of wounds which they had given themselves, in token of grief for the loss of their friends and relations. Some of these scars were newly made, which is a proof that their friends had died while the ship's crew were there, yet no one saw any thing like a funeral, as the islanders conceal every thing respecting the dead with the utmost caution. A great similitude was observed between the drapery, furniture, boats, and nets of the New Zealanders, and those of the inhabitants of the South Sea islands, which furnishes a strong proof that the ancestors of both were natives of the same country. The language of New Zealand and Otaheite is radically the same; and that of the northern and southern parts differs chiefly in the pronunciation.

S. lat 34° to 48°. W. long. 18° to 194°. Cook's Voyages by Hawkesworth, vol. iii.

ZAMAH, a river of Algiers, which runs into the Mediterranean, 6 miles S.S.E. of Cull.

ZEAN, a town of Hindoostan, in Deob; 20 miles S. of Canoge.

ZEB, or Zin, a town of Syria, near the sea-coast, and

riently called Achiaph, Achazib, and Ecdippa; 9 miles from Acre.

ZEBAIDE, a town of Persia, in the province of Faris; 80 miles E. of Schiras.

ZEBDAINEH, a village of Syria, built on the spot where is said to have been Cain flew his brother Abel; 14 miles N.W. of Damascus.

ZEB, or ZAAB, in Antique Geography, a town which once formed a part of Mauritian Sitfenis; it was situated at the foot of the chain of mount Atlas.

ZEBEE, in Geography, a river of Abyflinhaia, which runs into the Indian sea.

ZEBBER, a town of Arabian Irak; 12 miles W. of Balfora.

ZEBEN. See SZEIBEN.

ZEBET, a word used by some of the chemical writers to express dung.

ZEBID, in Geography, a city of Arabia, in the province of Yemen. Zebid was one the place of a sovereign's residence, and the most commercial city in all Tehama; but since the arrival of Ghalefka was chokeed on, its trade has been transferred to Beit el Fakih and Mocha, and this city now retains nothing but the shadow of its former splendour. Viewed from a distance, it appears to some advantage, by means of the mosques and kubbets, of which it is full. Several of these mosques were erected by different pachas, who refided here during the short period while this part of Arabia was in the possession of the Ottoman Porte. Zebid has once eight gates; of these only five are now standing, and the river is gradually breaking down a part of them. The walls of the old city are demolished, and the very ruins are fold by poor people, who gather out the stones, and fell them for building new houses. The present buildings occupy about one half of the ancient extent of the city. Zebid is still distinguished for an academy, or university, for the Sunnis, as that of Damascus is for the Seidits, in which the youth of Tehama, and a part of Yemen, study such sciences as are cultivated among the Muffulans. This is besides the seat of a duka, a mufti, and three cadi's; 52 miles N. of Mocha. N. lat. 14° 12'. E. long. 43° 15'.

ZEBIO, a mountain of Italy, which sometimes emits flames; 6 miles S. of Modena.

ZEBLICIUM MARMOR, in Natural History, a name given by several authors to a soft green marble, variegated with black and white; and though the authors who have described it have not observed it, yet it no way differs from the white ophites of the ancients. See Ophtes.

ZEBOM, in Antique Geography. See SEBOIM.

ZEBRA, in Zooloogy. See EQUUS ZEBR.

ZEBU, a name given by M. de Buffon to a variety of the bos taurus of Linnaeus, or bison of other writers, or the camel. This variety resembles the Indian ox, or bos Indicus, but is extremely small, being found in some parts of India of a size scarcely larger than a great dog. Its colour it differs like the common cattle, being either grey, brown, white, &c., or variously spotted. The Indian ox, which is found in many parts of India, as well as in the Indian and African islands, and particularly in Madagascar, is of a reddish colour, of a very large size, and is distinguished by a very large protuberance over the shoulders.

ZEB, in Geography. See SIBU.

ZEBULUN, or ZARULON, in Scripture Geography, one of the Jewish tribes in Lower Galilee, on the S. of the tribes of Asher and Naphtali, having the Mediterranean on the W., the sea of Galilee on the E.; separated on the N. from Acher by the river Japhetha; and on the S. from Ilna-
char by that of Kiflon. Its ports, on account of its vicinity to the sea, were numerous, and its commerce extensive. Its cities were, Zezulun the capital, Bethulia, Magdalen, Joppa, Jotapa, Cinnereth, (since Tiberias, on the lake of that name,) Cartha, Bethulia, Rimmon, Dothiare, Damos, Sommerom, Tabor, both the city and mount, Soplia, Saffa or Sipuris, Nazareth, Cana the lesser, commonly called Canna of Galilee, Iconium, and Sicanium or Porphyren, an anciently Heapha, or Celpha, situated northwards at the foot of mount Carmel.

Zezeuun, or Zabulon, the capital of the fore-mentioned tribe, situated on the Mediterranean, near the mouth of the Ipheath, and once styled Zabulon Andron, or of men, on account of its extraordinary populousness. It was adorned with fine buildings, after the manner of Tyre, Sidon, and Berytus, and much admired on that account by Celsius, the Roman general, who nevertheless took, plundered, and burnt it to the ground. In the early ages of Christianity it was the fee of a bishop, but now it is a poor place, in ruins.

Zechariah, or the Prophecy of Zechariah, in Biblical History, a canonical book of the Old Testament. Zechariah was contemporary with Haggai, and prophesied in the second year of Darius Hylliptes. The design of the first part of this prophecy is the same with that of Haggai, viz. to encourage the Jews to go on with rebuilding the temple, by giving them assurance of God's affluence and protection: from whence the author proceeds to foretell the glory of the Christian church, the true temple of God, under its great high priest and governor, Jesus Christ, of whom Zerubbabel and Joshua the high priest were figures. The latter part of the prophecy, from chap. ix., probably relates to the fate of the Jews under the Maccabees, and then foretells the rejection of the Messiah, and some remarkable incidents that should happen to them in the latter ages of the world.

Mr. Mede, and some other learned men, think, that the 9th and following chapters of Zechariah are parts of the prophecy of Jeremiah.

Zechin, or Zechino, in Commerce. See Sequin.

Zechin, in Geography, a small island in the Grecian Archipelago; 2 miles S.E. of Stanchio. N. lat. 36° 48'. E. long. 26° 51'.

Zechlin, a town of Brandenburg, in the mark of Pregnitz; 9 miles E. of Wiltstock.

Zedic, a town of Africa, capital of a district in Tripoli, situated in a bay of the Mediterranean, called the bay of Zedic; 150 miles E.S.E. of Tripoli.

Zedlischt, a town of Bohemia, in the circle of Pillen; 5 miles N.W. of Hayd.

Zeddoary, Zedoria, or Kempferia Rotunda of Woodville, or Curcuma Zerumbet of Dr. Roxburgh, in the Materia Medica, a medicinal root, belonging to a plant growing in the East Indies (the amomum Zerumbet of Berg. Mat. Med.), whole leaves are like those of ginger, only longer and broader.

The Curcuma Zederia of Dr. Roxburgh, with small bulbs, and with the long palmate tubers inwardly yellow, leaves broad lanceolar, subfiddle on their sheaths, ferraceous underneath, and the whole plant green, is the Amomum Zederia of Linnaeus and Willdenow; which fee. It is a native of various parts of India; flowers during the hot season, April and May, when the plant is defittute of leaves: soon after they appear. The dry root, it is said, agrees pretty well with the drug known in England by the name of zedoaria rotunda. The Sanskrit name implies that the drug is used as an antidote to poison.

Zeddoary-root is a very useful warm stimulant, and has been commended in colics and hysteric affections, for promoting the menes, &c. It has been employed by some as a succedaneum to gentian root; but from the above analysis it appears to be not entirely similar to that simple bitter; its warm aromatic part being the prevailing principle, in virtue of which it is a spirituall extract (the most elegant preparation of it), has been made an ingredient in the cordial confection of the London Pharmacopeia. Lewis's Mat. Med.

Carthener, who ascribes its virtues to a camphoraceous volatile oil, considers it as a general remedy for most of the chronic diseases with which human nature is affected; but as the camphor contained in it can avail but little, and its effects as a bitter or aromatic are so very inconsiderable, this root is now deemed of no more use in medicine, and might be safely expunged from the materia medica. Cullen, Woodville.

The Zeddoary wash, which is a cooler yellow than saffron, though full as bright, and valuable for many purposes in painting with water-colours, may be prepared by boiling an ounce of the root in a quart of water, till the water is sufficiently tinged to make a stain on paper, of a full yellow colour; and straining the liquor through a linen filter. This wash may be dried in vials, and will again diffuse and spread kindly with the addition of water.

Zedlitz, in Geography, a town of Silesia, in the principality of Neisse; 3 miles N. of Ottnauchau.

Zefef. See Sufferdam.

Zefra, a word by which some of the chemical authors express pitch.

Zefrio, in Geography, a mountain of Naples, in Calabria Ultra; 10 miles N.N.E. of Bova.

Zegedin, or Szeged, a town of Hungary, near the conflux of the rivers Maros and Theifil. It is strong, and a place
a place of some trade, particularly in cattle. In the year 1503, all its defence was a moat and rampart; but falling some time after into the hands of the Turks, they erected a brick fort. In 1668, the Imperialists dispossessed the Turks of it; 68 miles N. of Belgrade. N. lat. 46° 15'. E. long. 10° 56'.

ZEGGO, a town of Africa, in the country of Melli, in the road from Kongo to Cafina; 100 miles N.N.W. of Malei. N. lat. 14°. E. long. 8°.

ZEGHAMA, a town of Dar-Fur; 60 miles N. of Cosséf. ZECEPTION, a town of Fezzan; 65 miles N. of Mourgouzok.

ZEGLI, ZAHI, a word used by Avicenna and others to express all the several vitriolic minerals. See Chalcitis, and Colothonn.

ZEGMA, in Geography, a town of Afiatic Turkey, in the province of Diarbekir, on the Euphrates, opposite to Romkala.

ZEGUTI, a town of Imiricia; 20 miles S.W. of Cotatis.

ZEZEGZEG, a city of Africa, and capital of a country of the same name, situated to the east of Agades; 370 miles N.N.E. of Cafina. N. lat. 20° 45'. E. long. 16°.

ZEHENDI, a town of Brandenburg, in the Ucker Mark, on the Havel. It is in a convent for ladies of noble descent, consisting of a domino and six fillers. It carries on a large trade in wood and corn: in the publics, near the town, iron-ore is met with in great abundance, and accordingly there is a mill here for that purpose, which is driven by the Havel. At this place likewise is a foundery, where bombs, grenades, bullets, mortars, pots, weights, and even small cannon are cast; 28 miles S.S.W. of Prenzlau. N. lat. 52° 58'. E. long. 15° 22'.

ZEITHAYN, a town of Saxony, in the margravate of Meiffen; 3 miles S. of Pirna.

ZEITENSTEIN, a town of Brandenburg, in the Middle Mark; 3 miles S. of Zoffen.

ZELAM, a town of Bavaria, in the bishopric of Bamberg; 12 miles W.N.W. of Bamberg. N. lat. 50° 1'. E. long. 10° 40'.—Alto, a town and castle of Germany, which gives name to a county; 4 miles N. of Leutkirch.

ZELLA, or ZELLA, or Sella, a sea-port town of Africa, in the kingdom of Adel, situated on the coast of the Arabian sea, at the mouth of the Hanaza, or Hawath, which forms a bay, called the Bay or Gulf of Zella. It receives a governor from the dolo of Mocha. N. lat. 10° 45'. E. long. 44° 20'.

ZELZHEIM, a town of the duchy of Wurzburg; 4 miles N. of Volebach.—Alto, a town of the duchy of Wurzburg; 4 miles E.N.E. of Arntstein.

ZERDOROD, or ZERDOROUD, a river of Persia, in the province of Irak, which has its source in the Koh-Insar, or Yellow mountain, where an aqueduct may yet be seen, by which Abbas the Great attempted to unite its waters with those of the Karoon. The Zerderood passes through the city of Ipahan, and is said to be aborbed in the irrigation of the neighbouring territory, or to lose itself in a lake, 15 miles S.W. of Laurikan. On this river are three bridges, two of which are in good repair; particularly that of the Char Baag (four gardens), to called from its connecting the upper and lower Chaur Baag, the name given to a spacious avenue, which runs from the royal square to the foot of the mountains E. of Ipahan.

ZEISSEL, a town of Austria; 3 miles E. of Tulln.

ZEISPERG, a town of Austria; 3 miles E.N.E. of Crem.

ZEITHAYN, a town of Saxony, in the margravate of Meiffen, famous for a pleasurable camp which King Algaullus II. made there, in 1730, at the expense of five millions of rix-dollars. On the spot which was used for this camp, and the excelling of the army, are erected six large pyramids; and medals have likewise been struck upon it, and a grand representation thereof engraved on copper; 8 miles W.N.W. of Groffenhayn.

ZEITLOSS, a town of the duchy of Wurzburg, on the river Sinn; 10 miles N. of Gmunden.

ZEITON, a town of European Turkey, in Thessaly, on a gulf to which it gives name. Here are about 450 Churlian families, but the greater part of the inhabitants confils Turks; 48 miles S.E. of Larissa. N. lat. 39° 6'. E. long. 22° 58'.

ZEITON, a gulf or bay of the Egrea sea, on the E. coast of Thessaly. N. W. W. of the island of Neo-ponton.

ZEITON, a town of Persia, in the province of Fars or Farifian, containing about 2000 inhabitants, and situated in a pleasant valley, fertilized by both the branches of the river Tab, which here form a junction. Zeiton is about fifteen miles distant from Behaban, the capital of the mountainous district of Khorgafe, which extends from the valley of Ram Hormuz to the vicinity of Kazeroon.

ZEITON, a town of Asia Turkey, in the government of Sivas, on the Kizillermak; 33 miles W. of Samfoun.

ZEITROBA, a term used by some of the chemists to express anything that is fluid.

ZEITZ, in Geography, a town of Saxony, in the bishopric of Naumburg, anciently the seat of a bishop, founded by the emperor Otto I. afterwards transferred to Naumburg, after this to whom had been facked and almoft destroyed by the Vandals in the year 982; 15 miles E.S.E. of Naumburg. N. lat. 51° 3'. E. long. 12° 2'.

ZEKELHEIB, a town of Hungary; 8 miles N.N.W. of St. Job.

ZELA, a town of Persia, in the province of Segesta; 25 miles S.W. of Fera.

ZELA, ZELIA, or Seleta, in Ancient Geography, a town of Thrace, afterwards called Flaviopolis.—Alto, a town of Asia, in Cappadocia Pontus, near the euse. It was celebrated by the defeat of Triarius, the Roman general, and afterwards by that of Pharnaces. Here was a famous temple, repreffed upon some medals, consecrated to the gods Anais, a Perian divinity, whose pontiff was very powerful under ancient kings; but in process of time his authority and revenues were diminished. The town and the milters of the temple were dependent on Pothodris, who possessed a part of the territory; its other parts were ceded to the pontiffs of Zela and Comanes, and the rest was annexed to the Roman province. According to Strabo, Zela and its territory were situated to the left of the river; the sacred lands of the temple, and the domains of the pontiff, were in the environs of the town. He adds that it was fortified and built in the retenchment of Semiramis; and in the first times it had only fome houses near the temple; but Pompey made it a town.

ZELAH, or SELA, a city of Benjamin (Josh. xviii. 28.), where Saul was buried in the tomb of his father, Kish. 2 Sam. xxii. 14.
ZEL, in Geography, a mountain in the county of Tyrol; 20 miles N.E. of Trent.

ZELANDY, a small island in the East Indian sea, near the W. coast of Sumatra. N. lat. 0° 53'; E. long. 96° 14'.

ZELANICA, a cape on the W. coast of Nova Zembla. N. lat. 78°. E. long. 77° 24'.

ZELATE, a town of the country of Candahar; 30 miles N.E. of Candahar.

ZELBRID. See SCHELEBEY.

ZELEFA, a town of Africa, in the country of Tunis; 10 miles S.E. of Caroan.

ZEL, a town of Asiatic Turkey, in the government of Sivas, a town of Pontus, and called Zela. Near this place the Romans, under Triarius, were defeated by Mithridates; and Pharmakes, son of Mithridates, was afterwards defeated by Julius Caesar; 21 miles W.S.W. of Tocat. See ZELA.

ZELIA, in Ancient Geography, a town built, according to Homer, at the foot of mount Ida. It was watered by the Tauris, and had to the S. the lake Aphaitis. According to Strabo, it had also in ancient times an oracle, but in his time it was not consulted.

ZELM, in the Materia Medica of the Ancients, a name given by Avicenna and others to a fruit common in Africa in Africa and the Middle Ages, and much esteemed by the people of that country, and called there by some pipi nigrorum, the black people's pepper, or negro-pepper.

Avicenna tells us, that the zelam was a fattish feed, of the fize of a chich, and of a high flavour, in colour yellow on the outside, and white within, and that it was brought from Barbary.

He adds, that there was another plant, properly called fulful alfadeden, that is, pipi nigrorum. This, he says, was a feed contained in pods like kidney-beans, and was black, and of a pungent and acid taste.

ZELIN, in Geography, a small island in the Frozen ocean, near the S.W. coast of Nova Zembla. N. lat. 70° 50'. E. long. 56° 24'.

ZELNOIKOLOK, a fort of Russia, in the government of Caucasus, on the Ural; 44 miles N. of Ourev.

ZELS, in Ancient Geography, a town of Hispiana, in Bocotia, on a plain which separated Hispiana from Africa, according to Strabo. This author reports, that the Romans transported the inhabitants into Mauritania, together with others driven away from Tingis, established the town of Julia Jora.

ZELATAWA, in Geography. See SCHELETA.

ZELZENSKAJA, a fort of Russia, in the government of Kolivan, on the E. side of the Iriful. N. lat. 52° 25'. E. long. 75° 40'.

ZELT, or ZELTO, a town of South America, in the harbour of Carthagena.

ZELT, a town of Austria; 14 miles N.W. of St. Wolfgang.—Alto, a town of Bavaria, in the bishopric of Bamberg; 10 miles S. of Bamberg.—Alto, a town of Germany, in the principality of Cunlube; 12 miles S.S.W. of Hof.-Alto, a town of the duchy of Wurzburg; 3 miles N. of Schweinfurt.

ZEL. See LIEBENZELL.

ZELL, im Harz, a town of Germany, on the Moelle; 25 miles N.E. of Treves. N. lat. 50° 4'. E. long. 7° 7'.

ZELL in the Piemont, a town of the archbishopric of Salzburg; on the Zeller See; 30 miles S.S.W. of Salzburg.

ZELL in Zillerthal, a town of the archbishopric of Salzburg; on the Ziller; 50 miles S.W. of Salzburg.

ZELL am Hammerbach, a town of Germany, situated in the vale of Hammerbach. The town was imperial, and afflewed twenty-one florins till 1802, when it was given to the margrave of Baden; 9 miles W. of Freudenstadt. N. lat. 48° 23'. E. long. 8° 7'.

ZELLA, in Ancient Geography, a town of Africa, which was burned during the war of Caesar against Scipio. Strabo.

ZELLANG, in Geography, a town on the W. coast of the island of Celebes. S. lat. 4° 20'. E. long. 120° 3'.

ZELLE, or ALTENZELLE, a town of Saxony, in the county of Erzeburg; 2 miles W. of Nollen.

ZELLE, a city of Weiphala, in the principality of Luneburg. This is a fortified and well-built town, situated on the Aller, which is here navigable, and behind the New Town is joined by the Fuhree. The town itself, in conjunction with the suburb of Fritzensen, consists of 564 houses; but including the other suburbs, summer-houses, and buildings without the gates, the number of them amounts to about 1400. At this place was held the high court of appeals for the several territories of the electoral house of Brunswick-Luneburg, together with the chancery and chief tribunal of the principality of Luneburg. Here also stands the provincial house for the diets of the principality, together with one of its superintendencies, and a special superintendency which is administered by the general superintendent, who is always first minister of the court. The other public edifices in it are, the Guildhall, the riding-houses, the mews, and the armoury. The magistracy is possessed of the lower jurisdiction in the town, and likewise in some parts of the suburbs. At this place, too, are manufacturers and artificers in various branches, particularly in gold and silver. The prince's seat, near the town, is walled and moated in, and was the residence of the Zelle line of Brunswick-Luneburg, which failed in 1705. It was built by duke Henry, in the year 1495, and afterwards improved; 40 miles S. of Luneburg. N. lat. 53° 42'. E. long. 10° 14'.

ZELLENBERG, a town of France, in the department of the Upper Rhine; 9 miles N. of Colmar.

ZELLERSEE, a lake of Germany, in the archbishopric of Salzburg; 28 miles S.S.W. of Salzburg.

ZELLERFELD, a town of Westphalia, in the Harz Foref.; silver to the value of 20,000 imperial crowns is annually coined in this town; 6 miles S.S.W. of Goilas.

ZELLENNDORFF, a town of Austria; 3 miles S.E. of Schratteental.

ZELLHOFEN, a town of Austria; 10 miles N.W. of Grein.

ZELLIA, in Ancient Geography, a country of Upper Pannonia, inhabited by the Slavi.

ZELLIN, in Geography, a town of the New Mark of Brandenburg; 13 miles N.W. of Cuffrin.

ZELLINGEN, a town of the duchy of Wurzburg; 8 miles N. of Wurzburg.

ZELLITZ, a town of the duchy of Stidia; 8 miles W. of Marburg.

ZELON, a town of Thibet; 27 miles S.W. of Lulla.

ZELOTTI, Battista, in Biography, was born at Verona in 1532. He was a pupil of Titian, according to Vafari, and a fellow-student with Paolo Veronese, with whom he co-operated in several important works at Venice. He particularly excelled in fresco, and that induced Paolo to court his assistance in many of the great works in which he was engaged. In consequence many of his works are given to Veronese, and those in the hall of the Council of Ten, in the palazzo S. Marco, have been engraved by Le Père as the works of that master. His picture of the Holy Family, in the Carara collection, is painted with the strength and warmth of Titian, and others of his works in
oil are deservedly esteemed and admired, particularly the
Conversion of St. Paul, and Christ with his Disciples in the
Fishing-boat, in the cathedral at Vicenza. He fell short
of the grace and taste of Voronez, yet his invention was
not lacking in energy; his touch is free and animated, and
his compositions managed with skill and judgment. He
died in 1792, aged 60.

ZELPHI. See ZENDA.

ZELPITSCH, in Geography, a town of Ilfria; 10
miles N.E. of Mitterburg.

ZELTONSKOL, a fort of Russia, in the govern-
ment of Irkutsk; 72 miles S.S.E. of Tunginskoi.

ZELUJA, a town of Lithuania, in the palatinate of
Novogrodek; 25 miles N.W. of Slonim.

ZEM, a river of Albania, which runs into the Moraca,
12 miles W. of Cattaro.

ZEMA, a word used by many of the old writers for a
decoration or apocope.

ZEMARAIM, or SEMARAIM, in Ancient Geography, a
city of Benjamin near Bethel. Josh. xviii. 22.

ZEMARITES, an ancient people of Syria, mentioned
by Strabo, who places them on a plain, two leagues to the
N. of mount Libanus, and gives them the term of Simyra.

ZEMASARUM, a word used by some of the chemical
writers as a name for cinnaabar.

ZEMBLA, NOVA, Novaya Zemlia, or New Land, in
Geography, a Russian island, or rather a group of five
islands, with the intervening channels always filled with ice,
situated in the Frozen or Northern ocean. Of the numer-
ous islands in this ocean, Novaya Zemlia and Kalgeva are
the most considerable; but both are uninhabited, and fre-
cuented only by fishermen and hunters. The former is
indeed well supplied with water; but is rocky, unfertile,
and deficient of wood, furnishing vegetation only for a few
flattened bushes and polar plants. It abounds, however, with
reindeer, white bears, white and blue foxes; and the shores
swarm with morse, walruses, and various kinds of fowl. Its
magnitude is estimated at 950 versts in length, 520 in
breadth, and 5,500 in circumference, without following the
sinuositites, and 425,509 German miles of fuperficies,
according to Mr. Storck. On the northern side it is entirely
encompassed with ice mountains; and to the south is the sea
of Cara, Kara, or Karkoke, in which the tide flows about
two feet nine inches. Among the lakes of this island there
is one of salt water. From the middle of October till
February the sun is not at all visible; but they have the ad-
vantage of numerous and strong north-lights and of much
moon-light. In summer they have no thunder-storms. The
snow falls in many places to the depth of four airlines. For
two months, viz. June and July, the sun never fets. Be-
tween this island and the main land is the famous passage
known by the name of Vagrats's or Waygat's straits.

ZEMECH, a word used by some writers as a name for
lapis lazuli.

ZEMENIE, in Geography, a town of European Tur-
key, in Romania; 16 miles S.W. of Gallipoli.

ZEMIA, Zegre, among the Athenians, is sometimes taken
in a large and general sense for any kind of punishment;
but more frequently for a pecuniary mulct or fine laid upon
the criminal, according to the degree of his offence.

ZEMLIANSK, in Geography, a town of Russia, in the
government of Voronez; 44 miles N.N.W. of Voronez.
N. lat. 52° 12'; E. long. 35° 42'.

ZEMLIN, or SEMLIN, a fortress of Sclavonia, at the
union of the Save and the Danube, opposite Belgrade.
Here is a lazaretto, where travellers and merchandize
from the Levant are detained to prevent infection. The number
of inhabitants is about 1,200 Rafeians, Greeks, Jews,
Arménians, and Turks; during a fire at Zemlin, Jofepf II.
emperor of Austria, aifiled in perfor to suppreft it.

ZEMME, a town of Grand Bucaria, on the Ghion; 60
miles S. of Bucaria.

ZEMOKARTLI, a town of Turkíf Armenia, in the
government of Cars; 50 miles N. of Ardanoudjí.

ZEMORGET, or ZERMOGETE, a small island in the
Red Sea, 30 miles from the coast of Egypt. This island
was called by the ancient "Ophiodes," from the abundance
of serpents, and the island of topazes from the number of
those precious stones found there. N. lat. 23° 25'. E.
long. 53° 5'.

ZEMOVAH, a town of Pegu; 50 miles S. of Prone.

ZEPHRYSUS, in the Materia Medica of the Ancients,
a name give to a precious stone, the fragments of which
they use as a cordial and sudorific.

It appears by their accounts, that this stone was blue;
and hence many have too hastily judged, that it was the
lapis lazuli; but in truth it was the fapphire.

The word zephyrus is no where used but in the writ-
tings of the later Greeks, and it is plainly formed, as most
of their names of things are, on the Arabian word express-
ving the fame thing. This Arabian word is fempber; and
this, in Avicenna and Seraperio, is always used as the name
of the fapphire, never as that of any other gem. We find
also by their accounts, that this fapphire was not the fap-
phire of the ancient Greeks, but the fine blue pellucid
gem we now know by that name; for the fapphire of Theo-
phrastus, and the other old writers, was only a kind of lapsi
lazuli.

ZEMPLIN, in Geography, a town of Hungary; 16
miles N.E. of Patak.

ZEMPOALA. See ZAMPALA.

ZEMZEM, the holy well of Mecca, which fce.

ZENANICH. See SELANICH.

ZENATI, a river of Algiers, formed by the union of
two freams, which foon after changes its name to Seiboufe.

ZENDA, a general term coined by Paraclefus, by
which he and his followers express extraneous or equivocal
generation, or the production of bodies without a femal
principle. The word zerunda is used to express this par-
ticular fort of generation of men, and zelphi in regard to
other animals.

ZENDAVESTA, by contraction Zend, and, as it is
vulgarly pronounced, Zendaweflow and Zend, in Antiquity,
denotes the book afcribed to Zoroaster, (fee his article,) and
containing his pretended revelations; and which the
ancient Magians and modern Perfes, called also Gaurus,
obferve and reverence in the fame manner as the Christian
f do the Bible, and the Mahometans the Koran, making it
the fole rule of both their faith and manners. See MAGI,
PERSEES, GEDES, &c. See also GENTOON.

The word, it is faid, originally signifies an instrum-
ent for kindling fire, and is applied to this book to denote its
aptitude for kindling the flame of religion in the hearts of
those who read it.

Zendavella is compounded of Zend, denoting the let-
ters of the book, and Avesla, signifying the language in which it
was written. See Perşia, Language of.

M. Anquetil du Perron, to whose account we shall refer
more at large in the sequel of this article, has taken pains,
in the 37th volume of the work cited below, to prove that
Zoroafter lived under Hyllafret, the father of Darius, in the
sixth century before Chrift.

The Zendavella, or Zend, contains the fystem of doctrine
and duty, which is faid to have been supernaturally com-
municated.
municated to Zoroaster, and which his followers hold in very extraordinary veneration. A copy of this book is kept, says Dr. Prideaux, to this day in every oratory and fire-temples, and portions of it are read at stated times by the priests to the people: and to this they appeal as the standard of the good and evil of their actions. This work, ascribed among other numerous writings to Zerdust, or the Perian Zoroaster, and esteemed by his followers as of sacred authority, is said to have been written in the Perian language, and to have consisted of two parts; one of which contains their forms of devotion and order of ceremonies, the other the precepts of religion and morality. A compendium of it, called the Sadda or Sadder, is read to the people on every fast day by their priests. There is, however, much reason to question, whether this book be of such ancient date as the time of Zoroaster; and it has been attested as probable, that it was written about the time when many Jews and Christians fled among the Persians; that is, about the 4th or 5th century. In proof of its being later than the time of Zoroaster, but written within the days of Mahomet, it is alleged, that the word *shaitān* occurs in it, which is peculiar to the Arabs; for in other oriental languages it is written *fatam* or *satan*.

Dr. Hyde gives us the following account of it. The Zend is the general name of the book, which is also called the book of Abraham; and it consists of twenty-one or twenty-two separate parts, with distinct names. Its contents were originally written on twelve hundred skins, and the ancient copies of it, like the original, are in the pure old Perian language; but the later copies are in the same language, mixed with modern Peric or Arabic words, serving to explain such as were becoming obsolete. Some parts of the Zend contain the original text, and others contain Zerdust's second thoughts subjoined, for more fully explaining his doctrine. Some writers suggest, that Zerdust first intended to compile his book in four parts, viz. the Zend, containing the liturgy and chief doctrine of his religion, and the *Pazend*, or commentary upon the former; and that the farther additions were occasioned by the opposition of adversaries, and unforeseen circumstances that occurred. The character in which the Zend is written is that of the old Perian, called Pehlavi; and the Pazend character differs in a small degree from this.

Dr. Hyde has given a catalogue of the several parts of the Zend, each of which is called *n&b* or *n&b*.

In process of time, when the old Perian language became antiquated, and little understood, one of their kalfours or bishops (about A.D. 1500) composed the *Sadda*, which is a compendium, in the vulgar or modern Peric tongue, of those parts of the Zend that relate to religion, or a kind of code of canon and precepts, drawn from the theological writings of Zoroaster, serving as an authoritative rule of faith and practice for his followers. This Sadda is written in a low kind of Peric verse, and, as Dr. Hyde informs us, it is *bonorum et malorum farrago*, having many good and pious things, and others very superstitious and trifling.

The Zend contains a reformed system of Magianism; teaching that there is a Supreme Being, eternal, self-existent, and independent, who created both light and darkness, out of which he made all other things; that these are in a state of conflict, which will continue till the end of the world; that then there shall be a general retribution and judgment; and that just retribution shall be rendered unto men according to their works; and that the angel of darkness with his followers shall be con-
hometan perfections, where their genius for commerce and industry, which are their known charaeteristics, procured for them very considerable setlements. Concerning the hierarchy of the Parflies, this writer observes, that their ministers of religion are divided into five classes, viz. erbeds, mobeds, deflours, deflour mobeds, and deflouran deflours, or deflours of deflours. An erbed is a person who has submitted to the purification directed by the law, who has read, during four days without interval, the Izefchine and the Vendidad, and who is instructed in the ceremonies of the worship established by Zoroaftre. If the erbed afterwards continues to read publicly the Zend works, which constitute the liturgy, and to perform the ministerial functions, he becomes a mobed, though he does not understand the Zendavesta; but if he contents himself with fluading the law, the Zend, and the Pehlvi, or Pehlvi, without exercising the ministerial functions, he is called a deflour.

The deflour mobed is he who unites the qualifications of the mobed and deflour; and the deflouran deflour is the principal deflour of a city or province, who decides cases of confidence, and determines points of law, and to whom the Parflies pay a tithe of their revenues.

As for those Zend writings, which the Parflies attribute to their legislator, and for which they have the same veneration as the Jews have for their Hebrew text, M. du Perron inclines to think, though he does not affirm, that they are really the works of Zoroaftre, whose reputation has been acquired by laws that have subsisted two thousand five hundred years.

The law, which was either framed or regulated by Zoroaftre, was divided, as we are told by modern authors, into twenty-one noshs, or parts: seven treat of the creation and history of the world; seven of morality, and civil and religious duties; and seven of phisick and alfortomy. Among the Parflies it is an universally received tradition, that Alexander the Great condemned these twenty-one volumes to the flames, after having caused them to be translated into Greek. Thofe which escaped are, the Vendidad, the Izefchine, the Vflpered, the Jefchts, and the Neaeefche, in Zend, and some other Pehlvi translations of Zend originals. The Parflies have also a great number of prayers, which they call nerengs, and which in general are written in modern Perfic, with Zend charaters, which they affect to use in all writings that treat of religion, though composed in modern Perfic. The writings of Zoroaftre, which still remain, speak of the createion of the universe, of the terrestrial paradise, and the departure of mankind; of the caufe of the respect paid to fire, of the origin of evil, natural and moral; of the angels appointed to the government of the universe; of several particulars relating to the end of the world, and the rejuryction, &c. &c. They also contain predictions with respect to the latter times, some excellent moral precepts, and a very extensive ceremonious code.

The Zend, according to Du Perron, is not the name of Zoroaftre's writings, but merely of the charaeters, though generally used to signify the language itself, in which they were written: the language of the original text is called Avefta, and is a dead language, and was entirely unknown to the Parflies before the time of Zoroaftre, who, he apprehends, brought it from the mountains; and is totally different from the Pehlvi or ancient Perfic, spoken in the time of Zoroaftre. He farther supposes, that the works of Zoroaftre, illust extant in the Pehlvi, were translations made into that language during the life of this legislator, or soon after his death.

The Zendavesta, which Dr. Hyde makes to be the name of a work, is, according to Du Perron, the name of a language, which is a dialect or corruption of the Avefta, and almost extinct, except that a few words of it are preferred in the Pehlvi translation. The charaters of the Avefta and Pehlvi are different; the former, which are properly the Zend letters, being much the nearest; the Zendavesta has no peculiar alphabet, but adopts that of the Zend or Pehlvi indifferently. (On this subject, see Language of Persia.) For M. du Perron's account of the sixteen MSS. of which he brought duplicate copies with him, and an abstract of their contents, we must refer to the Ann. Reg. &c. vol. vii.

This writer has published a translation of the Zendavesta, with remarks and illustrations, &c. in 3 vols. 4to. at Paris, in 1771.

The Zend, as sir W. Jones fuggels (Works, vol. iii. p. 115, 8vo.), bore a strong resemblance to Sanskrit, and the Pehlvi to Arabic, being a dialect of the Chaldaic. Sir W. Jones, from a perusal of two vocabularies, exhibited in this work, one in Zend, and another in Pehlvi, and derived from a collection of traditional pieces in modern Perfian, was confirmed in his opinion concerning the Chaldaic origin of the Pehlvi; and in perusing the Zend glosary, he was surprized to find, that six or seven words in ten were pure Sanskrit. M. Anquetil, he says, most certainly, and the Perfian compiler most probably, had no knowledge of Sanskrit, and could not therefore have invented a lift of Sanskrit words; it must therefore be an authentic lift of Zend words, which had been preferred in books or by tradition; and hence it follows that the language of the Zend was at least a dialect of the Sanskrit, approaching perhaps as nearly to it as the Praccrit, or other popular idioms which are known to have been spoken in India 2000 years ago. As soon as M. Anquetil published the above-mentioned work, sir W. Jones immediately discovered that the work was spurious, and by no means to be attributed to Zoroaftre; in consequence of which he published in the fame year, "Lettre à M. A—— du P—— dans laquelle ii expréme l'Examen de fa Traduction des Livres attribués à Zoroaftre." This letter is contained in the 1oth volume of his works, ed. 8vo. In Germany this version of M. Anquetil has met with more success, and has not only been translated into German, but applied to the purpose of explaining the New Testament. This use of it has been frugelled by Michaelis, and exemplified in the illustration of the introduction to St. John's gospel, and particularly of the term "word," which is used in the Zendavesta in the same sense as by St. John and the Gnoftics for the name of a person, and determines the proper tranlation of λόγος. (Michaelis by Marth, vol. i. p. 161.) Several other persons, besides sir W. Jones, have questioned the authenticity of the work which M. Anquetil has translated, or its being a genuine remain of Zoroaftre.

Mr. Richardson, in his "Difertation on the Language, Literature, and Manners of the Eastern Nations," originally prefixed to his Perfian, Arabic, and English Dictionary, 1778 (chap. i. sect. 2.), is very severe, both on Dr. Hyde and M. du Perron. "Thoje fragments of the suppos'd works of Zoroaftre, which Dr. Hyde has given us under the title of Saddar, are, he fays, the wretched rhymes of a modern Parfi deflour or prieff, who lived about three centuries ago; while the publications of M. Anquetil du Perron carry palpable marks of the total or partial fabrication of modern times. The Zend language, he fays, is not genuine; and M. du Perron has produced no discovery which can flamp his publication with authority.

He adds, the specimens of old Perfian in Hyde's Religio Veterum
VETERAN PERFUMES are simply modern language in ancient characters.

In the Memoirs of the Royal Society of Gottingen for 1799, "i.e. "Commentations Societatis Regiae Scientiarum Gottingensis, &c." we have a memoir by M. Christoffer Meiners, who enters into a critical examination of the authenticity and antiquity of the books published by M. Anquetil du Perron, as genuine writings of Zoroaster; and alleges many plausible arguments to prove them recent and spurious. He also, that they contain a multitude of fables, totally unknown to the ancient Perians, and contrary to the spirit of their laws and religion; and also many opinions and ceremonies, which had their first rise many ages after Zoroaster. The dissertations of professor Meiners, relating to the Zendavesta, are printed in the 8th volume of the Novi Commentarii Soc. Reg. Gotting.; and in the 1st and 3d volumes of the Commentations.

Some have thought that the truths which are observable in Zendavesta, Vendidad Sadi, and other writings of the eastern nations, were derived from the disciples of Nelloarius, who were found very early on the coast of Malabar. But this, Mr. Bryant thinks, is a groundless surmise; because the religious sects, among which these writings have been preferred, are widely separated, and most of them have no connection with Malabar or the Chirilians of that quarter. And besides, the Brahmins and Banians adhere closely to their own rites, and abhor all other persuasions; and they are influenced by customs and ceremones, which prevent their intercourse with other people. In their writings there occurs no trace of Christiinity; or of its founder; and thence Mr. Bryant infers, that whatever truths may be found in the writings of these people, they were derived from a higher source, and by a different channel. See Anal. of Anc. Mythology, vol. iii. p. 599, &c.

We shall terminate this article with adding, that Dr. Hyde prefented the copy of part of the Zend writings in his possession to the university of Oxford; and that the whole Zend was afterwards brought from India by Mr. Frazer, and is lodged with his other oriental MSS. in the Radcliff library at Oxford.

ZENDRO, in Geography. See GINDRO.
ZENDEROUD. See ZENDEROD.
ZENDGIN SERAI, a town of Grand Bucharia; 30 miles S. of Samarcand.
ZENDORFF, a town of the duchy of Sireia; 12 miles E. of Landperg.
ZENECHDON, a term used by the Arabian physicians for a preparation of arsenic, for external use; zieh being their name for arsenic.
ZENEXTOR, one of the many names by which the chemists have called mercury.

ZENGAN, ZENIC, or ZINJAN, in Geography, a town of Persia, in the province of Irak, said to have been fortified many years before the Chirilian era, and at one time to have contained 20,000 houses. It was entirely destroyed by Timur Bce when he first passed through that part of Persia; but being informed that it had long been the seat of learning and science, on his return from Turkey he in part rebuilt it. Since that time it has been frequently sacked and destroyed by the Tartars and the Turks. It contained in the 17th century about 2000 houses. It is a large, and now apparently a prosperous town, capital of the extensive district of Klumfleh, which is 71 miles down an uneven country, full of deep ravines, from hence to the banks of the Kizilo-
as to its direction, when viewed by a spectator; yet as it has reference to the apparent place of a heavenly body, it is not fixed, because the earth's motion is continually carrying the spectator's eye in a circle that produces the optical effect of an apparent circumpolar revolution of the celestial bodies. Whatever point of the hemisphere is at any moment vertical to an observer on any part of the globe, that point is the zenith for the time then passing, and will again be the zenith, or very nearly so, after an interval of one complete rotation of the earth; and, therefore, strictly speaking, in every place there are as many successive zeniths in this period, as there are appreciable points in the circle generated in the heavens by the superior end of the vertical line carried round by the globe in rotation.

Because every point of the horizon is just 90° distant from the exiting zenith, in every place, and at all times, it will be readily apprehended, that the complement of the altitude of any heavenly body will, at any instant, be the angular distance of that body from the zenith of the place of observation; but as this distance varies inversely with the altitude, it is more properly called the co-altitude than the zenith-distance, the former being a variable, and the latter a limited quantity. The zenith-distance of any star is properly the complement of its meridian or greatest altitude in any given place, and as the latitude of the place varies, so will the zenith-distance of the same body, but inversely; the distance of the zenith to the pole being always the complement of the latitude. Hence it is obvious, that when the zenith-distance of a star is observed by any instrument that measures it accurately, the latitude of the place may be inferred from the tabular polar distance of that star, as well as from the declination, which is its complement; and, therefore, it is a matter of no importance in theory, whether the altitude or zenith-distance of a body traversing the meridian be taken, for the purpose of ascertaining its place in the heavens, when the latitude of the observer is known, or for the purpose of determining the latitude of the place, when the declination, or polar distance of the body, is known. Accordingly, in the circular instruments that have been recently introduced into observatories, and that will forever in position, it is usual to number the divisions and subdivisions so, that when they read altitudes with the graduated plane facing the east, they read zenith-distances (on the meridian) when the star is made to face the west, and vice versa; so that not only are the opposite errors of collimation of the telescope and of the bubble or plumb-line thus corrected, but when atmospheric refraction is allowed for, the sum of the two readings, or of the averages of several, will be exactly 90°, or otherwise 180°, if the observations be truly taken, and the instrument duly adjusted for zero and collimation; which check is of great practical importance in the delicate operations of the astronomer.

Zenith-sector is an astronomical instrument, by means of which the angular distance of a star is accurately measured from the zenith point of any given place towards the north or south. The first instrument made use of for this purpose was contrived by Dr. Hooke, with a view of determining the annual parallax of a fixed star, agreeably to the suggestion of Galileo. The telescope, which Dr. Hooke, in the year 1669, made the essential part of his instrument, was thirty-fix feet long, the principle of achromaticism not being at that time practically applied, so as to allow of considerable power with a short focal distance of the object-glass; but the length of the radius of his arc of measurement promised advantages over every other instrument, which justified the conception and execution of the plan, though its accomplishment failed of corresponding success. Indeed, the nice arts of constructing achromatic telescopes, and of dividing the arc of a circle with extreme precision, had neither of them yet been perfected. From the Cutlerian Lectures we learn, that the first observation with this instrument was made on the 6th of July of the above-mentioned year, on the star denominated γ Draconis, which, on that evening, was found to pass at the distance of 2° 12' to the north of the zenith of Greenwich college; which was also found to be the case on the 9th of the same month; but on the 6th of August next following, the distance was only 2° 0'; and on the 1st of October after only 1° 48', or 1° 50'—whence it was concluded, that the measurement of a zenith-distance taken by this instrument was liable to an error of 24', or perhaps more; and it was considered, therefore, that the instrument was quite incompetent to the purpose for which it was intended. But an original idea once suggered, as the basis of useful speculation, is not readily abandoned, even under an apparent want of successful application. The Hon. Samuel Molyneux afterwards availed himself of the manual skill of the ingenious Graham, and by the assistance of Dr. Bradley put up a zenith-sector at Kew, in the year 1725, which turned out to be much more accurate than its predecessor, though the focal length of the object-glass of its telescope was only 24 feet. With this instrument, and with one of about one-half its focal length, were made two of the most important discoveries in astronomy that have graced the annals of this science; viz. the nutation of the earth's axis, and the aberration of light in its passage from the heavenly bodies. As the history of astronomical discoveries, and that of astronomical instruments, are mutually illustrative of each other, and as a detail of the minutiae is always interesting, that connects great results with primary measures, that might otherwise be considered as insignificant, we will make no apology for introducing here Dr. Bradley's own account of his proceedings, as inserted in the Philosophical Transactions of London, N° 406. p. 149 of the Abridg.

"The following observations," says the author, "were begun by the honourable Samuel Molyneux at Kew, continued and repeated by myself at Kew and Wanstead, in hopes of verifying those that Dr. Hooke formerly communicated to the public, concerning the parallax of the fixed stars. (London, 1674.) Therefore the same star was made choice of by Mr. Molyneux, almost the same method followed, and his instrument constructed upon principles nearly the same, but greatly exceeding the doctor's in exactness, which was chiefly owing to our curious member (of the Royal Society) Mr. George Graham, to whom the lovers of astronomy are also indebted for several other exact and well-constructed instruments. Mr. Molyneux's apparatus was completed and fitted for observing about the end of November, 1725; and on the 3d day of December following, the bright star in the head of Draco (marked γ by Bayer) was for the first time observed, as it passed near the zenith, and its situation carefully taken with the instrument. The like observations were made on the 5th, 11th, and 12th days of the same month; and there appearing no material difference in the place of the star, a farther repetition of them at this season seemed needless, it being a part of the year wherein no sensible alteration of parallax in this star could soon be expected. It was chiefly, therefore, curiosity that tempted me (being then at Kew, where the instrument was fixed) to prepare for observing the star on Dec. 17th, when, having adjusted the instrument as usual, I perceived that it palled a little more southerly this day
day than when it was observed before. Not suspecting any other cause of this appearance, we first concluded, that it was owing to the uncertainty of the observations, and that either this or the foregoing were not so exact as we had before suppos'd; for which reason we proposed to repeat the observation again, in order to determine from whence this difference proceeded; and upon doing it on Dec. 20th, I found that the star passed still more southerly than in the former observations. This sensible alteration the more surprized us, in that it was the contrary way from what it would have been had it proceeded from an annual parallax of the star; but being now pretty well satisfied that it could not be entirely owing to the want of exactness in the observations, and having no notion of any thing else that could cause such an apparent motion as this in the star, we began to think that some change in the materials, \\&c. of the instrument itself might have occasioned it. Under these apprehensions we remained some time; but being at length fully convinced, by several trials, of the great exactness of the instrument, and finding by the gradual increase of the star's distance from the pole, that there must be some regular cause that produced it, we took care to examine nicely, at the time of each observation, how much it was: and about the beginning of March, 1726, the star was found to be 20" more southerly than at the time of the first observation. It now, indeed, seemed to have arrived at its utmost limit southward, because in several trials made about this time, no sensible difference was observed in its situation. By the middle of April, it appeared to be returning back again towards the north; and about the beginning of June, it passed at the same distance from the zenith as it had done in December, when it was first observed.

"From the quick alteration of this star's declination about this time, (it increasing a second in three days,) it was concluded, that it would now proceed northward, as it before had gone southward of its present situation; and it happened as was conjectured; for the star continued to move northward till September following, when it again became stationary, being then near 20" more northerly than in June, and no less than 30" more northerly than it was in March. From September the star returned towards the south, till it arrived in December to the same situation it was in at that time twelve months, allowing for the difference of declination on account of the precession of the equinox.

"This was a sufficient proof that the instrument had not been the cause of this apparent motion of the star; and to find one adequate to such an effect seemed a difficulty. A *nutation of the earth's axis* was one of the first things that offered itself upon this occasion; but it was soon found insufficient; for though it might have accounted for the change of declination in \( \gamma \) Draconis, yet it would not at the same time agree with the phenomena in other stars; particularly in a small one almost opposite in right ascension to \( \gamma \) Draconis, at about the same distance from the north pole of the equator; for, though this star seemed to move the same way as a nutation of the earth's axis would have made it, yet in changing its declination but about as much as \( \gamma \) Draconis in the same time, (as appeared upon comparing the observations of both made upon the same days, at different seafsons of the year,) this plainly proved that the apparent motion of the stars was not occasioned by a real nutation, since, if that had been the cause, the alteration in both stars would have been near equal.

"The great regularity of the observations left no room to doubt, but that there was some regular cause that produced this unexpected motion, which did not depend on the uncertainty or variety of the seafsons of the year. Upon comparing the observations with each other, it was discovered, that in both the fore-mentioned stars, the apparent difference of declination from the *maxima* was always nearly proportional to the verified line of the sun's distance from the equinoctial points. This was an inducement to think, that the cause, whatever it was, had some relation to the sun's situation with respect to those points. But not being able to frame any hypothesis at that time, sufficient to solve all the phenomena, and being very desirous to search a little farther into this matter, I began to think of erecting an instrument for myself at Wanstead, that, having it always at hand, I might with the more ease and certainty inquire into the laws of this new motion. The consideration, likewise, of being able by another instrument to confirm the truth of the observations hitherto made with Mr. Molyneux's was no small inducement to me; but the chief of all was the opportunity I should thereby have of trying in what manner other stars were affected by the same cause, whatever it was. For Mr. Molyneux's instrument being originally designed for observing \( \gamma \) Draconis, (in order, as I said before, to try whether it had any sensible parallax,) was so contrived, as to be capable of but little alteration in its direction, not above seven or eight minutes of a degree; and there being few stars within half that distance from the zenith of Kew bright enough to be well observed, he could not, with his instrument, thoroughly examine how this cause affected stars differently situated with respect to the equinoctial and solstitial points of the ecliptic.

"These considerations determined me; and by the contrivance and direction of the fame ingenious person, Mr. Graham, my instrument was fixed up, Augst 19, 1727. As I had no convenient place where I could make use of a long a telescope as Mr. Molyneux's, I contented myself with one of but little more than half the length of his, (viz. of about 12½ feet, his being 24½,) judging from the experience which I had already had, that this radius would be long enough to adjust the instrument to a sufficient degree of exactness; and I have had no reason since to change my opinion: for from all the trials I have yet made, I am very well satisfied that when it is carefully rectified, its situation may be securely depended upon to half a second. As the place where my instrument was to be hung in some measure determined its radius, so did it also the length of the arc, or limb, on which the divisions were made to adjust it; for the arc could not conveniently be extended farther than to reach to about 63° on each side my zenith. This indeed was sufficient, since it gave me an opportunity of making choice of several stars, very different both in magnitude and situation; there being more than two hundred inserted in the British Catalogue, that may be observed with it. I needed not to have extended the limb so far, but that I was willing to take in *Capella*, the only star of the first magnitude that comes so near my zenith.

"My instrument being fixed, I immediately began to observe such stars as I judged most proper to give me light into the cause of the motion already mentioned. There was variety enough of small ones, and not less than twelve that I could observe through all the seafsons of the year; they being bright enough to be seen in the day-time, when nearest the sun. I had not been long observing, before I perceived that the notion we had before entertained of the stars being farthest north and south, when the sun was about the equinoxes, was only true of those that were near the solstitial colure; and after I had continued my observations a few months,
months, I discovered what I then apprehended to be a
general law observed by all the stars, viz. that each of them
became stationary, or was farthest north or south, when
they passed over my zenith at six of the clock, either in the
morning or evening. I perceived likewise, that whatever
situation the stars were in with respect to the cardinal points
of the ecliptic, the apparent motion of every one tended the
same way, when they passed my instrument about the same
hour of the day or night; for they all moved southward
while they passed in the day, and northward in the night;
so that each was farthest north, when it came about six of
the clock in the evening, and farthest south, when it came
about six in the morning.

"Though I have since discovered, that the maxima in
most of these stars do not happen exactly when they come
to my instrument at those hours; yet not being able at that
time to prove the contrary, and supposing that they did,
I endeavoured to find out what proportion the greatest altera-
tions of declination in different stars bore to each other, it
being very evident that they did not all change their de-
clination equally. I have before taken notice, that it ap-
peared from Mr. Molyneux’s observations, that γ Draconis
altered its declination about twice as much as the fore-men-
tioned small star almost opposite to it; but examining the
matter more particularly, I found that the greatest alteration
of declination in these stars was as the fine of the latitude
of each respectively. This made me suspect that there might
be the like proportion between the maxima of other stars;
but finding that the observations of some of them would not
perfectly correspond with such an hypothesis, and not
knowing whether the small difference I met with might not
be owing to the uncertainty and error of the observations, I
deffered the farther examination into the truth of this hypo-
thesis, till I should be furnished with a series of observa-
tions made in all parts of the year, which might enable me not
only to determine what errors the observations are liable to,
or how far they may safely be depended upon, but also to
judge whether there had been any sensible change in the parts
of the instrument itself.

"Upon these considerations, I laid aside all thoughts at
that time about the cause of the fore-mentioned phenomena,
hoping that I should the more easily discover it, when I was
better provided with proper means to determine more pre-
cisely what they were.

"When one year was completed, I began to examine
and compare my observations; and having pretty well satis-
fied myself as to the general laws of the phenomena, I then
endeavoured to find out the cause of them. I was already
convinced that the apparent motion of the stars was not
owing to a nutation of the earth’s axis. The next thing that
offered itself was an alteration in the direction of the
plumb-line, with which the instrument was constantly re-
ticed; but this, upon trial, proved insufficient. Then I
considered what refraction might do, but here also
nothing satisfactory occurred. At last I conjectured that
all the phenomena hitherto mentioned proceeded from the
progressive motion of light, and the earth’s annual motion in its
orbit. For I perceived that if light was propagated in time,
the apparent place of a fixed object would not be the same
when the eye is at rest, as when it is moving in any other
direction than that of the line passing through the eye and
object; and that when the eye is moving in different direc-
tions, the apparent place of the object would be different."

The author then proceeds to deduce from his observa-
tions the relative velocities of light, and of the earth in its
annual orbit; shews what variation in the right ascen-
and declination of stars differently placed may arise out of the
aberration of light; and concludes that light, agreeably to
such deductions, must travel from the sun to the earth in
about 8° 7.5 of time. (See Aberration, Light, and
Stars.) The discovery of the earth’s nutation was not,
however, published until the year 1737. See Nutation.

After our readers have seen what important discoveries
and deductions have been derived from Graham’s zenith-
factor in the hands of a skilful astronomer, they will be na-
turally disposed to become acquainted with its construction,
which we will now proceed to describe.

Zenith-sector by Graham.—The zenith-factor that we have
said Graham made for Mr. Bradley, afterwards Dr. Bradley,
was removed to Greenwich, when the proprieter became
astronomer royal, and is the same instrument which Dr.
Makelyne used with great success in adjusting, by com-
parison, the zero of the large quadrants. It still remains
at Greenwich, and is yet capable of measuring zenith-dif-
tances to the accuracy of half a second, according to Brad-
ley’s original report, or even less. Fig. 1. of Plate XXXIII.
of Astronomical Instruments, is a representation of the essential
parts of this instrument: A B represents the iron tube of
the vertical telescope, which is furnished by two small meta-
lic cylinders projecting at right angles from the superior
end, one of which is seen at a, and the other is hidden by
the tube. These cylinders, which constitute the axis of
motion, rest in a pair of Ys, attached to the solid wall
facing the north, and also occasionally to another pair fixed
to a wall facing the south; which additional pair allows the
ends of the cylinders, or axis of motion, to be revolved in
position. The brass bar C D is fixed to the wall to
which the pair of Ys are attached, at opposite sides of the
room, and bears a cock to which the micrometer-screw E
is fixed, which measures the fractional portion of a minute
on its head d; and the second screw f is made to relieve it.
The ends of these screws press against fluted ridges inserted into the
tube of the telescope, while the weight F pulls a string
round the fixed pulleys G and H, by means of a pliable
cord, attached to the tube at the point d, and keeps the
telecope home. The graduated arc I K contains 128°,
each subdivided into twelve parts, or five minute spaces,
and is fixed exactly at right angles to the tube, over the
point where the wires intersect the field of view. This arc
was originally of brass, but Sisson put on an arc of steel,
containing gold pins to receive the dots of division. A
plumb-line suspended from the superior end of the tube, over
the centre of one of the cylinders a, and having an adjuvating
screw e, to bring the point of fulpension to the upper dot, falls
near the face of the arc, and indicates the distance from zero
at the middle of the arc; if the plumb-line covers one of
the dividing dots of the scale, when a star near the zenith
is cut by the horizontal wire, then the quantity is read by
the plumb-line and arc alone; but otherwise the fractional
portion is ascertained by means of the micrometer-screw, which
is made to press against the tube until the fulped line coincides with the next nearest dividing dot of the scale.

The value of the micrometer-head, which is divided into
thirty-four equal parts, was ascertained by trying how many
revolutions of the screw would measure a degree, or other
portion of the arc, exactly; and an average of several
trials made in different parts of the arc, it was ascertained,
that one revolution was not precisely 34°, but 34° 6539°,
and one of its divisions on the head, therefore, only 2° 111662°,
instead of 2°, as was intended by the maker. The instru-
ment had originally a single lens for its object-glass; but
at the request of the late Dr. Makelyne, Mr. Dollond sub-
fluted...
rituated an achromatic object-glas, which has modernized the instrument, and put it nearly on a level with the new instruments which have lately been constructed and erected in the Royal Observatory by Troughton, on the best principles. If the zenith-sector had been made to reverse in position in the same situation, i.e. without being carried across the room, its use would have been more convenient, and the observations more certain, insomuch as the same dilance would have been preserved between the axis of motion of the telescope, and the point acted upon by the micrometer-fewer, without any refulting allowance. Besides, the instrument would have been less liable to accidents; and reversed ob-

servations might probably have been made on the same evening. When Bird afterwards made a zenith-sector for the Oxford Observatory, he noticed these inconveniences, and obviated them by making the tube of the telescope turn round in its own place, so that the positions of the axis can be reversed by an azimuthal motion that carries the plumb-line round at the same time; and when the plumb-line will cover the dot at zero during this whole motion, the telescope is truly vertical.

The adjustment for collimation is effected by an apparatus that moves the wires in the eye-piece, as in the transit-instru-

ment, and may be thus effected: Let the graduated arc face the east, and view a star falling in or near the zenith, the proper time for doing which may be known from the flat's right ascension, by means of a sidereal clock, or by conversion of folar into sidereal time, and note the distance from zero when the plumb-line is quiet, which it will soon be if the plummet is immered in a goblet of water, and mark down this quantity as read partly by the divisions on the scale, and partly by the micrometer-head; which call the second mea

sure with N. or S. annexed, accordingly as the flat par

passes to the north or south side of the zenith point; then reverse the position, and on a succeeding night, which will be 3° 56' sooner on every successive night, measure the zenith-distance of the same star in like manner with the gra

uated scale facing the west; and call it the second mea

sure: then if the two quantities thus measured be similar, the collimation for zenith-distance will be true; but if other-

wise, one half of the difference of the two readings will be the error of collimation, which may be either corrected by the proper apparatus at successive trials, or, which is perhaps better, may be allowed for in each observation. When the instrument has been used for several observations, it will be still better to take an average of all the observed errors, as avertened by different stars, and to apply it with its proper sign in future single observations, so long as the instrument remains in all respects unaltered. It is hardly necessary to obverse, that in using this instrument, when a star is very near the zenith of any place, the micrometer alone, without reference to the graduated scale or arc, will give the due mea

sure. How the latitude of any place may be very ac-

curately determined from the measured zenith-distance of a star, of known declination, will be seen presently.

Zenith-Sector by Ramden.—While the trigonometrical survey of England was carrying on, it was found deifiable to have a portable zenith-sector to affift in measuring an arc of the meridian, and as Ramden had one in an half-finished state, that had been ordered by the duke of Richmond, the parties were prevailed on to have this finished for the pur-

pose, which was nearly done in Ramden's life-time, in the year 1801, and completed in April 1802 by his successor Berge. It was first tried at Greenwich, and then removed to the Isle of Wight, where the operations began, and from whence they were continued northward from Station to Sta-

tion, as described in the "Trigonometrical Survey," by capi-

tain William Mudge, and published from time to time by Mr. Faden, of Charing-Crofs. The original account of this complex instrument has reference to fix large plates, and is too long for us to copy. (See vol. ii. p. 6 & seq. of part ii.) Fig. 2. of our Plate XXXIII. of Astronomical Instruments, gives a reduced perspective view of this instru-

ment, from an examination of which a better idea will be formed of its general construction than by any detailed ac-

count we can give of its parts without the additional plates.

Captain Mudge says, "that Mr. Ramden has here ob-

viated the inconveniences attendant on the use of former sectors; and has also diminished, in a very considerable degree, the errors unavoidably resulting from their imperfect conduction. The principles, he adds, on which he has founded the several improvements, consist in the means of uniting the sectorial tube to its axis, so as to ensure the permanency of the length of its radius, when erected for observations; more accurate methods of adjusting the in-

strument vertically; and an easy way of placing the face of its arc in the plane of the meridian." The frame ex-

hibited in our figure consists of two parts; the external fland of mahogany, which supports the apparatus to which the sectorial tube is attached; and an inner frame, containing that apparatus with the tube itself. The fland, or outer frame, is in the shape of an obturated pyramid, having a base fix feet square, and its vertex three. It unites stiffness with simplicity of conduction. The inner frame, within which the sector is suspended, is supported at top in every lateral direction, while its lower extremity is terminated by a cone resting in a metallic concavity, on which it turns in azimuth; and it can be kept in any po-

sition by a clamping apparatus acting with an azimuth circle, made fast to the bottom of the external frame. The telescope of the sector has an object-glas nearly eight feet long, with an aperture of four inches, near which is made fast the transversic axis of motion, similar to that of a transit-instrument. The wires of the eye-piece of the telescope are illuminated by reflected light, entering the axis in the usual way; and a plumb-line, with the ghost apparatus for adjustment to zero, is made a leading feature in the con-

struction. The arc is divided into 15°, which was the concluding work done by Berge, and each degree is sub-

divided into 5' spaces, as in Graham's instrument. A second telescope, of 29 inches focal length, is attached to the long tube, and moves in the plane of the divided arc to any given elevation, but partakes of the azimuthal motion when the long vertical telescope is turned round: with this 29-inch telescope horizontal angles are measured, by the help of the azimuth circle, which therefore is divided for this purpose. Besides these essential parts, there are various appendages and bracing parts, rendered necessary by the size of the instrument, particularly a microscopic tube reaching up to the upper dot of the plumb-line, and bent at both ends into a horizontal position for convenience of the observer. This contrivance required reflectors, both of the light, and of the image of the piece of mother-of-pearl that is bifected by the wire, constituting the plumb-line. The micrometer measures minutes and seconds in the usual way, and the plummet is immersed in a small vessel of water to prevent vibration. We mention these particulars generally, not only because their particular uses and modes of applica-

tion have been previously described, when we explained other instruments, such as Circles, Equatorials, Tran-

sit-Instruments, &c.; but because this instrument has fur-

nished hints to others who have copied in part, or wholly, several
ZENITH.

several of Ramfiden's contrivances. It was moreover necer-

tory to introduce various weights, pulleys, cords, springs,
&c. to facilitate and keep steady the motions of the different
acting parts, which, together with the reading microscopes,
lamps, rods, and adjusting screws, give the instrument the
appearance of great complexity.

The manner of adjusting the instrument for observation is
thus performed, according to Mr. Mudge's own words:
"viz. "The feet of the external stand should be first carefullv
brought into a horizontal plane; and when they are so, the
azimuth circle will be necessarily parallel to it, having its
centre under the middle of the opening in the mahogany
frame screwed on the top of the stand. This being done,
and the instrument set up, the plane of the arc should be
brought parallel to one of the sides of the stand, in which
situation the internal frame is to be clamped to the azimuth
circle, and the wire brought to its proper distance from the
limb, by means of the adjusting screw attached to one of
the slips, which carries the concave receptacle and conical
point. The dot at zero should then be brought exactly
under the plumb-line, as seen through the magnifier, and
the point on the micrometer-head, at which its index stands,
noted. The instrument is then to be turned half round;
and if the same dot on the arc still continues bifected, it
will afford a proof of the internal stand being upright in
one direction. But if the dot should not continue bifected
by the plumb-line, it must be made to do so, and the revo-
lutions, or parts of a revolution, counted; half of which is
to be turned back on the micrometer-head. The fame dot,
zero, is then to be brought under the plumb-line (wire), by
means of the other adjusting screw, beneath the azimuth
circle. If the stand is pretty accurately set up, one opera-
tion is sufficient for bringing the interior frame upright
in one direction, viz. either in that of the meridian, or
the one at right angles to it. The arc is then to be turned round 90°, and the fame operation gone through.
This being properly done, the interior frame is made
perfectly upright. The next step to be taken is that
of placing the long level on its axis above, and rectifying
that axis by means of the Y plate screws. If this be done
carefully, the bubble will remain between the pointers of
the level, whatever position the sector may be placed in.
Having thus rectified the instrument, by making the internal
frame upright, and the axis horizontal, the only remaining
point to engage attention is, placing the plumb-line at a
proper distance from the arc: this is done by means of the
screw acting on the spring joint under its point of suspen-
sion. If great care be used in going through these several adjus-
tments, the instrument may, at any future time, be accurately
adjusted for observation by turning the proper screw belonging
to the azimuth circle, and bringing the arc to its usual
distance from the wire."

In order to shew the accurate results that may be obtained
from an instrument of this description, and also the care
that is necessary in using it, and in clearing the observations
of errors arising from natural caufes, we will subjoin a few
Tables that were found useful in the grand trigonometrical
operations, by means of which, in the years 1802 and 1806,
the meridian arcs were compared with the corresponding
terrestrial measurements.

Table shewing the Runs of the Micrometer-Screw over every Five Minutes in the First Degree on each Side of Zero.

<table>
<thead>
<tr>
<th>Right-Hand Arc.</th>
<th>Left-Hand Arc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° 0'</td>
<td>55° 43'</td>
</tr>
<tr>
<td>0° 5</td>
<td>0° 88'</td>
</tr>
<tr>
<td>0° 10</td>
<td>3° 55'</td>
</tr>
<tr>
<td>0° 15</td>
<td>3° 10'</td>
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<tr>
<td>0° 20</td>
<td>4° 03'</td>
</tr>
<tr>
<td>0° 25</td>
<td>4° 37'</td>
</tr>
<tr>
<td>0° 30</td>
<td>2° 58'</td>
</tr>
<tr>
<td>0° 35</td>
<td>5° 07'</td>
</tr>
<tr>
<td>0° 40</td>
<td>5° 47'</td>
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<td>0° 45</td>
<td>5° 23'</td>
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<td>5° 77'</td>
</tr>
<tr>
<td>0° 55</td>
<td>5° 53'</td>
</tr>
<tr>
<td>0° 60</td>
<td>5° 07'</td>
</tr>
<tr>
<td>0° 65</td>
<td>4° 03'</td>
</tr>
<tr>
<td>0° 70</td>
<td>3° 50'</td>
</tr>
<tr>
<td>0° 75</td>
<td>4° 01'</td>
</tr>
<tr>
<td>0° 80</td>
<td>4° 37'</td>
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<tr>
<td>0° 85</td>
<td>5° 23'</td>
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<tr>
<td>0° 90</td>
<td>5° 77'</td>
</tr>
<tr>
<td>1° 00</td>
<td>5° 43'</td>
</tr>
<tr>
<td>1° 05</td>
<td>5° 50'</td>
</tr>
<tr>
<td>1° 10</td>
<td>5° 45'</td>
</tr>
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</table>
### Table for converting the Divisions shown on the Micrometer Head into Seconds, the Space subtended by Five Minutes on the Limb being found equal to Five Revolutions and Forty-five Divisions, as deduced from the Measurement of the total Arcs.

<table>
<thead>
<tr>
<th>Div.</th>
<th>&quot;</th>
<th>Div.</th>
<th>&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.002</td>
<td>31</td>
<td>31.052</td>
</tr>
<tr>
<td>2</td>
<td>2.003</td>
<td>32</td>
<td>32.053</td>
</tr>
<tr>
<td>3</td>
<td>3.005</td>
<td>33</td>
<td>33.055</td>
</tr>
<tr>
<td>4</td>
<td>4.007</td>
<td>34</td>
<td>34.057</td>
</tr>
<tr>
<td>5</td>
<td>5.008</td>
<td>35</td>
<td>35.058</td>
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<tr>
<td>6</td>
<td>6.010</td>
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<tr>
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<td>37</td>
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</tr>
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<td>38</td>
<td>38.063</td>
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<td>46</td>
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<td>47</td>
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<td>18.030</td>
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<td>49</td>
<td>49.082</td>
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<td>20.033</td>
<td>50</td>
<td>50.083</td>
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<td>23.038</td>
<td>53</td>
<td>53.088</td>
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<td>24.040</td>
<td>54</td>
<td>54.090</td>
</tr>
<tr>
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<td>25.042</td>
<td>55</td>
<td>55.092</td>
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<td>26</td>
<td>26.043</td>
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<td>56.093</td>
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<tr>
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<td>57</td>
<td>57.095</td>
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</tr>
<tr>
<td>30</td>
<td>30.050</td>
<td>60</td>
<td>60.100</td>
</tr>
</tbody>
</table>

### Table for supplying the necessary Correction to the observed Zenith-Distance of a Star, on account of the Expansion or Contraction of the Sectorial Tube by One Degree of Heat.

<table>
<thead>
<tr>
<th>Zenith Distance observed.</th>
<th>Correction for One Degree of Heat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 &quot;</td>
<td>0.018</td>
</tr>
<tr>
<td>1 &quot;</td>
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<tr>
<td>2 &quot;</td>
<td>0.037</td>
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<tr>
<td>3 &quot;</td>
<td>0.046</td>
</tr>
<tr>
<td>4 &quot;</td>
<td>0.056</td>
</tr>
<tr>
<td>5 &quot;</td>
<td>0.065</td>
</tr>
<tr>
<td>6 &quot;</td>
<td>0.074</td>
</tr>
<tr>
<td>7 &quot;</td>
<td>0.084</td>
</tr>
<tr>
<td>8 &quot;</td>
<td>0.093</td>
</tr>
<tr>
<td>9 &quot;</td>
<td>0.102</td>
</tr>
<tr>
<td>10 &quot;</td>
<td>0.111</td>
</tr>
<tr>
<td>11 &quot;</td>
<td>0.121</td>
</tr>
<tr>
<td>12 &quot;</td>
<td>0.130</td>
</tr>
<tr>
<td>13 &quot;</td>
<td>0.139</td>
</tr>
</tbody>
</table>

Observations made by Captain William Mudge on the Zenith-Distances of γ Draconis, with Ramsden’s Zenith-Sector, at different Places.

Table I.—Greenwich Observatory, 1802. Point on the Limb 0° 0' N.
## Table II.—Dunrofe, 1802. Point on the Limb 0° 50′ N.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Face</th>
<th>Plumb-line</th>
<th>Observation of the Star</th>
<th>Zenith-Distance in Revolutions</th>
<th>Zenith-Distance Reduced</th>
<th>Barometer</th>
<th>Thermometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 10</td>
<td>E.</td>
<td>15.52</td>
<td>48.1</td>
<td>50</td>
<td>32.75</td>
<td>53</td>
<td>20.10</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>38.66</td>
<td>56.4</td>
<td>41.26</td>
<td>38.62</td>
<td></td>
<td>28.85</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>43.9</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38.0</td>
</tr>
<tr>
<td>13</td>
<td>E.</td>
<td>47.30</td>
<td>81.4</td>
<td>41.10</td>
<td>34.45</td>
<td></td>
<td>28.85</td>
</tr>
<tr>
<td>14</td>
<td>W.</td>
<td>72.38</td>
<td>49.2</td>
<td>42.18</td>
<td>39.54</td>
<td></td>
<td>34.5</td>
</tr>
<tr>
<td>16</td>
<td>E.</td>
<td>40.0</td>
<td>15.2</td>
<td>34.20</td>
<td>31.55</td>
<td></td>
<td>28.82</td>
</tr>
<tr>
<td>June 11</td>
<td>W.</td>
<td>20.70</td>
<td>29.5</td>
<td>50.20</td>
<td>47.58</td>
<td></td>
<td>35.5</td>
</tr>
<tr>
<td>13</td>
<td>E.</td>
<td>36.35</td>
<td>20.3</td>
<td>42.05</td>
<td>40.31</td>
<td></td>
<td>28.79</td>
</tr>
<tr>
<td>14</td>
<td>W.</td>
<td>25.26</td>
<td>33.4</td>
<td>50.86</td>
<td>48.24</td>
<td></td>
<td>28.26</td>
</tr>
<tr>
<td>16</td>
<td>E.</td>
<td>48.33</td>
<td>37.4</td>
<td>45.07</td>
<td>43.44</td>
<td></td>
<td>28.75</td>
</tr>
<tr>
<td>17</td>
<td>W.</td>
<td>32.09</td>
<td>39.4</td>
<td>52.26</td>
<td>49.64</td>
<td></td>
<td>28.82</td>
</tr>
<tr>
<td>18</td>
<td>E.</td>
<td>32.77</td>
<td>17.9</td>
<td>44.13</td>
<td>41.50</td>
<td></td>
<td>28.8</td>
</tr>
<tr>
<td>20</td>
<td>W.</td>
<td>9.48</td>
<td>15.0</td>
<td>51.48</td>
<td>48.86</td>
<td></td>
<td>29.97</td>
</tr>
<tr>
<td>21</td>
<td>E.</td>
<td>52.92</td>
<td>40.0</td>
<td>47.08</td>
<td>44.45</td>
<td></td>
<td>28.83</td>
</tr>
</tbody>
</table>

## Table III.—Clifton, 1802. Point on the limb 1° 55′ S.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Face</th>
<th>Plumb-line</th>
<th>Observation of the Star</th>
<th>Zenith-Distance in Revolutions</th>
<th>Zenith-Distance Reduced</th>
<th>Barometer</th>
<th>Thermometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 20</td>
<td>W.</td>
<td>49.24</td>
<td>12.8</td>
<td>155</td>
<td>22.56</td>
<td></td>
<td>28.9</td>
</tr>
<tr>
<td>21</td>
<td>E.</td>
<td>23.81</td>
<td>53.7</td>
<td>29.11</td>
<td>28.26</td>
<td></td>
<td>56.5</td>
</tr>
<tr>
<td>22</td>
<td>W.</td>
<td>54.31</td>
<td>17.1</td>
<td>21.79</td>
<td>20.92</td>
<td></td>
<td>53.0</td>
</tr>
<tr>
<td>23</td>
<td>E.</td>
<td>45.15</td>
<td>18.9</td>
<td>27.35</td>
<td>26.39</td>
<td></td>
<td>54.5</td>
</tr>
<tr>
<td>26</td>
<td>W.</td>
<td>8.47</td>
<td>29.5</td>
<td>21.03</td>
<td>20.16</td>
<td></td>
<td>56.1</td>
</tr>
<tr>
<td>28</td>
<td>E.</td>
<td>35.56</td>
<td>9.6</td>
<td>25.96</td>
<td>25.11</td>
<td></td>
<td>64.0</td>
</tr>
<tr>
<td>29</td>
<td>W.</td>
<td>44.41</td>
<td>4.5</td>
<td>19.90</td>
<td>26.8</td>
<td></td>
<td>56.2</td>
</tr>
<tr>
<td>Aug. 1</td>
<td>W.</td>
<td>41.22</td>
<td>10.3</td>
<td>20.78</td>
<td>19.91</td>
<td></td>
<td>56.5</td>
</tr>
<tr>
<td>3</td>
<td>E.</td>
<td>9.759</td>
<td>40.3</td>
<td>26.20</td>
<td>25.43</td>
<td></td>
<td>56.5</td>
</tr>
<tr>
<td>5</td>
<td>E.</td>
<td>6.500</td>
<td>20.0</td>
<td>25.50</td>
<td>24.04</td>
<td></td>
<td>20.0</td>
</tr>
<tr>
<td>7</td>
<td>W.</td>
<td>9.755</td>
<td>24.6</td>
<td>17.05</td>
<td>18.6</td>
<td></td>
<td>27.0</td>
</tr>
<tr>
<td>12</td>
<td>E.</td>
<td>3.756</td>
<td>42.7</td>
<td>23.86</td>
<td>23.0</td>
<td></td>
<td>57.5</td>
</tr>
<tr>
<td>13</td>
<td>W.</td>
<td>12.48</td>
<td>29.4</td>
<td>16.92</td>
<td>22.46</td>
<td></td>
<td>57.5</td>
</tr>
<tr>
<td>17</td>
<td>E.</td>
<td>10.32</td>
<td>46.0</td>
<td>23.32</td>
<td>29.0</td>
<td></td>
<td>60.5</td>
</tr>
<tr>
<td>18</td>
<td>W.</td>
<td>32.97</td>
<td>48.5</td>
<td>15.53</td>
<td>14.65</td>
<td></td>
<td>28.8</td>
</tr>
</tbody>
</table>

Above | Below |
---    |---    |
25     | 56.5  |
28.9   | 55.0  |
42.2  | 52.2  |
28.7  | 54.5  |
29.0  | 56.1  |
25.8  | 64.0  |
29.0  | 56.2  |
25.4  | 57.3  |
25.4  | 57.0  |
29.1  | 64.5  |
29.0  | 57.5  |
29.3  | 65.2  |
### Table IV.—Arbury-Hill, near Daventry, 1802. Point on the Limb $\circ 40^\circ S$.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Face</th>
<th>Plumb-line</th>
<th>Observation of the Star</th>
<th>Zenith-Distance in Revolutions</th>
<th>Zenith-Distance Reduced</th>
<th>Barometer</th>
<th>Thermometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 10</td>
<td>W.</td>
<td>53.85</td>
<td>0 40 2 11.55</td>
<td>0 42 9.76</td>
<td>28.2</td>
<td>51.5</td>
<td>54.0</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>47.75</td>
<td>15.85</td>
<td>17.95</td>
<td>26.04</td>
<td>48.2</td>
<td>55.0</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>46.65</td>
<td>27.87</td>
<td>12.60</td>
<td>28.8</td>
<td>70.3</td>
<td>72.3</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>18.90</td>
<td>31.5</td>
<td>17.95</td>
<td>28.8</td>
<td>68.5</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>9.78</td>
<td>42.8</td>
<td>10.53</td>
<td>28.8</td>
<td>79.8</td>
<td>75.8</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>16.52</td>
<td>58.2</td>
<td>17.32</td>
<td>8.74</td>
<td>67.5</td>
<td>65.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>9.97</td>
<td>20.5</td>
<td>10.53</td>
<td>28.8</td>
<td>79.8</td>
<td>75.8</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>16.97</td>
<td>0.8</td>
<td>16.17</td>
<td>28.9</td>
<td>70.5</td>
<td>70.2</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>16.0</td>
<td>27.6</td>
<td>11.5</td>
<td>9.1</td>
<td>74.0</td>
<td>75.2</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>10.47</td>
<td>23.0</td>
<td>12.53</td>
<td>29.0</td>
<td>59.5</td>
<td>64.2</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>17.50</td>
<td>7.8</td>
<td>16.70</td>
<td>29.1</td>
<td>64.0</td>
<td>69.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>21.63</td>
<td>33.5</td>
<td>11.87</td>
<td>29.9</td>
<td>64.0</td>
<td>69.5</td>
</tr>
<tr>
<td>Oct. 1</td>
<td>E.</td>
<td>34.95</td>
<td>15.5</td>
<td>19.45</td>
<td>28.9</td>
<td>72.5</td>
<td>71.9</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>25.33</td>
<td>7.0</td>
<td>18.33</td>
<td>28.8</td>
<td>71.0</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>54.30</td>
<td>7.1</td>
<td>11.80</td>
<td>28.6</td>
<td>74.0</td>
<td>73.0</td>
</tr>
</tbody>
</table>

### Table V.—Delamere Forest, 1806. Point on the Limb $1^\circ 40^\prime S$.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Face</th>
<th>Plumb-line</th>
<th>Observation of the Star</th>
<th>Zenith-Distance in Revolutions</th>
<th>Zenith-Distance Reduced</th>
<th>Barometer</th>
<th>Thermometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 30</td>
<td>W.</td>
<td>14.2</td>
<td>23.38</td>
<td>21.61</td>
<td>29.37</td>
<td>49.5</td>
<td>50.0</td>
</tr>
<tr>
<td>June 2</td>
<td>E.</td>
<td>45.3</td>
<td>14.10</td>
<td>27.80</td>
<td>26.04</td>
<td>51.0</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>49.11</td>
<td>29.0</td>
<td>20.10</td>
<td>18.33</td>
<td>28.96</td>
<td>48.0</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>39.4</td>
<td>5.0</td>
<td>24.60</td>
<td>22.84</td>
<td>29.17</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>6.6</td>
<td>44.73</td>
<td>20.87</td>
<td>19.01</td>
<td>29.55</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>20.9</td>
<td>44.68</td>
<td>23.78</td>
<td>22.01</td>
<td>29.07</td>
<td>62.0</td>
</tr>
</tbody>
</table>

### Table VI.—Burleigh-Moor, 1806. Point on the Limb $3^\circ 5^\prime S$.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Face</th>
<th>Plumb-line</th>
<th>Observation of the Star</th>
<th>Zenith-Distance in Revolutions</th>
<th>Zenith-Distance Reduced</th>
<th>Barometer</th>
<th>Thermometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 6</td>
<td>W.</td>
<td>11.5</td>
<td>14.9</td>
<td>3 5 2 3.40</td>
<td>29.25</td>
<td>51.0</td>
<td>51.0</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>19.0</td>
<td>32.47</td>
<td>14.47</td>
<td>28.95</td>
<td>54.5</td>
<td>54.5</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>16.0</td>
<td>25.8</td>
<td>4.20</td>
<td>11.22</td>
<td>65.0</td>
<td>62.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>47.3</td>
<td>43.92</td>
<td>5.18</td>
<td>29.29</td>
<td>56.5</td>
<td>55.0</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>5.75</td>
<td>4.24</td>
<td>5.07</td>
<td>29.1</td>
<td>51.5</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>1.5</td>
<td>55.13</td>
<td>6.18</td>
<td>29.25</td>
<td>59.0</td>
<td>56.0</td>
</tr>
<tr>
<td></td>
<td>E.</td>
<td>36.6</td>
<td>46.61</td>
<td>11.83</td>
<td>29.36</td>
<td>56.5</td>
<td>55.0</td>
</tr>
</tbody>
</table>

X 2
ZENITH.

Besides these observations, various others were taken of different stars in Draco, Cygnus, Ursa Major, Hercules, Perseus, and Auriga, from an average of all which the final results were obtained; but before the true or mean zenith-distances can be exactly known, the apparent measures must be corrected by certain equations for aberration, nutation, semi-annual solar equation, precession, and refraction; the Tables proper for which are chiefly given under our article Declination. It was deemed sufficient for our purpose in this place to confine ourselves to the consideration of the observations made on γ Draconis alone, which being a star of the second magnitude, and very near the zenith of London, and of the southern parts of England, was considered as the best object. We will therefore subjoin the reduction of the observations made on this star by way of illustrating their application in practical astronomy.

Reduction of the Observations contained in Table I.

<table>
<thead>
<tr>
<th>Greenwich Observatory, 1802.</th>
<th>Face of Limb West.</th>
<th>Face of Limb East.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>April 16.</td>
<td>April 22.</td>
</tr>
<tr>
<td></td>
<td>19.</td>
<td>23.</td>
</tr>
<tr>
<td></td>
<td>25.</td>
<td>Mean E.</td>
</tr>
<tr>
<td>Mean</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2 28.37</td>
<td>2 19.05</td>
</tr>
<tr>
<td></td>
<td>0 29.92</td>
<td>0 20.54</td>
</tr>
<tr>
<td></td>
<td>0 28.55</td>
<td>Mean W.</td>
</tr>
<tr>
<td></td>
<td>0 28.94</td>
<td>0 28.94</td>
</tr>
</tbody>
</table>

Apparent Mean of both positions = 0 24.36
And also, half the difference, or collimation = 0 4.57
Then in Bode's Catalogue Dec. N. of γ Draconis, 1801 = 51 31
Subtract for annual diminution .7 + .3 = 51 31
True declination = 4
And 2 24° 36. + 0.03" (sum of Equations) true zenith-distance = 2 24.39

The true latitude of Greenwich Observatory, as deduced from γ Draconis = 51 28 39.61

When the reductions are thus made for the observations taken at the other places, the zenith-distances and corresponding latitudes will stand thus, viz:

<table>
<thead>
<tr>
<th>Observeory</th>
<th>Zenith Distance</th>
<th>North Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dunnoke</td>
<td>1° 50' 5.24&quot; N.</td>
<td>50° 37' 7.36&quot; N.</td>
</tr>
<tr>
<td>Clifton</td>
<td>1° 56' 26.64 S.</td>
<td>53° 27' 30.64 S.</td>
</tr>
<tr>
<td>Arbury-Hill</td>
<td>0 42' 22.75 S.</td>
<td>51° 15' 26.75 S.</td>
</tr>
<tr>
<td>Delamere For.</td>
<td>1 42' 18.09 S.</td>
<td>53° 13' 19.09 S.</td>
</tr>
<tr>
<td>Burleigh Moor</td>
<td>3 3' 19.09 S.</td>
<td>54° 34' 20.09 S.</td>
</tr>
</tbody>
</table>

In obtaining the latitudes of the two last places, the declination of γ Draconis is diminished 3" to bring it to the year 1806, and in all the cases where S is annexed to the zenith-distance, it is added to the declination. The reductions are made to the 1st of January of the respective years, and the latitudes come out very nearly the same as those determined from terrestrial measurement, and also from an average of all the observed stars.

"From the observations made at the station in Delamere forest with the zenith-micrometer in 1806, combined with those at Dunnoke, 1802, taken with the same instrument," says the author of the Survey, "it is found, that the difference in latitude of those is 2° 36' 12.2 (by γ Draconis alone in our examples 2° 36' 11.7), making a difference of 1" between the calculated and observed amplitudes, which, letting aside the consideration of the spherical figure of the earth, is at the rate of "ths of a second in one degree. Perhaps, under the consideration of each meridian line being obtained independently of the other, and admitting that neither of them can be measured with perfect accuracy, together with the chances of the amplitudes being in some small degree either in excess or defect, we may consider the result as sufficiently consistent and satisfactory, and may take 60823 fathoms, in latitude 52° 34', or the centre of England, as the length of 1°." Trigonometrical Survey, vol. iii. p. 303, &c.

ZENITH-MICROMETER is an instrument of very recent date, and is scarcely yet known to the generality of astronomers. It differs from the zenith-sector in this respect; that the measures taken with it are all taken within the tube of the telescope, whereas those taken by the zenith-sector are all external; consequently the range of the zenith-micrometer's scale is confined to the extent comprised within the field of view, which will always be inversely as the magnifying power of the glasses used; hence the greater the power of the telescope, the smaller the number of stars that will pass within the range of the micrometer-screw; but then corresponding accuracy may be expected from the great powers and delicate construction of modern micrometers; and what is wanting in the extent of the scale will be made up by superior precision. The telescope, which constitutes the basis of the zenith-micrometer, may be either of the reflecting or refracting construction; and within a short space of time one of each description has been constructed; the former by Troughton, for the Greenwich observatory, and the latter by Dollond, for the use of those geodetical commissions, who are employed by the English government to ascertain the proper line of demarcation across the American lakes. We will give a short account of each of these instruments, such as will enable our readers to form an opinion of their respective merits, as prototypes for future imitation.

Zenith-Micrometer by Troughton.—It is probable that the first
first idea of a zenith-micrometer occurred to Mr. Troughton, and certain that he was the first who executed one, and gave it its name. It was in 1806 that he proposed it to Dr. Maskelyne, and in 1812 that he erected it at the Royal Observatory, as an appendage to the mural circle.

The telescope of this instrument is a Newtonian reflector, the tube of which forms the vertical axis, through which axis a plumb-line passes centrically from end to end; and, therefore, is not made to vibrate by turning. The tube or axis, 10 feet long, and 5 inches diameter, at the lower end terminates in a pivot, while the upper end is received by a right angle, against the sides of which it is gently pressed by two springs; contrivances which produce free and steady azimuthal motion.

All the zenith instruments require for collimation two positions, which in the former are called face east and face west; two at 180° distance from each other are equally necessary for the micrometer, and in that under consideration are indicated by the contact of flaps, without regarding any division.

The large mirror at the lower end, as well as the pivot, are perforated, in order that the plumb-line may pass freely through them, the latter sustaining the plummet in a water vesse several inches below. The axis of the mirror is somewhat inclined to that of the tube, for the purpose of placing the plane mirror out of the way of the plumb-line, which latter, as before observed, occupies the centre. The rays of light, thus rather obliquely reflected up the tube, are turned into a horizontal direction by the plane mirror, and come to a focus a little beyond the side of the tube, where, with appropriate adjustments, is fixed a double micrometer for measuring zenith-differences.

When the instrument is flopped with the micrometer toward the south, one of the moveable wires is made to bisect a star a little before it comes to the centre of the field of view; then the instrument is turned to the opposite side with the micrometer towards the north, which may be done in three seconds, and then the other moveable wires is made to bisect the star. It is evident now, that the opening between the wires is double the zenith-distance of the star, and if the axis was truly vertical, the middle between them is the point zenith. The revolutions of the screws are counted in the field of view, and the parts to the third decimal figure read off upon the micrometer heads, which revolutions and parts are to be reduced to angular measure.

The plumb-line is suspended from a fixed point at the upper end, and near the lower end is a rectangular arrangement of microscopes with adjustments, which, together with the adjustments of the pivot, accomplish the means of bringing the axis and plumb-line coincident with each other, and of affurining the vertical position of the former.

The conception of this instrument was not confined to a reflecting telescope, it was seen that a refracting one would succeed equally well; in the latter case, the pivot at the lower end must be perforated to receive the eye-lenses, and the plumb-line should be exterior to the main tube, but enclosed in a smaller one to protect it from the action of the wind. In the case of the Greenwich instrument, of which the foregoing is a description, the reflector was preferred on account of its allowing the central position of the plumb-line, which is free from vibration, shortens the time required for adjustment; a consideration indeed of very little value; for it is now known (but was not then) that instruments properly constructed, and used with care, which they now are at our national establishments, seldom or never want re-adjustment. A better cause for adopting the reflector was, that the horizontal view is more easy than the vertical one, especially as in the former the hands and whole body are unembarrassed, and fit for action. But whichever construction of the telescope is employed, we know that Troughton considers the zenith-micrometer as one of the most elegant of his inventions.

**Zenith-Micrometer by Dollond.** — The zenith-micrometer which is represented in Plate XXXIII. by figs. 3, 4, 5, and 6, has great advantages in the simplicity of its construction and use, that former instruments for the same purpose do not possess, and is portable: the plan was proposed by Mr. Pond, the astronomer royal, and the instrument executed by Mr. Dollond for transatlantic measurements. It is drawn from a scale of two inches to the foot, and is represented without a stand or support. It can be applied to either, as occasion may require. The component parts are three; viz., an achromatic refracting telescope A A, (figs. 3, 4.) of 42 inches focal length, with an aperture of 24 inches; a micrometer B, with two screws, each moving a separate wire through the field of view, which is extended to two degrees. The transverse axis C is 18 inches long, and glazed for a telescope, with crofs wires that adjust to that when the principal telescope A is taken out, (and for which there is a provision,) the line of collimation may be truly adjusted to the pivots, and when replaced will be correctly at right angles to the principal telescope. The use of the axis being formed into a telescope, is, for the purpose of placing the instrument correctly in the meridian, on a mark that must be found to the eaff, and also by another to the west, so that when the star has been observed with one of the micrometer wires, and the instrument is changed for the purpose of observing the same star with the other micrometer, it may be correctly replaced, the mean of the two observations being the correct zenith-distance. The instrument is also furnished with a plumb-line D, and with a dot at E, the image of which is brought to the place of the plumb-line by a lens; this is known by the name of the ghost adjustment. The plumb-line is suspended from a piece at F. The two screws G G are used for bringing the dot carried by the telescope, to coincide with the plumb-line; and is observed to be by the lens at H. This contrivance affords one of the greatest advantages of the instrument, as it enables the observer, at the moment before he observes the conjunction of the star with the micrometer wire, to ascertain the correct position of the instrument by the plumb-line; for the correctness of the observation will depend on the accuracy with which the plumb-line is made to coincide with the dot; and by this method the error of direction is done away. The level (fig. 6.) is used for levelling the axis, and the circular piece (fig. 5.) with the Y's a a attached, in which the pivots of the transverse axis rest, may be applied to a mahogany-framed land, or on a slone pier, or bracket: it is represented as it was made for a mahogany land (which had adjusting screws at the feet); it consists of two strong brass plates, and is furnished with a circular motion for bringing the instrument into the meridian, which motion is given by pinion b, and is made fall by the four screws g, g, g, g. The two adjusting screws G G, fig. 5 must also be attached to a bracket or framed piece in the land; and the support for the water, in which the plummet is immersed, may also be applied to this bracket. The wires are illuminated through the axis in the same manner as in the transit-instrument. The value of the micrometer-wires is to be found in the usual manner, and reduced into seconds.

The foregoing are the distinguishing properties of this instrument,
instrument, and as the method of using it may be understood sufficiently from what we have said of the zenith-fector, from which it differs only in the small range of its scale, it will be unnecessary to give any further explanation of either its adjustments or practical application.

Other Instruments.—Besides the zenith-fectors and zenith-micrometers, which we have above described, there are other instruments, which may be used as substitutes for these, at the same time that they may be used for their own respective purposes. Of these, the transit-circles of large dimensions, particularly those which move with their pivots supported by stone piers, claim our principal notice. As the professed use of these circles is to ascertain both right ascensions and declinations at the same time, and as zenith-distances are only complements of altitudes taken in any latitude, it is obvious, that these instruments that measure altitudes accurately, at all elevations, will also measure zenith-distances, or their complements; and in fact, the divisons are now numbered in such way, that altitudes and zenith-distances are read alternately in the reversed positions. Of this description is the excellent circle of Mr. Groombridge at Blackheath; but the large circle at Greenwich, not having a plum-line or level used, nor being capable of reversion, is not of the same class; though a very superior instrument for its own purpose of measuring polar distances from the exact polar point, without any reference to latitude, altitude, or zenith-distance.

We have also before us an 18-inch transit-circle with a 35-feet telescope, very lately made by Mr. Thomas Jones, of Charing-Cross; the axis of which is supported by a cast-iron frame, that very conveniently admits of measures being taken in or near the zenith, as well as in any other degree of elevation. This instrument comprises many new and useful contrivances, but they cannot be described under this head, consistently with our general plan of dividing our subjects.

ZENITH is a word used by some writers to express the first appearance of the menes in young women.

ZENKABAD, in Geography, a town of the Arabina Irak; 22 miles S. of Sherban.

ZENKOV, a town of Rouflia, in the government of Tchernigov; 140 miles S.E. of Tchernigov. N. lat. 50°. E. long. 34° 14'.

ZENN, a river of Franconia, which runs into the Rednitz, near Vacha, in the margravate of Ansbach.

ZENN. See Langenzenn.

ZENNAR, the name of a mythical thread worn by Brahmas, and by many individuals of other tribes of Hindoos. So prolix and minute are the authors of the Ordinances of the Hindoos, that rules for almost every occurrence of life, however trifling, have been laid down. Not that any thing connected with the zennar has been deemed trifling by those who ordained it, by those who wear it, or those who revere it. On the contrary, the individuals to be so distinguished, the mode of manufacturing the sacred article, and its inviolability, with many particulars, have occupied the attention of lawgivers, and are attended to with great respect by their obedient followers.

Brahmans affect to consider the zennar as of highly mysterious and sacred import, and do not consider an individual as fully a member of his tribe until he have assumed this holy emblem. A Brahman should be invested with it at the age of eight years, by the hands of his father, who, with his Guru, or spiritual preceptor, twirls that first put on. A Khetriya receives it at eleven, from a Brahman. A Vaiyia at twelve years of age. A Sudra is on no account permitted to wear it. A description of these four grand divisions, comprising the whole race, will be found under SECTS OF HINDOOS.

The zennar must be made by a Brahman; it is composed of three threads, each measuring ninety-fix hands, twisted together, and folded into three; then twisted again so as to consist of nine threads; these are again folded into three without twining, and each end fastened with a knot. It is put over the left shoulder next the skin, and hangs down the right thigh as low as the fingers can reach. Of these cords a Brahman wears four; the other privileged tribes but three. Some writers call this the Brahmanical, or priedly, or facrodotal thread; but not, it would appear, in strict correctness; it not being confined to the priedly tribe, but worn, as we have seen, by three out of the four sects of Hindoos.

In the Institutes of Menu (see MENU), c. 11. v. 36. the revered legislator ordains, that "in the eighth year from the conception of a Brahman, in the eleventh from that of a Khetriya, and in the twelfth from that of a Vaiyia, let the father invest the child with the mark of his clafs."

The two next verses allow, on particular occasions, the assumption of the sacrificial thread, as it is often called, in the fifth, sixth, or eighth years respectively; or it may, in like manner, be delayed until the individual be double the age mentioned in verse 36. "After that, all youths of these three classes, who have not been invested at the proper time, become outcasts, degraded from the Gayatri, and contemned by the virtuous," v. 39. Of the Gayatri, see under our article O'M.

In ancient books, the three first classes, from being thus invested with this sacrificial thread, are called twice born; a regeneration being effected by this mystical second birth. But it has been thought, that in later times, the Brahman only has the advantage of being thus born again. The term twice born is very common; a third birth is sometimes mentioned: this, we believe, is at the decease, or the burning of the body. "The first birth is from a natural mother; the second, from the ligation of the zone; the third, from the due performance of the sacrifice" Thus are the births of him who is usually called twice born, according to a text in the Veda. Among them, his divine birth is that which is distinguished by the ligation of the zone and sacrificial cord; and in that the Gayatri is his mother." Menu, ii. 169, 170.

This cord is never taken off; even when sleeping and bathing, it is worn and dispofed of in a particular manner. When worn out, it is committed to the water with due and appropriate ceremony, and another is as duly put on. It is seen on the most ancient of Hindoo sculptures, and on many of the figures; for instance, in the cavern temple at Elephanta. (See MAHAKALA.) It has several other names; among them Janwi, or Jahnui, Maui, &c. The latter is applied to the cord of the military tribe, being made from the leaves of a species of hyacinth, called murva, of which bow-string are also made: the Brahman's cord is made of cotton. The name Jahnui given to this sacred, triple, mystical, regenerating thread, has been derived from Jahnui, an ascetic, who, in a very extravagant way, gave a second birth to the equally sacred, triple, mythical, regenerating river Ganga (the Ganges), which is hence called Jahnui. Of this we have taken some notice under JAHNU; and of the triple union of the Ganga, and other sacred rivers, under TRIVENI.

Brahmans, and their enthusiastic followers, are very mystical concerning regeneration, and have diverse modes of effecting the second birth, in cafes where the purity derived from the ligation of the zone, or inviolability with the sacrificial thread,
thread, hath been loft by the contaminations of unlawful acts, as from accidental defilements. Of this, fee under our article YOni.

ZENO, in Biography, called the Estatic, in order to diftinguish him from Zeno the Stoic, was a native of Elea, in Magna Graecia, and said to have been the adopted son of Parmenides, whose disciple he was, flourished about the year 463, B.C. and chose to live in his native city rather than at Athens, for the fake of maintaining his independence. He is represented as a zealous friend of civil liberty, and as having loft his life in his opposition to a tyrant. It is said, that having been detected in a conspiracy against the petty tyrant of the place of his nativity, he endured the most cruel torments, because he would not betray his accomplices; and that at length his countrymen, moved by his fortitude, fell upon the usurper and floned him to death.

To him the invention of the dialectical art has been erroneously ascribed.

According to Aristotle, Zeno taught that nothing can be produced either from that which is similar or dissimilar; that there is only one being, and that is God; that this being is eternal, homogeneous, and spherical, neither finite nor infinite, neither quiescent nor moveable; that there are many worlds; that there is in nature no vacuum; that all bodies are composed of four elements, heat and moisture, cold and dryness; and that the body of man is from the earth, and his soul an equal mixture of these four elements. He argued with great subtlety against the possibility of motion. If Seneca's account of this philosopher deserves credit, he reached the highest point of scepticism, and denied the real existence of external objects.

Upon the whole, his sentiments seem to have been so fluctuating and unalterable, and his method of arguing so versatile, that it is not certain whether he allowed or denied a properly divine nature. Moheim, not improperly, applied to the doctrine of Zeno the words of Terence:

"— Incerta haec, fi tu postules
Ratione certa facere, nihilus plus agas,
Quam si des operam, ut cum ratione infanias."

"Things thus uncertain, if by reason's rules
You'd certain make; it were as wise a task
To try with reason to run mad." —Colman.

Bayle depreciates the practical philosophy of Zeno, on account of his vindication of the warmth with which he refented reproach, by saying, "If I were indifferent to censure, I should also be indifferent to praise." His works, though unknown to the moderns, were held in high estimation among the ancients. Diog. Laert. Bayle. Brucker by Enfield, vol. i.

Zeno, the founder of the Stoic sect, was born about the year 366, before Christ, and died, as it is said, in the 1st year of the 129th Olympiad, or 264 B.C. For an account of him, see the article Stoics.

Zeno, Roman emperor of the East, was a descendant of an Ifaurian family of distinction, and at first bore the name of "Trajcafellius." Being a commander of the Ifaurian troops in the service of Leo I., he married Ariadne, a daughter of the emperor, who created him a patrician, and raised him to the chief command of all the armies in the East. Upon the death of Leo in the year 474, the empire was transmitted to his grandson Zeno and Ariadne, and Zeno, by the influence of the dowager-empress Verina, was appointed his colleague, and when the young emperor died, Zeno poifoned the whole imperial power. But Verina, being incensed by his scandalous conduci, formed a conspiracy against him, so that Zeno was obliged to seek refuge, first at Chalcedon, and afterwards in Ifauria, his native country. Basilicus, the empress's brother, who had ascended the empire, became so unpopular, that Zeno was restored, and the degraded emperor perished in prison. About this time the western empire terminated; and Zeno, receiving deputies from the Roman senate, who recognized Constans as the rightful emperor, and requested the title of patrician for Odoacer, proclaimed king of Italy, was flattered with the title of sole Roman emperor, and commenced an amicable correspondence with Odoacer. The remaining period of his reign was both turbulent and inglorious. The insurrections against his government were numerous, and his temper, which was naturally severe, was thus rendered more hostile and cruel towards those whom he considered as his enemies. The irreligion of his disposition proved eventually a collateral cause of his death, by aggravating a disorder in his bowels, which proved fatal in the year 491, at the age of 65, after a reign of seventeen years and three months. His widow Ariadne married very soon after his death. His reign was famous for the confession of faith, called the Henoticum, or Henoticum, (which fee.) Gibbon's Hist. Rom. Emp. vols. vi. vii. viii.

Zeno, in Geography, a river of Italy, which runs into the Taro, opposite Fornovo, in the duchy of Parma.

ZENOBIA, Queen, in Biography, was a native of Syria, in the third century, who claimed descent from the Macedonian kings of Egypt. This female was celebrated for the beauty of her person, the harmoniousness of her voice, her mental talents and literary acquirements, and her disstinguisht heroism and valour, as well as her modesty and chaitity. "Her manly understanding," says Gibbon, after recounting her personal beauties and excellencies, "was strengthened and adorned by study. She was not ignorant of the Latin tongue, but poifessed in equal perfection, the Greek, the Syriac, and the Egyptian languages; she had drawn up for her own use an epitome of oriental history, and familiarly compared the beauties of Homer and Plato, under the tuition of the sublime Longinus." She was allied by marriage to Odonatus, king of Palmyra, and delighted in those exercises of war and the chase to which he was devoted. Many of his victories have been ascribed to her military spirit and valour. After the death of her husband, about the year 267, she assumed the sovereignty of the East, and governed with equal vigour and policy; so that by her successes in warlike expeditions, as well as by the wisdom and firmness of her administration, she aggrandized herself in Asia, and her authority was recognized both in Cappadocia and Bithynia, when Aurelian succeeded to the Roman empire. Envious of her power, and determined to dispossess her of some of the rich provinces that were comprehended within the extent of her dominion, he marched at the head of a powerful army to Asia, and having defeated the queen's general Zabdas, near Antioch, he retreated to Emesa, whither she was pursued by Aurelian. Under the walls of that city another engagement with Zenobia, which was commanded and animated by herself, took place, in which the emperor was again victorious. The queen, thus unfortunate, withdrew the relics of her vanquished forces to Palmyra, her capital; and was pursued thither by Aurelian. The favourable terms that were offered to Zenobia being refused, the city was besieged; which, after long resistance, the queen determined not to surrender; but as she apprehended famine within the walls, she mounted a swift dromedary, and hastened towards the Euphrates, with a view of seeking an asylum in the Persian territories. But being overtaken in her flight, she was brought back to Aurelian, who
who received her with a stern countenance, and questioned her how she could dare to refit the emperors of Rome. She replied, "Because I could not acknowledge as such a Gallienus and others like him; but I recognize by that title you who know how to conquer." At Emesa, the fate of Zenobia was submitted to the judgment of a tribunal, at which Aurelian presided; and the Roman soldiers demanded her death. She, in a manner unworthy of her former fame, saved her own life by throwing the blame of her resistance on her minions and counsellors; Longinus was one of these, who, with several others, was put to death, in the year 273.

Zenobia was revered to grace the triumph of Aurelian; and on the appointed day she preceded, on foot, a magnificent chariot, which she had designed in the days of her prosperity for a very different kind of entry into Rome. She was encircled, it is said, with chains of gold, and almost sunk under the load of jewels with which she was adorned. Afterward she was treated with humanity by the victor; and had assigned to her an agreeable residence near the Tiber, where she passed the remainder of her days as a Roman matron. Whether she contracted a second marriage with a Roman senator, as some have affirmed, is uncertain; but however this be, her surviving sons Vhaballat withdrew into Armenia, and possessed a small principality granted to him by the emperor, and her family was not extinct in the fifth century. Gibbon's Hist. of Rome, vol. ii.

Zenobia, Zelobi, in Ancient Geography, a town of Asia, in the Euphrates, on the banks of the Euphrates, five miles from fort Mambri, and on this side of the small town of Sura. According to Procopius, it was founded by Zenobia, wife of Odonatus, prince of Palmyra. After it had been ruined, Julianian re-embellished it, and repopulated it, and made it one of the bulwarks of the empire. After having rebuilt the town and fortified it, he embellished it, constructing magnificent churches, public baths, galleries, and lodgments for the porters. It was situated S.E. of Niccephorium.

Zenobia, a place of Italy, near the palace of Adrian, assigned to queen Zenobia for her residence.

ZENOBII Insula, the name of seven islands in the Indian ocean, upon the coast of Arabia Felix, at the entrance of the Sathalih gulf. Ptolemy.

ZENODOTUM, a town of Asia, in Ofrhoene, in the vicinity of Niccephorium, according to Appian. Steph. Byz. This town, says Plutarch, was forcibly taken by Caffius, who ruined it, and sold the inhabitants by auction.

ZENONIS Chersonesus, a town mentioned only by Ptolemy, and placed by him in the Tauric Chersonesus, along the western coast of the Palus Maeotis. M. Peyronnel thinks this was not a town, but an island, called at present Zenifile.

ZENSON, in Geography, a town of Italy, in the Trevisan; 9 miles N.E. of Treviso.

ZENUS, in Arithmetic, a name which some authors give to a square number, or the second power. The higher powers they call zένες, zένеς, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zένες, zέ

Zenilmandaik, a town of Afiatic Turkey, 6 miles N. of Eregridi.

ZENUPH, in the Jewish Antiquities, a kind of tiara worn by the kings of Judah. See Cidaris.

ZEObid, in Geography, a town of the Arabian Irak, on the Euphrates; 28 miles S. of Bagdad.

ZEOLITE, in Mineralogy, a mineral so named by Crenflett, from the Greek word Zeol, to foam, on account of its tumefacing and foaming very much before the blow-pipe. Haiyi makes two distinct species of the zeolite, which he denominates metotype and fllbite. Werner makes four sub-species of zeolite, which he calls Nallyzeolite, fibrous zeolite, radiated zeolite, and foliated zeolite. Besides this he makes a zeolite a generic name, placing it at the head of what he calls the zeolite family, in which arrangement he is followed by professor Jameon, who classes with the zeolite family the following minerals: prenhite, (see Preshite), zeolite, apophylite, cubelite, called by Haiyi analcime, chabasite, crofthorne, laumonite, dipper, natrolite, and wavelite. (See Wavelite.) In the classification of specimens at the British Museum, these minerals, so nearly united in chemical composition, and in many of their external characters, are arranged together under the proper denomination of zeolitic substances, by which the confusion incident on making the same word represent both a genus and species is avoided. These substances, except wavelite, are composed of flex, alumine, lime, or an alkali, and a considerable portion of water. To the latter, they owe the property of tumefacing before the blow-pipe, that many of them possess. Some of these minerals form a jelly when diffolved in acids. Zeolitic minerals occur principally in the cavities of volcanic and bafaltic rocks. Of the different members of the zeolite family, prenhite has been already defcribed. (See Preshite.) Zeolite, comprising mealy zeolite and fibrous and radiated zeolite, are the various metotypes of Haiyi, mealy zeolite being the metotype alterate aspect terrae of the French mineralogist. This mineral is white, inclining to yellowish, greyish, or reddish, and is sometimes red. It occurs massive, and kidney-shaped, and corroolidal. Sometimes it forms a crust over other zeolites. The lute is dull or feebly glistening: it is opaque, very soft, and rather fettile; it has an earthy fracture, sometimes inclining to fibrous. It is very light, and easily frangible, and feels rough and meagre. It appears to be zeolite in a decomposing state. It tumefaces before the blow-pipe, and forms a jelly with acids. The constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Purity</th>
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<tbody>
<tr>
<td>Bilex</td>
<td>60</td>
</tr>
<tr>
<td>Alumine</td>
<td>15.6</td>
</tr>
<tr>
<td>Lime</td>
<td>8</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>1.8</td>
</tr>
<tr>
<td>Lofs by exposure to heat</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Filrous Zeolite, Mefotype, Haiyi, is of a snow-white colour, passing to greyish, yellowish, or reddish-white, and sometimes into red and yellowish-grey, yellowish-brown, or ochre-yellow. It occurs massive, in kidney-shaped balls, and in epaoillary crystals. The external surface of the kidney-shaped varieties is rough and dull; internally it is strongly glistening, passing into glistening, and the lute is pearly: it is faintly translucent. The structure of this mineral is fibrous, either diverging on one side or foliar, and passes from delicately fibrous to coarse or to narrow radiated. It is brittle, breaking into splinters or wedge-shaped.
shaped fragments; it yields easily to the knife. The specific gravity is from 2.158 to 2.197. Before the blow-pipe it intumesces, and forms a jelly with acids. It may be distinguished from needle zeolite by its inferior lustrue, fibrous structure, and low degree of transparency and hardness, and also by its want of regular crystallization.

_Needle Zeolite, Mecotype, Haiiy; and prismatic meco-

of some mineralogists. Its colours are, greyish, yellowish, or reddish-white; it occurs both mafive and crys-
tallized. The crysals are acicular-rectangular four-sided prisms, terminated by low four-sided pyramids, the faces of which are set on the lateral planes of the prism. Sometimes there are only two terminating planes, forming an acute bevelment, set on obliquely. The rectangu-
lar prism is sometimes truncated on the edges, forming an octahedron, with four large and four small planes.

The lateral planes of the crysals are longitudinally fritated, but the acuminating planes are smooth. Sometimes the crysals are diverging, and sometimes promiscuously aggre-
gated. The crysals are externally shining or splendent, internally glinting; the lustrue is vitreous, inclining to pearly. The structure is lamellar, with joints parallel to one of the sides of the prism; also at right angles to the axis, and parallel to the two diagonals of the prism. Of these, the first cleavage only is generally visible. The crots friture is imperfectly conchoidal; the lustrue between vitreous and pearly. It is translucent or transparent, with double refraction. It yields to the knife, but scratches cal-
careous spar, and is brittle. The specific gravity varies from 2.17 to 2.27. This mineral, like the preceding, intumesces before the blow-pipe, and gelatines with acids. It becomes electric by heat; the extremity of the crysral, terminated by a pyramid or bevelment, shews positive the bottom of the crysral negative electricity. According to Vauquelin, the constituent parts of mecoype are,

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>50.24</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>29.50</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>9.46</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>99.2</td>
</tr>
</tbody>
</table>

_Needle zeolite, or mecoype, is distinguished from radiated zeolite, or stilbite, by its vitreous lustrue, distinct prismatic concretions, and greater transparency and brittleness. The latter has also more of a nacry lustrue._

_Radiated Zeolite, Stilbite, Haiiy,_ is generally of a yellowish or greyish-white colour, and rarely paffes into reddish-white or red. It occurs mafive in angular pieces, and globular, and also crysallized in broad, rectangular, four-
sided prisms, rather acutely terminated by four planes set on the lateral edges of the prism. Of these planes two adjoining ones are more inclined to the axis of the prism than the other two. The summits of the terminating planes are sometimes more or lesss deeply truncated. Some-
times the prism is so thin as to form a long fix-sided table, bevelled on the shorter terminal planes. The crysals are aggregated in diverging radii, and frequently so closely joined to each other, that the pyramidal terminations of each crysral are only visible. The broader lateral planes of the crysals are smooth, and the smaller longitudinally fritated. The structure is lamellar, with joints in one direction, parallel to the axis of the prism. The surfaces of the broader lateral planes are splendid and pearly; internally the lustrue is more or less shining, and is pearly. The crysals are translucent, or semi-transparent. The diverging radii of the aggregated crysals are more or less broad, paffing from fibrous to foliated. It is brittle, and the fragments are wedge-shaped and splinterly. Stilbite crysals are calcareous spar. The specific gravity of this mineral is from 2.13 to 2.16. It intumesces before the blow-pipe, yielding a phosphoric light; it becomes white when laid on a glowing coal; it does not gelatinize with acids. The constituent parts are,

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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>40.98</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>29.09</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>10.95</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>16.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>97.52</td>
</tr>
</tbody>
</table>

_Foliated Zeolite, Stilbite, Haiiy._—The colours of this mineral are nearly the same as those of the preceding, being chiefly yellowish and greyish-white, and rarely milk-white, snow-white, reddish-white, or red; it sometimes is yellowish-
grey, and pinchbeck-brown. It occurs both mafive, dif-
teminated, globular, amygdaloidal, and crysallized. The form of the crysals is a low, very oblique, four-sided prism; sometimes truncated on the acute lateral edges, and also on the angles of the acute lateral edges. Sometimes all the angles are truncated. It occurs also in low fix-
sided prisms, and equi-angular fix-sided tables; also in eight-
sided prisms. The crysals are generally small; the lateral planes are transversely fritated, and the terminal planes are smooth. It has a pearly lustrue, which is either shining or splendent. The pinchbeck-brown variety has a semi-
metallic lustrue. It has a foliated and slightly curved struc-
ture, with a single cleavage, parallel with the terminal planes of the prisms. Sometimes a conchoidal crots friture may be observed. It is brittle, and the fragments are angular and blunt-edged, and sometimes tabular. The mafive varieties are strongly translucent; the crysals are trans-
luscent, semi-transparent, or transparent. It yields to the knife, but scratches calcareous spar. The specific gravity of this mineral is 2.2; and, like the preceding mineral, it intumesces and melts before the blow-pipe, giving out a phosphoric light: it does not form a jelly with acids. According to Meyer, the constituent parts are,

<p>| | | |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>58.3</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>17.5</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>6.6</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

_According to Vauquelin,_

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>52.6</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>17.5</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>97.6</td>
</tr>
</tbody>
</table>

All these zeolitic substances, classed as mecoype and stil-
bite by Haiiy, pass by imperceptible gradations into each other, and occur, as we have before observed, in basaltie and volcanic rocks.

The easy fusibility of zeolites was at one time regarded as rendering their occurrence in volcanic rocks a subject of difficult explanation; but the experiments of Sir James Hall, referred to under _Systems of Geology_, demonstrate the
the possibility of crystalline arrangements taking place under compression in substances that would be disintegrated by heat under the common pressure of the atmosphere. It is probable, however, that many zeolitic substances which occur in basalt or lava have been infiltrated into the cavities at a later period, and are even forming at the present day in ancient lavas and basalts.

Some of the minerals classified with the zeolite family have been described in our preceding volumes. See Apophylite, or Ichthyophthalmite.

Analcime, or Cubic zeolite, formerly called Werner cubic zeolite, is generally white, sometimes reddish-white, or red. It occurs sometimes massive, but more generally crystallized in perfect cubes, or with the angles more or less deeply acuminated, or in twenty-four-sided crystals, like those of the leucite, having each of the figures equal and similar trapeziums. The structure presents slight indications of cleavage, parallel with the faces of a cube. The fracture is compact, and flatly conchoidal, paling into fine-grained, uneven. It is translucent, semi-translucent, or transparent, and has a shining lustre, between vitreous and pearly. It is sufficiently hard to scratch glass, but is easily friable. The specific gravity of cubicite is 2.44. It becomes electric by rubbing. Before the blow-pipe it melts into a transparent glass. According to Vaucoulenet, the constituent parts of this mineral are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>58</td>
</tr>
<tr>
<td>Alumine</td>
<td>18</td>
</tr>
<tr>
<td>Lime</td>
<td>2</td>
</tr>
<tr>
<td>Soda</td>
<td>10</td>
</tr>
<tr>
<td>Water</td>
<td>8.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>96.5</strong></td>
</tr>
</tbody>
</table>

This mineral occurs most frequently in cavities in rocks of the trap formation, accompanied with zeolite; but it is sometimes found in metallic veins in schistose rocks, accompanied with various ores, and with calcareous spar and quartz. The name analcime was given to it by Hauy, signifying a body with little power, on account of the feeble electricity excited in it by friction.

Chabasite, Chabasite, Hauy, is nearly allied to cubicite, and was formerly classed with it. The crystallization is different; the form is not perfectly cubic, but slightly rhombohedral, the angles of the rhombohedron being 94° and 86°, either perfect, or with the obtuse lateral edges truncated, and sometimes both the fix obtuse lateral edges and fix obtuse angles are truncated. The crystals are transparent or translucent. The lustre is vitreous, and externally splendid, internally glintening; the fracture is imperfectly conchoidal, or fine-grained, uneven. It scratches glass a little. The specific gravity of this mineral is 2.7. It is fusible into a white opaque enamel. According to Vaucoulenet, the constituent parts are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>43.33</td>
</tr>
<tr>
<td>Alumine</td>
<td>22.66</td>
</tr>
<tr>
<td>Lime</td>
<td>3.34</td>
</tr>
<tr>
<td>Soda with potash</td>
<td>9.34</td>
</tr>
<tr>
<td>Water</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>96.07</strong></td>
</tr>
</tbody>
</table>

The situation in which this mineral occurs is nearly the same with that of analcime. The name was given it by Hauy, from chabazion, an unknown stone mentioned in the poems of Orpheus.

Laumonite, Zeolite efflorescente, Hauy.—Its colours are, yellowish-white, snow-white, and greyish-white. It occurs massive and crystallized in octahedral prisms, with edges apparently rounded; the summits of the crystals are dodecahedral. The crystals are small, lining daisy cavities. The structure is lamellar, and has a two-fold cleavage: it is transparant or translucent when fresh; but on exposure to the atmosphere soon becomes opaque, losing its hardness, and yielding to the pressure of the finger. When fresh it scratches glass. The specific gravity is 2.23. Bonnemain. It forms a jelly with acids. Before the blow-pipe it intumesces, and is changed into a white enamel. According to Vogel, the constituent parts are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>49</td>
</tr>
<tr>
<td>Alumine</td>
<td>22</td>
</tr>
<tr>
<td>Lime</td>
<td>9</td>
</tr>
<tr>
<td>Water</td>
<td>17.5</td>
</tr>
<tr>
<td>Carbonate</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

This mineral, which agrees in its principal characters with zeolite, was first found in Brittany, by M. Gillet Laumont, after whom it has been named by Werner. It has been found also at Paisley, in Renfrewshire, in anygdolite, accompanying cubicite. Laumonite disintegrates so rapidly, that for its preservation it requires to be kept in well-closed bottles.

Cros-Stone, Harmatome, Hauy, occurs in small crystals; the form is generally a broad rectangular prism, terminated on each extremity by four rhombic faces, with their acute angles set in the lateral edges of the prism. Sometimes the edges of the rhombic faces are bevelled in one direction. But the name cros-stone is derived from the frequent occurrence of two prisms intersecting each other, having one common axis. The broader planes by this intersection project, and form the figure of a cros when the prism is viewed at the end, or in the direction of the axis. The colour of cros-stone is generally a greyish-white, which passes into smoke-grey; it is sometimes a yellowish-white, passing into cream-yellow, and red. It is translucent or transparent, with a lustre between vitreous and pearly. The fracture is uneven, or imperfectly conchoidal. It is fapposed, by professor Jameson, to have an imperfectly foliated structure. It scratches glass feebly. The specific gravity is 2.33. Before the blow-pipe it emits a yellow phosphoric light, and melts with intumescence into a coloured glass. It does not gelatinize with acids. This mineral differs from other members of the zeolite family, by containing barytes as an ingredient in its composition. According to Klapproth, its constituent parts are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>49</td>
</tr>
<tr>
<td>Alumine</td>
<td>16</td>
</tr>
<tr>
<td>Baryte</td>
<td>18</td>
</tr>
<tr>
<td>Water</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>98</td>
</tr>
</tbody>
</table>

Dipyr, Hauy; Schmelbein, Werner.—Its colours are, light pearl-grey, greyish-white, or redish-white. It occurs massive and crystallized, in aggregated, slender, octahedral, acicular prisms. The structure is lamellar, with joints parallel to the sides, and to the diagonal of a rectangular prism. The lustre is intermediate, between vitreous and pearly: it is translucent. This mineral is sufficiently hard to scratch glass; but is very fragile. The specific gravity
vity is 2.630. Before the blow-pipe it intumesces, and melts with great ease, giving out at the same time a pho-
phoric light from this double effect of heat upon it. Hairy gave it the name of *di*pýr*, on account of its easy fusili-
ity; it was called *schmelzfein* by Werner. Its constituent
parts are,

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>60</td>
</tr>
<tr>
<td>Alumine</td>
<td>2</td>
</tr>
<tr>
<td>Lime</td>
<td>10</td>
</tr>
<tr>
<td>Water</td>
<td>2</td>
</tr>
</tbody>
</table>

It is laid by Brongniart to occur in slateite, along with
iron pyrites, near Mauleon, in the Western Pyrenees.
The other members of the zeolite family are described in
the preceding volumes. See *Natrolite* and *Wavel-
lite*.

**ZEOPHILOS**, a word used by Quercetan as the name of
an antimonial medicine.

**ZEOPHYRUM**, in the *Materia Medica*, the name of the *triticum efigium*, or *bordeum nudum*, as it is called by
some authors, the naked barley.

**ZEPHANIAH**, a canonical book of the Old Testa-
ment, containing the predictions of Zephaniah, the son of
Cushi, and grandson of Gedaliah; being the ninth of the
twelve lefser prophets. He prophesied in the time of
Josiah, a little after the captivity of the ten tribes, and
before that of Judah; so that he was contemporary with Je-
remiah. He prophesies chiefly against Judah, who con-
nued very corrupt, notwithstanding the king's pious zeal for
reformation, and the good example he gave to his subjects.

**ZEPHAT**, in *Ancient Geography*. See *SEPHAAT*.

**ZEPHIRA**, in *Geography*, a small island in the Grecian
Archipelago, near the N. coast of Antiparos.

**ZEPHIRE**, in *Ancient Geography*, an island situated on
the coast of that of Crete, before the promontory Samonium.
Mela.

**ZEPHRON**, or *ZEPHORIA*. See *ZEPHRON*.

**ZEPHYRI FETUS**, a term used by Hartman, and some
other writers, to express a mole, or false conception.

**ZEPHYRINUS**, *Popo*, in *Biography*, succeed* Victor*
in the Roman see in the year 201. A persecution at the
commencement of his papacy obliged him to conceal him-
sel£, and when he was at liberty to exercise his functions, he
was engaged in the suppression of prevalent heresies, which
disturbed the latter years of his pontificate. He died in the
year 218 or 219. Bower.

**ZEPHYRIUM**, in *Ancient Geography*, a promontory of
Asia, on the confines of Cilicia Propria. According to Strabo
and Ptolemy, this promontory and that of Sarpedon formed
the mouth of the river Calycadnus.—*Alfo*, a town at the ex-
temity of this promontory.—*Alfo*, a promontory of the isle
of Cyprus, towards the S.W., at the extremity of a penis-
fula, which on the W. incloses the gulf, at the bottom of
which was Paphos.—*Alfo*, a promontory of Italy, on the
eastern coast of Brutium, between the promontory of Her-
cules and the town of the Locri. Strabo.—*Alfo*, a pro-
montory of Africa, in the Cyrenaica, upon the coast of the
Pentapolis. Ptolemy. Strabo distinguishes two promon-
tories of this name on the coast of Cyrenaica.—*Alfo*, a town
of Asia, on the coast of Paphalgonia.—*Alfo*, a town of
Asia, in the interior of Cappadocian Pontus. Arrian gives
it a port, and states it to be 120 stadia from the isle of
Arrenthias, and 90 stadia from the town of Tripolis.—*Alfo,*
a promontory on the coast of Egypt, between Campé and
Alexandria, where was a chapel of Venus Arinaea, and
hence she took the name of Zephyrith. —*Alfo*, a pro-
montory of Aifa Minor, on the coast of Caria, in the vicinity
of the town of Myndus. Strabo.—*Alfo*, a town of the
Taурic Chersonesus; situated on the sea-coast, N.E. of
Theodosia. Pliny.—*Alfo*, a promontory on the easter-
most coast of the isle of Crete.

**ZEPHYRUM JUGUM**, a sacred mountain of Hifpania,
upon which was a fortres.

**ZEPHYRUS**, or *ZEPHYR*, Zephyr, the west wind; a
wind blowing from that cardinal point of the horizon oppo-
site to the east.

The poets personify it, and represent Zephyrus as the
mildest and most gentle of all the deities of the woods: the
character of his personage is youth and gentleness.

It is also called *Favonius*, and *ocidens*; and, by many,
has been confounded with the *Africa*. See *WIND*.

**ZEPS**, in *Geography*, a town of the duchy of Warsaw;
20 miles E. of Wladislaw.

**ZERA**, a town of Italy, in the Veronese; 7 miles S.
of Verona.

**ZERANIA REGIO**, in *Ancient Geography*, a country of

**ZERBITA**, in *Ancient Geography*, a town of South America,
in the government of Ncw Grenada; 30 miles W.S.W. of
Pamploona.

**ZERBST**, a town of Germany, in the principality of
Anhalt Zerbi. It is the residence of the prince, and the
largest and handsomest town in the whole principality of
Anhalt. The residence-houfe here is remarkably grand. In
the town are two Lutheran churches, one of which is used
by the Calvinists, together with an universitty, common to
all the princes of Anhalt, and founded in 1582, out of a
school: it has a recto* r*, with three Calvinists and one Lu-
theran professor. The principal trade is in beer, with manu-
factures of gold and silver; 8 miles N.N.W. of Deffau.
N. lat. 52° 51'. E. long. 12° 10'.

**ZERDA**, a name given by the Moors to an animal which
inhabits the desert of Sahara, extending beyond
mount Atlas.

This is the *canis cerdo* of Linneus, with a straight tail, a
pallid or yellowish-white body, with prolonged upright
ears, internally rofe-coloured. It is the fennec of Bruce,
and a beautiful African and Asiatic animal, and is principally
found in Arabia.

Pennant classes it under the genus of dog; and defines
it as having a pointed vifage, long whiskers, large bright
black eyes, very large ears of a bright rofe colour, interna-
ly lined with long hairs, and orifice so small, as not to be visible,
probably covered with a valve or membrane; legs and feet
like those of a dog, and taper tail; its colour is between a
draw and pale brown; its length from nose to tail ten
inches, its ears three inches and a half long, tail fix, and
height not five. It burrows in the sandy ground, and is so
excessively swift, that it is very rarely taken alive; feeds on
insects, especially locusts; fits on its rump; is very vigilant;
barking like a dog, but with a thrifter found, and chiefly
in the night; and is never observed to be sportive.

M. Buffon says of this animal, that it is found to the
fouth of the Palus Tritonides, in Lybia; that it has some-
thing of the nature of the hare, and something of the
squirrel; and that it lives on the palm-trees, and feeds on
the fruits; hence probably it derives its name fennec from

**ZERDUHST**, in *Biography*. See *ZOROASTER*.

**ZEREA**,
ZEREA, in Geography, a town and fortresses of Persia, in Farīfān; this town was taken by the troops of Timur Bec, with great slaughter; 18 miles N.N.E. of Schiras.

ZEREK, a town of Persia, in the province of Szegfut; 130 miles N.W. of Zarang.

ZEREWICA, a town of Lithuania; 5 miles S.W. of Slonim.

ZERIB, a town of Kurdistan; 25 miles W. of Gujeramir.

ZERICHEUM, a name given by some of the chemical writers to arfenic.

ZERKI, in Geography, a town of Kurdistan; 30 miles S.W. of Bettis.

ZERKWITZ, a town of Lulatia; 2 miles W. of Lubbenau.

ZERMA. See Surma.

ZERMAGNA, a river of Dalmatia, which runs into the Adriatic, opposite Pago.

ZERMONY, a town of Lithuania; 10 miles N.W. of Lida.

ZERNA, a mountain of Carnithia; 3 miles N.W. of Millstatt.

ZERNA, a word used by some of the chemical writers to express an ulcerated lepra or impetigo. The chemical authors use it also as a name for the foulnefles which they call the lepra metallorum, or lepories of metals.

ZEREINEMB, or Tschereinemb, in Geography, a town of the duchy of Carniola, on a small river which runs into the Kulpa; 4 miles S.S.W. of Rudolfswerth. N. lat. 45° 50'. E. long. 15° 5'.

ZERENSIUS COLONIA, in Ancient Geography, a colony of Dacia, founded by Trajan.

ZERNETZ, in Geography, a town of Switzerland, in the Upper Engadine. In the late war it was taken by the French, and soon after retaken by the Austrians; 8 miles N. of Zultz.

ZERNITZ. See Czeretz.

ZERO, a river of Italy, which runs into the sea, 7 miles N. of Venice.

Zero, denotes the point from which the scale of a thermometer is graduated. Thus Celsius's and Reaumur's thermometers have their zero at the freezing-point, while the thermometer of Fahrenheit has its zero at that point at which it fluds when immered in a mixture of snow and common salt. In Wedgwood's pyrometer, the zero corresponds with 107° of Fahrenheit's, each degree of which is equal to 130° of Fahrenheit. Confequently 180° Fahr. = 100° Celf. = 80° Reaum. = 150° De Lille = 42° Wedg. See Thermometer.

ZEORGERE, in Ancient Geography, a town of India, on this side of the Ganges, E. of the river Namadus.

Ptolemes.

ZEROWITZ, in Geography, a town of Bohemia, in the circle of Bechin; 3 miles W.S.W. of Potschaken.

ZEREH, or Zebra, Lake of, a lake of Persia, in the province of Szegfut or Szegfan, into which the river Hermun, or Hindmunder, (the ancient Eymander,) navigable for boats from Boll to Zarang, flows through the centre of it, from the mountains of Huzara, beyond Cabul. This lake is said to be 30 furlongs in length, and 6 in breadth, or about 100 miles long, and 20 broad at the widest part. It is principally formed by the waters of the rivers Hermand and Ferrah, and in the dry season resembles more a marsh than a lake, being covered with rushes and reeds. In the middle the water is fresh; but brackish towards the shore, as the sandy plains which surround it are impregnated with salt. The lake is full of fift and wild fowl; and in its centre there is a fortified town, called "Kookhizan," built on a high island, where the treasure of the principal families of Szefalan ufed to be deposited when the province was invaded. It is said that on the borders of this lake is a town named "Naffarabad," which is described as being four days' journey for a loaded camel, W. of the city of Doothak, the preuent capital of the province.

ZERTA, or ZERT, the Zerte, or Zerte, in Ichthyology, a fish caught in the rivers of Italy, and some other places, of the figure of the chub, and called by authors capito anadromus, and the black. It seldom grows to more than ten pounds weight, and at times lives in rivers, at times in the sea; and is esteemed a very well tasted fish, especially a little before the feafon of its spawning, either fresh, salted, or prepared in various ways by pickling, &c.

The zerte is that species of cyprinus described by Gesner and others under the name of capito anadromus. See Cyprinus Vimba.

This is the filvery-blue or carp, olivaceous above, with the dorfa, caudal, and anal fin bluef, the reft reddif, and the nofe profertant. It is a native of Germany, Russia, Sweden, and other parts of Europe, inhabiting rivers, and migrating into the Baltic sea.

ZERINKA, in Geography, a town of Servia, on the Danube; 10 miles N.W. of Belgrade.

ZERUIS, in Ancient Geography, a town of Thrace, on the route from Dyrrachium to Byzance, between Dyme and Plotopolis. Anton. Itin.

ZERUMBET, in Botany, a name first used by Serapio, and apparently either of Arabian or Indian origin. It belongs to one of the aromatic roots of the natural order of Scitamineae, the produce of the East Indies, but rather to a Kamfferia, than to the species of Ginger to which Linnaeus has applied it. (See Zinger.) Dale has very judifly observed on this subject, Pharmacologia, 275, that in the preuent imitate, as well as innumerable others, the Arabian writers are fo brief, as well as vague, in their defcriptions, and fo contradictory amongst themselves, that we can scarcely tell whether they were acquainted with any particular objeét or not.

Wendelband, Jacquin, and Poiriet, (Lamarck Dict. v. 8. 857,) have most unaccountably made a genus of Alpinia nutans, and called it Zerumbet; but this cannot on any principle be maintained.

ZERYNTHUS, in Ancient Geography, a town of Thrace, which had a cavern of the fame name, and which the ancients called Zerynthium Antrum. This cavern was concreted to Hecate, to whom they sacrific'd cows. Suidas.

ZERHEN, in Geography, a town of Arabia, in Yemen; 36 miles S.E. of Ghazar.

ZESEMIT, a town of Bohemia, in the circle of Chrudim; 8 miles N. of Chrudim.

ZESSEL, a town of Silefia, in the principality of Oels; 5 miles N.E. of Oels.

ZEST, the woody thick skin quartering the kernel of a walnut. Some physicians prefer this zest, dried, and taken with white wine, as a remedy against the gravel.

The word is also used for a chip of orange or lemon- peel; such as is usually squeezed into ale, wine, &c. to give it a flavour; or for the fine thin oil that spurt's out of that peel on squeezing it.

Hence, to zett an orange or lemon, among confectioners, is to cut the peel from top to bottom into small slips, as thin as possible; or, to zett, is to squeeze the peel over the surface of any thing.

ZESTO-
ZEUS, a term used by some medical authors to express bathing in warm water, by way of distinction from _pluchrolia_, or bathing in cold water.

ZETA, or _Zeta_, a little closet, or withdrawing chamber, with pipes running along the walls, to receive from below either the cool air, or the steam of warm water.

The word is formed either from _ζητεω_, to be warm; or of _ζητης_, viscer, to live, on account of the use made hereof for love and enjoyment.

Zeta, or _Zetta_, (Mensil) in _Ancient Geography_, a town of Africa Propria, situated near the sea, E. of Vicus Augusti.

ZETETE, _Zetetan_, among the Athenians, were officers appointed upon extraordinary occasions, to inquire after the public debts, when, through the neglect of the receivers, or by other means, they were run up to large sums, and began to be in danger to be lost, if not called in.

ZETETICE, _Zetetics_, formed from _ζητεω_, I seek, or zetetic method, in _Mathematics_, the method made use of to investigate or find the solution of a problem.

The ancient Pyrrhonians were sometimes called Zetetics.

q. d. secker.

ZETIN, in _Geography_, a town of Croatia; 28 miles W.N.W. of Novi.

ZETLAND, or Shetland, the name of a cluster of islands, situated in the Northern ocean, between the 50th and 62d degrees of N. latitude, and a very little to the W. of the meridian of London. The most southern part is nearly 100 miles N.N.E. from the northern county of Scotland. These islands exceed one hundred in number, of which only thirty-four are inhabited; the others, confining chiefly of rocks and fands, are unfitted for human support. By different writers, they have been named Hethland, Hialtland, Zetland, Shetland, and Shetland; which names, Dr. Edmondston says, "are of Norwegian origin, and are supposed to be descriptive of their form or appearance." The most correct and approved orthography is that of Zetland.

The general appearance of these islands is bleak, bare, and rocky; but some interior parts of the main-land are cultivated, clothed, and cheerful. In many places on the coasts, rocks of immense size are seen to rise above the foaming waves, some of which are at considerable distance from the shores. Some of these are also perforated by vast natural arches; in other parts there are deep caverns and subterranean recesses. Two of these are called the Seranda, one of which extends above 300 feet in depth. Almost all the large islands are deeply intersected by tortuous bays, or voes, as they are provincially called, which afford facilities for internal communication, and excellent harbours for vessels. Several of them are commodious, and well sheltered from dangerous winds. Some of the islands have lakes, the largest of which is not more than two miles in length. The highest hill is Moes Ronaldi, in the parish of Northmaven; the height of which, from barometrical measurement, is 3944 feet above the level of the sea. Some of the headlands are lofty and grand, one of which, Nofa-head, is above 600 feet in height.

According to the population reports of 1811, the following is the enumeration of houses and inhabitants, and the names and number of parishes. The total number of houses 8230, inhabited by 9238 families, 16 houses buildings, and 101 unoccupied. The whole population was 46,153, consisting of 20,451 males and 25,002 females. The parishes are: 1. Aithillting and Sandilting; 2. Breffay, Burra, and Quarll; 3. Delting; 4. Dunrolla, Sandwick, Cumnibrough, and Farraisle; 5. Lerwick and Gulberwick; 6. Lunnafing, Neiling, Skerries, and Whielfay; 7. Northmavine; 8. Tingwall, Whiteneifs, and Weildale; 9. Unfl; 10. Walls, Sandnefs, Paps, and Fonta; 11. Yell (North) and Fellar; 12. Yell (South and Middle).

As the chief histories and topographical peculiarities of the Zetland islands have been fully detailed under the words _Mainland_, _Lerwick_, and _Scallaway_, the reader is referred to each word respectively.—A View of the ancient and present State of the Zetland Islands, by A. Edmondston, M.D. 2 vols. 8vo. 1809.

ZETLAND _Islands_, Foula or Fula, the most western of the Shetland islands, and is supposed to be the "Ultima Thule" of the ancients. It is about three miles long and one and a half broad, nearly twenty miles distant from any land, W. of the clusters of Orkney and Shetland, to which it is politically annexed: it affords excellent and extensive pasturage for sheep; and is inhabited by 26 or 27 families.

ZETERITZ, a town of the principality of Cumbach; 11 miles S.W. of Cumbach.

ZETUS, a word used by some of the chemical writers as a name for vitriol.

ZEVACO, in _Geography_, a small island in the Pacific ocean, near the coast of Veragua. N. lat. 8.°, W. long. 81° 46'.

ZEVEN. See Cloister Seven.

ZEVERNAER. See Sevenaer.

ZEU, or GAER, a town of the kingdom of Balk; 100 miles S.E. of Balk.

ZEGITÆ, _Zeytus_, among the Athenians, the third class of the people, or those who had an estate of two hundred medimni.

ZEGITIÆ, in _Botany_, an ancient name, adopted by Browne, but no otherwise applicable to the present genus, than as far as concerns its hearty habit. The _Zygites_ of Pliny was a large Buratomic reed, so called from _ζυγω_, a yoke, because it was bound together, in portions of different lengths, to make the pastoral pipes; as wheaten straws are, by our shepherd's boys, to this day; but the Celt Indian; of which we are now to give an account, has not even this coincidence with the original.—Browne Jam. 344. Schreb. Gen. 810. Wild. Sp. Pl. v. 4. 204.—Clafs and order, _Monoea Triandra_. (Rather Triandra Digynia.) Nat. Ord. Gramina. Linn. Jaff.

Gen. Ch. Common _Calyx_ a glume of two valves; the outer one broadest, concave, abrupt and jagged, ribbed; membranous at the edges; the inner narrower, sharper and keeled. _Male Flores_ two, smallest, on a common stalk the length of the solitary female floret, within the common calyx. _Perianth_ none. Cor. Glume of two ovate-oblong, compressed, bluntish, awnles, equal valves. _Stam._ Filaments three, capillary, the length of the corolla; anthers oblong, cloven at each end.

Female within the larger glume of the common calyx, sessile. _Perianth_ none. Cor. Glume of one oblong concave valve, twice the size of the calyx, bordered towards the top with a dilated membrane, awned; the own terminal, capillary, straight, half as long again as the glume. _Pij._ German oblong; style divided; stigma long, shaggy. _Peric._ none. _Seed_ solitary, oblong.

Obf. Schreber remarks, that this grass differs so entirely, in every character, from _Aphides_, with which Linneus combines it, that they are totally irreconcilable. We should refer both, with all other true _Gramina_, as in _Fl. Brit._ to the _clafs Triandra._

Eff. Ch. Common _Calyx_ of two valves, with three flowers; the female one sessile; the male stalked. _Corolla_ of
of the males of two beardless valves; of the female of one awned valve. Style divided. Seed oblong.

   (Z. arundinaceus, ramous, minor, rufescens; paniculam
   parafar terminalis; Browne Jam. 344. t. 4. f. 3. Apluda
   Zeugites; Linn. Sp. Pl. 1487. Amer. Acad. v. 5.
   (not 5). 412. Swartz Obs. 384.)—Native of Jamaica.

Found by Dr. Browne at Cold-spring, in the mountains of
New Liguanea, in a rich soil, and shady situation. His
original specimens are in the Linnean herbarium. The root
is said to be perennial. Stem two feet high, much branched,
ascending, round, jointed, polished, brownish, leafy, rather
slender. Leaves alternate, on slender stalks, each with a
long sheathing base, reclinate, or nearly pendulous, ovate,
acute, entire, smooth, many-ribbed, from an inch to an
inch and a half long, and from half an inch to an inch
broad. Panicles terminal, from the sheaths of the uppermost
leaves, compound, spreading, with smooth slender branches.
Glumes green, articulated, smooth. The habit is
no less foreign to the genus Apluda than the generic
characters.

ZEUGMA. Zeugma, literally denoting a joining together;
from ζευγμα, I join, a figure in Grammar, whereby
an adjective, or verb, which agrees with a nearer word, is
also, by way of supplement, referred to another more
remote.

Thus Terence, "Utinam aut hic frurus, aut haec muta
faeta fit." So Virgil, "Hic illius arma, hic currus fist."
In which cases, the words faeta fit agreeing primarily with
haec muta, are also made to agree or extend to hic frurus;
and the verb fist is not only referred to hic currus, which it
properly respects, but farther to hic illius arma.

Of this species of ellipsis, which differs from the ellipsis
properly so called, in that the word which is to be under-
stood once or oftener, has been already mentioned, Melleeurs
De Port Royal enumerate three sorts; viz. when we repeat
the noun or verb in the same manner it has been already ex-
pressed; or when the word expressed cannot be repeated
without receiving some alteration in gender, case, number,
or person; or when, after a word which includes the whole,
a distribution of the parts is made without repeating the

The Latins, it may be here observed, take a liberty in
 constructions, which some of the nicer critics among the
moderns, particularly the French, will not allow in the
modern tongues.

ZEUMGA, (Room-Kala,) in Ancient Geography, a town
of Affia, or a place on the right bank of the Euphrates,
S.E. of Samofata, and over against Apamea.

ZEVICO, in Geography, a town of Spain, in the pro-
vince of Leon; 10 miles S.E. of Palencia.

ZEVIO, a town of Italy, in the Veronese; 10 miles
S.S.E. of Verona.

ZEVKETI, a town of the principality of Gurzel; 25
miles S.E. of Puti.

ZEULEN, a town of Bavaria, in the bishopric of Bam-
berg, on the Rotach; 21 miles N.E. of Bamberg. N.
lat. 50° 13'. E. long. 11° 16'.

ZEULENRODA, a town of Saxony, in the county
of Reiful, containing two churches and 350 houses. Here
is a manufacture of fluffs, and a considerable one of flock-
ings; 10 miles W. of Greitz. N. lat. 50° 36'. E. long.
11° 57'.

ZEU, in Ichthyology, a genus of fish, of the order of
the thoraci; the characters of which are, that the head
is compressed and declining; the upper lip is arched by means
of a transverse membrane; the tongue is awl-shaped; the
branchiostegous membrane has seven perpendicular rays, the
lowest placed transverse; the dorsal fins, in most species,
 furnished with projecting siliform rays; and the body is
compressed, broad, thin, and of a bright colour. The
species enumerated by Gmelin and Shaw are the following:

VOMER. Silvery dory, with the second ray of the dorsal
fin very long. Bloch. (See Vomer.) Its shape is rhom-
obidal, length fix or eight, or more, inches, body thin,
without scales, tinged on the upper parts with a blueish
cast, mouth with small teeth. Native of the American feas,
and sometimes seen in the north of Europe: eatable,
but not much esteemed.

GALLUS. Silvery dory, with the tenth ray of the dorsal
and second of the anal fin longer than the body. Shape
and length, and body, like that of the former; back tinged
with a greenish hue, head large, mouth wide. Native of
the American and Indian fea, effulent: when first taken
grunting, like the gurnards. The abacutaja of Marc-
grave.

FABER. Gold-green, fuliginous dory, with a dusky
central spot on each side of the body, or with a rounded
tail, brown spot on the middle of the sides and two anal
fins. Linnaeus. This is the common dory (see Dorre),
which is a native of the Mediterranean, Northern, and
Atlantic seas. Its head is large and long; length generally
twelve or fifteen inches, and weight ten or twelve pounds;
mouth wide, lower jaw longer than the upper, teeth small
and sharp, eyes large, body covered with small scales, and
marked with a curved lateral line, which defending pretty
suddenly from the gill-covers, passes on to the tail; back
arched, and furnished with a row of strong, small prickles,
continued along the curve of the abdomen; two very strong
and sharp spines at the base of the pectoral fins. The in-
troduction of this fish, as excellent food, to the tables
of the higher ranks, is of no remote date; Mr. Quin being
considered as the founder of its peculiar reputation in the
polite circles. This fish is of a very voracious nature,
preying on smaller fishes and their spawn, as well as various
kinds of sea-insects, the smaller shell-fish, &c. It emits a
noise like that of the gurnards and scorpionfishes, when first
taken, by violently forcing out the air from its gill-covers.

Reddish dory, with rough scales and even tail;
small species about three inches long, resembling the
common dory in habit; front protuberant, and turning up-
wards; no perceptible teeth; eyes large, with white irides;
two dorsal fins, the anterior having nine strong and sharp
spines, the first low and scarcely visible, the second four
times longer, and the third very long and thick; the second
dorsal fin consisting of twenty-three short rays; the vent-fin
having twenty-six rays, the pectoral fins about fourteen,
and the ventral fin. This fish generally refines at the bot-
tom, and is accidentally taken after great storms; it is not
eatable, being small, coarse, and of an unpleasing flavour.
It is a native of the Mediterranean.

INSIDIVATOR. Silvery dory, with fins speckled with
black, and narrow extremity mouth; shape rhomboidal;
smaller than Z. ciliaris; colour bright-silver, blueish-green
above, and speckled with black points; body without scales;
lower lip retrorse, and mouth capable of forming a tubular
shout, for ejaculating a drop of water against such insects as
happen to alight on or fly about the aquatic plants near the
shores of the waters it inhabits, and thus obtain its prey.
A native of the rivers and fresh-waters of India.

CILLARIUS. Silvery dory, with some of the rays in the
dorsal and anal fin excessively long; body rhomboidal, thin,
without scales, and of a bright-silver colour, with a blueish
or
or greenish cast on the back, and small and flopping; lower jaw longer than the upper; teeth small and sharp; several of the last rays of the doralf and anal fin extending farther than the tail itself, the long and flexible filaments of which von d' Cepe de imagines attract small fishes, which mistake them for worms, the dory himself lying concealed among sea-weeds, &c., and waiting for its prey: the count also conceives that these may serve to sustain the fish by coilng round the fronds of sea-plants, &c. A native of the Indian seas; but not esteemed as food, being small and coarse.

**Luna or Opah.** Dory with somewhat lunate tail; the body being generally either red, green, or purple, with oval white spots. This is a superb species, and found, probabably wandering from the warmer regions, in the Mediterranean and Northern seas, the largest species of the kind, being between four and five feet in length, in colour varying from a bright silvery-green ground to a bright gold colour, and variegated on the sides with pretty numerous and moderately large oval white spots, while the fins and tail are bright scarlet; the skin seemingly dititute of scales and perfectly smooth.

Specimens of this fish have been occasionally thrown on the British coasts, one of which is described under the article Opah. A dried specimen of this fish may be seen in the British Museum.

**Quadratus.** Grey dory, with transverse dusky or a cinereous body, and even tail. This fish, found in the sea which washes the coast of Jamaica, is described by Sir Hans Sloane, as five inches long and four broad in the middle, narrowing from thence gradually to the head and tail; mouth small, but with rows of small, sharp teeth; tongue round and cartilaginous; pupil large and black, in a white circle; seven fins; tail almost square; whole body clothed with grey or ash-coloured scales, having three or four transverse black lines; with a very crooked line from head to tail.

**Zeus, a species of scorpæa.** See Scorpea Porcus.

**Zeuxis,** in *Biography,* a celebrated ancient painter, who is said to have been a native of Heraclea, either in Greece or Magna Graecia, and to have commenced the practice of his art in the fourth year of the 93th Olympiad, B.C. 397. According to Quintilian, he is the first artist who understood the proper management of lights and shades, and to have excelled in colouring; but ambitious of imitating the strength and grandeur of Homer's manner, he is charged with giving unsuitable bulk to the heads and maffiveness to the limbs of his figures. Notwithstanding these alleged imperfections, he attained distinguished excellence; and in the profession of it he was attentive even to the minutest circumstance. Many instances occur in his history to this purpose. In his picture of Helen, executed for the Crotonians, as an ornament for their temple of Juno, he determined to combine every quality that might constitute a perfect beauty; and with this view he selected five of the handsomest females of Crotona, and transferred to his picture, from their naked charms, an assemblage of all that were most perfect in their kind. This figure has been exalted as the finest specimen of art existing; and under it the painter, not unconscious of his merit, inscribed the lines of Homer, in which Praxiteles expresses his admiration of the beauty of the real Helen. Every one who saw it, before it was placed in the temple, paid the painter a fee, which, added to the liberal recompense of the Crotonians, amply repaid him for his skill and labour. This enabled him to gratify his vanity by making presents of his pictures, for which no adequate price could be given. To such a degree was he enriched by his art, that he was able to indulge his vanity by appearing at the Olympic games with his name embroidered in golden letters upon his mantle. Such were the failings of a man, who rendered his name illustrious by the supereminent exercize of his art. Among his most famous performances are enumerated a Jupiter on his throne, with the other gods standing round—a Hercules in his cradle, strangling the serpents, Alcmena and Amphitryon witnessing the exploit with terror—a Penelope, with an expression conformable to her character—a Cupid crowned with roses, for the temple of Venus at Athens—a Mar Yas bound, afterwards placed in the temple of Concord at Rome—and a group of Centaurs. The time of his death is not known; but as to the manner of it, the following whimsical anecdote is recorded: after having painted an old woman, whilst he was attentively surveying it, he was seized with such a violent fit of laughter, that he died on the spot. Phiny Hist. Nat. Gen. Biog.

**Zeua, in Geography,** a river of Austria, which rises near Ercsprung, and runs into the March; 6 miles E. of Zillerdorfg.

**Zeyl.** See Zion.

**Zeyland,** a small island near the coast of Lapland. N. lat. 70° 10'.

**Zeyring,** a town of the duchy of Stiria; 6 miles N.W. of Judenburg.

**Zeza,** a river of Portugal, which rises in the east part of Estremadura, and runs into the Tagus, at Tancos.

**Zezarine,** or Kerazin, a small island in the Persian gulf, hardly half a mile in length. N. lat. 28° 8'.

**Zfolkier,** a town of Saxony, in the circle of Erzgebirg; 8 miles N.W. of Grunhyh.

**Zha,** a river of Africa, which forms the east boundary of Fez, and runs into the Mullooa.

**Zhelieviz, Ziehov,** or Cybe, a town of Chinese Tartary, in the country of the Mandshurs, not far beyond the great wall, and summer residence of the emperor of China; 120 miles N.E. of Peking.

**Zia,** an island in the Grecian Archipelago, anciently called "Ceeos" and "Hydraeas," about 16 leagues in circumference. The inhabitants are Greeks, who have a bishop. The soil is fertile, and they have a good breed of cattle, with plenty of wild fowl, especially partridges and pigeons. The chief manufactures are, silk, camlets, and a fort of cloaks made of goats' hair. Among the productions of the island may be reckoned the velani, a species of acorn much esteemed. Of four considerable towns or cities in this island, the only one at present remaining is Carthea, or Zelia, containing about 7500 houses, with a harbour capable of receiving vessels of considerable burden, and where a whole fleet may ride in security from every gale, in every depth of water, and in very good anchoring ground. The entrance into this creek or arm of the sea is very safe by keeping it, according to the sea-phrase, open; but when once within it, ships of whatever burden may ride where they please to an anchor; 10 miles E. of Cape Colomni. N. lat. 37° 30'. E. long. 24° 24'.

**Zia, Ziba, or Sibah,** in *Ancient Geography,* a city beyond Jordan; 5 miles W. from Philadelphia.

**Ziatek, in Geography.** See Saul.

**Zib.** See Zion.

**Ziba,** a town of Arabia, in the province of Hedjaz; 20 miles S.S.W. of Median.

**Zibatskoi,** a fort of Ruffu, in the government of Kolivan, on the Irtysh. N. lat. 54° 44'. E. long. 92° 20'.

**Zibel.**
ZIBELLINA. See MUSTELA Zibellina, and Sable.

ZIBER, in Geography, a town of European Turkey, in Bulgaria, on the Danube; 24 miles S.S.E. of Vidin.

ZIBET, or ZIBITH. See ZEBID.

ZIBETHA, in Zoology. See VIVERRA Zibetha.

ZIBETHUM, or Zibeta, in Natural History, civet, a perfume contained in a bladder, in the groin of a civet-cat. See CIVET.

ZIBIBLA, a name given by some authors to a large fruit of raisins, resembling the fruits of dates in shape; they have much pulp, but very little moisture.

ZIBREIRA, in Geography, a town of Portugal, in the province of Beira; 30 miles S. of Alfarates.

ZIBRITZ, a river of European Turkey, which runs into the Danube, near Ziber, in Bulgaria.

ZIBU. See SIBU.

ZICCARA, a name of an Indian fruit, resembling a pine-cone, and containing twenty, thirty, or more kernels, of no known use in medicine.

ZICHANS, in Geography, one of the tribes of mount Caucasus, collaterally related to the Tschekelians or Cingarillas. The Zichians or Tschekians, called by the Russian Yari, are the principal inhabitants of the island of Taman. They formerly paid a small tribute to the Krimean khan; in all other respects they are governed by their own boys. The noble Afchikin or Afchuyef is likewise inhabited by Zichians. The Auckanians and Zichians are two tribes, which, properly speaking, are only one collateral branch of the Tschekelians, having belonged to the Russian empire, as inhabitants of the Kuban, since the year 1783. See CIRCASSIA.

ZICKAR, a mountain of Algiers, anciently called "Garpham." 18 miles S. of Sherifghel.

ZIDDIM, or ASEDIM, in Ancient Geography, a city of Naphthal. Jobh. xix. 35.

ZIDRACH, in Natural History, the name given by Cuba, and some other authors, to that species of the fynghanthus of Artedi, commonly called the hippocampus.

ZIECKRA, in Geography, a town of Saxony, in the circle of Neudlitz; 4 miles S. of Auma.

ZIEGELBACH, a river of Germany, which runs into the Rhine, near Grenzheim.

ZIEGENBALG, BARTHOLOMEE; in Biography, a Lutheran German divine, was born in 1663 at Pulinitz, in Upper Lusatia, and finished his education in the university of Halie. In 1708 he was ordained at Copenhagen, with a view of being sent as a missionary by Frederick IV. king of Denmark to India. In 1706 he arrived at Tranquebar, but he was there opposed and imprisoned, so that he resolved, upon his release, to return to Europe. In 1715 he landed at Bergen in Norway, and after having visited Copenhagen, in order to give an account of his mission, and to receive further instructions, he travelled through Germany and Holland into England, and from thence to India in March 1716. On his return to Tranquebar, he established a Portuguese and Malabar printing-house, in which many of his own works were printed. In the faithful and laborious discharge of his missionary duty he employed 13 years, at the close of which period his life terminated by a disorder probably owing to his intense application. This event happened in February 1719, in the 36th year of his age. His works were numerous, and of those the principal are mentioned in the Gen. Biog.

ZIEGENFELD, in Geography, a town of Bavaria, in the bishopric of Bamberg; 12 miles N.E. of Bamberg.

ZIEGENHALS, a town of Silezia, in the principality of Neisse: this place is famous for its manufactures of beautiful glass. Here are some iron-works; 10 miles S. of Neisse. N. lat. 50° 12'. E. long. 17° 17'.

ZIEGENHAYN, a town of Germany, and chief place of a county of the same name, in the principality of Hesse. It is situated in a morass, and can be occasionally inundated. In this place were kept the archives of the Sovergn families of Hesse. The counts of Ziegenhayn are extinct; 15 miles S. of Fritzlar. N. lat. 50° 50'. E. long. 9° 15'.

ZIEGENRUCK, a town of Saxony, in the circle of Neudlitz, on the Saal; 10 miles S. of Neudlitz. N. lat. 50° 32'. E. long. 11° 42'.

ZIEGLER, JAMES, in Biography, a learned writer of the 16th century, was born at Landshut in Bavaria, and having studied in the university of Ingolstadt, finished his education by visiting the libraries of foreign countries, and cultivating the society of learned men. He refided several years at Rome, collecting in the history of Leo X. and Clement VII. every anecdote that tended to the discredit of the papal court; and in his conferences with learned Sweden, materials for a correct history of Scandinavia, and of the cruelties committed by Christian II. of Denmark. It appears that, besides some other poets which he occupied, he was for some time professor at Ingolstadt, and, as some say, of mathematics at Upsal. He was for a considerable time a teacher at Vienna, from whence, for fear of the Turks, he retired to Wolfgang, bishop of Paffau in Bavaria, under whose protection he composed some of his works; and he died at Paffau in 1549. The earliest of his publications, whilst he was a Catholic, was written against the Waldenses, and printed at Leipsic in 1512. His other works are multifarious, confining of geographical, historical, political, mathematical, and controversial tracts, abounding with literary researches. Although he did not openly renounce the Roman Catholic religion, he favoured the cause of Luther and the reformers. Thuan. Hist. Moreri. Gen. Biog.

ZIELENZIG, in Geography, a town of the New Mark of Brandenburg. This town belonged in a considerable degree to the knights of Malta; 18 miles S.E. of Culfrit. N. lat. 52° 30'. E. long. 15° 16'.

ZIENWALD, a town of Saxony, in the margravate of Meifen; 4 miles S.S.W. of Lauenfein.

ZIECKOWITZ, a town of the duchy of Stiria; 4 miles E.E. of Windfich Feiftritz.

ZIERENBERG, a town of the principality of Hesse Caffel; 11 miles N.W. of Caffel. N. lat. 51° 22'. E. long. 9° 20'.

ZIERIA, in Botany, was so named by the writer of the present article, in memory of the late Mr. John Zier, F.L.S., who, as Dr. Sims records in the Botanical Magazine, "having been appointed to a professorship in a Polich university, was preparing to leave this country, but was prevented by a chronic disease, which terminated in death." That Mr. Zier was "a learned and industrious botanist," we are most ready to confirm by our own testimony. He was so less meritorious in his private character, and bore with modesty and patience those privations, which too often belong to literary merit in a foreign country, especially where canting and time-serving are out of the question. We have been informed that Mr. Zier was the coadjutor of Mr. William Curtis (see that article), in part, at least, of the celebrated Flora Londinensis; taking upon himself the technical Latin defcriptions, while Mr. Curtis was engaged in those practical observations, experiments, and scientific distinctions, which make the peculiar merit of the work.

Gen. Ch. Cal. Perianth inferior, of one leaf, in four deep, ovate, rather acute, equal, permanent segments. Cor. Petals four, ovate, pointed, somewhat conicous, downy, equal, longer than the calyx, alternate with its segments. Stam. Filaments four, alternate with the petals, awl-shaped, simple, smooth, infixed, much shorter than the corolla, each inserted into a globular gland, projecting above their base at the inside; anthers terminal, roundish, with a minute point. Pif. German superior, roundish, four-lobed; ftyle terminal, crested, columnar, the length of the filaments, deciduous; stigma capitulate, four-lobed. Peric. Capsules four, connected at their inner edge, each compreiured, abrupt, of two valves and one cell. Seeds solitary, oval, compreiured, each enclosed in a horny elastic tunic of two valves.


We are acquainted with four species of this genus, confiding of shrubs, natives of New South Wales, with opposite, thalke, ternate leaves, and white flowers. It is allied to Boronia, (see Rutacea) as well as to Crowea, Eriostemon, Correa, Phebalium, and Melicope, to which we refer the reader. Zieria is essentially characterized by the insertion of each of its filaments into the outside of one of four large glands, standing on the receptacles, at the base of the geiton, as well as by the simplicity of these filaments, in the other part of their structure. All the species abound with minute dots on their leaves, flak, and calyx, lodging an essential oil, whose qualities are more or less acid and aromatic.

1. Z. lancealata. Lanciolate Zieria. Brown MSS. (Z. Smith; Andr. Repoff. v. 606. Curt. Mag. t. 1395. Ait. Epit. 376.)—Clas ter axillary, repeatedly three-forced. Leaves lanceolate, flat, acute. Branches and flacks short.—Sent from Port Jackson, New South Wales, by Dr. John White, in 1795. It was found by Mr. Aiton to have been introduced into the English gardens in 1803, where it proves a tolerably hardy green-house flower, blooming in the spring and early part of summer, and may be increased from cuttings. The flak is bulky, of humble growth, being feaxly three feet high, with round, purplish, leafy branches, rough with glandular, warts, and when young, bejinkled with minute, hairs, rigid pubescence. Foostalks warty, channelled, near an inch long, delitute of stipular, each bearing three lanceolate, flat, entire, smooth, single-ribbed leaflets, confined to the middle. The middle one rather the largest, being two inches, or two and a half, in length. Panicles opposite, axillary, often two together, somewhat hairy, repeatedly forked, many-flowered, various in length, spreading or slightly, downy, their flacks quadrangular, purplish. Flowers white, each about the size of a Privet-bloom, with yellow anthers. Capsules brown, dotted with glands. Tunic of the seeds white and shining.

We agree with Dr. Sims in preferring an expreffive specific appellation to one taken from the name of a botanist, and, therefore, as the genus in question was not established on this species more than the rest, all, except the last, having been equally considered, we are happy to let the example of an alteration, in which we can have no other motive than propriety and common advantage. We had called this species multiflora; but we consider the synonym in the Botanical Magazine as a publication of the unexceptionable name given by Mr. Brown.

2. Z. levigata. Smooth Zieria.—Clas ter axillary, three-forked, corome. Leaflets linear, revolute. Branches and flacks very smooth.—Gathered by Dr. White, near Port Jackson, New South Wales. The branches of this pretty species are quadrangular, and very smooth, like every other part, except the petals. Leaves smaller than the foregoing, with somewhat of a glaucous appearance. Foostalks about half a quarter of an inch long. Leaflets scarcely an inch, acute, polihed, strongly revolute, dotted with glands, and somewhat tinged with purple. Flowers a little larger than the last, and much fewer, the panicles being always solitary, much less compound, and situated chiefly towards the upper part of each branch. The flacks are acutely quadrangular, and very smooth. Calyx brown or reddish, taper-pointed, likewise quite smooth. Petals downy on both sides, like a piece of woolen cloth.

3. Z. paniculosa. Few-flowered Zieria.—Stalks axillary, with one or three flowers. Leaflets linear-obovate, somewhat revolute. Branches and flacks hairy. Segments of the calyx lanceolate, taper-pointed.—Sent from Port Jackson, with the former, by Dr. White, in 1795. A small flark, with slender, round, feaxly quadrangular, branches, which are more or less copiously clothed with erect, slightly hairy leaves. The half of the leaf of the last; their leaflets dilated upwards, and obtuse, a little crenate towards the end; copiously dotted, rarely hairy, on the upper side; sometimes very hairy beneath, but occasionally quite smooth. Flowers very small, often quite solitary, on an axillary flak, with a pair of small acute bracteas; sometimes there are three flowers on one flak. Segments of the calyx broad at the base, but tapering suddenly into a long point. Petals minutely dotted with tufts of flary hairs, giving them a warty, or granulated, aspect. Capsules tuberculated, sometimes hairy; curiously reticulated at the ends. Seeds black, rather opaque, with a shining white, at length convoluted, tunic, whole edge is minutely fringed. The hairy and nearly smooth varieties of this plant look different at first sight, but we cannot detect a specific distinction.

4. Z. quinquefolia. Downy Zieria.—Stalks axillary, three-forced, lealy. Leaflets obovate, entire, downy on both sides. Branches and flacks downy.—Native of New South Wales, from whence we obtained a specimen through the efforts of Sir J. St. Vincent in 1805. Whether this be Mr. Brown's arborifera, mentioned by Dr. Sims, we have at present no means of knowing, and therefore we are obliged to describe it by a name which appears to us very expressive. Every part is clothed with fine dense soft pubescence, appearing flattened and entangled under a high magnifier. Branches round. Foostalks half an inch long. Leaflets about an inch in length, entire, slightly revolute; their upper side peculiarly soft and velvet-like; the under soft hairy. When held against the light, they appear full of pilose dots. Calyx very downy; its segments broad and ovate. Petals about twice as long, and of the same shape, downy. We have not seen the ripe fruit.

ZIESAR, or ZIEGESAR, in Geography, a town of the Middle Mark of Brandenburg; 18 miles S.W. of Brandenburg.

ZIELTZ, a town of the Middle Mark of Brandenburg; 10 miles S.W. of Brandenburg.

ZIEZAR, a town of Spain, in the province of Murcia; 22 miles N.W. of Murcia.
ZIFIUS, in Ichthyology, a name given by Albertus to the xiphias, or sword-fish. See Xiphias.

ZIGADENUS, in Botany, a genus of Michaux, Boreal.-Amer. v. 1. 213. Pursh 241. The name, formed of ζιγας, a yoke, and αδης, adhes, a gland, evidently alluding to the pair of glandular depressions in each petal, ought therefore to have been Zygadenus. We do not, however, believe that this genus can be separated from Helonia. See that article.

The species are,

H. glaberrima. Smooth-leaved Helonia. Ker in Curt. Mag. t. 1689. (Zigadenus glaberrimus; Michaux as above; 214. t. 22. Pursh n. 1. Ait. Epit. 376.)—Leaves linear, channelled, recurved. Stalk leafy. Bracteas ovate, pointed as well as the petals.—In low meadows of Virginia and Lower Carolina, perennial, flowering in June and July. Pursh. Root bulbous. Leaves a span long, concave, spreading. Stalk two feet high, bearing several, gradually diminishing, leaves, and terminating in a panicle of several greenish-white flowers, the size of Pervatum album, each of whose petals is marked, near the base, with a double glandular, apparently necarianous, depression. Stamina distinct from the petals. Seeds tunicated. We know not whether they be fo in any other Helonia.

H. elegans. Elegant Helonia. (Zigadenus elegans; Pursh n. 2.)—Leaves linear, flat, eréct. Stalk nearly naked. Bracteas linear. Petals acute.—On the waters of Cokahlenfik river, near the Rocky Mountains, found by governor Lewis, flowering in July. Radical leaves eréct, linear, very long, smooth, ribbed, flat. Stalk taller than the foliage, about two feet in height, round, fimple, bearing one or two short leaves. Cluster many-flowered, occasionally branched at the bottom. Bracteas as long as the partial flalks, membranous, ribbed. Flowers white, the size of Melanthium virginicum. Petals ovate, acute, with something of a claw, marked at the base with two vermilion spots. Filaments shorter than the corolla. Stigmas three, reflexed. Pursh.

ZIGAE, in Ancient Geography, a people of Asiatic Sarmatia, on the bank of the Tanais. Pline.

ZIGALOVKA, in Geography, a town of Ruffia, in the government of Irkutflk; 16 miles N.W. of Tufura.

ZIGANEAH, a mountain of Algiers; 18 miles S. of Conflantina.

ZIGANSK, a town of Ruffia, in the government of Irkutflk, on the Lena; 1472 miles E. of Tobolfsk. N. lat. 67°. E. long. 120° 32'.

ZIGIRIA, or Zighirah, in Ancient Geography, a town of Africa Proprina, between the town of Thabraca and the river Bagradas. Ptolemy.

ZIGER, a word used by some of the old writers to express a very fine kind of caffia, extremely aromatic to the taste, and of a purplish-black colour.

ZIGERE, in Ancient Geography, a town of the interior of Thrace, on the borders of Lower Macedonia.

ZIGET, in Geography, a town of Hungary, situated between the streams of a small river, which unite below the town, and soon after run into the Drave. It is on every side surrounded by a morais, and defended by moats, walls, and bastions; 44 miles S.E. of Canificha. N. lat. 46° 8'. E. long. 17° 56'.—Allo, a river of Hungary, which runs into the Drave, 12 miles S. of Ziget.

ZIGIRA, in Ancient Geography, a town of Asia, in Afflia, towards the N., and at a great distance from the Tigris. Ptol.

ZIGURELLA, in Ichthyology, the name by which some have called the julis, a small but very beautiful fish, common about Genoa, and in some degree approaching to the nature of the turdus or wraff. It is a species of the labrus, according to Artedi, and is distinguished by the name of the palmaris labrus, with two large teeth in the upper jaw. See Labrus.

ZIGZAG TREFOIL, in Agriculture, a term sometimes applied by farmers to the perennial red clover, marl grafs, or wild red clover. See Clover and Trifolium Purpureum Perenne.

ZIKLAG, or SICALAG, in Ancient Geography, a city which Achsh, king of Gath, gave to David, while he took shelter among the Philistines (1 Sam. xxvii. 6.), and which afterwards always belonged to the kings of Judah. Joshua had allotted it to the tribe of Simeon. (Josh. xix. 5.) Ezechiell says, that it lay in the southern part of Canaan.

ZILA, in Geography, a river of Moldavia, which runs into the Pruth, 30 miles S.E. of Jaffy.

ZILEH, a town of Turkish Armenia; 30 miles S.S.W. of Arzhangan.

ZILGA, a river of Ruffia, which runs into the Oka, N. lat. 53° 4'. E. long. 101° 14'.

ZILS, in Ancient Geography, a town of Africa, in Mauritania Tingitana, marked in Anton. Itin. 24 miles from Tingis, between Tarbenre and Ad Mercuri. This was a colony established by Augustus, exempt from the jurisdiction of the kings of Mauritania, and dependent upon Bactia in Hispания.

ZILKEFEL, in Geography, a town of the Arabian Irak; 18 miles S.W. of Halhe.

ZILLEBA, a town of Arabia, in the province of Yemen; 35 miles E. of Loeheia.

ZILLER, a river of Tyrol, which runs into the Inn, 2 miles above Rattenburg.

ZILLY. See CILLY.

ZILMISSUS, in Ancient Geography, a hill of Thrace, on which was a temple dedicated to the god Sabadeus. Macробius.

ZILTAN, in Geography, a town of Africa, in the defert of Barea; 150 miles W. of Angela.

ZIMARA, in Ancient Geography, a town of Asia, in the Greater Armenia, at the foot of mount Capotis, in the place where the Euphrates has its source.

ZIMARA, in Geography, a town of Asiatic Turkey, in the government of Sivas; 55 miles E. of Sivas.

ZIMBAOA, or ZIMBAO, a town of Africa, in the kingdom of Sofala, and capital of Mocaranja. S. lat. 16° 40'. E. long. 33° 40'.

ZIMBRA. See ZOWAMORE.

ZIMENT-WATER, or COPPER-WATER, in Natural History, the name by which some have called water found in places where there are copper-mines, and lightly impregnated with particles of that metal.

The most famous spring of this kind is about a mile distant from Newfol in Hungary, in the great copper-mine called by the Germans berra grundt.

The water in this mine is found at different depths, and is received into basins, for the purpose of separating the copper from it; in some of these it is much more fated with this metal than in others, and will make the suppos'd change of iron into that metal much sooner. The most common species of iron used in the experiments are, horfeshoes, nails, and the like; and they are found very little altered in shape, after the operation, except that their surfaces are more raised.

The water appears greenish in the basin where it stands; but if a glass of it be taken up, it looks clear as crystal: it has no smell, but a strong vitriolic astringent taste, insomuch that
that the lips and tongue are blistered and scorched upon taking it.

The miners are well acquainted with the virtue of this water in changing the metals; but they also use it as a medicine: whatever scree, if they arefeied with, they first attempt its cure by a large dose of this water, which usually both vomits and purges them very briskly.

They also use it in disorders of the eyes, in some of which it must be of great power; but in others, it is very improper; so that upon the whole they do more harm than good with it.

The copper produced from these waters is valued by the people much beyond any other copper, as being much more ductile, and running easier in the fire: the people in the neighbourhood have many vessels of it; but it is to be observed, that its ductility and hardness increase after it is taken out of the water; for while immersed in it, it is friable.

It is observed, that after great rains the springs are always fuller than at other times, and the virtues of the water considerably less.

A pound of this water, when strong, evaporated over a gentle fire, becomes first turbid, and afterwards deposits a yellowish sediment, which evaporated to dryness, weighs two scruples and a half; and when warm water is poured upon this and filtered, fix grains of yellowish earth will be left in the filter; and the greenish solution being again evaporated to a pellicle, and the operation being several times repeated, somewhat more than two scruples of a bluish-green vitriol will be separated in small crystals.

A small quantity of oil of tartar being added to a pound of this water, the whole becomes turbid, and on filtration leaves a large residuum in the filter, which dried, weighs about two scruples and a half, and is found to be a cupreous vitriol, with a small mixture of a neutral salt. If a pint of this water be put into a bottle, and a small piece of iron thrown into it, bubbles will appear on the iron, which will gradually be changed to a copper colour. On the second day, the water will be turbid, and afterwards whitish, and white filaments will gather about the bottom and sides of the glass, and about the iron, which will appear throughout of a coppery colour. From these experiments, we may easily understand what the true nature of the water is; that it contains a large quantity of vitriol of copper, which it probably owes to a solution of that metal, by means of the acid of the common pyrites and water: when this is known, the effects are not difficultly accounted for, there being no real change of one metal into another; but the true state of the case being, that the particles of one metal are dissolved and carried away, and those of another metal deposited in their place. A water thus impregnated is a menstruum capable of dissolution of iron, and in the solution of that metal becomes so weakened as to let go the copper it before contained in small parcels. This is seen to be the case, by examining the changed metal while it lies in the water, the copper then appearing not a soft malleable and even mass, but a congeries of granules closely placed together, and resembling the small granules, or eva, in the spawn of fishes; and it is very friable and fragile while in this state.

This solution of one metal, and deposition of the particles of another in its place, is a thing very familiar in chemistry, and is seen every day in numerous instances; but in none so familiar as in a like cafe, or solution of iron and copper in the same menstruum. Thus, if a piece of copper be dissolved in aqua fortis, and when this solution is perfected a piece of iron be thrown into the liquor, the same thing will be seen that is in this spring, for the iron will be dissolved, and the copper which was before dissolved in the menstruum will be slowly precipitated and deposited in the place of it. Phil. Trans. N° 479, p. 353, &c. See on this subject the articles COPPER and VITRIOL.

ZIMEX, a word used by some of the old chemical writers for verdigrise.

ZIMITTI, in Geography, a town of South America, in the province of Carthagena, near a lake, 60 miles S. of Santa Fe de Bogota. N. lat. 7° 42'. W. long. 74° 6'.

ZIMMER, an island of the Red sea, much smaller than Foofti, (which see,) without inhabitants, and without water; though, by the cisterns that now remain, and are sixty yards square, hewn out of the solid rock, there is reason to imagine that this was once a place of confluence: rain, at certain seasons, falls here in abundance. It is covered with young plants of rack-tree, whose property it is to vegetate in fall water. It has also a considerable number of Siaal, or Acaacia-trees. In this island there are antelopes and byzans; and hence we may infer that water, without which these animals could not subsist, is found in some subterranean caves or chinks of the rocks, unknown to the Arabs or fishermen. Mr. Bruce found here plenty of the large shell-fish called Bicher and Surrumba, but no other. Foofti bears from this island 8 miles N.W. by N. 4° W. N. lat. 16° 7'.

ZIMMER, in Commerce, a term used for reckoning in Germany, and denoting 40 pieces.

ZIMMERMANN, J. G., in Biography, an eminent physician and miscellaneous writer, was born in 1728 at Brug, in the canton of Bern. Having completed his preparatory education at Bern, and chosen the medical profession, he placed himself in the university of Gottingen, under the tuition of the celebrated Haller; and on graduating in 1751, the subject of his thesis was the doctrine of irritability. His respect for Haller was testified in the account he gave of him in the journal of Neuchatel, printed in 1752. Having married at Bern a relation of Haller, he settled as a physician in his native town. The retirement of his situation afforded him an opportunity of composing many pieces in prose and verse; and in 1756 he published the first sketch of his popular work "On Solitude." This publication was followed by an "On National Pride," in 1758; by his work "On the Experience of Medicine," in 1763, and several others; and by "A Treatise on Dysentery," in 1766. In 1768 he accepted an invitation to occupy the vacant post of physician to the king of England for Hanover, whether he removed. In this situation, the accumulation of busineses furnished in some measure an antidote to the constitutional irritability of temper, and tendency to hypochondriacal complaints, which in the retirement of a small town had rendered him unhappy; and having occasion to place himself under the medical care of a surgeon at Berlin, on account of a local disease under which he laboured, his removal thither in 1771, and the notice that was taken of him by several personas of distinction, and even by the king, were favourable both to his health and spirits, and of course to his happiness. Having lost his first wife, he formed a second matrimonial connection in 1782; and by this union he was indebted for many of those comforts which counterbalanced and alleviated his afflictions. His remaining years were chiefly devoted to the completion of his work "On Solitude," which was published in four volumes. In the year 1786, Zimmermann was sent for to attend the great Frederick in his last illness; and
this visit gave him an opportunity of publishing an account of his "Conversations" with that celebrated prince. He was induced also, by the notice that was taken of him, to undertake a defence of the character of Frederick against the cen

censures of Count de Mirabeau. The severe criticisms to which these writings exposed him, and the part he took in the controversies that agitated the continent with regard to the principles that produced the French revolution, irritated his feelings and disquieted a mind like his peculiarly susceptible of contumely and reproach. His political and religious principles led him to view with jealousy and detestation those societies which, in his judgment, and in that of others of similar sentiments, aimed at the subversion of established forms and authorities, and to declare war against them. Such were his abhorrence and dread of them, that he addressed a memoir to the emperor Leopold, recommending the suppression of them by force; and he subjected himself to a prosecution for a libel by a charge brought against a person by name for an unavowed publication. His mind had arrived to such a state of irritation, that the approach of the French towards Hanover in 1794 almost subverted his reason. Dreading the confessions of their arrival, he abstained from food, waited to a skeleton, and died absolutely worn out in 1795, at the age of 66. "Such," says his biographer, "was the melancholy end of a man whose moral and intellectual qualities rendered him in a high degree the object of private friendship and public esteem." Tillof's Life of Zimmerman. Gen. Biog.

ZIMOVE, in Geography, a village of Russia, in the government of Irkutsk, where is a customs-house; 52 miles S.E. of Barguzinsk.

Zimove Tchikoi, a town of Russia, in the government of Irkutsk; 16 miles S.W. of Vitimkoi.

Zimove Tschakno, a winter habitation of Russia, on the N. coast of Baikal lake, in the government of Irkutsk. The word Zimove, in Russian, means a house or inn, built at a distance from a town, for the accommodation of travellers, where are generally found a warm room, fresh bread, and a kind of liquor called quafi. N. lat. 55° 20'. E. long. 109° 14'.

Zimove Zaminjoko, a town of Russia, in the government of Irkutsk, near lake Baikal; 76 miles S.E. of Vercholenk.

Zimovskaya, a town of Russia, in the country of the Cossacks, on the Choper; 48 miles W. of Arkadinska.

ZIN, Sin, or Senna, in Ancient Geography, a city S. of the land of promise. (Numb. xxxiv. 4.) See Sin.

ZINARI, in Geography, an island in the Grecian Archipelago. N. lat. 36° 59'. E. long. 26° 10'.

ZINARIA, a word used by the Arabians for a kind of vitiated bile, called vervinous bile.

ZINC, in Chemistry, the name of a metal, in Latin zincum. The ancients do not appear to have been acquainted with this metal. Cadmus was the name by which they seem to have known one of its ores, which was so called from Cadmus, who, it is said, taught the Greeks how to form brads by its means. It is first mentioned by Albertus Magnus, but it is doubtful if he had ever seen it. The word zinc first occurs in the writings of Paracelsus. This metal has been also called sferles.

Zinc has never been found in Europe in a state of purity, and chemists were late in discovering a method of extracting it from its ores. Henkel seems to have been one of the first who effected this about the year 1725, and he was soon followed by others. Zinc is of a brilliant white colour, with a shade of blue, and seems to be composed of a number of thin plates adhering together. It imparts a perceptible smell and colour to the skin when rubbed by it for some time; hence it is rather soft. Its specific gravity is said to vary from 6.86 to 7.1, the lightest being esteemed the purest. When hammered, its specific gravity becomes as high as 7.19.

This metal is by no means so malleable as copper, lead, or tin; it is not however brittle. It yields, and becomes somewhat flatter, when struck with a hammer. When heated a little above 212°, it has the remarkable property of becoming very malleable, and in this state may be reduced into very thin plates, either by hammering or rolling. When heated to about 400°, it becomes so brittle that it may be reduced to powder in a mortar.

Zinc may be drawn into wire. According to Muechenbroeck its tenacity is such, that a wire of 1/8th of an inch in diameter is capable of supporting a weight of about 26 lbs.

Zinc melts at a temperature of about 620°, according to Dr. Black. If the heat be increased it evaporates, and may be easily diffused over in clove vessels: upon this property of zinc, Von Swab's method of extracting it from its ore was founded. When allowed to cool slowly, this metal crystallizes beautifully in small bundles of quadrangular prisms disposed in all directions, which, if exposed to the air while hot, assumes a blue changeable colour.

When exposed to the air, zinc soon tarnishes, but it fearfully undergoes any other change. When kept under water, its surface becomes black, the water is decomposed, and the oxygen combines with the metal. If heat be applied, these changes go on more rapidly; and if the steam of water be made to pass over zinc at a high temperature, it is very rapidly decomposed.

When this metal is kept melted in open vessels, it soon becomes covered with a grey pellicle of oxide. If the heat be very strong it takes fire, and burns with a brilliant white flame, and at the same time emits a great quantity of very light white flakes. This is merely the oxide of zinc. It was well known to the ancients, and received from them many whimsical names, such as pompholyx, &c. Among the alchemists it was known by the names ofnilus album, lana philosphiaca, flowers of zinc, &c.

Zinc appears to combine with only one proportion of oxygen, which has been stated by different chemists to vary from 24.16 to 25 of oxygen to 100 of the metal. According to the first of these determinations, the weight of the atom of zinc will be 41.39; according to the second 40. Dr. Thomson has decided upon 41.25 as the most probable weight of the atom.

Zinc combines readily with chlorine, and forms a chloride of zinc. It may be prepared by diffusing zinc in muriatic acid, or by exposing the metal to the gas, when the two combine by a species of combustion. The chloride may be also obtained by diffusing zinc-filings with the oxy-muriate of mercury, or corrosive sublimate; and thus obtained, it was formerly denominated the butter of zinc. When thus prepared, it sublimes on the application of heat, and crystallizes in needles; but according to Dr. Davy, when the common muriate is heated in a glass tube, it does not sublime even at a red heat, but remains in a state of fusion. Exposed to the air, it soon deliquesces. According to Dr. J. Davy's analysis, it is composed of

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<th>Element</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Chlorine</td>
<td>41.25</td>
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<tr>
<td>Zinc</td>
<td>58.75</td>
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But if we suppose it to be composed of an atom of zinc and
and an atom of chlorine, and the atom of zinc to weigh as above, its constituents should be

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<th>Chlorine</th>
<th>-</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>-</td>
<td>91.6</td>
</tr>
</tbody>
</table>

Zinc readily combines with iodine by heat. The compound, or iodide, is white. It is volatile, and crystallizes in fine quadrangular prisms. It deliquesces in the air, and is very soluble in water. The solution is colourless, and does not crystallize. Gay Lussac has shewn, that this compound consists of one atom iodine, and one atom zinc, or by weight of

<table>
<thead>
<tr>
<th>Iodine</th>
<th>-</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>-</td>
<td>26.52</td>
</tr>
</tbody>
</table>

No compound of zinc with fluorine is at present known. Zinc does not combine with azote nor hydrogen; nor are we acquainted with any compound of this metal with boron and silcon.

Zinc may be combined with phosphorus by dropping small bits of phosphorus into it while in a state of fusion. Phosphuret of zinc is of a white colour, and possesses a metallic lustre, which more reframbles lead than zinc. It is somewhat malleable. It emits the odour of phosphorus when filed or hammered, and if exposed to a strong heat it burns like zinc. Phosphorus also appears to combine with the oxyd of zinc, and to form a peculiar compound.

Sugarphur cannot be combined artificially with zinc; but if melted with the oxyd of zinc a peculiar compound is formed. A similar compound is formed when sulphuretted hydrogen in combination with an alkali is dropped into a solution of zinc. It is at first white, but becomes darker on drying. Dr. Thomson considers this compound as a sulphuret of zinc. Mr. E. Davy ascertained, that when the vapour of sulphur is passed over zinc in fusion a yellowish compound is obtained, similar in appearance to blende.

One of the most common ores of zinc is blende, described below, and which is a sulphuret of zinc, composed, according to Dr. Thomson's experiments, of

<table>
<thead>
<tr>
<th>Zinc</th>
<th>-</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>48.84</td>
</tr>
</tbody>
</table>

Hence he considers it as a compound of one atom zinc, and one atom sulphur.

The alloys of zinc and the metals of the fixed alkalies are speedily decomposed by exposure to the air or immersion in water. We are not acquainted with the alloys of zinc and the metallic bases of the alkaline earths.

Zinc may be combined with arsenic by distilling a mixture of it and arsenious acid. With iron, zinc combines with difficulty; the alloy when formed, according to Lewis, is hard, somewhat malleable, and of a white colour, like silver. M. Lavoisier has shewn, that zinc may be used instead of tin for covering iron plates; a circumstance which demonstrates an affinity between the two metals.

Zinc does not appear capable of combining with nickel or cobalt by fusion. The alloys of zinc with manganese, cerium, and uranium, are unknown.

For the other alloys of zinc, see the different metals; particularly for the most important of them or brases, see Brass and Copper.

**Salts of Zinc.**—Almost all the acids act with energy on zinc, in consequence of its powerful affinity for oxygen. The salts of zinc, therefore, are very easily formed, and on account of their being but one oxyd of zinc are not much liable to variation.

---

**ZINC.**

**Nitrate of Zinc.**—The nitric acid attacks zinc with much energy, that it is commonly necessary to moderate its action by diluting it with water. Even then much heat is evolved, and a strong effervescence is produced by the escape of nitrous oxyd gas. The solution is transparent and colourless, very caustic, and yields by evaporation flat, flattened, tetrahedral prisms, terminated by four-sided pyramids. These crystals attract moisture on exposure to the air, and are soluble in water and alcohol. When heated they melt, and if thrown on burning coals, detonate with a red flame.

**Carbonate of Zinc.**—Calamine, one of the ores of zinc, is a native carbonate of zinc, as described below. This salt usually exists in the form of a white powder, and may be obtained by precipitating zinc from its solution in acids by an alkaline carbonate.

**Phosphate of Zinc.**—The phosphoric acid unites in two proportions with the oxyd of zinc. The neutral phosphate is a tasteless white powder insoluble in water. The biphasate is soluble in water, if not exposed to too great a heat. It does not crystallize, and is strongly acid.

**Sulphate of Zinc.**—Concentrated sulphuric acid scarcely acts upon zinc without the assistance of heat; but when diluted it acts upon the metal very strongly, and hydrogen gas is given out in abundance. In this case, the water is decomposed, its oxygen combines with the metal, while its hydrogen escapes. The solution, when concentrated, yields crystals in abundance.

This salt, formerly known under the name of white vitriol, was discovered in Germany, about the middle of the 16th century. When quite pure, it is perfectly white. The form of its crystals is that of flat quadrangular prisms, terminated by four-sided pyramids. At a temperature of 62°, it diffuses in about 1.4 times its weight of water. In boiling water, it diffuses in any quantity whatever. The constituents of this salt are,

| 1 Atom of sulphuric acid | - | 31.74 |
| 1 Atom of zinc | - | 32.54 |
| 5 Atoms of water | - | 35.72 |

When heated, the crystals part with their water, and if the heat be strong, the whole of the acid likewise separates, and leaves the oxyd of zinc in a state of purity. See Vitriol, White.

**Muriate of Zinc.**—See Chloride of Zinc, supra.

**Sulphite of Zinc.**—This salt exists in the form of crystals, soluble in water, but insoluble in alcohol. On exposure to the air, they are soon converted into the sulphate of zinc. Fourcroy and Vaqueria describe a hypo-sulphite of zinc, which assumes the form of four-sided prisms, terminated by four-sided pyramids. They are soluble in water and alcohol.

**Borate of Zinc** is a white insoluble powder. It may be formed by pouring borate of soda into the nitrate or muriate of zinc.

**Arseniate of Zinc** is a white insoluble powder, and may be formed by mixing solutions of the alkaline arseniates with the sulphate of zinc.

**Acetate of Zinc**—This salt exists in the form of rhomboidal or hexagonal plates of a tawky appearance, and is not very soluble in water. Solutions of this salt form an excellent external application to inflammations.

**Oxalate of Zinc.**—This salt is a white powder, little soluble in
ZINC.

n water, and may be formed readily by double decom-
position.

Tartarate and Citrate of Zine. — Both these salts exist
usually in the form of powders, and are but little soluble
in water. They may be procured, like the oxalate, by double
decomposition.

The other salts of zinc are of very little importance or
interest, and do not therefore merit to be enumerated here.
The salts of zinc may be distinguished from general by their
forming colourless solutions in water, by their yielding
white precipitates with prussiate of potash, sulphuretted
hydrogen, and the alkalies, and by the characteristic circum-
stances that zinc is not precipitated in the metallic state by
any other metal.

Uses of Zinc and its Compounds.—Neither this metal nor
its compounds, if we except brafs, are much employed in the
arts nor in medicine. A chief use of zinc is in the formation
of galvanic apparatus, and in electrical experiments. (See
Galvanism and Electricity.) As it is not a poisonous
metal, it has been recommended instead of tin and lead
for domestic purposes; but the use with which it is oxidized
makes it very unfit for all sorts of culinary apparatus.
The strong affinity of zinc for oxygen renders it of
great use as a chemical agent for precipitating other metals
from a state of solution in the metallic state. The oxyd
of zinc is used in medicine, both internaUy as a tonic, and
externally mixed with hogs' lard as an ointment. The native
carbonate is also used in the same manner as an external
application. See Unguentum Calamine, and Unguentum
Zinci.

The sulphate and the acetate are the only salts of zinc used
in medicine; for the properties of which, see above.

Zine, Ores of, in Mineralogy. The ores of zinc are gen-
erally associated with lead ores, and exist abundantly in va-
rous parts of England; particularly in veins in the moun-
tain-lime-stone of Derbyshire, Durham, Cumberland, York-
shire, Somerfetsire, and North Wales. The ores of zinc
are either oxys, carbonates, or fulphures of zinc, and are
principally known as calamine or blende. There is an ore
of zinc hitherto found only in North America, called by
Dr. Bruce red zinc-ore; it occurs in several of the iron-
 mines in Suffex county, New Jersey.

Red Zinc Ore is of a blood-red or aurora-red colour; it
occurs massive and disseminated. The fresh fracture is shining,
but becomes dull after long exposure to the air, and is cov-
ered with a pearly crust; the principal fracture presents a
foliated structure; the crofs fracture is conchoidal. It is
opaque or translucent on the edges; it yields a brownish-yel-
low or orange streak; it is brittle. The specific gravity is
6.22. It is infusible without addition by the blow-pipe, but
melts into a transparent yellow bead with borax. When
pounded and mixed with potash, and exposed to heat, it melts
into an emerald-green mass, which, on solution in water,
yields the same colour; but on the addition of the mineral
acids is immediately changed to rose-red. This ore is fo-
lible in the mineral acids. Its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>76</td>
</tr>
<tr>
<td>Oxygen</td>
<td>16</td>
</tr>
<tr>
<td>Oxys of manganese and iron</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

From Somerfetsire,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>64.8</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>35.2</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Compact Calamine: Zinc Carbonate, Haüy.—Its colours
are, greyish, greenish, or yellowish, and often brown, from
an intermixture with iron. It occurs massive, botryoidal,
dissminated, flake-structural, reniform, and mamillated; it
has a dull, feebly glimmering, resinous lustre. The fracture
is uneven and coarse-grained, or splintery, and sometimes even
a flatty conchoidal. It sometimes occurs in concentric la-
mellar concretions: it is opaque. Its chemical characters and
constituent parts are the same as of the sparry calamine,
these minerals being only varieties differing in form from
each other.

Earthy Calamine: Zinc Carbonate, Haüy.—It is of a
greyish or yellowish-white colour, sometimes snow-white;
externally it is frequently covered with a tint of yellowish-
white. It occurs massive, and coating other minerals; it is
opaque, and has an earthy fracture; it yields to the nail,
and adheres to the tongue. The specific gravity is 3.358.
According to Smithson, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>71.4</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>13.5</td>
</tr>
<tr>
<td>Water</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Electric Calamine: Zinc Oxys, Haüy.—Its prevailing
colours are, greyish, bluish, or yellowish-white; externally
it is sometimes brownish or blackish. It occurs crystallized,
mamillated, botryoidal, flake-structural, and massive. The crys-
tals are six-sided prisms, with dehedral summits, or acute
octahe-
ZINC.

Octahedrons; sometimes truncated on the summits. The crystals are small, and either solitary, or radiating in groups, like zeolite. The lustré is shining, glittering, and vitreous: the structure is imperfectly lamellar, or divergingly fibrous. It is sometimes opaque, and sometimes translucent or transparent: it yields to the knife, but is much harder than common calamine. The specific gravity is 3.4. When gently heated it is strongly electric; it is infusible, and loses about 12 per cent. by ignition. It is soluble in muriatic acid with effervescence: the solution gelatinizes on cooling. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of zinc</td>
<td>66</td>
</tr>
<tr>
<td>Silex</td>
<td>33</td>
</tr>
</tbody>
</table>

According to Smithson,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of zinc</td>
<td>68.3</td>
</tr>
<tr>
<td>Silex</td>
<td>25.5</td>
</tr>
<tr>
<td>Water</td>
<td>4.4</td>
</tr>
</tbody>
</table>

According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of zinc</td>
<td>66</td>
</tr>
<tr>
<td>Silex</td>
<td>33</td>
</tr>
</tbody>
</table>

According to Smithson,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of zinc</td>
<td>68.3</td>
</tr>
<tr>
<td>Silex</td>
<td>25.5</td>
</tr>
<tr>
<td>Water</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Calamine sometimes occurs in what are called supposititious crystals, as if it had been moulded over crystals of other minerals, and the internal crystal had disappeared. In Derbyshire, the working miners are of opinion, that the calamine destroys the lead-ores when they occur together; or, as they express it, the calamine eats up the lead. That some process of decomposition or change takes place where these ores are associated there can be no doubt; but by what means this is effected we are at present ignorant. See Veins, Metallic.

Calamine, commonly called lapis calaminaris, when cleaned and roasted, is used for the fabrication of brass, forming a compound with copper. (See Brass.) Its uses in the making of brass is of very high antiquity; being mentioned by Ariftotel.

Calamine is also the most valuable ore from which metallic zinc is extracted.

The uses of calamine were not known in England before the reign of queen Elizabeth, and even so late as the year 1700 it was commonly carried out of the kingdom as ballast by the ships which traded to Holland. The calamine raised in Derbyshire about the year 1780 amounted to 1500 tons. Sixty years before that time the quantity of it did not exceed 40 tons, the greater part being thrown away through ignorance of its nature and value.

The dressing of calamine consists principally in picking out all the pieces of lead-ore, lime-flux, iron-flux, heavy spar, and other minerals mixed with it in the mine. The picked calamine is then calcined in proper furnaces, and looses by calcination between a third and fourth part of its weight, which is the carbonate of zinc. In great works, where calamine is prepared for the brass-makers, after its calcination, it is carefully picked again, the accidental ingredients being rendered more discernible by the action of fire. It is afterwards ground to a fine powder, and washed in a gentle rill of water, to free it from earthy particles with which it may be intermixed; for these being lighter are carried off by the water: it is then made up for use.

A ton of the crude Derbyshire calamine, as dug from the mine, is reduced, by the various processes it undergoes before it becomes fit for use, to about twelve hundred weight. Part of the zinc is lost in calcination, particularly if too strong a fire be made: this is evident by the flame visible over the furnace. It would be praiseworthy to use calamine without calcining it, for the carbonic acid would be expelled by the heat applied in making brass; but then there would be seven or eight hundred weight put into the brass pots which would be of no use in the operation: it is therefore better to get rid of so large a quantity of unserviceable matter, and thereby avoid also an increased expense of carriage from the calamine-furnace to the places where the brass is made. Watson's Chemical Essays, vol. iv.

Blende compriess various sulphures of zinc, differing in the proportion of their constituent parts, and the admixture of other mineral substances.

**Yellow Blende, or Phosphorescent Blende:** Zinc Sulphurized, Brongniart.—The prevailing colours of this ore are yellow, passing into green, and sometimes hyacinth-red, aurora-red, or brownish-red. It occurs massive, disintegrated, and crystallized. The crystals are generally small, middle-sized, and so closely aggregated, that it is difficult to determine the precise figure, which appears either the rhomboideal, the dodecahedron, the octahedron, or the tetrahedron. Yellow blende is translucent, passing into transparent, and has a splendent adamantine lustré. It yields to the knife, and affords a yellowish-grey or yellowish-white streak: it is brittle. The specific gravity rather exceeds 4: according to Karfton, it is 4.1.

It decrèpitates before the blow-pipe, and becomes grey; but is infusible either alone or with borax. By friction it becomes phosphorescent, and, according to Bergman, acts as powerful in this respect in water as in air.

**Foliated Brown Blende:** Zinc Sulphurized Brun, Brongniart.—It is of a reddish or yellowish-brown, passing into blackish-brown and dark red. It occurs massive, disintegrated, and crystallized. The form of the crystals is a rhomboideal dodecahedron, either perfect or truncated on the alternate lateral angles and edges, or an octahedron, either perfect or truncated. It occurs also in tetrahedrons, perfect or truncated, and in rectangular four-sided prisms, six-sided prisms, and acicular crystals. Sometimes the crystals are joined, forming a twin crystal. The lustre is shining or splendent, and either reflexive, adamantine, or semi-metallic; it has a slightly lamellar structure, with a cleavage in six directions. It is more or less translucent; it yields to the knife, and affords a yellowish-grey or yellowish-brown streak; it is brittle, and easily fragile. The specific gravity of this ore varies from 3.7 to 4. It is infusible, and yields an hepatic odour when digested in sulphuric acids. The constituent parts of blende are given as under; but some varieties of foreign blende contain feldspar, arfénic, and managanse, which may be regarded as accidental.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>44</td>
</tr>
<tr>
<td>Iron</td>
<td>5</td>
</tr>
<tr>
<td>Sulphur</td>
<td>17</td>
</tr>
<tr>
<td>Silex</td>
<td>24</td>
</tr>
<tr>
<td>Alumine</td>
<td>5</td>
</tr>
<tr>
<td>Water</td>
<td>5</td>
</tr>
</tbody>
</table>

From Allonhead, in Northumberland, according to Dr. Thomson:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>58.8</td>
</tr>
<tr>
<td>Iron</td>
<td>8.4</td>
</tr>
<tr>
<td>Sulphur</td>
<td>23.5</td>
</tr>
<tr>
<td>Silex</td>
<td>7</td>
</tr>
</tbody>
</table>

97.7

Fibrous
Fibrous Blende.—The colour is reddish-brown: it occurs reniform and nafllave. The structure is divergingly fibrous in one direction, and concentric lamellar in the other: its lustre is refrinous; it is opaque or faintly translucent at the edges; it agrees in other characters with foliated blende. The constituent parts are given as under in the Journal des Mines, t. xlix. No. 13.

<table>
<thead>
<tr>
<th>Element</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>62</td>
</tr>
<tr>
<td>Iron</td>
<td>3</td>
</tr>
<tr>
<td>Lead</td>
<td>5</td>
</tr>
<tr>
<td>Arsenie</td>
<td>21</td>
</tr>
<tr>
<td>Sulphur</td>
<td>2</td>
</tr>
<tr>
<td>Alumine</td>
<td>4</td>
</tr>
<tr>
<td>Water</td>
<td>98</td>
</tr>
</tbody>
</table>

Black Blende: Zinc Sulphure Noir, Háissy.—It is of a greyish or velvet-black colour, and sometimes brownish-black. When translucent, it appears blood-red; it is sometimes tarnished with various colours. It occurs malleive, differentiated, and crystalized, in the same forms as brown blende: internally it is shining, sometimes splendid; and the lustre is adamantine, inclining to metallic. It has a foliated structure, and six-fold cleavage. The fragments are angular, and rather sharp-edged. It is almost always opaque. The streak is intermediate, between yellowish-grey and lightish-brown: it is usually flaky. The specific gravity varies with the admixture of ingredients in this ore, from 3.0 to 4.1. Auriferous blende from Nagyag, as given by Muller, is 5.39. The constituent parts of black blende are as under:

<table>
<thead>
<tr>
<th>Element</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>45</td>
</tr>
<tr>
<td>Iron</td>
<td>12</td>
</tr>
<tr>
<td>Lead</td>
<td>6</td>
</tr>
<tr>
<td>Arsenie</td>
<td>5</td>
</tr>
<tr>
<td>Sulphur</td>
<td>20</td>
</tr>
<tr>
<td>Silex</td>
<td>4</td>
</tr>
<tr>
<td>Water</td>
<td>6</td>
</tr>
</tbody>
</table>

Blende is distinguished from tin-plate by its inferior hardness; it yields pretty easily to the knife. It may be distinguished from other ores which resemble it, by the sulphureous odour which it yields when thrown into an acid or triturated in a mortar. The common name given to this ore by the English miners is Black Jack. It frequently occurs in the upper part of the metallic veins in Cornwall, that are rich in other ores below. Blende is not so valuable an ore of zinc as calamine: it must be freed from its sulphur by calcination before it can be applied to the making of brars. Some blendes lose one-fourth of their weight, others one-sixth by calcination. It has been for many years used for making brars at Bridgwater as well as calamine; but so little was this application of it known in other parts of the kingdom, that in the year 1777 we are informed by Dr. Watfon, in his Chemical Essays, that its use in Derbyshire was but recently discovered; and he was requested not to divulge the purpose to which it might be applied, probably to evade the duties on minerals payable to the duty court of Lancashire.

ZINCHI, or ZICCHI, in Ancient Geography, a people of Aetlic Sarmatia, upon the coast of the Euxine sea, and separated from the Saniehe, by the river Achaesus. Arrian.

ZINCKGRABEN, in Geography, a town of Bavaria, in the bishopt of Bamberg; 5 miles E. of Lichtenfels.

ZINDIKITES, a nation among the Mahomctans; so de-
the principle which runs through all his generic distinctions of this tribe, and which is supported throughout by the infloration, as well as the parts of the flower in general. Nothing more perfect has ever been accomplished in systematic botany. See SCOTTI-AMNNER.

1. Z. officinale. Narrow-leaved Ginger. Roxb. n. 1. Ait. n. 1. (Z. majus; Rumph. Amboin, v. 5. 156. t. 66. f. 1. Amomum Zimbrum; Linn. Sp. Pl. t. 2. Wildl. Sp. Pl. v. 1. 6. Jacq. Hort. Vind. t. 3. 8. t. 75. "Infici; Rheede Hort. Malab. v. 11. 21. t. 12."); Bracteas ovate, acute. Segments of the outer limb of the corolla linear, revolute. Middle lobe of the lip entire.—Native of the East Indies; naturalized in Jamaica. A flowe plant in England, flowering in September. It appears to have been cultivated here by Edward lord Zouch, before the year 1605. The root is perennial, tuberous, fleshy, with long fleshy fibres, well known for its hot, gratefully aromatic, floral, and cordial qualities. The whole herb is smooth, and partsake of the flavour of the root. Barren flemes several, erect, herbaceous, wand-like, leafy, about three feet high. Leaves alternate, linear-lanceolate, acute, entire, single-ribbed, spreading, with long clove, sheathing, abruptly foot-flaked. Flower-flakes radical, a foot high, clothed with tubular sheathing bracteas. Spikes solitary, erect, club-shaped, enveloped in broader, shorter, leaf pointed, crowded bracteas, each accompanied by a solitary, fleshy flower, twice its own length, of a delicate texture and short duration. The outer limb of the corolla is of a very pale yellow, or yellowish, red, or brown, revolute; the upper segment rather the broadest. Lip, as well as the incurred part of the filament, spotted with crimson. We have never been able to procure any specimen or account of the fruit, which is perhaps in consequence of the great increae of the roots, not of the perfection, or if produced, it is most probably overlooked by the cultivators, who may find it expedient for the advantage of their crop, to cut away the flanks before they run to seed.

2. Z. Zerumbet. Broad-leaved Ginger. Roxb. n. 2. Ait. n. 2. Sm. Exot. Bot. v. 2. 105. t. 112. (Sp. punctum; Koenig in Retz, Obf. falc. 3. 60. Z. latifolium sylvestre; Herm. Linn. Bat. 636. t. 637. Amomum Zelumbet; Linn. Sp. Pl. t. 2. Wildl. Sp. Pl. v. 1. 6. Jacq. Hort. Vind. v. 3. 8. 8. t. 54. Lampium; Rumph. Amboin. v. 5. 148. t. 8. f. 1. "Kato-i-infi-che-i-kua; Rheede Hort. Malab. v. 11. 27. t. 13."); Bracteas ovate, obtuse. Segments of the outer limb of the corolla straight. Middle lobe of the lip clothed, slightly wavy. Rib and sheaths of the leaves smooth.—Native of the East Indies. The roots are said to be bitter, without the flavour and pungency of the true Ginger; but the young foliage, according to Rumphius, is used in Ambonza as a pot-herb. This species is not uncommon in our flowers, being easy of culture, and flowering frequently at the end of autumn. Many persons who grow it think themselves possessed of the real Ginger. The habits of the two plants are indeed very similar, but the barren flemes of the present species are rather the taller, being four or five feet high, with elliptic-lanceolate leaves; silky beneath when young. Flower-flakes eighteen inches or two feet high, thick and firm. Spike ovate. Flowers pale yellow, without scent, each lasting but a few hours. Upper segment of the outer lip ovate, acute, concave; two lower ones lanceolate. Lip yellow, its large central lobe emarginate.


121.)—Bracteas ovate, rather acute. Segments of the outer limb of the corolla straight. Middle lobe of the lip clothed, dilated, crisped, and crenate. Rib and sheaths of the leaves hairy.—Native of the East Indies, from whence it was sent by Dr. Roxburgh to this country, and flowed in August 1811, in the flowe of James Vere, Esq., at Kennington Gore. The roots had long ago been introduced into the Materia Medica as a powerful stimulant and tonic, in hydric, paralytic, and other nervous disorders, possessing a warm bitterish flavour, with the smell of Ginger; but they have long gone out of use. Their shape is leaves elongated and compressed than that of Ginger, and more annulated, tiberos or knotty. Herbaceous most like the last species, but distinguish'd by the hairy sheath and mid-rib of the leaves. Flower-flakes not above six or eight inches high. Spike ovate, brownish. Corolla pale yellow, distingjuished from Z. Zerumbet by the greatly dilated, inverely heart-shaped, crisped and crenate, middle lobe of its lip; the two side lobes being erect and entire, not larger than in Zerumbet. The plant is said to be propagated by cuttings of the roots.

4. Z. Mioga. Japanese Ginger. Roxb. n. 3. Ait. n. 3. (Amomum Mioga; Thumb. Jap. 14. Wildl. Sp. Pl. v. 1. 7. Banks i. Kempf. t. 1. 1. Dajouka, vulgo Mioga, fcn Mioga; Kempf. Am. Exot. 826.); Bracteas ovate, acute. Spike nearly feffile. Segments of the outer limb ovate, the corolla erect, acute. Middle lobe of the lip convolute, entire. —Found near Nagasaki, and in other parts of Japan, flowering in September. Thumb. Kempf speaks of this as an eatable kind of Ginger, with a mild flavour. The leafy flemes are from one to two feet, or more, in height, and with the foliage resemble those of the three foregoing species. The flower-flake is radical, and remarkably short, or scarcely any. Spike ovate, with numerous, large, white, pointed, frilated, concave bracteas; the outer ones largest, concealing many within. The flowers smell faintly like Tartar-bnr, and have a yellow, very concave, undivided lip, and a white limb. Filament greenish-white, beaked, embracing the thread-shaped style, according to the generic character, as is faithfully described by Thumb. who speaks of the fruit as a nearly ovate, obtuse capsul, with three cells and three valves, and numerous minute seeds, inferted into the central column.

5. Z. rosifum. Rose-coloured Ginger. Roxb. n. 4. (Amomum roseum; Roxb. Coromand. v. 2. 15. t. 126.); Bracteas lanceolate, coloured. Spike nearly seffile. Segments of the outer limb of the corolla revolute. Middle lobe of the lip flat, entire.—Native of moist valleys in Hindooftan, flowering in the rainy season. The Telinga call this plant Bumacatchiey. Root creeping, cylindrical, branched, not knotty. No aromatic or other quality is recorded concerning it, or any other part of the plant. Leafy flemes two or three feet high. Spike nearly seffile at the root, ovate, two or three inches long, Bracteas loosely imbricated, erect, lanceolate, acute, of a fine rose colour, as are also the calyx, and the narrow revolute segments of the outer limb of the corolla. The lip is white, obovate, entire, not concave, but somewhat reflexed. Beak of the filament yellow. No account is given of the seed-coffel.


—Native of the East Indies. Introduced into the English stoves, by the right honouable Sir Joseph Banks, in 1765, and observed by Mr. Roxboc in the Botanic garden at Liverpool. It flowers in September.

ZINGIBER, in the Materia Medica. See GINGER.
ZINGIS, otherwise JENGHIZ-KHAN, or GENGHIZ-khan, in Biography, the founder of the Mogul empire, was the son of Bifiuka, or Jefukai, a chief over thirteen hordes of Moguls in the Tartarian range between China and the Caspian sea, and born about the year 1161 or 1163, his first name being Temugin. In the year 1205 he was installed in the Mogul empire, and declared his purpose of giving a new code of laws to the nation; the object of which was the preservation of peace at home, and the conduct of war abroad. The penalty of death was denounced against murder, adultery, perjury, and the theft of a horse or ox, which were the chief articles of Tartarian property. The nation was interdicted all servile labour, the performance of which was assigned to slaves and strangers, and was consecrated to the sole profession of arms. The weapons which they were appointed to use were bows, scymetars, and iron maces; and the troops were distributed into divisions of hundreds, thousands, and tens of thousands. The soldiers and officers were made individually responsible for the safety and conduct of one another; and it was an established rule, that peace should never be granted without previous conquest. With regard to religion, Zingis established universal toleration. As for himself, his only article of faith was the existence of one God, the creator and governor of all things; but his Mogul and Tartar subjects were idolaters, Jews, Christians, and Mahometans, all of whom were allowed to practise their several rites without molestation, and without any difference of privileges. Having thus settled the affairs of the proper Mogul empire, he successively, by his own arms, and those of his lieutenants, reduced the different tribes of the desert, and rendered himself the undisputed monarch of the pastoral nations which pitch their tents from the wall of China to the Volga. For a sketch of his conquests, we refer to the article of the Mogul Empire. These conquests were attended with many acts of savage cruelty. In his invasion of Kitay, the northern empire of China, he took 90 cities, destroyed by fire a number of towns and villages, and massacred many thousands of people; at the same time obliging the Chin emperor to purchase peace at the price of a Chinese prince, 500 youths and maidens, 3000 horSES, and a large tribute in gold and silk. At his departure, he inhumanly ordered all the children whom he had taken in four provinces to be butchered. In a second expedition he laid siege to the capital city Yen-king, now called Pekin, which, after a long resistance and grievous suffering by famine, was stormed by the Moguls, with the conflagration of the imperial palace; and after the defolation of China, its five northern provinces submitted to the dominion of the Mogul conqueror. In the bloody conflicts between Zingis and Mohammed, sultan of Kharifim or Chorafim, all the rich and populous cities and countries of Tranoxiana, Kharifim, and Chorafim, were taken or laid waste by the Moguls. Mohammed died a fugitive in a desert island of the Caspian sea; but his son, Gelaeddin, boldly refilled the invader, and checked his progress, till overpowercd by numbers on the banks of the Indus, he was under a necessity of spurring his horse into that rapid river, the opposite side of which he reached in safety. Zingis, admiring his heroism, and forbidding the pursuit of him, died to his sons, “Any son might wish to spring from such a father.” Nevertheless he ordered all the sultan’s male children to be killed. After the defeat of Gelaeddin, Zingis, remaining for some time in Kharifim, pursued his customary operations of sacrificing lives, and defolating whole tracts of country. Returning to Bokhara, or Buchatia, in 1224, he investigated the antiquities of Balk and the doctrines of Zoroaster, and held conferences with the Mahometan doctors, the result of which was his affent to their tenets, the necessity of a pilgrimage to Mecca excepted. In 1224 he held a grand diet in the plain of Tonkat, which, though seven leagues in length, could scarcely contain the tents of all the distinguished persons that were assembled. In the following year he passed through Tartary to the borders of northern China, and refuted the kingdom of Hya or Tangut. In the province of Shen-hu, on the mountain of Lu-pau, whether he went in order to pafs the summer heats, he was taken ill; and as he perceived his end approaching, he summoned the generals of his army, before whom he declared his fourth son regent, till the arrival of his brother Öchëi, whom he appointed his successor in the dignity of grand khan of the Moguls and Tartars. Recommending unanimity, and advising the conduct of the war against Kin, he expired in August 1227, at the age of 66 years. His remains were interred with great pomp under a beautiful tree which he had fixed upon in returning from a hunting expedition. He had many wives, and left a numerous progeny. “This emperor,” says one of his biographers, “polished the civil and military qualities necessary for the founder of a mighty monarchy, together with a penetrating and inquiring mind, which, with superior culture, might have placed him in the list of truly great princes. His memory now survives as that of one of the great conquerors whose deeds have aminated the world, to which they have proved the most terrible of scourges. His simple laws were long the rule of the countries he governed, and are still religiously observed by the Crim Tartars.” D’Herbelot. Gibbon’s Hist. Univ. Hist. Gen. Biog.

ZINGST, in Geography, a small island in the Baltic, near the coaft of Pomerania, and a little to the weft of the island of Ufedom. N. lat. 54° 28'. E. long. 12° 50'. ZINIA, a name given by the old chemical writers for verdigris.

ZINIA, a word used by the old chemical writers to express either the action of fermentation, or any thing that is capable of exciting it in bodies.

ZINN. See Zinc.

ZINKOW, in Geography, a town of Poland, in Podolia; 32 miles N. of Kaminiec.

ZINN, JOHN GODFREY, in Biography, an anatomist and botanist, was born in 1726, studied under Haller at Gottingen, and became botanical professor in that university. His first experiments were undertaken in order to ascertain the feasibility of different parts of the brain; he then proceeded to the examination of the eye, which produced his eftemed work, intitled "Decriptio Anatomica Oculi Hominii, Iconibus illustrata," Gotting. 4to. 1755. Botany was also the subject of his arduous study, the result of which appeared in several papers, and in a catalogue of the plants in the academical garden and vicinity of Gottingen, arranged according to the fyllem of Haller. His premature death happened at the age of 32, in April 1758. He was a member of the Academy of Sciences at Gottingen, the Instititute of Bologna, and the Royal Society of Berlin. Haller, Eloy.

ZINNA, in Geography, a town of the duchy of Magdeburg; 18 miles N. of Wittenberg.

ZINNA, in Botany, was named by Linneaus, in honour of Dr. John Godfrey Zinn, professor of phyfic and botany at Gottingen, author of a Catalogus Plantarum Horti Gottingensis, printed there in 1757. This work, making an octavo volume, is clasped after Haller’s method. Its author has, besides, published various botanical and phylogographical treatises, and would probably have contributed much more to the advancement of science, had he not been cut off, at the early age of 32, in 1758. Haller, whose
whose disciple and successor he was, speaks of him with much complacency; but it is easy to see that his favour was greatly conciliated by Dr. Zinn's preference of his system to that of Linnaeus. One principle of the learned Swede he indeed very justly approved, that plants nearly related on the whole ought not to be separated on account of a difference in one particular part. Yet in the application of this rule he surely has wandered widely from the truth, in wishing to unite Gnus, Comarum, Potentilla, Torminella, and Fragaria. Such it seems was the avowed opinion of Zinn, in his Prefatio, published in 1755; but he has not followed it in his work above-mentioned. In that volume occurs, if we mistake not, the first figure of a Zinnia, under the name of a Rudbeckia; though the author justly declares it to constitute an indubitably new genus.—Linn. Gen. 437. Schreb. 563. Willd. Sp. Pl. v. 3. 2139. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 91. Pursh 565. Juss. 188. Lamarck Illust. t. 683. Gzrn. t. 172.—Clas and order, Syngenesia Polygalina-superflua. Nat. Ord. Composite opposti-folia, Linn. Caryophyllae, Juss.

Gen. Ch. Common Calyx ovato-cylindrical, smooth, imbricated, with numerous, obtuse, erect, permanent scales. Cor. compound, radiated. Flores of the elevated disk several, all perfect, funnell-shaped, three-cleft, internally villos; those of the radius from five to ten, ligulate, roundish or oblong, abrupt, larger than the disk, permanent. Stam. in the perfect florets, Filaments five, very short; anthers united into a cylindrical tube. Pila in the perfect florets, Germin oblong, with two unequal axes; fyll thread-shaped, cloven half way down; filigmas two, erect, obtuse; in the female florets, Germin oblong, triangular, without axes; fyll capillary, cloven half way down; filigmas two, recurved. Peris. none, except the unequited calyx. Seeds in the perfect florets, solitary, oblong, quadrangular, compressed. Down of two points, one of them anwad. In the female florets solitary, pointless, crowned with the permanent petal. Recept. chaffy, with tongue-shaped, channelled, deciduous scales, the length of the calyx. Eff. Ch. Receptacle chaffy. Seed-down of two erect unequal axes. Calyx imbricated, somewhat ovate. Florets of the radius from five to ten, permanent, undivided.

1. Z. pumila. Yellow Zinnia. Linn. Sp. Pl. 1269. Willd. n. 1. Ait. n. 1. (Bidens calycy oblongo quamo, feminibus radii corollæ non deciduæ coronatæ; Mill. t. 1. 1. 43. t. 64. Rudbeckia folis oppositis hirsutis ovato-acutis, calycy imbricato cylindrico, radii petalis piliferis; Zinn. Gutt. 459. L. 1. Chemigounum peruvianum; Linn. Sp. Pl. ed. 1. 636, excluding the synonym, which is wrong, and a heap of confusion; see Feul. 766.) —Flowers feasible. Zinnia somewhat heart-shaped, sessile, clasping the stem.—Native of Peru. Cultivated by Miller, but not commonly preserved in our gardens like the following, being less hardy, and not so ornamental. The root is annual. Stem erect, three or four feet high, branched, angular, leafy. Leaves opposite, deflexed, two or three inches long, acute, roughish, entire, rough-edged, with three principal ribs; their base broad-crenated. Flowers solitary at the ends of the branches, nearly or quite sessile, with the uppermost pair of leaves close to the base of the calyx; disk brownish; radius yellow. We perceive a difference between several specimens and figures of this plant, but cannot trace an absolute or constant specific distinction between them. In the Linnean specimen, the small number of florets justifies the specific name, and the flower itself is quite sessile. This is undoubtedly Miller's plant, though the radiant florets are much more numerous in his figure, and the whole flower larger. A specimen under this same name of pavifera, given us by Joseph Banks, from Jacquin's herbarium, is what Zinn's figure exactly represents. The leaves are shorter, more rounded and heart-shaped, and the flower is large, with more or less of a flap. Its radiant florets are numerous, broad, and yellow. How far these characters are permanent, culture, and repeated observations must determine. We are rather inclined to suspect the Linnean specimen, raised in the Uphal garden, is a flaved one, the flowers perhaps being rendered diminutive by their lateness. It is most probable that a portion of the fame feed was sent by Juffieu to Linneas and to Miller. The plant indeed flowered at Uphal before the year 1755, when Miller says he received his seeds, because it is described, in the first edition of Sp. Pl. printed that year, from the garden specimen now before us.

2. Z. multiflora. Common Red Zinnia. Linn. Sp. Pl. 1269. Willd. n. 2. Ait. n. 2. Pursh n. 1. Curt. Mag. t. 149. Linn. Dec. 23. t. 12. Jacq. Obs. fac. 2. 19. t. 40.—Flowers talked. Leaves opposite, ovato-lanceolate.—Native of North America. Found on the banks of the Mississippi, flowering in July and August. Annual. Rays yellow, orange, and sometimes brick-red. Pursh. The latter colour is most common in the gardens of Europe, where this plant is treated as a rather tender annual, like the different species of Tagetes, being belt raised on a hotbed, and planted out so as to flower in the autumn. A yellow variety, almost equally common, is less singular and striking in colour. We are not by any means certain that this variety may not be sometimes' taken for the foregoing; yet the plant of Zinn and Jacquin, of which we have just given an account, is too different in the great breadth of its leaves to be confounded with the present species. The Z. multiflora has a more hairy stem than the pavifera, much narrower and elongated leaves, with three ribs; their surface roughish to the touch. The flowers stand each on a hollow, deeply furrowed, terminal stalk, from one to two inches long, much thicker than the stem, and gradually swelling upwards. The disk is conical and acute, composed of reddish or tawny florets, accompanied by the prominent, dark-green, or blackish, scales of the receptacle; the radius consists of ten or more broad, elliptical, usually emarginate florets, of a deep brick-red, and very smooth, above; pale, greenish, and rough beneath; reticulated with veins, and finally becoming rigid, or membranous.

3. Z. verticillata. Whorl-leaved Zinnia. Andr. Repof. t. 189. Willd. n. 3. Ait. n. 2.—Flowers talked. Leaves whorled, ovato-lanceolate. Radiant florets very numerous.—Native of Mexico. Raised by Meiff. Lee and Kennedy at Hamletsmith, about the year 1789. We cannot suppose this to be any thing more than a luxuriant variety of the last. Annual plants, pampered with manure, and every possible advantage of cultivation, are liable to acquire aggregate leaves, double flowers, and many other characters, which do not appear in a flate of nature. Thee it is the bufness of the gardener to encourage, and of the botanist to beware of. Having seen no specimen of this plant, we can only judge by the figure, in which we cannot discover any specific distinction. The flowers indeed are rendered very splendid, by their multiplied radius of a deep scarlet, and their disk seems broader, and lefs conical, or pointed, than in either of the foregoing species. This last character, if constant, is more material than any which has been mentioned.

fringed. Tubular florets with a hairy disk.—Native of Mexico; said to have been brought to England from Madrid, in 1796, by the late marchioness of Buté; whose botanical acquisitions in Spain, made with no less intelligence than taste, have eminently enriched the gardens of England. This is also a tender annual, flowering from Midsummer to the end of autumn. The **herbage** is floriferous, the leaves broader, and more much harth to the touch, like a file, than in any other of the genus. **Florets**, in a cultivated flat at least, as large as the leaf, with a conical, but rather obtuse, disk; the prominent orange-coloured scales of the **receptacle** have many finely-fringed segments; the upper surface of the yellow tubular **florets** is densily fagos; the **radii** consists of numerous, spreading, obovate **florets** of a deep lilac, or light purple, colour, leaves or leafy, after flowering than in the **multiflora**.

5. **Z. tenuiflora**. Slender-flowered Zinnia. Jac. Ic. Rar. t. 590. Wild. n. 5. Ait. n. 5. Curt. Mag. t. 555. (Z. revoluta; Cavan. Ic. v. 3. 26. t. 251.)—**Florets** stalked. Leaves opposite, ovato-lanceolate, pointed. **Calyx** cylindrical. Radiant **florets** linear, revolute.—Native of Mexico. Railed here in 1799, by the late captain Woodford, at Vauxhall. This very distinct species requires the same treatment as the red. They may all, perhaps, succeed, in a favourable season, as hardy annuals, but are best railed with artificial heat in the spring. The present has much narrower leaves than the late, which moreover are nearly smooth. The **florets** are the smallest of their genus, and distinguished by their bright red, narrow, revolute radiant **florets**, very rough at the edges; the tubular **florets** are yellow, roughish in their disk.

**ZINNIA**, in Gardening, contains plants of the annual flowering kind, in which the species cultivated are, the few-flowered yellow zinnia (**Z. pauciflora**), and the many-flowered red zinnia (**Z. multiflora**). These are both plants of the annual flower kind.

**Method of Culture.**—These annual plants are increased from seeds, which should be sown on a light hot-bed in the early spring, as March; and when the plants are a few inches high, they should be pricked out on another bed previously prepared to receive them, where they should remain till the advance of summer, when they may be taken up and planted out in the borders of the pleasure-ground, where they blow and complete their seeds for the year following.

They have a fine effect in their leaves and flowers in these situations.

**ZINNORE**, in Geography, a town of Hindoostan, in Guzerat, on the Neruddh; 30 miles N.E. of Baroach.

**ZINTEN**, a town of Prussia, in the province of Nantagen, near which the Poles were defeated in 1520; 30 miles S.S.W. of Königberg. N. lat. 54° 23'. E. long. 20° 20'.

**ZINTI**, a town of South America, in the vicerealty of Buenos Ayres, and archbishopric of La Plata; 90 miles S. of La Plata.

**ZINU**, a province of South America, in the vicerealty of New Grenada, situated to the north of Choco, and west of Carthagena.

**ZINQ, or Sinu**, a town of South America, and capital of a province, on a river of the same name, which runs into the Spanish Main; 90 miles S. of Carthagena. N. lat. 8° 48'. W. long. 75° 48'.

**ZINWALD**, a town of Bohemia, in the circle of Leitmeritz; 18 miles N.W. of Leitmeritz.

**ZINZENDORF, Nicholas Louis**, in Biography, was born at Dresden in May 1700, and was educated under the instruction of his grandmother, who was a pious woman, accustomed to the perusal of the Scriptures. He was thus led into an early acquaintance with the principal doctrines of the Christian religion, and manifested a peculiar taste for spiritual songs. Under professor Franke at Halle, he became a good classical scholar; and his facility in composing verses was such, that he indited them faster than he could write them. Such, however, was his proneness to dilapidation, and particularly gaming, that he squandered away not only his money, but all his effects. From his youth he was fond of forming religious societies, and it is said that he had established seven associations of this kind between the year 1712 and the year 1716, when he left Halle. One of his companions in forming these institutions was Baron Frederick von Watteville, in intercourse with whom he first conceived the idea of attempting the conversion of the heathens. With this view they bound themselves by an oath, and determined to employ others in accomplishing this design who were properly qualified for the office. This resolution seems to have taken its rise from a baptized native of Malabar, who had been brought to Halle by the missionary Ziegenbalg. In 1716 Zinzendorf removed to Wittenberg, where he applied diligently to his studies; and in 1719 he quitted Wittenberg, in order to gratify his relations by pursuing his travels. On his tour he remained for some time at Utrecht, prosecuting his studies in history and jurisprudence; but his chief attention was directed to theology, as he had formed a purpose of becoming a preacher. From Holland he proceeded to Paris, where he associated with his friend, Henry, prince of Reuss, and endeavoured to spread his doctrine among the Catholic nobility, by some of whom they were treated with respect, while others contemptuously denominated them Janeniltts and Pietists. At this time he was introduced by Father de la Tour, general of the Society of the Oratory, to the archbishop of Paris, and attempts were made, without effect, for gaining him over to the Catholic church. During his abode at Paris he formed an acquaintance with several other persons of distinction. From Paris he proceeded through Switzerland to Germany in 1720, and having arrived at Hernsfeld, in Lusitania, he found his grandmother still living, and employed himself in communicating instruction to the domestics, and corresponding with his friends. Soon after, retaining his purpose of becoming a preacher, he went to Dresden, and having received his property from those with whom it had been entrusted, he purchased the lordship of Bertholdsdorf, in Lusitania, and marrying a sister of the prince of Reuss, distinguished for her piety and virtue, he aligned to her his whole property, that he might not be incumbered and diverted from the prosecution of his design by the cares of the world. About the year 1722 he indulged the notion of a purer church discipline, of which he observed some traces among the Bohemian and Moravian brethren, who, from their earliest connection with the Waldenses and true followers of John Huss, had formed a peculiar religious community. The Christians of this description had undergone from the year 1459 to 1627 severe persecutions, so that they were almost exterminated from Germany; but a small number of them remained, under oppression, in Moravia; and about the year 1720 the feeble revived: so that they held frequent meetings, read the Scriptures with their old books of hymns, celebrated in secret the holy sacrament, and introduced, at least in their houses, the ancient church discipline. One of their number, of obscure condition, obtained an introduction to count Zinzendorf, who gave them leave to settle on his estate at Bertholdsdorf. Availing themselves of this permission, a small number of them, confiding of three men, two women,
women, and five children, came hither from Moravia, in Whitsuntide, 1722, and erected on a hill, in a wild marshy district, a wooden habitation, exposing themselves to the derision of the adjacent inhabitants. They were so poor that the countes fed them a cow to supply milk for their children. However, they gradually gained new converts; and when the count and his comfort visited this new settlement of the Moravian brethren in the month of December, he gave them cordial welcome, and falling upon his knees, pronounced a benediction on the infant colony. Such was the origin of the village of Hernhut. (See Hernhuters and Moraviams.) The count, whilst he afforded them protection, left them at full liberty to think for themselves; more especially as he found, upon examination, nothing improper in their doctrine. From this time, count Zinzendorf, in connection with some other persons similarly disposed, took pains in giving instruction to his subjects, and educating their children; avowing himself a true Lutheran, but willing that his people might remain totally ignorant of the disputes that subsisted among Protestant divines. In 1723 he published a small catechism, entitled "The pure Milk of the Doctrine of Jesus," which, he says, cost him more labour than all his other works. The count, devoted to the prosecution of the work he had undertaken, refused sometimes on his estate in Lusatia, and sometimes at Dresden, but declined every offer of a place at court. He employed himself in the composition and occasional publication of books adapted to his design; one of which, being a periodical work, and entitled "The German Socratics," was suppressed by order of the council, probably because it caused the prevailing indifference about religion, and called upon his fellow-citizens to live in a manner more agreeable to what their religion required, or entirely to renounce it. In 1727 he quitted Dresden, that he might be nearer his favourite object Hernhut, and that he might be at leisure to devote his whole time and attention to the improvement and increase of his congregation. With this view he made a tour through the greater part of Germany, occasionally preaching, and endeavouring to gain converts. In 1731 he extended his tour to Denmark, and being present at the coronation of Christian VI., who conferred upon him the order of Dannebrog, which five years afterwards he resigned, because he thought it improper to appear as the instructor of his flock with the insignia of his order. In this tour he acquainted himself with the state of the Danish missions in the East Indies and Greenland; and on his return he took measures for carrying into execution the design he had formed at Halle with his friend Vatteville. From this commencement, in the year 1732, arose that missionary system of the Moravians which has since been so widely and so wonderfully extended. Between 1732 and 1760 nearly 4000 negroes in the Danish islands were baptized; and in 1768 the congregation of New Hernhut and Lichtenfelde, in Greenland, amounted to 784 persons. When the congregation at Hernhut had increased in 1732 to 500 persons, the Saxonic court became alarmed, and appointed a commission for the purpose of examining their doctrine and principles. Although they were found to be inoffensive, the count was forbidden to bring any more new emigrants from Moravia; and soon after he received an order to sell his estate and property, which was a kind of sentence of banishment from his country. He also perceived a coldness and reserve in the disposition of his friends. Accordingly he quitted Hernhut, and repaired to his friend count Reifs at Eberfors. He now thought seriously, as he had done twenty years before, of entering regularly into the church; but the countes and his friends dissuaded him from adopting this measure. With a view of becoming tutor to the children of Richter, a merchant at Strałund, to which he was urged by his pecuniary circumstances, he was examined for orders, and having obtained a flattering testimonial, was formally ordained at Tubingen. But a change taking place in the circumstances of Richter, this plan did not succeed. In 1735 he made an attempt to visit Sweden, but was forbidden to enter the kingdom by an order of government; and this occasioned the composition of one of his most important works, entitled "A Letter to the King of Sweden in regard to the general belief of himself and Congregation," which he widely circulated, and which produced various plans for extinguishing the Moravian brethren from the empire. In the same year he visited Switzerland, and in 1736 he and the countes made a tour to Holland, where, at the desire of the princes dowager of Orange, he founded a new colony at Ylichten, called Heerendyk, which was afterwards removed to Zuyt. On his return he found at Caffel a copy of a Saxon reprint, by which he was forbidden the territories of that electorate, and banished from his native country. He was thus reduced to the necessity of making various excursions; and on his return he was invited to a conference with the king of Prussia, who was so well satisfied with his doctrine and character, that he advised him to be regularly ordained. For this purpose he recommended him to the chief court preacher Jablonicky, by whom he was consecrated bishop of the Moravian congregation in May 1737. In this year he visited London, and established the brotherhood in England. Here he became acquainted with John Wesley, and maintained a dispute with him on the impossibility of men's attaining moral perfection, for which the English preacher contended. Although he obtained permission to return to Hernhut, it was on condition of his making certain declarations with which he could not comply, and therefore he became a voluntary exile; and was forbidden ever to enter Saxony. In the year 1738 he undertook his first voyage to America, in the course of which he composed a work entitled "Jeremiah a Preacher of Righteousness." Upon his arrival at the island of St. Thomas, he found that all the millionaires had been thrown into prison, but he immediately procured their release, and liberty for his congregation to assemble. After his return he visited Holland and Switzerland, wrote in his own defence against the accusations of his German enemies, and held public assemblies at Geneva. In 1742 he made a second voyage to America, and preached alternately with their own minister to the Lutheran congregation at German-town, in Pennsylvania, and built for them a place of worship. In a Latin speech at Philadelphia he laid aside the title of count, and assumed the name of von Thummler, which belonged to his family. The Quakers generally tried him friend Lewis. He also established the celebrated colony at Bethlehem, and made a tour among the Indians, who received him favourably, and, as a token of their friendship, gave him the wampum belt. In America, however, he suffered much abuse and calumny. In 1743 he returned to Europe; and having proceeded to Riga with a view of settling some differences among his followers at Livonia, he was arrested, conveyed to the frontier, and ordered never to enter the imperial territories any more. In 1747 he obtained permission to return to Saxony, after an exile of ten years; and the king, having received from one of the Moravians a considerable sum of money for the cattle of Barby and district of Dothen, issued a declaration that the society should be allowed, in every part of his territories, the same privileges which they had enjoyed at Hernhut. In 1748 he
he succeeded in obtaining a commission, which, after particular examination, declared the members of the Moravian community to be true adherents to the Augsburg confession. In the following year he visited England, and obtained an act of parliament for the protection of his followers in the British dominions in America. In 1757 he made his last tour to Switzerland, and from thence proceeded to Holland. In 1760 he died at Hermitut, after an illness of four days, and his funeral was attended by 2000 of his followers, and as many peculators; and his coffin was carried to the grave by thirty-two preachers and missionaries, some of whom had come from Holland, England, Ireland, North America, and even Greenland. Count Zinzendorf was somewhat above the middle size; and his countenance combined fer- rousness with animation. In early life his manners were elegant, but as he withdrew from intercourse with the world, in more advanced life they became stiff and refractory. To money he was perfectly indifferent, and as he gave to every mendicant, he was often penniless. His disposition was lively, but he was capable of long-continued and intensive application. His memory was prompt and comprehensive, but as he was of a lively imagination it was not very retentive. In his style he bid defiance to all the rules of grammar, and his ambiguous mode of expression subjected him to many inconveniences, for that his meaning was often mistaken and misrepresented. To persons of the lower order he was condescending, and in his intercourse with all mild and candid. In his temper he was irritable and passionate, but placable and forgiving. His activity in doing good and serving others was indefatigable and unbounded; he often promised, it is said, with the best intentions, beyond his ability of performance; and he is charged with having used art and flattery to carry on his own purposes, and to gain converts to his cause. Molheim, &c. Gen. Biog.

For a further account of the tenets and partisans of the sect with which he was connected, and of which he was, according to his own statement, a reformer, and not a founder, we refer to the articles Hernhuters, Moravians, and Unitas Fratrum.

Zinziber, Ginger. See Zinziber and Ginger.

Zinziber Rubrum, Red Ginger, a name by which some authors have called the officinal cafumun-root.

Zinziber Cannum, Dog's Ginger, in Botany, a name given by some of the old writers to the pericaria urent, or biting arsmart; a plant which is very hot, and pungent to the taste, and grows in wetty places. It had hence the name of hydropiper, water-pepper, among the Greeks, and was called zinziber cannum, or dog's ginger, by Avicenna and others, from its heat, and from an opinion that it would poison dogs that eat of it.

The Arabic name is sinzild alkeleb.

Zinziber Canum is also a name given by some authors to the capricum, or Guinea-pepper. Ger. Einac. Ind. 2.

Zinzig, or Sinzig, in Geography, a town of France, in the department of the Roor; 18 miles N.N.W. of Coblenz. N. lat. 50° 33'. E. long. 7° 12'.

Zinzilla, a name by which some medical writers have called species of the herbes, which we usually call the figngles.

Zinzoca, in Geography, a town of Mexico, in the province of Mechoacan, anciently the residence of a cacique.

Zioberis, in Ancient Geography, a river of Asia, in Hyrcania, which discharged itself into the Rhodyage, according to Quintus Curtius. Diodorus Siculus calls it Stibocetes.

Ziolo, in Geography, a town of Italy, in the Paduan; 10 miles S.E. of Padua.

Zion, in Ancient Geography. See Sion and Jerusalem.

Ziph, a town of Palestine, in the tribe of Judah. (Joel. xv. 24.) St. Jerom says, that in his time they showed the village of Ziph, 8 miles from Hebron eastward. David for some time concealed himself in the wilderness of Ziph. (1 Sam. xxiii. 14, 15.) There was another city called Ziph, near Maon and Carmel of Judah. (Joel. xv. 55.)

Ziphon, or Zepronia, a city N. of the land of promise, now unknown. Numb. xxxiv. 9.

Zipoetium, a town of Asia Minor, in Bithynia, near mount Lyperus, and which had been founded by king Zipotens. Steph. Byz.

Zipporis, a name which the ancients gave to the town of Scfora or Szaffon. It was the strongest place in Galilee, and its position might be regarded as the key of the province, according to Josephus.

Zipserchloss, in Geography, a town of Hungary; 6 miles E. of Leutisch.

Zirbalis Hernia, a term used by medical writers to express that kind of rupture which is caused by a defect of the omentum into the feromum.

Zirbus, the name by which the Arabian physicians have called the omentum.

Zircon, in Mineralogy, Jargon de Ceylon, Romé de Liffe, Zircon, Haüy, a gem originally found in the island of Ceylon, in the sands of rivers, along with spinel, sapphire, tremalenn, and iron-sand. Zircon, the gem called the hyacinth, and zircone, are regarded by most mineralogists as varieties of the same species. They are essentially composed of the earth called zircon, (see Zirconia, in Chemistry,) with flixus, and a minute portion of iron, which may be regarded merely as the colouring matter. The primitive form of the crystals of zircon, according to Haüy, is an octahedron, composed of two four-sided prisms, whose fides are ifofceles triangles. The inclination of the planes of the fame pyramid to each is 124° 12; the inclination of the fides of one pyramid to those of the other 82° 50. The angle of the summit is 73° 44. The common forms in which it occurs are rectangular four-sided prisms, rather flatly terminated by four-sided pyramids, the planes of which are set on the lateral planes of the prism under equal angles. The above figure is often truncated in the lateral edges. The angles of the prism, in junction with the pyramid, are often bevelled, and sometimes the prisms are terminated by four planes at each end, two of which at each end form very obtuse angles, and are set on the lateral planes of the prism. The crystals are generally small, and occur loose or imbedded. The surface of the crystals is sometimes rough, and sometimes smooth and shining; that of the grains is uneven, and glintening internally. Zircon is splendid or shining, with a luftre intermediate, between adamantine and refrinous. The stucture is imperfectly foliated, with the fola parallel to the lateral edges of the prism. The fracture is flatly conchoidal. The prevailing colour of zircon is grey; it is sometimes white, green, and brown, and occasionally yellow, blue, and red. The colours are pale; it is sometimes transparent, but more frequently semi-transparent or translucent: it refracts doubly. Zircon is harder than quartz, but softer than the diamond. The specific gravity varies from 4.5 to 4.7. It is inffuble without addition by the blow-pipe.

According
According to Klaproth, the constituent parts are,

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<th></th>
<th>Zircon</th>
<th>Silex</th>
<th>Oxyd of iron</th>
<th>Lofs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>69</td>
<td>26.50</td>
<td>5.00</td>
<td>2.80</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Hyacinth**: Zircon Hyacinth, Brongniart. — The prevailing colour of this mineral is orange-red; it is sometimes yellow, grey, and green, and very rarely white. It occurs in angular grains, but more frequently in small crystals, which have the following forms. A rectangular four-sided prism, terminated by four rhomboidal faces at each end, set on the lateral edges of the prism; the prism is sometimes truncated on the edges. Sometimes it occurs in an irregular garnet-shaped dodecahedron, and sometimes in a flat octahedron. The structure is foliated; it has a double rectangular cleavage, and the folia are parallel with the diagonal of the prism. Hyacinth is transparent or translucent, and refracts doubly: the lustre is resin-vitreous and splendent. It is very hard, scratching quartz with ease. The specific gravity varies from 4.3 to 4.7. Before the blow-pipe it loses its colour, but not its transparency, and is infusible. According to Klaproth, the constituent parts of hyacinth of Ceylon are,

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<tr>
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<th>Zircon</th>
<th>Silex</th>
<th>Oxyd of iron</th>
<th>Lofs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>70</td>
<td>25</td>
<td>6.50</td>
<td>4.50</td>
<td>100.00</td>
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</tbody>
</table>

According to Vauquelin, the constituent parts of hyacinth of Expailly are,

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<th>Zircon</th>
<th>Silex</th>
<th>Oxyd of iron</th>
<th>Lofs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>64</td>
<td>32</td>
<td>2</td>
<td>1</td>
<td>99.00</td>
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</tbody>
</table>

Zirconite does not appear to differ from zircon, except in the situation in which it is found. It occurs in small crystals of a reddish-brown colour, imbedded in sienite. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th></th>
<th>Zircon</th>
<th>Silex</th>
<th>Oxyd of iron</th>
<th>Lofs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>65</td>
<td>33</td>
<td>1</td>
<td></td>
<td>99.00</td>
</tr>
</tbody>
</table>

Zircon and hyacinth, as we have stated, were originally found in Ceylon; they have since been found in various parts of Asia and Europe.

Zircon occurs in considerable quantities along with felspar and iron-fand in volcanic fand, in a rivulet near Expailly in Auvergne; also near Pits, and in the volcanic fand of the Vicentine. It has been found in trap-rocks in Bohemia, and in the vicinity of Lisbon. It was first found in its native situation at Friedrichschwamm, in the district of Christiana, in Norway, imbedded in sienite. It was also found in bafalt near Expailly, and in the mountain of Anif in Auvergne, and also in volcanic scoria in the same country. It has been found in rolled mafies of sienite by professor Jamelon in Scotland, in the county of Galloway; and has since been met with in granite near Cuffel, in Dumfriesshire.

Zircon has been found in South America, and in the province of New Jersey, in the United States.

Zircon and hyacinth are characterized by their great specific gravity. Common zircon has been frequently confounded with the diamond, but the specific gravity alone would be sufficient to distinguish them; that of the diamond does not exceed 3.5. The hyacinth has often been confounded with other minerals. The oriental hyacinth of Rome de Lisle is orange-coloured sapphire. The occidental hyacinth of Dutens is yellow-coloured topaz.

Crusiform hyacinth is cros-stone; brown volcanic hyacinth is velvian; white hyacinth of Somma is meonite.

The hyacinth of Deffentis, mentioned by Saffuir, is a variety of garnet.

Common zircon is frequently cut and polished by the jewellers as a gem. The greyish-white and yellowish-white varieties are the most prized, on account of their resemblance to the diamond. The darker coloured varieties may be deprived of their colour by heat. It is cut into the same forms as the diamond, and exhibits faintly the same play of colours, and is not unfequently fold as an inferior kind of diamond. The hyacinth is also employed by jewellers in various kinds of ornaments; but pale garnets and rock crystals are frequently fold for hyacinths.

**Zirconia**, or Zircon, in Chemistry, the name of a peculiar earth, hitherto only met with in the minerals termed hyacinth, and zircon or jargon. See the preceding article.

Zirconia exists in the form of a fine white powder, which feels rather harsh when rubbed between the fingers. It has neither taste nor smell. It is infusible before the blow-pipe; but when heated violently in a charcoal crucible it undergoes a form of imperfect fusion, and acquires a greyish colour and porcelainous appearance. In this state it is very hard, and its specific gravity is 4.3.

Zirconia is insoluble in water, but has a considerable affinity for that liquid. It does not combine with oxygen, azote, or any of the fimple combustibles, but appears to have a strong affinity for many metallic oxys, especially for that of iron.

It is insoluble in alkaline solutions, neither can it be fused with them by the affillance of heat; but it is soluble in the alkaline carbonates. Sir H. Davy subjected this earth to the action of galvanism, and obtained evidences of its containing a metal as its basis. To this metal he gave the name of zirconium. Nothing satisfactory is known respecting its nature.

No very accurate analysis of the farts of this earth have been yet made. From some experiments of Kaproth and Vauquelin, Dr. Thomson fixes the weight of its atom at 45.25, though it is probable that this is not to be absolutely relied upon.

**Salts of Zirconia**: Nitrate of Zirconia. — This salt may be formed by pouring nitric acid on newly precipitated zirconia. It always contains an excess of acid, and does not crystallize. It is decomposed by heat, and most of the vegetable acids, except perhaps the acetate.

**Carbonate of Zirconia** is a white insoluble powder. It may be formed by double decomposition with the alkaline carbonates, and solutions of zirconia in acids. **Sulphate of Zirconia.** — This salt exists in the form of a white powder, but may be obtained in small needle-formed crystals. It has no taste, and is insoluble in water. It is easily decomposed by heat.
Acidate of Zirconia.—This salt has an astringent taste. It does not crystallize. It is very soluble in water and alcohol.

The other salts of zirconia are mostly white insoluble powders, little known, and apparently poifoming very little interest. With respect to the general properties of zirconia and its compounds, it may be remarked, that the alkalies and alkaline earth separate this earth from its combinations with acids. The salts of zirconia have an astringent, harsh, disagreeable taste, similar to some of the metallic salts. They are most of them insoluble in water. Those which are soluble yield white precipitates when sulpheric acid, carbonate of ammonia, oxalate of ammonia, tartrate of potash, and infusio of nut-galls, are dropped into their solutions. These properties sufficiently distinguish this earth from alumina and ytiria. For further particulars respecting this earth, see the articles above referred to.

ZIRCONITE. See Zircon.

ZIRCONIUM, the metallic basis of zirconia. See Zirconia supr.

ZIRIANKA, in Geography, a small river of Russian, which runs into the Enfie, near its mouth.—Alfo, a town of Russia, on the Nizine Tungula. N. lat. 16° 16'. E. long. 106° 54'.

ZIRICZEE, a town of Holland, one of the most ancient in Zealand, and capital of Schouwen, built and surrounded with walls in the year 859, by a person named Ziringus, from whom it is called. It was the ancient residence of the comtes of Zealand, and was at that time a place of much more confluence than it is at present, the port being filled with sand. The inhabitants carry on a considerable trade in grain, salt, and fish; the town is large and populous, and has several good buildings; the church, called the "Munker," dedicated to St. Levinus, is a handsome structure. N. lat. 51° 40'. E. long. 30° 48'.

ZIRKNA, a river of Syria, which runs into the Mediterranean, 8 miles S. of Tortara.

ZIRKINZ. See Cirknit.

ZIRKIVITZ, a town of Sileia, in the province of Oels; 14 miles N. of Breflau.

ZIRL, or Cint., a town of the county of Tyrol, on the Inn; 7 miles W. of Innsbruck.

ZIRNOE, a town of Russia, in the government of Saratov; 32 miles S.W. of Saratov.

ZIRO, Lo, a town of Naples, in Calabria Citra; 9 miles E. of Umbriciato.

ZIROVAIA, a small river of Russia, which runs into the Penzinflain gulf, 32 miles S.W. of Oklanski.

ZIRUA, a small island in the Mediterranean, near the coast of Tunis. N. lat. 33° 39'. E. long. 11° 39'.

ZIRWITZ, a town of Sileia, in the principality of Oels; 3 miles E. of Trebnitz.

ZIRZING, a town of Austria; 6 miles E. of Steyrregg.

ZIS, a river of Africa, which rises in the Atlas, passes by Sugulmeff, and falls itself in the sands, in the country of Tabbet.—Alfo, a mountain of Africa, between Sugulmeff and Fez; 40 miles S.S.E. of Fez.

ZISEL, in Zoology, a name given by Buffon to the earless marmot, or mus citellus of Linneus. See Cittellus.

ZISKA, John, in Biography, a distinguished leader among the Hussites, was the son of a Bohemian gentleman, named "De Trocznow," and celebrated for military valour in his youth. Ziska, denoting "one-eyed," was an appellative, which he bore in consequence of having lost an eye in a combat, on occasion of the perfidious execution of John Hufs and Jerome of Prague, at the council of Constance. Their followers took up arms, and invited Ziska to be their commander. In 1519 he accepted the invitation; and having assembled a body of peasants, he soon disciplined them so as to be equal to veteran troops. From a fortress which he constructed on an elevated situation, and called Thabor, the Hussites derived the name of Thaborites. At the siege of Rabi he lost his other eye; but though totally blind, he executed his office as commander with great vigour and success. At Auffig on the Elbe he gained a complete victory over the Catholics, and left 6000 of them on the field, retaliating the severities which they inflicted on the Reformers, by demolishing their churches, committing their priets to the flames, massacreing those who were prisoners, and laying waste their country, and thus rendering his name formidable. Having made himself master of the new town of Vienna, it was invested by the emperor Sigismund and other princes: but Sigismund, being defeated with great slaughter by the Thaborites, was obliged to retreat into Moravia, while Ziska laid siege to Wihrade. When the emperor with a fresh accession of forces renewed the attack, he lost his whole army, and the town surrendered to Ziska. He also dispersed an army of crusaders commanded by an archbishop; and in 1422 he again routed the army of Sigismund. In the mean time the Hussites renounced their allegiance to Sigismund, and chose for themselves a king; but this measure was disapproved by Ziska and the Thaborites, because they were inclined to a republican government; and the new king was compelled to abdicate his crown. Such were the reputation and importance which Ziska acquired, that Sigismund proposed to him terms of accommodation; but in his journey to hold a conference with the emperor, he was seized with the plague, which terminated his life in 1524. Although the fury of his having ordered his feth to be given to the birds and beasts, and his skin to cover a drum, for the purpose of sounding dismay to his enemies and courage to his friends, be fabulous, it is certain that the Bohemians regarded his memory with superstitious veneration. Un. Hist. Gilpin. Gen. Biog.

ZISPATA, in Geography, a bay of the Spanish Main, on the coast of South America; 80 miles S. of Cartagena.

ZITERSDORF, a town of Austria, with a citadel. In the year 1704, this town was miserably laid waste by the Hungarian rebels; 20 miles N.E. of Vienna. N. lat. 48° 28'. E. long. 16° 43'.

ZITARA, a town of South America, in New Grenada, and capital of a distrit, to which it gives name, in the province of Chocos; 120 miles S.W. of Santa Fe de Antiquia. N. lat. 6°. W. long. 76° 30'.

ZITHA, or Sitia, in Ancient Geography, a town of Asia, in Mesopotamia, on the bank of the Euphrates. Potlowey.

ZITTAU, in Geography, a river of Germany, which runs into the Saal, 4 miles S.S.E. of Bernburg.—Alfo, a town of Lusatia, on the river Neife. This town is considered as one of the best in Lusatia, and fortified in the ancient manner; it contains two churches within the walls, and three without, with three hospitalls and an orphan-houfe; 17 miles S. of Gorlitz. N. lat. 50° 49'. E. long. 14° 56'.

ZITWA, a river of Lithuania, which runs into the Niemen, 20 miles S.E. of Lida, in the palatinate of Wilna.

ZIVAGEE, or Archachera, a town of Hindooflan, in Canoe, on the Pirate coast; 30 miles S. of Severndroog.

ZIUF, a town of Africa, in the kingdom of Tunis.

ZIVOLO, in Ornithology, a name by which some authors have
have called the smaller species of yellow-hammer, from its constant note, which is only zi, zi.

It is of the fize of the common sparrow; its beak is thick and short; its breast and belly yellowish, spotted with brown; and its head, back, wings, and tail, of a dusky-brown, but two of the tail-feathers on each side have a variegation of white.

The difference between the male and female in this species is, that the male is yellow, and has some yellow spots on its neck and sides, which are wanting in the female. It is almost always seen on the ground, and feeds on seeds, &c. It seems but little if at all essentially to differ from the common yellow-hammer; and Mr. Ray has some suspicion that they are the same species.

ZIWICA, in Geography, a town of Austrian Poland; 35 miles S.W. of Cracow.

ZIZA, in Ancient Geography, a town in the interior of Arabia Petraea. Ptol.

ZIZANIA, in Botany, an ancient name, δικεφαλος of the Greeks, synonymous with the infelix lollum of the Latins, as well as with our Darnel, and belonging to an unprofitable weed, of the tribe of Gramineae, which greatly injured the crop of corn, and into which Corn itself was tipped to degenerate. (See Lollum.) Our translators of the New Testament call it Tares! Aegyptus was another Greek name for Darnel, and is still used for Lolium temulentum in the Morea. Zizania was merely adopted, as an unoccupied classical name, by Gronovius and Linnaeus, for the present genus, which yields an inferior sort of grain, used by the inhabitants of some parts of North America. We cannot applaud this application of ancient names, to plants to which they could not possibly have originally belonged, though Linnaeus often practised it. Gartner has successfully opposed this principle, but did not always change things for the better.—Linn. Gen. 491. Schreb. 639. Wild. Sp. Pl. v. 4. 394. Mart. Mill. Dict. v. 4. Pursh 60. Ait. Hort. Kew: v. 5. 278. Juss. 33. Poiret in Lamarck Dict. v. 8. 863. Lamarck Illust. t. 768. Gear. t. 82. (Elymus; Mitchell in Ephem. Nat. Cur. v. 8. append. 210.)—Clas and order, MonococX. Natural Ord. Gramina. Linn. Juss.

Gen. Ch. Male, Cal. none. Cor. Glume of two lanceolate, membranous, ribbed, clasping valves, one rather larger than the other, and most pointed. Nectary of two ovate obtuse scales. Stam. Filaments six, capillary, very short, equal; anthers pendulous, linear, notched at each end, shorter than the corolla.

Female in the same panicle, larger, Cal. none. Cor. Glume of two valves, closed, except a vacancy at each side just above the base; the outer valve largest, concave, long, straight, rigid, revolute at the edges, embracing the inner at each side, and terminating in a long straight awn; the inner narrower, lanceolate, involute at the edges. Nectary of two acute scales. Stam. sometimes present, though minute and imperfect, with small incomplete anthers. Pfiff. Germen superior, oblong; styles two, spreading, capillary, short; filaments feathery, projecting between the valves of the corolla. Seed solitary, oblong, even, polished, naked, unconnected with the glumes.

Eff. Ch. Male, Calyx none. Corolla of two valves; the outer one pointed.

Female, Calyx none. Corolla of two unequal closed valves; the outermost largest, revolute at the edges, with a terminal awn. Styles two, divergently. Seed solitary, enclosed in the plaited corolla, but unconnected with it.


is described as rather thick. Panicle long and large, much branched. Perennial corolla tumid, and, as well as the seed, somewhat ovate, with very short awns. We have seen no specimen of this species, but the ovate tumid glumes, with the similar form of the seed, which gave occasion to the specific name, appear to constitute a very clear distinction between this and both the preceding, nor is the figure of Sloane, which we have referred to our *Zizys*, by any means reconcileable to the present plant.

4. **Z. fluitans.** Floating Wild-Rice. Michaux Boreal.-Amer. v. i. 75. Willd. n. 5. Pursh n. 3.—*Spikes solitary, axillary, about four-flowered; the upper ones male. Glumes beadlets.*—On the banks of lakes Champlain and St. Lawrence; perennial, flowering in July. Of humble stature, with flender, branched, floating flumes. Leaves floating, linear, flat. *Spikes brittle-shaped; the lower ones female. All the glumes are dehiscent of awns. Michaux, Pursh.*

5. **Z. terrestris.** Land Wild-Rice. Linn. Sp. Pl. 1408. Willd. n. 5. (Katun-Tsjolam; Rheede Hort. Malab. v. 12. t. 60. Rail Hist. Pl. v. 3. 617.)—Panicle nearly simple.—Native of sandy ground, on the coast of Malabar. Stems round, leafy, jointed. *Leaves long and narrow, green, rigid, sharply pointed. Flowers flanks, slender, from the sheaths of the leaves. Glumes leafy, bearing round, blackish, glazy buds.*—These bruised with the juice of Betle-nut, and applied to the tongue, are supposed to cure the thirst to which children are subject. Roy. We have seen no specimen. Linnaeus described this species from the *Hortus Malabariae* alone, and we prefix its genus may, at least, be doubtful.

**ZIZDRA.,** in Geography, a town of Russia, in the government of Kaluga; 60 miles S.W. of Kaluga. N. lat. 53° 43'. E. long. 34° 54'.

**ZIZERIA.,** a word used by Apicus, and some other authors, to express the intellines of fowls of the gallineaceous kind, often used in decoctions for glysters, &c.

**ZIZERS, or ZITZERS, in Geography, a town of the Griffons, in the Cadee league; 6 miles N. of Coire.

**ZIZEVON, a town of Peria, in the province of Far-silan; 23 miles E.E. of Schiras.


Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, cylindrical, very long, flattened, bristly, with five minute marginal teeth, and bearded in the orifice. Cer. of one petal, ringent; tube cylindrical, the length of the calyx: limb minute; its upper lip ovate, flat, reflexed, undivided; lower spreading, broadest, in three round equal segments. Stam. Filaments two, simple, spreading, about the length of the corolla; anthers oblong, dilatant. Pif. German inferior, four-clft; style brittle-shaped, the length of the corolla; stigma cleft, pointed, indented. Peric. none, except the calyx remaining unchanged, a little gibbous at the base. Steds four, oblong, obtuse, gibbous at one side, angular at the other, very much shorter than the calyx.


The plants of this genus are slender, generally aromatic herbs, or diminutive shrubs, of humble growth, with the habit of *Thymus,* or *Cinopodium;* but distinguished by their long and flender *calyx,* as well as almost capillary tube of the corolla, even more than by having only two *flaments.* Their texture is hard and rigid, and they inhabit dry sandy situations. The leaves are opposite and undivided. Flowers whorled or capitate, red or purplish. Root mostly annual; sometimes perennial, and rather woody.

1. **Z. capitata.** Oval-leaved Ziziphora. Linn. Sp. Pl. 31. Mant. 517. Willd. n. 1. Vahl n. 1. Sm. Fl. Grce. Sibth. v. 1. 10. t. 13. (Thymus humilis lattifolius; Buxb. Cent. 3. 28. t. 51. f. 1. Cinopodium filifolium pumilum Ind. Occid. fommo caule floridum; Pluk. Phytt. t. 164. f. 4.)—Flowers fauciculated, terminal. Leaves ovate.—Native of Syria, Tauria, and the isle of Cyprus. A hardy annual, flowering in July and August, sometimes kept in botanic gardens. Miller teems to be the first person who raised this plant in England. The root is fibrous, branched and zigzag. *Stem crect,* three or four inches high, when cultivated much taller, square, leafy, usuall with two opposite spreading branches, beside the central part, clothed all over with fine, short, curved, hoary pubescence. *Leaves* hardly an inch long, entire, hoary, roughish at the edges, furrowed with parallel veins. *Foot-flanks* one-eighth as long as the leaves. *Bracteas* four at the top of each branch, nearly felle, like the leaves, but larger, more pointed and fringed; somewhat heart-shaped at the base; about the length of the flowers, which are numerous in each head. *Calyx* half an inch long, furrowed, bristly, a little wavy, with flender, sharp, purple teeth. *Corolla* with a white, downy, *sziczag* tube, and pale purplish limb. *Stamens* prominent, about as long as the lower lip, with blueish anthers. We scarcely perceive any aromatic flavour in the dried plant. Plutekeat was much mistaken as to this *Ziziphora* being of West Indian origin.

2. **Z. hispanica.** Spanish Ziziphora. Linn. Syll. Nat. ed. 10. 853. Sp. Pl. 31. Amen. Acad. v. 4. 263. Willd. n. 2. Vahl n. 2. Alt. n. 2.—Flowers axillary. Leaves obovate, point, many-ribbed.—Gathered by Lechu in Spain. *Root* annual. The *flam* is three or four inches high, crosb-branched and bushy, downy with minute recurved hairs. *Bractea leafy. Leaves* a quarter or one-third of an inch long, fringed; tapering at the base; marked on both sides with conspicuous glandular dots; the lower ones smaller, and somewhat crenate. *Flowers* two or three together, selvile. *Calyx* tapering upwards, bristly furrowed, hispid, about the length of the leaves. *Corolla* externally downy. *Linnaeus considered the branches as fipes and the leaves as bracteas,* but we can see no more reason for this than in any of the following species. The *leaves* in the original specimen still retain a powerful smell of Penny-royal.

3. **Z. spicata.** Spiked Ziziphora. *An. Hift. Nat. Madr. v. 4. 254.* Vahl n. 3. —*Flowers in racemeofe spikes, imbricated. Bracteas ovate, acute, ribbed. Leaves lanceolate, somewhat toothed.*—Native of Spain. *Annual. Stem* from ten to eighteen inches high, throwing out from the base a branch or two as tall as itself. *Leaves* ribbed; the lower ones flaked; the upper selvile. *Flowers* several, on short flanks, flanding near together. *Bracteas* broad, entire, acute, fringed. Perhaps a mere variety of *Z. hispanica.* Yet it seems to differ in having the *flam* leaves lanceolate, narrower than those that accompany the *flowers,* which are ovate, not obovate. *Vahl.* We have seen no specimen;
specimen; but this description seems to make the
inflorescence of the present species really spicled rather than
whorled, though it does not alter our opinion as to the
left.

Wildl. n. 3; Vahl n. 4. Ait. n. 3. (Acinos lyrica, folio
mucronato, capsulis hiruita; Moril. v. 3. 404. leet. 11. 1. 19.
Cf. also A. lyrica, tenuiure folio, capsulis hirtis; ibid.
f. 4.)—Flowers axillary. Leaves ovato-lanceolate, taper-
pointed, acute, entire.—Native of Syria. Sent to Morilon
from Aleppo, by the Rev. Dr. Huntington. We prehume,
from a remark of Morison under a plant immediately follow-
ing, that the two varieties here indicated, as well as perhaps
a third, with a smoother calyx, his f. 2, were all sent him in
seed, and that he raised the plants. If so the introduc-
tion of this species should be dated before the time of
Miller. The root is annual. Stems a span high, with many
square, downy, leafy branches. Leaves an inch long; nearly
selfile, strongly ribbed, downy, dotted, entire, more or less
fringed with long white hairs. Flowers filiform, mostly
in pairs, altogether axillary. Calyx about half the length of
the leaves, hoary with fine recurved pubescence, more or
less intermixed with long, prominent, bristly hairs; its lower
part swelling much, as the seeds ripen. Corolla pale, hairy
externally, with a dilated throat.

Wildl. n. 4; Vahl n. 5; Ait. n. 4. (Clinopodium fupinum
incanum; Ainn. Ruth. 51.)—Flowers axillary. Calyx hairy.
Leaves ovate, filiform, somewhat fringed.—Native of
Siberia. Introduced into England by the late Dr.
William Pitcairn, in 1786. Mr. Aiton marks it as paren-
tial. The stems are diffuse, branched, bluntly quadrangular,
finely downy. Leaves scarcely aromatic, though dotted
with pellucid spots, many-ribbed, rough-edged, and some-
what fringed, from half to three-quarters of an inch long,
on footstalks about half or a third as much. Flowers all
axillary, three, four, or more, together; on downy stalks,
half the length of the footstalks. Calyx cylindrical, strongly
ribbed, not downy, but befet with numerous, prominent,
horizontal hairs. Corolla hairy, its limb larger than in the
first and second species, scarcely so long as the third, of
a light purple, or lilac, especially the lip. Anthers large,
ovate, purple.

6. Z. taurica. Narrow-leaved Ziziphora. Bieberft. Taur-
Caucas. v. 1. 18. — Flowers axillary. Leaves linear-lanceo-
late, filiform, obtuse, entire.—Native of mount Caucasus
and its neighbourhood, among lime-flone rocks, or about
the flomy banks of torrents, flowering in June and July. We
received specimens of this, and all the following species,
from the Chevalier de Steven. The root is annual, long,
tapering and zigzag. Stems one or more, scarcely divided,
except at the bottom, ascending, near a span long, not
composed of opposite branches crossing each other, as in
Z. tenueiur, to which the author of the Flora Taurico-Cau-
casica confiders this plant very nearly allied. Without ad-
verting to the greater size of the corolla, which is very likely
to vary, and to the pubescence of the calyx, which certainly
does not, the leaves appear to be much narrower and more
obtuse; not acute or spinous-pointed. The whole herb
smells strongly, but kindly, of Penny-royal, and its leaves
are dotted as in the tenueiur. One of our specimens has
broader leaves than the other, and rather shales our opinion
of its being a distinct species.

Taur.-Caucas. v. 1. 18. (Serpyllum orientale, folio pulegii
vulgaris; Tourn. Cor. 13.)

Taur.-Caucas. v. 1. 18. (Z. serpyllacea; Sims in Curt.
Mag. t. 986. Ait. n. 5. Z. Poufchkini; Sims in Curt.
Mag. t. 1993, Ait. n. 6.)—Clusters terminal, capitulate,
some what leafy. Leaves lanceolate, naked, even, obtuse. Stems rather shrubby,
ascending.—Native of the graffy hills of Caucasus, flower-
ing from June to August. Flowers of open fields in Georgia,
about Teflis; commnicated by the Chevalier de Steven.
The stems are rather woody, their branches hoary, with fine,
recurred, dense hairs. Flowers smooth, with copious pel-
licul dots, and the flavour of Penny-royal. They have a
mid-rib, but no lateral ribs, veins, or furrows. Flowers
filiform, crowded at the summit of each branch into a close
tuft, some of the lowermost being axillary. Flower-stalks
round, clothed with finely possible hoary pubescence, as are
the strong ribs of the calyx, whole teeth are fringed
with long white hairs. Limb of the corolla rather large,
and frament prominent. The variety B, which is all we have
seen, is said to differ only in having narrower, perfectly
entire, leaves, which are also more crowded than in a. If
there be any affinity between the two varieties, neither of
them can possibly be the Z. serpyllacea of Curt. Mag. t. 986.
See the following species.

ZIZIPHUS.


Gen. Ch. Col. Fernand inferior, of one leaf, nearly flat, in five spreading, ovate, equal, coloured, deciduous segments. Cor. Petals five, minute, obovate, between the segments of the calyx, but much shorter, opposite to the flamen, spreading horizontally. Stam. Filaments five, short, lying over the petals, and not half so long; anthers roundish, of two lobes. Pyl. Germen inferior, orbicular, depressed, ftyle one, very short, fflagmas two or three, obtuse. Peric. Drupa oval, or roundish, pulp, of one cell. Seed. Nut solitary, the shape of the drupa, of one or two cells, with solitary kernels.


Obf. We have already (see Rhamnus and Paliurus) declared our determination of separating all these genera, though, like Willdenow and some others, the writer of this has united Ziziphus and Paliurus, in the Prodrumus Fl. Græc.; an error which will be corrected in the Flora Græca itself. With respect to some of the species, we can only rely on those who have described the fruit, on which the distinction chiefly depends. They are all shrubby, and for the most part thorny, with alternate, simple, undivided, deciduous, strongly ribbed leaves, and small, axillary, tufted, sometimes racemose and partly terminal, flowers, of a yellow or greenish colour, and inconspicuous appearance; their calyx more flat, for the most part, than that of Rhamnus. The fruit is in most instances estable, or medicinal. In a few instances, the petals are wanting.

Seet. 1. Thorns or prickles none.

1. Z. linaria. Veiny Jujube. Wildl. n. 1. (Rhamnus linata; Linn. Sp. Pl. 221. Amen. Acad. v. 4. 338. Obseck. It. 219 t. 7. Engl. ed. v. 1. 533 t. 7.)—Stem erect, unarmed. Leaves roundish-ovate, obtuse, wavy. Clusters terminal; their lower flowers axillary.—Gathered by Obseck, on the French isle, in the riber of Canton, flowering in September. A buxy shrub, often as tall as a man, with copious, alternate, round, leafy, finely downy branches. Leaves alternate, on short flarks, of a roundish, abrupt, often emarginate, figure, half an inch long at most, smooth on both sides; dark green above; paler and yellowish beneath, with very elegant, oblique, parallel, red veins. Flowers about the ends of the branches, flaked, partly axillary, partly collected into terminal smooth chyfers. Calyx a little concave, or bell-shaped, at the base; its segments lanceolate, as are likewise the petals. Anthers black before they burst. Drupa small, oval, seated on the obo- circular permanent base of the calyx.

2. Z. volubilis. Twining Jujube. Wildl. n. 2. Ait. n. 1. Purif. n. 1. (Rhamnus volublis; Linn. Suppl. 152. Walt. Carol. 101. Jacq. Coll. v. 2. 236. Ic. Rar. t. 326.)—Stem twining, unarmed. Leaves ovate, acute, somewhat wavy. Umbels axillary and terminal, flaked.—In deep swamps, near the sea-coast, from Virginia to Carolina, flowering in June. Flowers small, greenish-yellow. Fruit oblong, violet-coloured. It affords the highest trees of Cupressus bifis, in the Difmal swamp, near Suffolk in Virginia, and is known there by the name of Suple-Jack. Purif. The branches are round and smooth. Leaves flaked, drooping, one and a half or two inches long, and near one broad, acute, and tipped with a small point, smooth, with oblique parallel veins, more numerous than in the leaf; their under side rather the palest. Flowers small, pale. Drupa small, blackish, of a long oval shape. Nut of two cells in the wild state, according to Walter, though Jacobin, in the cultivated plant, found only one. Lamarck, in an observation at the end of this genus, though he allows this species to have the proper fruit of Ziziphus, gives his reasons for keeping it in Rhamnus; there are the concave calyx, and the want of a flihy disc, or, in Linnaean language, "receptacle of the flower." Probably the fame remarks would apply to the preceding species, which Lamarck also excludes from Ziziphus. We are ready to allow that they both have more of the habit and foliage of Rhamnus, and their fruits are so small, it may be difficult to say whether they are drupas or berries. Not having had an opportunity of investigating this point ourselves, we must rely on those who have.

3. Z. peruviana. Peruvian Jujube. Lamarck n. 12.—Stem unarmed. Leaves elliptic-ovate, sparingly and minutely toothed, somewaut angular, rather flihy, smooth. Petals acute, longer than the calyx.—Native of Peru. Long cultivated in the public garden at Paris, from whence the younger Linnaeus procured a specimen, and where Lamarck saw it flowering for many succeeeive years, but without producing fruit, which led him to suppose the flowers might be dioecious. The plant itself appears now to be no longer in existence there, no mention being made of it in professor Desfontaine's Tableau de l'Ecole de Botanique au Jardin du Roi, ed. 2. printed in 1815. This is an evergreen, branching, loosely spreading shrub, about three feet high, smooth in every part. Branches a little zigzag, nearly round. Leaves scattered, flaked, from an inch to an inch and a half long, generally obovate, blunt, or sometimes pointed, thick and somewhat flihy, of a glaucous green, with a midrib, and a few scattered veins, none of which seem to be visible but in a dried state, and then but slightly. The margin is irregularly angular, each angle tipped with a glandular tooth. Our specimen has no flowers. Lamarck says they are small, axillary, two or three together, or solitary, flaked, yellowish-white, widely expanded, fvel- cleft. Petals oval, pointed, flat, larger than the calyx.

4. Z. emarginata. Notched Jujube. Swartz Ind. Occ. 1594.—Stem erect, unarmed. Leaves roundish-ovate, emarginate. Umbels axillary, flaked. Petals none.—Gathered by Mr. Fahlberg, in the West Indian isle of St. Bartholomew. The stem is flihy, with round, fvel, rigid branches, whose bark is grey and smooth; their extremities angular. Leaves flaked, alternate, but approaching each other in pairs, so as to become nearly opposite, rather membranous, very smooth on both sides, an inch or an inch and a half long, entire, the extremity only being slightly emarginate. Footflaks short. Umbels opposite. Stalks the length of the footflaks, thickened as the fruit advances. Partial ones from three to six, rather longer, single-flowered. Calyx concave, with a spreading limb, in five acute segments, divided as it were into two cavities. Petals none. Filaments very short, inserted below the divisions of the calyx. Anthers ovate, embraced at each side by the hollows in the segments of the calyx. Stigmata two, obtuse. Drupa roundish-ovate, smooth, the size of Allspice, crowned with the permanent style. Nut of two cells, with solitary kernels. Swarts.

Seet. 2. Branches prickly.

Afric. n. 632. f. 632. Rhamnus Lotus; Linn. Sp. Pl. 281. "Desfont. in Aët. Paris, for 1788. 446. t. 21. Mungo Park's Travels, 99, with a plate."—Prickles in pairs; one of them hooked. Leaves elliptic-oblong, lightly crenate, three ribbed, smooth on both sides. Native of Africa, especially of the kingdom of Tunis, "in a tract called Teped, which was formerly the country of the Lophobeg. The Arabs know this plant by the name of Scedra. It has the habit of a Rhamnus, and the flowers of the Common Jujube. But the fruit is smaller, rounder, and sweeter; the size of Sloe, with a large stone. This fruit is borne on every part of the branches, like Goofcheberries; whereas that of the Common Jujube grows only on the slender annual shoots, thrown out from the ends of the branches. The Z. vulgaris is 20 feet, or more, in height, with a large furrowed stem, twisted branches, knotty at the extremities, and larger oblong leaves; but the Lotus is scarcely three or four cubits high, with numerous shoots from the same root, which are smooth, frangipanier, and paler, or white; the leaves small, round, and more rigid. The fruit is ripe, and fit for eating, in December and January." Such is Dr. Shaw's very intelligent account; to which we may add, that the prickles grow in pairs, both of them very straight, slender, and sharp, when young, but in process of time one becomes thick and hooked, the other much elongated, remaining quite straight. The leaves are at most an inch long, perfectly smooth, naked, and green, on both sides; their three ribs sometimes separate, sometimes more or less combined.

6. Z. Napcra. Smooth Indian Jujube. Willd. n. 5. Lamarck n. 11. (Rhamnus Napcra; Linn. Sp. Pl. 282.) Rh. n. 87; Linn. Fl. Zeyl. 36. Jujuba indica spinosa, folio et fructu longiori; Pluk. Almag. 199. Prunus zeylanica spinosa, &c.; Pluk. Phyt. t. 216. f. 6. Vidara littorea; Rumph. Amboin. v. 2. 119. t. 37.)—Prickles generally in pairs, hooked. Coryms axillary, many-flowered. Leaves ovate, acute, finely serrated, smooth on both sides. Fruit elliptical.—Native of Ceylon, Ambonaya, and other islands of the East Indies. We know this only by the specimen in the Linnean herbarium, which does not quite agree with the description in the Flora Zeylanica, the leaves being neither oblique, unequal, nor blunt, but exactly as represented by Plukener and Rumphius. The branches are somewhat zigzag, round, or a little angular, with a smooth whitish bark; rough with mealy down when young, like the flower-buds, stalks, and young leaves. Prickles flout, recurved, dark brown. Leaves an inch, or an inch and a half long, elliptic-obate, acute, tipped with a small glandular point, finely and bluntly serrated, strongly three-ribbed; paler and yellowish beneath. Footstalks quarter of an inch long, a little downy. Flowers very numerous, in dense, compound, downy or mealy, corymbose clusters, on short axillary stalks. Drupae like an olive, elliptical, or somewhat ovate; its flavor acid and astringent. Rumphius says, this fruit is seldom eaten but with salt, or as a sauce to fish or other food, for the purpose of exciting an appetite. Lamarck unites this species, or at least its synonyms, with the Rhamnus Spina-Cruci of Linnaeus, of which we shall speak hereafter; see n. 15.

7. Z. Jujuba. White-leaved Indian Jujube. Willd. n. 6. Lamarck n. 6. Ait. n. 4. [Rhamnus Jujuba; Linn. Sp. Pl. 282.] Rh. n. 89; Linn. Fl. Zeyl. 36. Manifanas; Sonnerat Nouv. Gum. 114. t. 94. Malum indicum; Rumph. Amboin. v. 2. 117. t. 36. Perisodadi; Rhode Hort. Malab. v. 2. 85. t. 41.)—Prickles solitary, deflexed. Coryms axillary, many-flowered.—Leaves roundish-ovate, obtuse; downy and snow-white beneath.—Native of the East Indies. A flow' plant in England, flowering in April and May. When wild, it makes a tree of a moderate size. The branches, flower-buds, flatly, and backs of the leaves, are all white with fine dense, entangled, rather flary, pubescence. Form and size of the leaves much like the leaf, but rather rounder and more blunt; the margin crenate, or bluntly serrated; upper side very smooth, of a fine green. Infoleration like the leaf. Flowers white; sometimesfix-cleft and hexandrous. Style divided. Drupae globular, or somewhat heart-shaped. Nut rugged, with two green kernels. Sonnerat reckons this fruit among the best that are the produce of New Guinea. Rheede speaks of it as "agreeably acid," and more olive-shaped than in Sonnerat's figure. Cultivation perhaps may account for these differences. Hence we presume Z. mauritiana. Lamarck n. 7, may be but a variety of this.

8. Z. Xylopous. Wooden-fruited Indian Jujube. Willd. n. 7.—Prickles solitary, recurved. Leaves ovate, rather acute, somewhat heart-shaped; downy beneath. Flowers corymbose.—Native of desert places, at the bottoms of hills in the East Indies. A tree, scarcely taller than a man. Branches hoary. Leaves broadly-ovate, in some degree heart-shaped, not unfrequently oblique; unequally serrated; dark coloured above; clothed beneath with very fine white down. Prickles few, small, solitary under each footstalk. Flowers in axillary flaked corymbs. Calyx downy. Drupa dry, involuting, slightly arista, larger than a cherry. Nut rugged. Retains, Willd. Possibly this may be Z. rugosus; Lamarck n. 8, for which that author cites Frutex bijugatus spinosus, &c.; Pluk. Phyt. t. 29. f. 7.

9. Z. Oenoplia. Velvet-leaved Jujube. Willd. n. 8. Lamarck n. 5. Mill. Dict. ed. 8. n. 3. (Rhamnus Oenoplia; Linn. Sp. Pl. 282.) Rh. n. 88; Linn. Fl. Zeyl. 36. Jujuba aculeata, nervosis foliis, infra sericeis, flavis; Burn. Zeyl. 131. t. 61.)—Prickles solitary, conical, recurved. Leaves unequally ovate, or half-heart-shaped, acute; silky beneath.—Native of Ceylon. A small tree, with downy branches, and short, thick, hooked prickles. Leaves two inches long, very obscurely serrated; remarkably uneven or oblique at the base, the three ribs also being much nearer one margin than the other; under the side finely silky and yellowish; the upper also silky while young, but in a less degree. Flowers in little dense, silky, axillary tufts.

10. Z. Iguanca. Lizard Jujube. Lamarck n. 4. (Rhamnus Iguanacea; Linn. Sp. Pl. 282.) Jacq. Amer. 74. Jujube americana spinosa, loti arboris foliis et facie, fructu rotundo parvo dulci; Commel. Hort. v. 1. 141. t. 73.)—Prickles in pairs, unequal, divaricated. Leaves ovate, pointed, serrated, smooth on both sides. Clusters axillary, monocious. Petals wanting. Fruit roundish.—Native of the West Indies, as well as of the neighbouring continent, in bushy, rocky, or rocky places, where the Lacerta Iguana, reported to be fond of this fruit, is likewise frequently to be met with. This is an inelegant trailing shrub, with round, zigzag, scarcely downy, branches. Leaves thin, plant, three-ribbed, very smooth, two or three inches long, sometimes more. Jacquin says eight inches, though rarely, in which case they are more elliptical. The prickles are long and slender, in pairs under each footstalk; one of them always straight; the shortest sometimes curved, but not remarkably. Flowers small, yellow, according to Jacquin delimit of petals. Drupa roundish or ovate, yellow, twice the size of a pea, with a sweet pulp, and a rugged nut, of one cell. Willdenow seems to have omitted this species entirely.
11. Z. finexis. Chinefe Jujube. Lamarck n. 3. Defont. Tabl. 231.—“Young branches prickly, downy; old ones unarmed. Leaves ovate-oblong, sharply ferrated. Petals reflexed under the calyx.”—Cultivated in the public garden at Paris, and said to be native of China. As this point is uncertain, how much better might the name of cryptopetala have been chosen? Lamarck describes the present species as a flava, only three or four feet high, losing its flender, unequal, brittle-like prickles as the branches advance in age. Leaves of a very pale green, crowded, three-ribbed, rather smaller than those of Z. vulgaris hereafter described; we presume they are quite smooth. Fruitflats short and downy. Flowers small, white, axillary, solitary or in pairs, remarkable for having their petals so completely reflexed, and concealed by the calyx, as not to be visible when we regard the flower vertically. Lamarck.

12. Z. rotundifolia. Round-leaved Jujube. Lamarck n. 9. (Jujuba, five Ziziphus, zeylanica rotundifolia cereata minor, folius subustus lanuginosus; Pluk. Phyt. t. 197. f. 2. Burm. Zeyl. 132.)—“Prickles in pairs; one of them recurved. Leaves roundish-oval; downy beneath.”—Native of Ceylon. Leaves small, perhaps hardly an inch long, rather more rounded than in Pluketen’s figure, slightly toothed; smooth above; cottony beneath; on very short fruitflats. Branches slender, cylindrical. Prickles small. An Indian specimen in the Linnean herbarium, attached to Z. napecana, to which it certainly is very little related, agrees in many points with this description of Lamarck, except that the very small prickles are foliary, nor are the fruitflats very short. We know not to what other species of Ziziphus to refer this specimen. It is marked Ber, and said to afford gum lac, which is collected from it by winged insects.

13. Z. angustata. Angular-branched Jujube. Lamarck n. 10.—“Prickles in pairs, straight. Leaves roundish-oval, somewhat toothed, smooth on both sides. Branches acutely angular.”—Described from the herbarium of Juffieu, without fruitification. The angular branches strikingly distinguish this species from all the rest. They are woody, smooth, zigzag, square, with prominent acute angles. Leaves three-ribbed, an inch and a half broad, on short fruitflats. Lamarck.

Nothing is recorded of the native country of this plant.

14. Z. vulgaris. Common Jujube. Willd. n. 9. Lamarck n. 1. Ait. n. 5. Sm. Fl. Grec. Sibth. t. 243. (Z.; Dod. Pempt. 827. Ziziphus; Cramer. Epit. 167. Rhamnus Ziziphus; Linn. Sp. Pl. 282. Pall. Roff. v. 1. part 2. 24. t. 59. C. L. Willich Obs. 5. Jujube Arabum, five Ziziphus Dodonaei; Ger. Em. 1501.)—Prickles in pairs, unequal. Leaves ovate, bluntly serrated, smooth. Flowers in axillary tufts. Fruit elliptical.—Native of the south of Europe. Gathered by Dr. Sibthorp about Megara, and on mount Parnassus. It has been cultivated in England ever since Parkinson’s days, but requires the shelter of a green-house, and though it may sometimes blossom, never bears fruit. Pliny says the Jujube-tree was brought, in his time, from Syria into Italy. When wild it attains the size of a small tree, with round, smooth, glaucous branches, zigzag and leafy when young. The prickles make no appearance on the young leafy shoots, but the following year they become strong thorns, one of them an inch long, the other much shorter, and sometimes, not always, recurved, as Willich well observes. Leaves rather crowded, deciduous, on short flanks, ovate, somewhat tapering into a broad blunt point, frequently emarginate; their edges coarsely though bluntly ferrated; both surfaces smooth; the under paler, strongly three-ribbed; their length an inch and a quarter or an inch and a half. Flowers yellowish, on short flanks, in little axillary tufts, not much longer than the footflats. Petals obtuse, half the length of the calyx. Stigmas two or three. Drupa the size and shape of an olive, blood-red, sweet, mucilaginous, esteemed good in fevers or inflammation of the mouth and throat, but are out of use in our present practice. If Pallais’s plate above quoted be the true Z. vulgaris, of which we cannot help feeling some doubt, a comparision of that plate with the old wooden cut of Camerarius, may serve to shew how superior the artills of those earlier times were to some of our modern delineators and colourers.

15. Z. Spina Chrifti. Christ’s-thorn Jujube. Wildl. n. 10. (Z. africana; Mill. Dict. ed. 8. n. 4. Rhamnus Spina Chrifti; Linn. Sp. Pl. 282. Oenoplia pinifolia; Cluf. Hift. v. 2. 313. Nabæ, Palafrus Athenæi credita; Alpin Egypt. 16. t. 19. Jujube five Ziziphus africana, mucronatus folius, pinifolium; Pluk. Almag. 199. Phyt. t. 197. f. 3.—Prickles in pairs, straight. Coryms abscdary, filky, many-flowered. Leaves oval, finely serrate, smooth on both sides. Fruit globose.—Native of Ethiopia and Paleltine. Seeds collected near Jerufalem, by Haffelquilt, produced the plant described by Linnaeus, a wild specimen of which, sent also by Haffelquilt, is preferred in the Linnean herbarium. Miller also raised this species from Syrian seeds, so that it is entitled to a place in Hort. Kew. Referphing Pluketen’s synonym, we feel no doubt. The cut of Alpinus as much refembles Z. nappea, n. 6, in the foliage, but the globose fruit agrees best with the species before us. The prickles are hardly visible on our specimem, which is a young luxuriant leafy branch, in flover. They perhaps acquire their full proportion on older branches, as in Z. vulgaris, n. 14. The leaves are fatter, of a broad-ovate, somewhat roundish, obtuse figure, two and a half or three inches long, and two wide, strongly three-ribbed, with transverse veins, minutely and slightly crenate rather than ferrated, very smooth and even on both sides; paler beneath. Fruitflats scarcely an inch long; downy on their upper side. Coryms forked, downy, many-flowered, each on a folitary axillary stalk, shorter than the fruitflats. Bracteasawl-shaped. In our only expanded flower, the segments of the calyx, as well as the petals and stamens, are strongly reflexed, quite under the base of the calyx. The drupa is said to be the size and shape of a Sloe.

ZIZITH, in the Jewifh Cufloms, a name given by the Jews to the tufts or fringes they used ancienly to wear at the four quarters of their upper garments, but which they now only wear under their clothes, fixed to a square piece of cloth, which reprefents the garment they anciengly wore in their own country before their difperfon. The zizith of the modern Jews is a tuft made of eight threads of yarn, spun on purpose for this ufe, each having five knots, which take up half the length. That which is not knotted, being furled out, makes a kind of tuft or fringe. Numb. xv. 58. Deuter. xxii. 12. Leo of Modena, Cerem. of the Jews, part i. chap. 5. Calmet. Dict. Bibl. in voc.

ZIZYPHA, in Botany. See Ziziphus.

ZLABINGS, in Geography, a town of Moravia, in the circle of Igland; 28 miles W. of Znaym.

ZLATOUSTOVSKOL, a town of Ruffia, in the government of Uplha; 60 miles W. of Tcheliabinfkh.

ZLEBY, a town of Bohemia, in the circle of Czasflau; 4 miles S.E. of Czasflau.

ZLIN, a town of Moravia, in the circle of Hradfich; 15 miles N.N.E. of Hradfich.

ZLOTI, a money of account in Poland, where accounts are kept in zloti, guelden, or florins of 30 groschen or gros,
grofz, and each grofchen is divided into 18 pfenings. The florin also contains $\frac{2}{3}$ skolteck, 90 schillings, or 270 pfenings. A skolteck is worth 12 grofchen, or 36 schillings; a grofchen, 3 schillings; and a schilling, 3 pfenings.

ZMEINOGORSKAIA, in Geography, a fort of Russia, on the river Porobalika; 200 miles S. of Kolivan. N. lat. 51° 10'; E. long. 82° 10'.

ZMILACES, in Natural History, a name given by Pliny to a stone found in the river Euphrates, resembling marble, and of a blueish-green colour.

ZMILAMPIS, the name of a gem, described by Pliny and the ancients, which they tell us was very like the Proconnesian marble, except that in the centre of the stone there was always a blueish spot, resembling the pupil of an eye.

The Proconnesian marble of the ancients was of a fine clear and elegant white, variegated with irregular black veins. Pliny's description is so short, that it has been supposed from him that the zmilampis was a fort of marble; he only says of it, that it was like the Proconnesian marble, but blue in the middle. Many had inferred from this, that he meant no more by it than that this was a stone, which had blue veins instead of the black ones in the Proconnesian kind. But when we examine the rest of the ancients, and find that it was a small stone, found in the river Euphrates, and worn in rings, and that its blue spot was like a pupil of an eye, we may easily determine that it was one of those gems which we call oculis bell, or bollchis; of which there is a vast variety found in the rivers of the East Indies, and many have a fine opaque white ground, and a blueish or greenish spot for the pupil.

ZMILANTHES, a name given by Solinus and some others to a gem called by the more correct writers zmilampis.

ZMENSKOI, in Geography, a town of Russia, in the government of Tobolik, on the Irichel; 28 miles N.N.W. of Tera.

ZNAYM, a town of Moravia, in the circle of the same name, near the river Teya. This town was built about the year 1222, at a little distance from another town, laid waste by the Bohemians. It contains a citadel, four cloisters, and a college; the circle borders on Austria; 68 miles S.W. of Olmutz. N. lat. 48° 48'; E. long. 15° 51'.

ZNENDEI, a river of Russia, which runs into the Vitin, N. lat. 53° 44'; E. long. 115° 14'.

ZNIN, a town of the duchy of Warfaw; 20 miles N. of Gniewa.

ZNONIRGAD, a town of Croatia; 36 miles S. of Bihač.

ZOAGLI, a town of Genoa; 20 miles E. of Genoa.

ZOANA, in Ancient Geography, a town of Asia, in the Leffier Armenia, upon the route from Satala to Arabibus, between Tomusa and Gundufa. Anton. Itin.

ZOANNES, a name given by Strabo to a people half-Savage, that inhabited the mountains of the Colchide.

ZOAR, ZOARA, Segor, or Bela, a city of Pentapolis, on the southern extremity of the Dead Sea. It was preferred by destruction from fire by means of the intervention of Lot. (Gen. xiv. 2.) Its name before this circumstance was Bela; but when Lot requested it to be spared as a place of refuge for himself, he represented it as a small place; and hence it had the name Zoar, or Segor, which, in Hebrew, signifies small or little. The Romans kept a garrison at Zoar. St. Jerom observes, that the name Bela was given to this city, because, as soon as Lot left it, an earthquake caused it to be swallowed up; bela in Hebrew signifying to swallow up. Jerom also says, that the Hebrews think that Zoar bears also the name of Shalihia. (1 Sam. ix. 4.) They pretend that this city has been often demolished by earthquakes.

ZOAR, in Geography, a town of Arabia, in the province of Hedjjas, on the south coast of the Dead sea, at the mouth of the Sa'ah; 30 miles N. of Karac.

ZOAR. See TSBIR.

ZOARA, a town of Africa, in the country of Tripoli; 60 miles W.N.W. of Tripoli.—Alfo, a town, in the country of Baza; 140 miles S.W. of Tolomea. N. lat. 32° 35'; E. long. 11° 56'.

ZOBAYA, a town of Mexico, in the province of Guatimala; 30 miles N. of Guatimala.

ZOBIR, a town of the Persian empire, in the pachalic of Bagdad, about 10 miles W. of the city of Baffora, situated on the dry canal of the Djure Zade, supposed to be the former bed of the Euphrates. It is by some said to be the ancient Bafra, and derives its present name from Zobeir, who was defeated and slain in the battle of the Camel, fought near this place.

ZOBELN, a town of the duchy of Courland; 20 miles E. of Goldingen.

ZOBERA, a town of Arabia, in the province of Yemen; 35 miles S.E. of Chamir.

ZOBERN, a town of Saxony, in the Vogtland; 8 miles W. of Oelfnitz.

ZOBIN, a town of Germany, in the principality of Oettingen Wallerstein; 6 miles W.N.W. of Nordlingen.

ZOBING, a town of Saxony, in the margravate of Meillen; 15 miles S. of Deffau.—Alfo, a town of Austria; 3 miles N. of Cremn.

ZOBILTZ, a town of Saxony, in the circle of Erzgebirg. This place contains 116 houses, and the inhabitants furnish principally by working the serpent-stone, which is found here, into pitchers, bowls, tea and coffee dishes, mortars, cups, &c. The serpent-stone is dug just above the town, and farther on to the east of it is found a red species, which is reckoned among the finest, and for that reason is also considered by the sovereign as his property, together with a yellow, green, grey, and black fort. In the electoral red quarry is also found albinos of divers colours and granites; 17 miles S. of Freiberg. N. lat. 50° 36'; E. long. 13° 11'.

ZOBOWITZ, a town of Pomelia; 14 miles S. of Dantzie.

ZOBTEN, a town of Silicia, in the principality of Schweidnitz; 9 miles E.N.E. of Schweidnitz. N. lat. 50° 48'; E. long. 16° 41'.

ZOBTENBERG, a mountain of Silicia, situated in a country otherwise level, 2424 Paris feet above the level of the sea, near Zobten.

ZOCCO, ZACCOCO, Zocele, or Socle, in Archit. See Socle.

ZOCER, in Geography, a town of Croatia; 2 miles S.W. of Bihač.

ZOCHINACATLIS, in Botany, a name by which some authors have called the flor aculea, a flower of New Spain, used in making of the Spanish chocolate.

ZODIAC, Zodiatus, in Astronomy, a fæcias, or broad circle, whose middle is the ecliptic, and its extreme two circles parallel to it, at such distance from it, as to bound, or comprehend, the excursions of the sun and planets.

The word is formed from the Greek $\zeta$, animal, by reason of the constellations in it, which have the forms of animals given them; others derive it from $\zeta$, life, from an
ZOD

an opinion, that the planets have a great influence on animal life.

The sun never deviates from the middle of the zodiac; i. e. from the ecliptic: the planets all do more or less. Their greatest deviations, called latitudes, are the measure of the breadth of the zodiac; which is broader, or narrower, as the greatest latitude of the planets is made more or less. Accordingly some make it 16, some 18, and some 20 degrees broad.

The zodiac interfecting the equator obliquely makes an angle with it of 23 degrees and a half; or, more precisely, of 23° 27'; which is what we call the obliquity of the zodiac, and is the sun's greatest declination. See Ecliptic.

The zodiac is divided into twelve portions, called signs; and those divisions, or signs, are denominated from the constellations which anciently posseffed each part. But the zodiac being immoveable, and the stars having a motion from west to east, those constellations now no longer correspond to their proper signs; whence arises what we call the precession of the equinoxes.

When a star, therefore, is said to be in such a sign of the zodiac, it is not to be understood of that sign, or constellation, of the firmament, but only of that twelfth part of the zodiac, or dodecaneomy of it.

Caffini has also observed a tract in the heavens, within whose bounds most of the comets, though not all of them, are observed to keep, which, for this reason, he calls the zodiac of the comets.

This he makes as broad as the other zodiac, and marks it with signs, or constellations, like that; as Antinous, Pe- gasia, Andromeda, Taurus, Orion, the Lesser Dog, Hydra, the Centaur, Scorpio, and Sagittary.

ZODIAC, Hindoo. The early investigators of Hindoo mythology, which comprehends not only their astronomy, but every science, and almost every art, of which the Hindoos have any knowledge, were surprised to find that the days of the week were named, as with us, after the planets, and in the same order. It was natural enough to suppose that the Hindoo almanac was borrowed from the Arabians. The few Brahmins who at that time had access to Europeans of science, suppos'd the fame of us, when they discovered the similitude of fable and of name. But it has been made manifest by the investigations of later writers, that the Hindoo zodiac is of very great antiquity. Such of our readers as may be devious of extended information hereon, are referred to the dissertations of Sir William Jones and Mr. Colebrooke; on the Hindoo zodiac, in the 2d and 9th volumes of the Asiatic Researches; and to the Hindoo Pantheon. In both works, plates of the Hindoo zodiac are given from different authorities; and in the latter work separate engravings also of the personified planets. We will extract from it a fort of table, shewing the English and Sanskrit names, and the vehicles assigned to the several planets by the latter fabulists.

<table>
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<tr>
<th>Names of Planets, &amp;c.</th>
<th>Days over which they respectively preide.</th>
<th>Vehicles or Seats, according to the Plate of</th>
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<tbody>
<tr>
<td>Sun</td>
<td>Sun</td>
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<td>Jupiter</td>
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<tr>
<td>Dragon's Head</td>
<td>Dragon's Head</td>
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<td>Dragon's Tail</td>
<td>Dragon's Tail</td>
<td>Rahu</td>
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Under the Sanskrit names of the planets we have given short articles descriptive of their mythological and historical attributes and allusions. To them (Surya, Soma, &c.) we therefore refer for farther particulars, and to the article Vahan for an account of the vehicles assigned to them and other mythological personages of Hindoo fable.

ZODIACAL LIGHT, a brightness resembling that of the milky way, but less bright, and which is sometimes perceived in the heavens, at certain times of the year, after fun-fet, or before its rise. Some have supposed, that this phenomenon is the fame with that of the ancients called trubes, a term by which they denoted a meteor, or imprefion in the air like a beam. Thus Pliny (lib. ii.) says, "eminant trubes, quos docos vocant." The form of this light resembles that of a pyramid, lying lengthways in the zodiac, within which its point and axis are always enclosed, its base being towards the fun, and placed obliquely with refpect to the horizon. In the torrid zone, the zodiacal light is frequently, or almost constantly, seen. At or near our latitude it may be seen about the time of the equinoxes. The bleft time for seeing it is about the 1st of March, at 7 o'clock in the evening, when the twilight is ending, and the equinoctial point in the horizon. This phenomenon was first discovered by Descartes, and by Childrey about the year 1659. It did not engage general attention till it was described and named by M. Caffini the elder, in 1683. It was afterwards observed by M. Fatio, in 1684, 1685, and 1686, and by M. Kirch and Eimmart, in 1687, 1689, 1691, 1693, and 1694. See Mairan, Suite des Mem. de l'Acad. Royale des Sciences, 1731, p. 3.

In 1707, April 3, it was observed by Mr. Derham in Exf. It appeared in the western part of the heavens, about a quarter of an hour after fun-fet, in the form of a pyramid, perpendicular to the horizon. The base of this pyramid he judged to be the fun. Its vertex reached 15° or 20° above the horizon. It was throughout of a dusky-red colour, and at first appeared quite vivid and strong, but faintest at the top. It grew fainter by degrees, and vanished about an hour after fun-fet. This solar atmosphere has also been seen about the fun in a total solar eclipse, a luminous ring appearing about the moon at the time when the eclipse was total.

M. Fatio
M. Fatio conjectured that this appearance arises from a collection of corpuscles encompassing the fun in the form of a lens, reflecting the light of the fun. M. Cassini suppos'd that it might arise from an infinite number of planets revolving about the fun; so that this light might owe its existence to these bodies, as the milky way does to an innumerable number of fixed stars. It is now, however, generally suppos'd, that it is matter detached from the fun by its rotation about its axis. The velocity of the equatorial parts of the fun being the greatest would throw the matter to the greatest distance, and on account of the diminution of velocity towards its poles, the height to which the matter would there rise would be diminished; and as it would probably spread a little sideways, it would form an atmosphere about the fun something in the form of a lens, whose section perpendicular to its axis would coincide with the fun's equator. And this agrees very well with observation. There is, however, a difficulty in thus accounting for this phenomenon. It is very well known that the centrifugal force of a point of the fun's equator is a great many times less than its gravity. It does not appear, therefore, how the fun, from its rotation, can detach any of its gros particles. If they be particles detached from the fun, they must be sent off by some other unknown force; and in that case they might be sent off equally in all directions, which would not agree with the observed figure. The cause is probably owing to the fun's rotation, although not immediately to the centrifugal force arising therefrom.

The zodiacal light, according to M. de Mairan's ingenious and plausible hypothesis, is nothing but the solar atmosphere, a rare and fluid substance, either luminous by itself, or made by the rays of the sun surrounding its globe; but in a greater quantity, and more extensively about its equator than any other part. As it always accompanies the fun, it is natural to ascribe it to a solar atmosphere, extending beyond the orbit of Mercury, and sometimes even beyond that of Venus. Accordingly, the zodiacal light has been suppos'd to be a section of this atmosphere, which, being extremely flat at its poles, cannot be conceived to partake of the fun's monthly motion. Dr. T. Young (Lectures, vol. i. p. 502.) observes, that the only probable manner in which it can be suppos'd to retain its figure, is by means of a revolution much more rapid than that of the fun's motion. To that purpose, M. de la Lande remarks, that it seems now to be generally believed, that the zodiacal light is the atmosphere of the fun; for it always accompanies that luminarity; and the equator of the fun is in the direction of this light: consequently he says, that in all probability the zodiacal light is an atmosphere situated round the fun, in the direction of its equator, and flattened by its rotary motion. Astron. Paris, 1771. § 845 to 849.

The zodiacal light is more or less visible according to circumstances; but the solar atmosphere is not always visible, by means of this light, though it be always seen about the globe of the fun in total eclipses. One of the most essential circumstances for the perception of the solar atmosphere by the zodiacal light is its having sufficient length on the zodiac; for without this its brilliancy is entirely hid from us by the twilight. M. de Mairan says, it may be proved from many observations, that the fun's atmosphere sometimes reaches as far as the earth's orbit, and there meeting with our atmosphere produces the appearance of an aurora borealis.

The length of the zodiacal light varies sometimes in reality, and sometimes in appearance only, from various causes. The oblique position of this light, little different from that of the plane of the ecliptic, does not permit us to see it distinctly, and sufficiently elevated above the horizon; but some time after sun-set, towards the end of the winter, and in spring, or before sun-rising in autumn, and towards the beginning of winter. Several causes hinder our seeing it, any more than the milky way; such as moon-light and strong twilights, among others.

M. Cassini often mentions the great resemblance of the zodiacal light to the tails of comets. M. Fatio has made the same observation; and M. Euler has lately endeavoured to prove them owing to similar causes. Decouverte de la Lumiere Celeste que paroit dans le Zodiac interne, art. 41. Lettre M. Cassini, printed at Amsterdam, 1686. Euler, in Mem. de l'Acad. de Berlin, tom. ii.

The figure of this solar atmosphere must be lenticular, or that of a flat sphere, or that of a flattened sphere. M. de Mairan gives us a draught of its appearance and projection.

The extent of the zodiacal light from the fun to its point is seldom less than 45, sometimes 150 degrees in length; M. Pingré being on the torrid zone saw it 120 degrees; and its breadth varies from 8 to 30 degrees.

This light seems to have no other motion than that of the fun itself.

M. Euler observes, that if the fun has an atmosphere, the force of the impulsion of light issuing from that globe must drive particles of that atmosphere before it; but as gravity is very strong at the fun, this impulsion would never drive those particles beyond the limits of their atmosphere, were it not for the centrifugal force arising from the fun's motion round its axis. This being opposite to the action of gravity, diminishing its effects, the impulsion of the light may considerably dilate the figure of the solar atmosphere, from what it would be if it arose from the gravity and centrifugal force of its particles only; and this dilatation will be very considerable near the fun's equator, and very small towards its poles. The action of light thus diminishing the action of gravity, M. Euler attempts to calculate how far this diminution of gravity may increase the extent of the fun's atmosphere about its equator. He finds a cubic equation, the roots of which express the semi-axis, or greatell amplitude of this atmosphere. He adds, that this equation having three real roots, it is possible that the solar atmosphere may become a ring surrounding the fun's globe, as the ring of Saturn surrounds the body of that planet. As the electric fluid is now generally acknowledged to be the cause of the aurora borealis, which M. de Mairan ascribes to the solar atmosphere, which produces the zodiacal light, and which is thrown off principally and to the greatest distance from the equatorial parts of the fun, in consequence of his rotation on his axis, and extending visibly, in the form of a luminous pyramid, as far as the orbit of the earth, falls into the upper regions of our atmosphere, and is collected chiefly towards the polar parts of the earth, in consequence of the diurnal revolution, where it forms the aurora borealis; it is no improbable conjecture, that the fun may be the fountain of the electric fluid, and that the zodiacal light, and the tails of comets, as well as the aurora borealis, lightning, and artificial electricity, are its various and not very difsimilar modifications. See Theory of Electricity.

**ZODZISZKI**, in Geography, a town of Lithuania, in the palatinate of Wilna; 52 miles E. of Wilna.

**ZOEGLA**, in Botany, was so named by Linnaeus, in honour of his pupil and correspondent Dr. John Zoega, who visited Iceland, and communicated from thence, as well as from the neighbouring ocean, many new or rare plants, especially of the cryptogamic tribes, to the great Swedish naturalist. Dr. Zoega wrote a *Flora Islandica*, which has C. been

Gen. Ch. Common Calyx ovate, imbricated, of numerous lanceolate, fringed scales; the inner ones linear-lanceolate, chiefly, longest. Cor. compound, radiant. Florets of the disk numerous, perfect, of one petal, with a slender tube, and a limb in five deep, lanceolate, erect segments; those of the radius fewer, lower, of one flat, ligulate, abrupt, sharply five-toothed petal. Stam. in the florets of the disk. Filaments five, short; anthers united into a cylindrical tube. Pyl. in the same florets, German short; filary capillary, very long, erect; stigma short, cloven: in the radiant florets, German a rudiment only, without style or stigma. Peric. no other than the unaltered closed calyx. Seeds in the florets of the disk, solitary. Down brightly. In the radius none. Recept. brightly.


Obf. Linnaeus justly observes that this genus is very intimately related to Centaurea (see that article). Indeed the only difference confids in the flat, or ligulate, not tubular, florets of the radius. How far that distinction is sufficient, some perfous have doubted; especially as the presence of the radiant florets themselves in Centaurea, has been thought but a casual occurrence, equivalent to double flowers in other natural orders. As long, however, as the Syngenesious family continues to be characterized at all by the different figure of the florets, Zorgea must remain separate from Centaurea.

1. Z. Leptaura. Yellow Zopга. Linn. Mant. 117. Suppl. 383. *Wildl. n. 1. Ait. n. 1. L'Herit. Stipr. Nov. 57. t. 12.* (Z. allepica; Jacq. Col. v. 1. 89. Lc. Rar. 1777)—Native of Siberia, according to a manuscript collection of Linnaeus in his own Manuscript: other authors say, of the Levant. It appears to have been cultivated in Mr. Blackmore's celebrated garden at Orford, Lancashire, before the year 1779, when the catalogue of that rich collection was printed. This plant is a hardy annual, flowering in July and August. The stem is much branched, spreading in every direction, leafy, angular and roughish, twelve or eighteen inches high. Leaves alternate, dilatant, roughish, entire; the lower ones pinnatifid; the ret undivided, ob-tuse, tapering down into a footstalk. Flowers solitary, on long terminal stalks, large, near two inches broad. Scales of the calyx delicately fringed with tawny bristles. Corolla of a shining golden yellow.

Another species is described in the Supplement by Linnaeus himself, under the name of Z. capenas. This is *Rellinia pedunculata* of L'Heritier. See Wildl. Sp. Pl. v. 3. 2156, and is the same thing as *Athanasia pumila*, Linn. Suppl. 362.

ZOFA, in Geography. See Sopala.

ZOFFANY, Johan, in Biography, was born at Frankfurt, about the year 1735. He came to England as a painter of small portraits when he was about 30 years of age. After passing some time with very little encouragement, he at length was fortunate enough to attract public attention by a portrait of the earl of Barrymore, and thenceforth enjoyed considerable favour and encouragement. The most considerable of his productions at this period were portraits of the most celebrated dramatic performers in their favourite characters; as Garrick, in Abel Druger, sir John Brute, and lord Chalkefone, &c.; Foote, in major Sturgeon; and Jacob, as Jacob Gallup; Foote and Welfon, as Dr. Laft and the President, in the Devil on Two Sticks; Parsons, Moody, Braudy, Aicken, and many others, whose likenesses he preferred most admirably, with all the variety of expression required for the characters they personified. One picture he painted of the members of the Royal Academy, in the hall of the Academy devoted to the study of the living figure, round which they here assembled, and it received universal applause.

He had the honour to be employed by his majesty, and painted portraits of the royal family; and he was engaged by the queen to paint for her a view of the Tribune of the Gallery at Florence. He was somewhat of a humourist, and it is said of him, that whilst he was engaged painting in the Florentine Gallery, the emperor of Germany visited the grand duke, and coming up to Zoffany in the gallery, was much pleased with his performance, and asked him his name; and on hearing it, inquired what countryman he was; when he answered, an Englishman. Why, said the emperor, your name is German. True, returned the painter, I was born in Germany, that was accidental; I call that my country where I have been protected!

Soon after his return from Italy, he went to the East Indies, where he was much employed, and acquired a considerable fortune; but it disappeared upon his return home, and was only restored by a second adventure to the same hot-bed of wealth and disease. He again returned to England, but with diminished powers: yet he still continued to paint, and, among other works, produced an elaborate picture of the facking of the wine vaults at the Tuileries, in 1792: a disgustful display of the atrocities of that eventful period. He lived to a very advanced age, but was reduced exceedingly in intellectual powers for some years before his decease, which happened in 1808. He was a member of the Royal Academy.

ZOFFINGEN, in Geography, a town of Switzerland, in the canton of Berne, on the Wigger. It was at one time imperial, after which it put itself under the count of Habsburg. In the 13th century it was subject to the house of Austria, from which it was taken by the Bernois, in the year 1415, and is the principal place of a bailiwick, with considerable privileges; 26 miles N.N.E. of Berne.

ZOGNO, a town of Italy, in the department of the Serio: 5 miles N. of Bergamo.

ZOGOCARA, in Ancient Geography, a town of Asia, in Greater Armenia. Ptol.

ZOGOR, in Geography, a town of Thibet: 16 miles W.S.W. of Zengra.

ZOHAAUB, one of the districts of the province of the Lower Kurdistan, in the pachalic of Bagdad, which has a separate hakem or governor. See SOLYMANIA.

ZOHAKU, a town of Grand Bucharia: 12 miles N.E. of Bamian.

ZOHRA, a town of Egypt, on the left bank of the Nile: 5 miles N.N.E. of Miniet Ebn Kaïf.

ZOIA, a town of Russia, in the government of Archangel, near the mouth of the Petchora: 160 miles N.E. of Mezen.

ZOILUS, in Biography, a carpenter, belonging to the class of grammarians, was a native of Amphipolis, and lived
lived in the time of Ptolemy Philadephus, about the year B.C. 270. His natural disposition to depreciate eminent characters is said to have been strengthened by the course of his education, as a disciple of Polycrates, who wrote an accusation against Socrates. This disposition, which he was in the habit of indulging, gave occasion to his being denominated the rhetorical dog; rhetorical, as his style was elegant, and dog, from his practice of snarling. Both his person and mind are very unfavourably exhibited by Ælian; who says of him, that being once asked, why he spoke ill of all mankind—he replied, “because I cannot do ill to them.” Ambitious of gaining reputation, he endeavoured to acquire it by degrading others; and valued himself by having established a kind of claim to the title of “Homero-maftix,” or the scourge of Homer. Suidas informs us, that he wrote nine books of grammatical remarks upon this poet. Plato and Iocrates, as well as Homer, were objects of his critical severity. Zoilus was the author of several works; particularly a history commencing from the theogony, and continued to the death of Philip of Macedon, and a history of his own city. His attack upon Homer seems to have been an unpardonable offence, and threw a shade over every other good quality he possessed; for if we may credit Dionysius of Halicarnassus, he testifies that he was actuated by the love of truth, and he ranks him with Aristotle, and other eminent philologists. But his virtues and talents, whatever they were, could neither secure him from poverty while he lived, nor guard his memory from reproach. Vitruvius reports, that when he visited Alexandria, he recited his writings against the Iliad and Odyssey of Homer to king Ptolemy, which gave the king such offence, that he would take no notice of him; and afterwards, when urged by indignity, he solicited charitable affihtance, Ptolemy repulsed him with this contemptuous reflection; that if Homer, who had been dead 1000 years, could by his works give maintenance to many thousand people, a writer so much his superior might surely maintain himself. It is further said, that the king was so much displeased with his conduct, that he treated him as if he had been guilty of sacrilege; and that he was put to death, as some say, by crucifixion, and as others say by floning; and according to another account, he was burnt alive at Smyrna. Vitruvius adds, “that whichsoever of these was his fate, he well deserved the punishment.” The penalty, however, if this statement be true, seems to have been much more than adequate to the offence. Ælian Hist. Var. Vol. Hist. Grac. Gen. Biog.

ZOISITE, in Mineralogy, Epidote, Haüy, a mineral so called by Werner after baron Von Zois of Laybach.

Common Zoisite.—Its colours are yellowish and blueishgrey; it occurs massive and crystallized in very oblique four-sided prisms. The crystals are middle-sized, and deeply streaked longitudinally. The structure is lamellar, and the joints parallel with the axis of the crystal. The internal luster is splendid; the luster of the crystal is glimmering, and between pearly and refrinous; it is translucent, hard, and easily frangible. The specific gravity is 3.31. According to Klaproth, the constituent parts are:

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Friable Zoisite is of a reddish-white colour, spotted with pale peach-bloom red; it occurs massive. The fracture is intermediate, between earthy and splintery; the fragments are very sharp-edged, and translucent on the edges; it is rather hard and brittle. The specific gravity of this mineral is 3.3. According to Klaproth, its constituent parts are:

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Zoisite was first found in Carinthia, but has since been discovered in various parts of the continent of Europe, and at Glenelg in Inverness-shire. It is nearly allied to tremolite, with which it was at first arranged.

ZOITIUM, in Ancient Geography, a town of the Peloponnesus, in Arcadia; 15 fadia from Tricolous. Steph. Byz. ZOK, Sokor, in Geography. See Sokor Zol. ZOKOL, a town of Servia; 16 miles S. of Sabatzt.—Allo, a town of Bofnia; 45 miles E. of Bofnafaret. ZOL ENGERS. See Engers. ZOLCA, in Ancient Geography, a town of Asia, in Galatia, which belonged to the Paphagianians, and was situated on the coast of the Euxine. Zol. ZOLDO, in Geography, a town of Italy, in the Bellunefi; 18 miles N.W. of Belluno. ZOLDorf, a town of Bohemia, in the circle of Boleslaw; 6 miles W.N.W. of Jung Buntzel. ZOLERI, a town of the county of Tyrol; 8 miles S.S.E. of Trent. ZOL-HUYS. See Tol-Huyts. ZOLLERN, a castle of Germany, situated on a mountain, in the principality of Hohenzollern, to which it gives name; 10 miles S. of Tubingen. ZOLLICKOFEN, a town of Switzerland, and principal place of a district, in the canton of Berne; 2 miles N.W. of Berne. ZOLNOK, a town of Hungary, on the river Theyffe; 48 miles W.S.W. of Debreczin. ZOLOGEV, a town of Russia, in the government of Charcov; 24 miles N.W. of Charcov. N. lat. 50° 20′. E. long. 35° 44′. ZOLOTITZA, a town of Russia, in the government of Archangel, on the east coast of the White sea; 60 miles N. of Archangel. ZOLOTONOSCHA, a town of Russia, in the government of Kiev; 72 miles S.S.E. of Kiev. N. lat. 49° 30′. E. long. 31° 58′.—Allo, a river of Russia, which runs into the Dnieper, near Zolotonoscha, in the government of Kiev. ZOLOTTA, or Szelotta, a silver coin of Turkey, containing 30 paras, the para being = 3 aperces. ZOMBA, in Geography, a town of Africa, in the kingdom of Congo; 70 miles E. of St. Salvador. ZOMBAR, a town of Hungary; 40 miles S. of Closca. N. lat. 45° 56′. E. long. 19° 12′. ZOMERAW, a town of Prussia, in Oberland; 12 miles N.E. of Biehorshelfuder. ZOMUCHANA, in Ancient Geography, a town of Asia, in Aria. Zol. ZONA, or Zona Useris Regis, a very fertile country of Persia. It was so called because its revenue was destined for the accommodation of the queen. Plato. Zona, a word used by some authors for that species C. C. 2 of
of herps, which others call the \textit{ninuilla}, and we term the \textit{fingelz}.

ZONCHIO, \textit{in Geography}, a cape of European Turkey, on the coast of the Morea; 12 miles N.N.W. of Navarin. N. lat. 37° 12'. E. long. 21° 30'.

\textit{Zonchio}, a sea-port town of European Turkey, in the Morea: the harbour is large, but not commodious; 8 miles N. of Navarin.

ZONCOLUCUCAN, a mountain of Mexico, in the province of Guaxaca.

ZONDAGS, a river of Africa, which runs into the Indian sea, N. lat. 31° 20'. E. long. 29'.

ZONDORO, a town of Hungary; 26 miles S.W. of Czechain.

ZONE, \textit{Zona, \xi., q. d. belt, girdle, in Geography and Astronomy}, a division of the terraqueous globe, with respect to the different degrees of heat found in the different parts of it: formed by the two tropics and two polar circles, which divide the surface of the earth into five parts.

The zones are denominated \textit{torrid, frigid, and temperate}.

\textit{Zone, Toid,} is a fascia, or band, surrounding the terraqueous globe, and terminated by the two tropics.

Its breadth, therefore, is 46° 56'. The equator running through the middle of it, divides it into two equal parts, each containing 23° 28'.

The ancients imagined the \textit{torrid} zone uninhabitable.

ZONES, \textit{Temperate}, are two fasciae, or bands, environing the globe, and contained between the tropics and the polar circles. The breadth of each is 43° 4'.

ZONES, \textit{Frigid}, are segments of the surface of the earth, terminated, the one by the antarctic, and the other by the arctic circle; or included between these circles and the poles. The breadth of each is 40° 56'.

The difference of zones is attended with a great diversity of phenomena.

1. In the \textit{torrid} zone, the sun passes through the zenith twice a year; and his reed from the equator towards the pole, which is above the horizon, is twice a year equal to the height of the pole.

2. In the \textit{temperate} and \textit{frigid} zones, the leaf height of the pole exceeds the greatest distance of the sun from the equator; and therefore, to the inhabitants of it, the sun never passes through the zenith; yet if, on the same day, the sun rises at the same time, to a greater height, the height of the pole is less, since the inclination of the circles of diurnal revolution to the horizon is less.

3. In the \textit{temperate} and \textit{frigid} zones, the sun rises and sets every natural day, because the distance of the sun from the pole always exceeds the height of the pole; yet every where but under the equator, the artificial days are unequal, and the inequality is the greater as the place is less distant from the \textit{frigid} zone.

4. Where the temperate zone terminates on the \textit{frigid}, the height of the pole is equal to the sun’s distance from the pole, when in the neighbourhood tropic; and consequently, once a year, the sun, in its diurnal motion, performs an entire revolution, without going down under the horizon.

5. Every where, in a \textit{frigid} zone, the height of the pole is greater than the leaf distance of the sun from the pole; and therefore, during some revolutions of the earth, the sun is at a distance from the pole less than the pole’s height; and, during all that time, does not set, nor so much as touch the horizon. Where the distance from the pole, as the sun recedes from it, exceeds the height of the pole, or latitude of the place, the sun rises or sets every natural day.

\textit{Zona, Gungulm}, or girdle, part of the ecclesiastical dress of the Roman Catholic ministers. The use of it being derived from the church of Rome, it was called \textit{Zona Romana}.

\textit{Zoie, Ciliary, in Anatomy}, the black impression of the ciliary processes of the vitreous humour. See \textit{Eye}.

\textit{Zones, Greater and Smaller, of the Iris}, arterial circles produced by the anastomoses of the arteries. See \textit{Eye}.

\textit{Zonghan}, \textit{in Geography}, a town of Cochinchina, near the sea. N. lat. 14° 30'. E. long. 109° 48'.

\textit{Zongo, or Morena}, a river of Africa, which runs into the Atlantic, near Old Benguela.

\textit{Zonites, in the Materia Medica of the Ancients}, a name given to a kind of stick, called also \textit{placitas}. It had the latter name from the Greek \textit{plasteo}, a thrust, being formed by way of thrust on the sides of the furnaces. The latter name \textit{zontes} was given from its being formed of several coats, which, when broken transversely, had the appearance of belts or zones. See \textit{Tapari}, and \textit{Tunex}.

\textit{Zonitis Cadmia, a name given by some authors to a kind of cadmia fornacum, from its usually surrounding the upper parts of the furnaces like a girdle or belt}.

\textit{Zonitis}, in \textit{Entomology}, a genus of the coleoptera order of insects, the characters of which are, that the antennae are of equal length, the palpi four and filiform, and shorter than the whole jaw; and the lip emarginated. There are two species: \textit{viz.}

\textit{Chrysomelana}. Yellow, the wing-sheaths having a point in the middle, and the apex black; found in \textit{Egypt} and the \textit{East}.

\textit{Flava}. Reddish, with wing-sheaths yellow, and black at the apex.

\textit{Zonnar}, a kind of belt, or girdle, of black leather, which the Christians and Jews of the Levant, particularly those of \textit{Afia}, and the territories of the grand signor, are obliged to wear, to distinguish themselves from the \textit{Mahometans}.

The word is corrupted from the vulgar Greek; a contraction of \textit{zozonar}, or \textit{zoon girdle}.

It was Motavakkel X. Kalip, of the family of the \textit{Abasfides}, that first enjoined the Christians, &c. to wear the \textit{zonnar}.

The ordinance to this effect was published in the year of the \textit{Hegira} 235.

Hence, as most of the Christians of Syria, \textit{Mesopotamia}, &c. are either \textit{Neftorians} or \textit{Jacobites}, those sectaries are often called \textit{Christians of the girdle}.

\textit{Zoschos}, in \textit{Geography}, an Indian town, belonging to the \textit{Seneca} tribe; 2 miles N. of lake Sucea.

\textit{Zons}, a town of France, in the department of the \textit{Roer}, situated on the Rhine, with a castle; at this place a river-toll is paid; 13 miles N.N.W. of \textit{Cologn}. N. lat. 51° 4'. E. long. 6° 43'.

\textit{Zography}, formed of \textit{zogos}, animal, and \gamma\alpha\γ, I describe, denotes a description of animals.

\textit{Zoolatria}, \textit{Zoozepia}, composed of \textit{zoon}, animal, and \\π\zeta\π\zeta, worship, a species of idolatrie, in which divine worship was offered to animals.

\textit{Zoolatrise}, \textit{Zoolatroyia}, compounded of \textit{zoon}, life, or \textit{zoon}, animal, and \\π\zeta\π\zeta, speech, discourse, a discourse or treatise upon animals, or living creatures.

Zooology makes a considerable article in natural history, comprehending what relates to the form, structure, method of living, feeding, propagating, &c. of the divers species
species of brute creatures, and the descriptions of every kind. This makes one of the three kingdoms, as they are called, of natural history; the vegetable and the mineral being the two others; in these, however, there is this difference made by writers, that while vegetables and minerals are treated of together, as all of a piece in each, the subjects of zoology are divided, and it is made to compose, as it were, several kingdoms. Whoever is to write on plants and minerals, calls his work a treatise of botany, or mineralogy; and we have no words to express any subdivision of them into kingdoms; but in zoology, we treat, as different subjects, the different parts of it; and the history of birds is separated from some from the rest under the name of ornithology; that of quadrupeds, under the name of tetrapodology; and we have for the rest, the words entomology, amphitrology, and the like, expressing those things which are properly but the parts of zoology, as so many distinct and separate studies.

This may easily be amended by our considering the animal world as we do the vegetable and mineral, and dividing it, as we do the others, into its proper families; it will then be found that these are no better distinctions than those of the families of these things, and that the authors may as well set up separate studies under the names of bulology, umbilifiersology, and the like, as those.

A natural division of the subjects of zoology, on this principle, will afford six several families of its subjects.

1. The hairy quadrupeds. 2. The birds. 3. The amphibious animals, such as serpents, lizards, frogs, and tortoises. 4. The fishes. 5. The insects. And, 6. Those lowest of all organized beings, the zoophytes.

Artez's Ichthyol. See Quaqued, Bird, Fish, &c.

ZOOBO, in Geography, a town on the west coast of Celebes. S. lat. 3°. E. long. 110°. 10'.

ZOOMINERALIA, a word used by some writers to express certain substances which are of animal origin, yet have somewhat of the nature of stones, as pearls.

ZOOPHORIC COLUMN. See COLUMN.

ZOOPHORUS, or ZOOPHORUS, in the Ancient Architecture, the same thing with the freeze in the modern.

It was thus called in Greek, because anciently adorned with the figures of animals: from ζώον, animal, and φύος, I bear.

The Greeks sometimes also call the zodiac zoophorus, because of the signs and constellations in it.

ZOPHTHALMUS, in Botany, a name given by the ancient Greeks to the sedum major, or common great houfe-leek.

It had this name from the Greek ζώον, an animal, and φυος, an eye, as expressing a resemblance to the eyes of large animals, in the round and radiated growth of its chaffers of leaves. They also called it ambrosia.

ZOOPHYTON, ZOOHYTE, ζωοτόνος, composed of ζώον, animal, and φυος, plant, q. d. plant-animal, in Natural History, a kind of intermediate body, supposed to partake of both the nature of an animal and a vegetable.

In the Linnean system, the zoophytes, which constitute the fifth order of worms, (see VERMES,) are composite animals, resembling a flower, and springing from a vegetating stem. This order contains 15 genera, as the Tubifera, Madrepora, Millepora, Cellepora, Isis, Antipathes, Gorgonia, Alcyonium, Spongia, Flecura, Tubularia, Corallina, Sertularia, Pennatula, and Hydra; see each respectively. The species enumerated and described in Gmelin's Linnean system are 489.

The fetus, while in the womb, appears to many to be a real zoophyte, growing to the mother by the funiculus umbilicalis, as plants do to the earth by their stem. See FETUS, and EMBRYO.

Concerning the zoophyte called boranotes, see Agus Staphylicus.

ZOOHYTE-MARYGOLD. See MARYGOLD.

ZOOHYTES, Chemical Composition of. See SHELLS and VERMES.

ZOOTOMY, Zootomia, compounded of ζώον, animal, and τόμος, I cut, the art, or act, of dissecting animals, or living creatures.

Zootomy amounts to the same with anatomy, or rather comparative anatomy. See ANATOMY.

ZOPARITUS, in Ancient Geography, a town of Asia, in Melitone, on this side of the Euphrates. Ptol.

ZOPH, in Geography, a town of Syria; 25 miles S.E. of Jerusalem.

ZORI, a district in the N. part of the government of Diarbekir.

ZOPHA, a town of Prussia, in Pomerelia; 10 miles S.W. of Marienburg.

ZOPHICIDELUS, in Botany, a word used sometimes as an epithet with the word chameleon, and sometimes as the name of a plant, in both cases expressing the black chameleon-tinle, which the ancients carefully distinguished in their writings from the white kind; the former being a poisonous plant, the other not.

ZOPHORIC. See ZOOPHORIC.

ZOPHORUS. See ZOOPHORUS.

ZOPISSA, Zupusa, naval pitch, a kind of mixture of pitch and tar, scraped off from the ships that have been a long time at sea. See Naval Pitch.

The word seems formed from ζώον, bullia, I boil, and ποις, pitch; q. d. concocted pitch.

This matter, by being gradually penetrated by the falt of the sea, becomes impregnated with its qualities; and, being applied to the body externally, is found revolutive and defecative.

ZOPPO, in the Italian Music, is applied to all those counterpoints described under the article OBLIGATO, &c. Thus they say, contra-punto alla zappa, a lane or hopping counterpoint; because, in thefe, a note is placed between two others, each of half its value in time. When this comes to be played or sung, the voice or instrument seems to proceed by unequal leaps or steps, like those of a lame person. See the example here annexed.

There are contra punto alla zappa sopra il fogato, as well as sotto il fogato, i. e. above and below the subject. See SOGETTO.

ZOPOLA, in Geography, a town of Italy, in Friuli; 13 miles N.N.W. of Concordia.

ZOQUES, a district of Mexico, in the province of Chiapa, bordering on Tabasco.

ZORABA, a word used by some of the chemical writers to express vitriol.

ZORAH,
ZORAH, in Geography, a town of Africa, on the coast of Barca. N. lat. 30° 45'. E. long. 18° 30'.

ZORAMBUS, in Ancient Geography, a river of Asia, in Carmania. Ptol.

ZORBIG, or Little Zerbst, in Geography, a town of Saxony, in the circle of Leipzic, with a citadel; 15 miles S. of Dessau. N. lat. 51° 40'. E. long. 12° 18'.

ZORECZA, a town of Lithuania; 80 miles E.S.E. of Pinsk.

ZORGE, a town of Saxony, belonging to the abbey of Walkenried; 6 miles N.E. of Walkenried.

ZORN, a river of Thuringia, which runs into the Helm, 5 miles W. of Nordhausen.

ZORIGA, in Ancient Geography, a town of Asia, in the Greater Armenia, to the left of the Euphrates, and at some distance from it. Ptol.

ZORILLE, in Zoology, a species of wasp, having the back and sides marked with short stripes of black and white, the tail tinged with yellow; the tail long and bushy, partly white, and partly black; the legs and belly black. This animal inhabits Peru, and other parts of South America; its pellipalial vesture overcomes even the panther of America, and if subjected to formidable enemy. Pennant. See Viverra.

ZORITA, in Geography, a town of Spain, in New Castile; 12 miles N.W. of Huete.

ZORLESCA, a town of Italy; 8 miles S.S.E. of Lodi.

ZORN, a river of France, which rises near Saverne, in the department of the Lower Rhine, paffes by Brumath, and enters a canal which communicates with the Rhine, 8 miles N. of Straßburg.

ZORDORF, a town of the New Mark of Brandenburg, where the king of Prussia defeated the Ruffsians in the year 1758, near Culfin.

ZORKNA, in Botany, received that name from the late professor Gmelin of Gottingen, the compiler of a very faulty edition, at least as to the botanical department, of the Systema Naturae of Linnaeus. He chose this appellation for one of Walter's anonymous genera, which he himself knew nothing of. It has been adopted by Michaux and Pursh, and seems intended for the commemoration of Mr. John Zorn, an apothecary of Kempten, in Bavaria, who was born in the year 1739, and may possibly be still living. He has published five volumes in octavo of Icones Plantarum Medicinalium, each volume containing one hundred plates, with a Latin and German text. These figures are coloured in the Nuremberg rile; at which place the work appeared, between the years 1779 and 1784. There was, moreover, a Dr. Bartholomew Zorn of Berlin, who published there, in 1714, Botanologia Medica, a thick German quarto, with six plates. He edited also, in 1763, the Herbarium portatile of Thomas Pancorius, and according to Driandr. Bibli. Bank., v. 5. 406, died in 1717, at the age of 78.—Gmel. Syll. Nat. v. 2. 1096. Michaux Boreal.-Amer. v. 2. 76. Pursh 484. Poirier in Lamarck Dict. v. 8. 872. (Anon. N. 279; Walt. Carol. 181.)—Cliffs and order, Diadelphe Decandria. Nat. Ord. Papilionaceae, Linn. Leguminasis. Jaff.

Gen. Ch. Cal. Perianth inferior, of one leaf, bell-shaped, two-lipped; upper lip broad, abrupt, emarginate; lower in three deep segments, the middle one longest. Cor. papilionaceous; standard inerely heart-shaped, reflexed, revolute at the sides; wings ovate, erect, smaller than the standard; keel divided at the base, bluntly rectangular, the length of the wings. Stam. Filaments in two feet? anthers five of them oblong, five alternate ones globose. Pili. Ger-


Obs. The habit of this genus is so peculiar, and so unlike Hedyarum, much more resembling Stylosanthies, (see those articles,) that we are very glad of any characters that may serve to keep it distinct, and we hope the above may suffice. The plants are herbaceous, with one or two pair of conjunct leaves, without an odd one. Flowers small, in axillary fkikes, with large leafy bracteas. The species have not yet been well discriminated. We shall endeavour to explain them, with the help of original specimens.

1. Z. angulifolia. Narrow-leaved Zornia. (Hedyarum diphyllum a; Linn. Sp. Pl. 1053. Willd. Sp. Pl. v. 3. 1178. Lamarck Dict. v. 6. 404, excluding the variety H. a. 291; Linn. Zeyl. 134, excluding Sloane's synonym, and the variety B. H. bifolium, filiguis articulatis echinatis; Burm. Zeyl. 114. Onobrychis maderaftapana diphyllus minor, filiculis hiruitus; Pluk. Phyt. t. 246. f. 6. "Nelam-mari; Rheede Hort. Malab. v. 9. 161. t. 82." Raini Hift. v. 3. 404.)—Leaflets two, lanceolate, uniform. Bracteas ovate, ribbed, fringed, imperfectly reticulated, shorter than the legume, marked with glandular dots. Prickles of the legume rough.—Native of the East Indies, in a fairy foil. Root annual, tapering, warty. Stems several, diffuse, from four or five inches to a foot long, round, slender, zigzag, smooth, leafy, with short alternate branches. Leaves finely conjunctive, alternate; leaflets from half an inch to an inch long, elliptic-lanceolate, entire, blunfhi, tipped with a small point, unequal at the base, smooth on both sides, not quite asile at the extremity of the common footer, which is about the length of the leaflets, cylindrical, smooth, with a longitudinal furrow above. Stipulas half-arrowshaped, ribbed, entire, pointed at each end. Flowers yellow, in axillary, solitary, forked, lax, bracteate frkikes, longer than the leaves, each spike from three to eight alternate flowers. Bracteas one pair to every flower, twice as long, two-ranked, converging, flat, ovate, acute, entire, strongly fringed, three or five-rubbed, beakned with refinos dots, elongated at the base into a short oblique spur, permanent, their surface smooth. Legume near an inch in length, longer than the bracteas, of about four semi-ordurcious joints, finely reticulated, and befet with spreading, brown, barbed prickles, which are round with minute reversed hairs, but we cannot perceive that the surface of the legume itself is downy, at least not invariably. The refinos dots scattered over the bracteas seem peculiar to this species. Those parts are full as much fringed in this as in I. conlumatum of Willdenow, though his definitions indicate otherwihre.

2. Z. recutita. Reticulated Zornia. (Hedyarum diphyllum B; Willd. Sp. Pl. v. 3. 1178. 3 Lamarck Dict. v. 6. 404. H. diphyllum; Swartz Obs. 285. H. n. 10; Browe Jam. 301, excluding the synonyms. H. minus diphyllum, flore luteo; Sloane Jam. v. 1. 185.)—Leaflets two, lanceolate; the lower ones elliptical. Bracteas ovate, as long as the legume, strongly reticulated and fringed, with out glandular dots. Legume and its prickles downy.—Native of the dry sandy parts of the savannahs of Jamaica. Our specimens are from Browne himself. The root, though said to be annual, is somewhat woody. Herb larger than the leaf, a dull, and most unquetionably specifically distinct. The loms are straight, a foot long, nearly branched. Leaflets an inch
inch or an inch and a quarter in length; those of the lower leaves half an inch broad. *Spikes* many-flowered, thrice as long as the leaves. *Flowers* yellow; the standard sometimes purplish. *The bracteas* afford a clear specific distinction, in their strongly-marked, elevated, vein-y reticulations, and the total want of reflexed or glandular dots, though their whole surface is minutely granulated, as it were, like those of the foregoing species. *The legumes* have three or four joints, and their surface, as well as their prickles, is downy. They are almost entirely covered by the *bracteas*.


- *Leaflets* two, ovate. *Bracteas* ovate, ribbed, fringed, imperfectly reticulated, shorter than the legume, without glandular dots. *Legume* fringed; its disk and prickles smooth.—Native of Ceylon and Tranquebar.

This species approaches the last in size, but differs in many essential points. The *leaflets* are ovate, not near so long as their common *footstalk*. *Bracteas* more pointed and elongated at the base, ribbed, but not strongly reticulated; their surface quite delitute of pellucid dots, though some of them occasionally bear little black opaque prominences, which seem the effect of injury, or are perhaps a minute parasitical fungus. *Legumes* considerably longer than the *bracteas*, though each confluent of scarcely more than two orbicular joints, full twice the size of either of the preceding species, from which they differ in the smoothness of their disk and prickles, though fringed at the edge. *The flowers* are yellow.

4. Z. *latifolia*. Broad-leaved Zornia. (Hedyfarum dirophyllum; Aubl. Guian. 774, excluding all the synonyms.)

- *Leaflets* two, roundish-ovate; the lower ones orbicular. *Bracteas* linear-lanceolate, ribbed, somewhat hairy, longer than the downy legumes.—Gathered in Guiana by Aublet, from whom we have specimens, which abundantly grew his plant to be different from any of the foregoing, and justify him in saying that, with respect to it at least, Plukenet's figures are bad. This has a woody, but perhaps annual, *root*, and several prostrate *stems*, from six inches to a foot long, straight, round, downy. *Footstalks* also downy, rather longer than the *leaflets*, which in the lower leaves are about half an inch in length, nearly orbicular, obtuse; in the upper gradually more elongated, ovate, or oval-lanceolate, acute; all of them somewhat hairy or silky, especially beneath, where also they are a little glaucous. The narrow *bracteas*, very differently shaped from any of the three preceding species, are the distinguishing characteristic of this: they have three very strong crowded ribs, originating from their point of insertion, below which is a blunt elongation downwards, much like that of *Z. reticulata*; they are somewhat hairy, as well as slightly fringed. *Corolla* yellow. *Legume* of only two joints, unless any have been broken off, which is not apparent; the prickles downy, and the disk quite woolly. Willdenow speaks of a fupposed variety of *Hedyfarum dirophyllum* from Portorico, which is larger than the common kind, and whose leaves are "frigiose beneath," by which expression is probably meant bristly, or hairy. *This*, if not our *Zornia latifolia*, must be a hitherto non-descriptive species, of which we have not materials to give a definition.


- *Leaflets* three or four, lanceolate. *Stipulas* half-arrow-shaped. Base of the *bracteas* elongated and acute.—Gathered by Thunberg in the interior part of the country, above the Cape of Good Hope, near Gage-boucl, flowering in November and December. *The stem* is herbaceous, decumbent, thread-shaped, smooth, a foot or more in length. *Footstalks* rather longer than the *leaflets*, which are three or four together, elliptic-lanceolate, acute, entire, hardly an inch long. *Stipulas* much elongated at the base, acute at each end. *Spikes* axillary, many times longer than the leaves, (at least the lower spikes,) and consisting of ten or twelve *flowers*, concealed by the ovate three-ribbed *bracteas*, each of which is elongated at the base into an ovate acuminate appendage, nearly half its own length. *Legume* longer than the *bracteas*, of four joints, said by Thunberg to be rough, but in what manner, or degree, is not mentioned: his figure represents them smooth and globose, which is evidently an inaccuracy.

6. Z. *tetraphylla*. Four-leaved Zornia. Michaux Boreall. Amer. v. 2. 76. t. 41. Pursh n. 1. (Z. bracteata; Gel. n. 1.)

Aromonos bracteata; Walt. Carol. 181. (Hedyfarum tetraphyllum; Lamark Dict. v. 6. 405. a.)—

- *Leaflets* four, lanceolate. *Stipulas* ovate. Base of the *bracteas* somewhat elongated, obtuse.—Native of sandy fields in Lower Carolina. Perennial, flowering in July and August. About a foot high, much branched. *Flowers* yellow. *Pursh* have we here ventured to distinguish this from the last-described species, by the characters afforded in the plates cited, without our having ever seen a specimen of either. We are fully aware of the hazard of such proceeding; but as it is highly probable that a Cape plant will hardly prove, on comparison, the same species as a Carolina one; and the species of this genus very nearly resemble each other, and have been much confounded, we propose the above characters. *If the figure of Michaux be exact, as to the *filipinae* and *bracteas*, there can be no doubt on the subject, and it was drawn by no less an artist than Redont.* The *filipinae* are there represented perfectly ovate, without any *pap* or elongation, at the base, and not half the usual size in this genus. *Thole of Thunberg's plate are like the* *filipinae* of the *bracteas*. This is the most important difference, though the short and blunt *pap* of the *bracteas* is very striking also. *The flowers* seem larger in these two last, than in any of the foregoing.

On reviewing the whole genus, we cannot but repeat that the abruptly-compounded *leaves* afford a most important mark of difference, compared with *Hedyfarum*, nor are the yellow *flowers*, in this case, entirely unworthy of consideration. There is moreover to clothe a resemblance between all the species of *Zornia*, so as to induce a perfusion of their constituting a very natural genus. The fame may be said of *Stylosanthes*, to which we have already referred the reader as being next akin to *Zornia*.

Which of the above six species, or rather which of the first four, is entitled to a place in the *Hortus Kewensis*, we cannot presume to determine. In v. 4. 340. of that work, Dr. Houlton is recorded as having lent to Miller, before the year 1735, something which has always palled for *Hedyfarum dirophyllum*. This must have come from South America, or the West Indies, and was therefore not *Nolam-mari* of Rheede, our *Zornia angustifolia*; nor the *conjugata*, a plant of Ceylon. It must have been either the West Indian *reticulata*, or more probably perhaps the South American *latifolia*.

**ZOROANDA, HAZOIR, in Ancient Geography**, a place of...
of Asia, on a part of mount Taurus, called Nicephates, where the Tigris opened a subterranean passage, N.W. of Amida.

ZOROASTER, Zerdusht, or Zarudusht, in Biography, an eminent Eastern philosopher, concerning whom, as well as the age in which he lived, learned writers have entertained very different opinions. Some have ascribed this title, the derivation of which is uncertain, to many eminent persons; whilst others have maintained that there was but one Zoroaster, and that he was a Persian. Others have said that there were six celebrated founders of philosophy of this name. Ham, the son of Noah, Mofes, Ohris, Mithras, and others, both gods and men, have by different writers been ascribed to be the same as Zoroaster. Many different opinions have been also advanced concerning the time in which he flourished. Arriotle and Pliny fix his date at a remote period as 6000 years before the death of Plato: Hermippos says, he lived 5000 years before the Trojan war; but these are idle tales, which should, without doubt, be claffed with the report of the Chaldeans, concerning the antiquity of their astronomical observations. According to Laertius, he flourished 600 years before the Trojan war; according to Suidas 5000. We shall in the sequel of this article detail the opinions of some of our principal modern writers on this subject. According to Brucker, the most probable hypothesis is, that there was a Zoroaster, a Perfo-Median, who flourished about the time of Darius Hyttafz, and that besides him there was another Zoroaster, who lived in a much more remote period among the Babyloniens, and taught them astronomy. The Greeks and Arabians are agreed concerning the existence of the Persian Zoroaster; and the ancients unanimously ascribe to a philosopher, whom they call Zoroaster, the origin of the Chaldean astronomy, which is certainly of much earlier date than the time of Hyttafz; so that it seems necessary to suppose a Chaldean Zoroaster different from the Persian. Concerning this Zoroaster, however, nothing more is known, than that he flourished towards the beginning of the Babylonian empire, and was the father of the Chaldean astrology and magic. (See Chaldean Philosophy and Magi.) All the writings which have been ascribed to the Chaldean Zoroaster are unquestionably spurious. The Persian Zoroaster was probably of Persian extraction, and born in Media. Although much of what has been related concerning this Zoroaster or Zerdusht, and the instruction which he received from the Jews, is fabulous; nevertheless it is not improbable that he might have learned some things from the Hiraftes who reigned in Babylon, that might enable him to correct the doctrine of the Persian magi; but it is not easy to specify particulars. Several miracles are ascribed to Zoroaster, but they are of such a kind as an impostor would not find it very difficult to perform. (See Magi.) To Zerdusht, or the Persian Zoroaster, many writings are ascribed; particularly the Zend. (See Zendavesta.) Fragments of a work, entitled "The Oracles of Zoroaster," are still extant. Several editions of them under the form of verses have been published, and pains have been taken to explain them. Stanley has subjoined to his "Lives of the Philosophers" a correct translation of them. The philosophers of the Alexandrian school highly venerate them as genuine remains of Chaldaean wisdom; but they have so many evidences in their ideas and language of their origin in that school, as to render it probable that they were written by some Platoniast, about the beginning of the second century; a period in which spurious writings were produced in order to support the flinking credit of Gentile philo-
many thousand years before Moses. Upon the whole it appears, that no memorial upon record is placed so high as the ancient writers have carried this personage; and though their accounts are for the most part exaggerated, yet they fully ascertain the antiquity of this person.

The title Zoroaster, Mr. Bryant conceives, originally belonged to the fun, and was metaphorically bestowed on sacred and enlightened personages. Some have thought, that the first among men to whom this title was applied was Ham; others have taken him for Clus, for Mizraim, and for Nimrod, and Huetius for Moses. But Mr. Bryant, after examining the primitive characters given of him by different writers, supposes, that they concur only in Noah, who was the first deified mortal, and the prototype in the Magian worship. This writer supposes, that, as the object of the Peric and Chaldaic worship was the sun, and most of their titles were derived thence, Zoroaster denoted Sol Afterius; Zor being the sun, and Alter signifying star.

The abbé Foucher, in a long series of memoirs, inferred in the 25th, 26th, 27th, 28th, 30th, and 31st vols. of the Histoire de l'Académie Royale des Inscriptions et Belles Lettres, &c. Paris, has given an ample account of the religion of the Persians. This learned author maintains, on the authority of Phyll, that the most celebrated Zoroaster was an ancient sage, who lived under Cyaxares, king of the Medes, restored the worship of fire, was revered by the Persians as a celestial prophet, and whose exactions, prodigies, and revelations, made a great noise in the world. See Zenda Vesta.

ZOROPASSUS, in Ancient Geography, a town of Asia, in Ileper Armenia, dependent on the prefecture of Muriane. Ptol.

ZORVI, in Geography, a town of Asiatic Turkey, in the province of Diarbekir; 22 miles E. of Ana.

ZOSAWA, a river of Moravia, which runs into the Frilava, 5 miles W. of Hohenleitadt.

ZOSIMA, in Botany, an umbelliferous genus, thus called by professor Hoffmann, in compliment to three brothers, Anastasius, Nicholas, and Zoa Zosima, distinguished for their editions of numerous works of the Greek classics. This botanical commemoration seems chiefly owing to the great propriety, ("magna proprie") of the latter of these brothers, for natural history. We presume not to dispute the claim, because the author of this name is doubtless, better able to judge of its propriety than we can possibly be.—Hoffm. Umbell. v. 145. t. 1. B. 9. —Clais and order, Pentandra Digynia. Nat. Ord. Umbelliferae.

Gen. Ch. General and partial Umb of many unequal rays. General and partial involucrum of many, linear-lanceolate, acute, unequal, villous, permanent leaves. Perianth of five unequal, very short, permanent teeth. Cor. Uniferal nearly regular and uniform; flowers partly perfect and fertile; the central and lateral ones, in each umbel, male: partial of five, nearly equal, spreading, inerely heart-shaped, deflexed petals; rather concave, on each side, at the keel; tapering at the base; obliquely infulated at the point, which is linear-lanceolate, acute, involute, channelled. Stam. Filaments five, spreading or deflexed, straight, longer than the involute corolla, dilated at the base; anthers veratilbe, roundish, two-lobed. Pfl. in the perfect florets, Germen inferior, ovate, compressef, villous; flyles two, thread-shaped, channelled; their tumid base wavy and crenate at the margin; at length reflexed and permanent; Ricas simplex, obtusif. Peric. Fruit roundish-obovate, compressef, finely downy, bordered; the border externally tumid, and somewhat corrugated, internally flirated; emarginate at the summit, crowned with the flyles on their short, nearly sessile, crisped base; thickened at the bottom; the disk elevated and flirated. Seeds two, of a similar shape, convex in the middle, with three elevated, narrow, central ribs, and two marginal ones; their inter- rices, in the upper half, occupied by four coloured stripes.


1. Z. orientalis. Oriental Zosima. Hoffm. v. 1. (Heracelum abimitifolium; Venten. Choix de Pl. 7. t. 7. March. t. Bieberl. Taur.-Caucal. v. 1. 224. Sphondylum orientale humilium, folius abimiti; Tourn. Cor. 22.)—Nature of Persia, Georgia, and other countries about Caucafus, flowering in the early part of summer. The root is biennial, tap-shaped, milky. The whole herb when bruised smells like Smallage, Atripium graveolens. Stem erect, near two feet high, cylindrical, furrowed, somewhat branched, and slightly leafy, about as thick as a swan's quill, rough to the touch with short whitish hairs. Leaves opposite, stalked, thrice pinnate, hoary with short pubescence; leaflets small, wedge-shaped, lobed; entire at the edges. Umbels two or three inches in diameter, on long stalks, terminal; partial ones of from twelve to fifteen flowers, which, according to Ventenat, are milk-white, but Hoffmann describes the petals of a yellowish-green. Germs downy. If the flowers are really white, we should suspect this plant to be nearly related to Heracleum tenontium, Sm. Prodr. Fl. Graec. Sibth. v. 1. 192, which will be exhibited in t. 251. of the Fl. Graeca; but the shape of the fruit of the latter is very unlike Hoffmann's figure, nor does it better agree with the representation in Ventenat's work. This fall indeed is itself so unlike Hoffmann's t. B. f. 9, (he himself erroneously cites f. 7,) that we cannot but suspect some mistake. Nor are we, after all, persuaded that the plant under consideration ought to form a separate genus from Heracleum. In so natural a family, the skill of a botanist is found in combining, rather than dividing, which last is the most easy thing in the world, and the most pernicious to science. We do not, however, pretend to decide in the present cafe; because the generic distinctions of Umbellate plants are still sub judice.

ZOSIMUS, in Biography, a Greek historian, who held various civil offices under the younger Theodorus, about the commencement of the fifth century, and left a history of Roman affairs in six books; the first of which furnishes a flight view of the emperors, from Augustus to Diocletian; and the others detail the public events that occurred to the second siege of Rome by Alaric, and the pontificate and deposition of Attalus. Something seems to be wanting towards the end. The style of this historian is concise, perspicuous, and pure; but his prejudices against the Christian emperors have misled him; and particularly in his account of Constanin the Great. Leunclavius has attempted to justify him, and it has been allowed that he has divulged some truths which other historians have suppressed. Clibin says, "credulous and partial as he is, we must take our leave of this historian with regret." The first edition of his work was that of R. Stephens, in 1581; others have been published by T. Smith, Gr. and Lat. Oxon. 1679, 8vo; and the Variorum by Cellarius, 8vo. 1679, 1712.

Zosimus, Pope, a native of Greece, was elevated to the pontifical throne in March 417, as successor to Innocent I; at the time when the Pelagian controversy prevailed. Celellius, the chief disciple of Pelagius, presented his confession of faith to this pope, who approved it and admitted him
him to his communion. That of Pelagius was likewise approved. The African bishops, however, who were hostile to the Pelagian doctrine, interested the emperor Honorius in their favour; and obtained from the pope an anathema of the doctrine of Pelagius and Caelelius, with a sentence of excommunication if they refused to abjure their tenets. A council was assembled, in which other bishops, who concurred in the Pelagian creed, were degraded from their episcopal dignity. The fluctuations and inconsistencies of Zosimus's conduct depreciated the character of the pope, and furnished reason for questioning his infallibility. Other infinances occurred, in which he was hardly able to maintain his authority. This pope died in December 418, leaving the character of an able man of business, but hollow, tenacious, and imperious. He was canonized, as Bower says, by a mit-take of cardinal Baronius, who suppised him to be a St. Zosimus in the martyrlogy of Bede. Dupin, Bower.

ZOSITERPUM, in Ancient Geography, a town of Thrace, in the province of Rhodope. Procopius.

ZOSSEN, in Geography, a town of Brandenburg, in the Middle Mark; 13 miles S.E. of Potsdam. N. lat. 52° 10'. E. long. 15° 17'.

ZOSTER, in Ancient Geography, a borough of Attica, upon the sea-coast, with a promontory of the same name, extended into the Saronic gulf; but it is not known to what tribe it belonged. Minerva, Apollo, Diana, and Latona, were honoured here. As Zoster bore some resemblance to zone, or cutchure, the inhabitants pretended that the borough bore this name, because Latona, finding herself in this place, and feeling that her time was approaching, unloosened her cutchure. Pauf. in Attic. c. 31.

Zoster, a word used by some to express that kind of herbes, called by others zona and zingilela, and by us usually known under the name of the plantages.


Gen. Ch. Cal. Spadix linear, flat, feathered by the base of a leaf, bearing an indeterminate number of flowers on one side. Perianth none. Cor. none. Stamina one; anther sessile, erect, closely pressed to the spadix, simple, cylinndrical, a little wavy, tapering at each end. Pist. Gern men solitary, parallel to the anther, and of nearly a similar shape; style one, obliquely curved, shorter than the gern men; stigma two, linear, acute, spreading. Peric. Capsule pendulous, elliptical, membranous, of one cell, not burrting. Seed solitary, oblong, frigutate.


Obf. The above is the view of the genus in question, first given by Gænter, and confirmed from actual observation in the English Botany and Pl. Brit. Vahl adopts the same idea as ours of the place of this genus in the artificial system. The field has a large, oval, half divided cotyledon, as we woule call it; Gænter terms it a vitellus. (See the article YOLK of the Seed.) From this genus is to be separated the Z. oceanica of Linnaeus, which belongs to Caulinia of De Candolle and Brown; Poffidonia of König in Ann. of Bot. v. 2. 95. t. 6; Kernera of Wild. Sp. Pl. v. 4. 947; but which is different from Caulinia of Willdenow; see that article.


β. Fucus marinus, feu Algæ marina graminæ minus; Rai Syn. 52. (Algoide; Mich. Tc. Ind. 52. f. 2.)

γ. Fucus, five Algæ marina graminæ angulifolii femini fera ramifier; Rai Syn. 52. (Algoide; Mich. Tc. Ind. t. 59?)

δ. Potamogeton marinus in utriculis epiphyllum per minus; Rai Syn. 53.

γ. Algæ angulifolii vititiorum; Rai Syn. 53.

Leaves entire, obseously three-ribbed. Stem slightly compressed. Native of the sea-shore, or salt muddy ditches and creeks throughout Europe, posibly of New Holland and North America also, flowering towards autumn. The root is perennial, filiform. Stems roundish, smooth, decumbent at the base, and trailing to a great extent, throwing out tufts of fibres here and there; their branches floating and leafy, simplex, a little compressed. Leaves alternate, tapering at the base into a kind of floating footstalk, linear, a foot, or much more, in length, flat, immoht, bluntsht, quite entire, splitting longitudinally a little above the base, on the upper side, and putting forth from that fissure a linear, obtuse, flat receptacle or spadix, two inches long, covered in front with a series of naked flowers. Each of these flowers consists of a green anther, and a pistil of the same hue, parallel to it; but in such an alternate order, that the anther of each flower is contrary to that of its neighbour, and lands above the pistil of the latter. The whole herb is frassett and tender; yet Linnaeus says it is used in some parts of Sweden to make a thatch, which is very durable, and likewise to form up chinks in wooden buildings. It serves also for mace, as well as the various kinds of sea-weed.

Whether the varieties above indicated may or any of them prove difficil species, must be left for future inquiry. The β is a small slender plant, differing in nothing but its lesser dimensions from the common kind. It is well represented in one of Micheli's unpublished plates. γ is larger, more compact, and branched; we can scarcely doubt its being Micheli's t. 59. Of the others we know more than can be gathered from Ray's Synopses.

Z. oceanica of Linnaeus is quite different from any of these supposed varieties, constituting a distinct genus, called Poffidonia Cavolinii, by Mr. König, in Ann. of Bot. v. 2. 95. t. 6; and well described by don Philip Cavolini of Naples, in a dissertation on these plants. De Candolle has named it Caulinia, but it is not Willdenow's. In Micheli's unpublished figure above cited, t. 58, is a good figure of this. We never met with any authority for its being a native of the British coast; but Mr. Horne, in a paper published by the Geological Society, in their Transactions, v. 3. mentions the submarine remains of a forest, in the Suffolk coast, in the brown vegetable earth, accompanying which are found fragments of a plant, whose leaves were thought by Mr. Brown to resemble Zosiera marina, except that, being much broader than usual, he suspected they might belong to Z. oceanica above-mentioned. If these leaves were sufficiently perfect to exhibit the three ribs, that question might perhaps be determined. As to the breadth, or size, of the leaf
in this whole trio, nothing is more variable. We have Z. ciliata of Vahl; to which he attributes leaves an inch or more in breadth: whose leaves, in our different speciments, are but one-third or one-fourth of an inch wide, and from three inches to eight inches long. Z. marina differs from us with one-eighth to one-fourth of an inch in width, and if the above synonyms be all right, its variations are still greater.

2. Z. unifrons. Single-ribbed Grass-wrack. Forks. Egypt—Arab. 157. Vahl n. 2. Willd. n. 2.—Leaves entire, single-ribbed. Stem compressed; swelling at the joints. — Found by Forkell on the coast of the Red sea at Mocha, growing under water, and resembling overflowed grasses. The stem is yellow, with bent joints. Leaves a span long, or more, narrower than in Z. marina, with an obscure mid-rib, unattended by lateral ones; and their base is sheathing.

Z. ciliata, Vahl n. 3; and stipulacea, his n. 4; found by Forkell at the same place as the last, with whose fructification Vahl was, in both inferences, unacquainted, are referred by Mr. Koniq, in Ann. of Bot. v. 2. 97, not without some doubt, to a new dioecious genus, denominated Thalassa in Dr. Solander’s MSS., of whose fructification no figure has appeared, and of which the male flowers only have been observed. They are indeed sufficiently remarkable, as the following characters evidence. Stipule single-flowered, of one leaf, in two oblong obtuse segments. Perianth of three ovate-oblong, obtuse leaves. Cor. none. Filaments none. Anthers nine, converging, linear-lanceolate, shorter than the calyx. The want of a flitt in the leaves of these two last-mentioned plants proves them to be no Zoileae.

ZOTENBERG, in Geography, a mountain of Silezia, in the principality of Schweidnitz, on which is a celebrated chapel; 20 miles W. of Breslau.

ZOTHECA, among the Ancients, the place where the animals designed for sacrifice were kept.

ZOOF, in Geography. See GAUR.

ZOOF, a river of Grand Búcharia, which runs into the Dchasp, 45 miles S. of Balk.

ZOU-KEOU-KIAOU, a town of China, in Pe-tchéli; 5 miles S.W. of Peking.

ZOULOUNN, a town of Afiatic Turkey, in the go-

vernment of Sivas; 10 miles S.S.W. of Amalrich.

ZOUR EL HAMAN, or Island of Pigeons; a small island in the Mediterranean, near the coast of Algiers. N. lat. 36° 26'. E. long. 12° 38'.

Zour, Shabr c. See SHA'REZUR and SOLOVANIA.

ZOWAMORE, or ZINERA, an island in the Mediter-

ranean, near the N.E. coast of Tunis, called by the ancients Agamus; 18 miles N.N.W. of Cape Bon. N. lat. 36° 50'. E. long. 11° 8'.

ZOWHAREEN, a town of Africa, in the kingdom

of Tunis; 16 miles E.S.E. of Keft.

ZOW-WAN, or ZAGWAN, a town of Africa, in the

kingdom of Tunis. It is a small flourishing town, built

upon the north-east extremity of a conspicuous mountain of

the same name. It is in great repute for the dyeing of scar-

let caps, and the bleaching of linen: great quantities of

both being daily brought thither for that purpose from

Tunis, Sufa, and other places. The stream which is em-

ployed at present for this use was formerly, together with

the river Zungler, conveyed to Carthage; and over the

fountains of it there was a temple erected, the ruins of

which continue like wise to this day: upon this ancient gate,

which regards the south-east, there is a ram’s head, armed,

in baso reliefo, with auxilio, in large letters, below it.

This may, perhaps, instruct us, that Zow-wan, or whatever

was its former name, was under the immediate influence and

protection of Jupiter Ammon; 36 miles S.W. of Tunis.

N. lat. 36° 14'. E. long. 10° 6'.

ZOZO, a town of Afiatic Turkey, in the government

of Diahbekir; 20 miles S.S.E. of Kirkük.

ZOYSIA, in Botany, was so named by the late professor

Wildenow, in honour of the baron Charles de Zoys, a digni-

fied ecclesiastic, resident in Carniola, who has long pur-

sued with ardour the investigation of the botanical treasures of that country, and who is celebrated by Hoff, Wolfen, Jacquin, and other eminent writers, for the alibance which he has at various times afforded them.—Wild. in Nov.


Gen. Ch. Cal. Glume of one valve, single-flowered, oval-oblong, compressed, cartilaginous, smooth, rigid, keeled, incurved, gaping at the apex of one edge; convex on one side; flat when on the other. Cor. Glume of two thin, membraneous valves, enclosed within the calyx, avel-

lefs. Nectar. none. Stam. Filaments three, capillary, short; anthers haftate. Pist. Gernen superior, linear, min-

ute; styles two, the length of the calyx; ligmas prominent, feathery. Peric. none, except the permanent glumes. Seed solitary, linear, invested with the calyx and corolla.

Eff. Ch. Calyx of one valve, single-flowered, compressed, cartilaginous. Corolla of two membraneous valves, within the calyx. Stigmae feathery. Seed linear, invested with the glumes.


bar, by Koenig; and near Port Jackson, New South Wales, by Mr. Brown. This is a small perennial grass,

with a creeping root, enveloped in sheathing furrowed scales. Stems alternate, ascending, slender, thread-shaped, fimple, leafy, three or four inches high. Leaves two-ranked, spreading, involute, sharp-pointed, smooth, an inch or an inch and a half long, with pale, furrowed, close feathers, concealing the joints of the stem. Stipula of several spreading hairs. Clusters terminal, solitary, quite simple, of ten or twelve nearly fefrile, alternate, erect flowers, remarkable for their smooth ivory-like glumes, about two lines in length, out of which, at the tip, project the feathery stigmas.

Linnaeus was inclined to make this a distinct genus by the name of Matrella; derived from matrix, and alluding to an anatomical resemblance, too obscure to be very instructive, if it were liable to no other objection. Such allusions were allowable enough while botany remained the abstruse study of philosophers and physicians; but in proportion as it becomes general and popular, they are either neglect or confusable. This grass might be forced into Agrostis as the definition of that genus found in Linnaeae, but has certainly no natural habit, nor any precife character, in common therewith. Mr. Brown remarks, that the corolla (his perianthum,) is inverted, or contrary to the single-valved calyx; on which account, added to the nearly fepaled inferior, he ranges Zoysia near Rottéllia. We cannot but think it rather more related to Paniium Dabylum of Linnaeae, Haller’s Digtaria; though in fact so distant in its nature, as not to associate well with any thing.

ZOZONUSIUS, in Natural History, a name of one of the gens of the ancients, but of which our accounts are so short, that we can make no conjecture of what it was. Pliny only tells us, that it was found in the river Indus, and used by the magi.
ZRATSCHE, in Geography, a town of Bohemia, in the circle of Czsafla; 16 miles S.W. of Czsafla.
ZRIN, a town of Croatia, near the river Unna; 40 miles E.S.E. of Carlstadt. N. lat. 45° 16'. E. long. 16° 55'.
ZSCOPA. See Tschopa.
ZSCHORLAVA, a town of Saxony, in the circle of Erzgebirg; 10 miles S.E. of Zwiekan.
ZSOKEN, a town of Saxony, in the circle of Erzgebirg; 8 miles N.W. of Grunhayn.
ZUAQUI, a town of New Mexico, in the province of Sonora; 8 miles S.E. of Pitquin.
ZUATA, a town of New Grenada; 45 miles N.N.E. of Tunja.
ZUBETHI, a town of Peruña, in the province of Chuquisca; 105 miles N.W. of Sulter.
ZUBIA, a town of Spain, in the province of Grenada; 4 miles S.E. of Grenada.
ZUBTZOV, a town of Russiia, in the government of Tver, on the Volga; 68 miles S.W. of Tver. N. lat. 55° 46'. E. long. 34° 56'.
ZUCARELLO, a town of Genoa; 7 miles N.W. of Albenga.
ZUCCAGNIA, in Botany, so named by the late abbé Cavanilles, in honour of Dr. Attilius Zucagni, superintendent of the garden at Florence.—Cavan. t. v. 5. 2.
Gen. Ch. Cal. Perianth inferior, of one leaf, coloured; tube tuberculate; limb in five deep, oblong, obtuse, permanent segments, the lower one a little the longest. Cor. Petals five, obovate, inserted into the calyx; the uppear most broadest, vaulted. Stam. Filaments ten, awl-shaped, affcnding, hairy in their lower part, about as long as the corolla; anthers roundish, of two lobes, divided by a furrow. Pyl. Germen superior, roundish, compressed; style capillary, of the length and position of the flamine, smooth; styletm funnel-shaped. Peric. Legume ovate, oblique, compressed, hairy, of one cell and two valves. Seed solitary, ovate, compressed, attached by its stalk to the summit of the legume. Cavanilles.
Eff. Ch. Calyx bell-shaped; its limb in five permanent segments. Petals five, obovate; the upper one broadest, vaulted. Legume of one cell and two valves. Seed solitary.
1. Z. pumila. Dotted Zuccagnia. Cavan. as above, t. 403. Point n. 1.—Native of hills in Chili, between Portillo and the springs commonly called Monnanditas, bearing flowers, as well as feed, in January. It was communicated to the author by Louis Nee, to whose discoveries in South America and New Holland his Icones are so much indebted. The stem is shrubby, four or five feet high, with numerous, twisted, glittinous branches. Leaves alternate, abruptly pinnate, of numerous, alternate, sessile, elliptical, entire, glittinous leaflets, each one-third of an inch long, marked on both sides with blackish reflexus dots. Clusters terminal, solitary, implex, of several rather small flowers. Partial flanks one-third of an inch long, each with a little acute bractea at its base. Calyx smooth, redhish-brown, rather shorter than the corolla. Petals a line and a half long, affron-couleur, with darker veins. Anthers deep orange. Legume about three lines in length, clothed with long rully hairs. Seed of a filtring brown. This pretty shrub does not appear to have been raised in the gardens of Europe.
2. ZUCCARO, or Zuccherio, Tadeo, in Biography, was a painter of considerable renown, born at S. Agnolo in Vado, in the duchy of Urbino, in 1529. His father Ottaviano Zucaro was also a painter, but of moderate talents; and Tadeo was principally indebted to Pompeo de Fano for initiation in the art. Having, as he imagined, exhausted the flower of information to be derived from his preceptor, animated by love of his art and a desire to free his father from further charge on his account, he, at the age of 14, went to Rome, unknowing and unknown. His relation Francesco d'Agnofo was then engaged painting, with Pierino del Vaga, the grotesques of the Vatican, and he had some hope of assistance from him; but his application was vain, and he was obliged to earn his daily bread by grinding colours in different shops, wherever he could find employment. He divided his time between this labour and copying from the works of Raphael, in the Palazzo Giigi particularly, and was often compelled to sleep under the loggie of the palace, being unable to procure better accommodation. Weary at length of so much misery, he returned to his father, but soon left him to revifh the great empire of art. Fortune now began to smile upon him; he became known to an artist named Giacomone, and having improved much with him, and acquired some credit, his relation Francesco d'Agnofo noticed him, and for a time they worked together. Afterwards he was engaged by Daniello da Parma, a scholar of Corregio and Parmegiano, to assist him in painting a chapel of Santa Maria, in a church at Vitto, in Abruzzo. The work was in fresco, and Zucaro, according to Vafiari, painted a large portion of the subjects required. When this was done, he returned to Rome, and was employed by G. Mattic to paint a façade of the Palazzo Mattei in fresco, where he executed, in chiaro oscuro, nine historica pieces relative to the history of Furio Camillo. He was then only 18, and the execution of them was a matter of surprize to all who saw them. By this his first public work he gained so much reputation, that he soon acquired considerable employment. The duke d'Urbino, hearing of his fame, sent for him to Urbino, and gave him a commission to paint in fresco the chapel of the Duomo there, which was delayed by various causes, and he returned to Rome in the time of Julius III., who employed him, under Vafiari, in the Vatican, to paint in a frieze the labours of Hercules, which were afterwards destroyed by pope Paul IV., to make room for other works. Hitherto he had been principally engaged upon ornamental subjects, but now a certain one was entrusted to his pencil; and he painted in fresco, for the church of Santa Maria della Confolazione, several subjects of the passion of the Saviour, which are regarded as among his best productions. He was afterwards called upon to exert his skill, by the cardinal Farnete, in the Palazzo Caprarola. This is his greatest work, and is that whereon his reputation most depends. He was liberally paid by the cardinal. The whole ornamental part of the building was entrusted to his care, and he laboured with great earnestness to make it honourable to himself and pleasing to his employer. It has been engraved by Prener in a set of 45 plates. Tadeo Zucaro died at Rome in 1566.
ZUCCARO, Federigo, was a younger brother of Tadeo just mentioned, and born in 1543. He received his instruction from his brother, with whom he was placed at Rome, when very young, and who paid him the most affectionate attention. He soon rendered himself useful to Tadeo in his great works, and engaged also in some labours for himself. Pope Pius IV. employed him, in conjunction with F. Barroci, in the Palazzo Belvidere, where he gained great reputation. The brothers continued to work together without rivalry, and co-operated at the Vatican and the Villa
Villa Farnefe. He was invited to Florence by the grand duke to finish the cupola, left imperfect by Vafari, and succeeded in pleasing his employer.

Gregory XIII. engaged him to paint the vault of the Capella Paolina; but having some dispute with the officers of his holiness, he avenged himself by a satirical picture which he exhibited. By this the pope was offended, and Zuccaro was obliged to fly, and leave his great work unfinished. He took refuge in France, where he was sometime employed by the cardinal of Lorraine; and from thence he went to Flanders, where he painted cartoons for tapestries.

In 1574 he visited England, and was received very favourably. Here he painted portraits. The queen sat to him, and many of the nobility. How long he remained here is not exactly known. When he returned to Italy, he went to reside at Venice, where the patriarch Grimani employed him in his chapel to finish the fresco ornaments begun by Battista Franco, and he added some designs of his own to them. He also painted there a large picture of the Adoration of the Magi. In conjunction with the great masters then living in Venice, he was employed in the hall of the grand council of that city, and he obtained as his reward the honour of knighthood. He soon after returned to Rome, and the pope not only overlooked his indiscretion, but allowed him to complete the work he had begun in the Capella Paolina.

On the accession of Sixtus V. he was invited to Madrid by Philip II. to adorn the walls and ceilings of the Escorial; but though he painted with his usual skill, and covered immense quantities of space, he had not his usual success in affording pleasure to his patron. Philip was not gratified with his works, and Zuccaro was dismissed; not, however, without being munificently rewarded for his labours. The works he left behind him were afterwards covered over by others from the hand of Pellegrini Tibaldi. On his return to Rome he established the academy of St. Luke, for which he received letters patent from Gregory XIII., and to which, at his death, which happened in 1609, he bequeathed all his property.

The talents of the Zuccaros were more splendid than great. They designed and executed with facility; but aiming at grandeur, fell into manner; and the vice of mannerism touches also the colour and chiaro oscuro of their productions. Sometimes happy in all parts, but more frequently defective in the principal one of expression and feeling, their works please without gratifying; and though they attract, do not absorb the spectator.

ZUCCHABARI, CHADARA, in Ancient Geography, a town of Mauritania Caesariensis, situated on the left bank of the river Chinalaph, and towards the north-east of Mount Zalacus. This is probably the Suscarab and Colonia Augulta of Pliny.

ZUCCHARA, ZUNG-GAB, an ancient town of Africa, and the most northerly of those which lay between Zingtania and Bircium. Its magnificent ruins and its temple are the coverts of Arabs.

ZUCCHERELLI, FRANCESCO, in Biography, a very pleasing landscape painter, was born at Pigtigliano in Tuscany, in 1702. He for some time attempted history, but abandoned it, and adhered solely to landscapes, which he adorned with very agreeably composed groups of figures. In 1752 he visited England, where he was much encouraged; but our greatest debt to him is due for his having persuaded Wilton to adopt landscape for his object, instead of portrait. For this liberality what adequate thanks can be offered to his memory? At the foundation of the Royal Academy he was chosen an original member. After remaining here twenty years, he returned to Italy, and settled at Florence, where he had the misfortune to be reduced to indigence, by the suppresion of a monastery where he had lodged the money he had acquired. He again refumed the pencil to support himself, and died at Florence in 1788, aged 86.

ZUCCHI, in Geography, a town of Italy, in the county of Friuli; 5 miles N.W. of Friuli.

ZUGA, a river of European Turkey, which runs into the Marva, near Niffa.

ZUCHABARUS, in Ancient Geography, a mountain of Africa Propria, in which the river Cydnus and the fountain Acaba have their source. Herodotus called it "Chirion Mons."

ZUCHIS, a lake of Africa Propria, which is, according to Strabo, 400 fida in circuit; and on the bank of the lake is a town of the same name.

ZUCHOW, in Geography, a town of Poland, in Volhynia; 32 miles E. of Lucko.

ZUCKMANDEL, a town of Silecia, in the principality of Neiffe, the fee of a bishop; 17 miles N.N.W. of Jagerdorff. N. lat. 50° 8'. E. long. 17° 16'.

ZUCKTOK, a town of Mexico, in the province of Yucatan; 83 miles S. of Campeachy.

ZUDA, a town of Arabia, in the province of Yemen; 12 miles W. of Chammir.

ZUDISHTIRA, in Hindu Mythology, is one of the heroic sons of Pandu, whose wars and adventures occupy a confiderable portion of the Mahabarat, an epic poem of great celebrity in the Sanscrit language. See MAHABARAT and SHAHISCRIT.

ZUECA, in Geography. See GIUDUCCA.

ZUEELA, ZUILLA, or Zuzilda, a confiderable town of Africa, in the kingdom of Fezzan, said to have been anciently the capital, containing many rich merchants, situated in a fertile country. The remains of ancient buildings in this town, the number and size of the ciphers, and the construction of the vaulted caves, intended perhaps as repositories for corn, exhibit such vestiges of ancient splendour, as will probably attract, and may highly reward, the attention of the future traveller; 60 miles E.N.E. of Mourzouk. N. lat. 27° 35'. E. long. 16° 45'.

ZUENGA, a town of Thibet; 176 miles W.S.W. of Laifa. N. lat. 28° 32'. E. long. 88° 10'.

ZVENIGOROD, a town of Russia, in the government of Moscow, on the Moilka; 28 miles W. of Moscow. N. lat. 55° 40'. E. long. 35° 34'.

ZUENZIGA, a desert district of Africa, in the country of Sahara, situated to the south of Tafilet.

ZVERINOGOLOVSKAIA, a fort of Russia, on the Tobol; 52 miles S. of Okunevsk.

ZUEVA, a town of Russia, in the government of Irkutsk, at the union of the Kotoi and the Angara; 60 miles N.N.W. of Irkutsk.

ZUF, a town of the country of Candahar; 50 miles N.W. of Candahar.

ZUFFERABAD, a town of Hindooftan, in the subhah of Moultan, near the Ravee; 25 miles N.E. of Moultan.

ZUFFERWAL, a town of Hindooftan, in Lahore; 10 miles N.N.E. of Sealcot.

ZUFFOLO, in the Italian Muse, a little flute or faggelet, having a very shrill sound, like the whistling of small birds.

ZUR-FOONE, or Mers el Foulon, in Geography, a seaport of Algiers; 36 miles W.N.W. of Boujeiah.

ZUG, a canton of Switzerland, bounded on the north and...
ZUG, a town of Switzerland, and capital of the above

described canton, is beautifully situated at the north-east

extremity of a lake, in a fertile valley, abounding with corn,

plains, and wood. It contains two churches, a convent,

town-hall, arsenal, corn-magazine, a college, hospital,

etc. The titular bishop of this place is Oswald, king of

Northumberland in the seventh century, who was defeated

and slain in 634 by Penda, king of the Mercians. In the

Church is his statue, with this inscription: “Sanctus

Oswaldus Rex Anglie Patruonis huic Ecclesiae.” This king

was much renowned for his chastity, piety, and power of

working miracles; 15 miles S. of Zurich. N. lat. 49° 6'.

E. long. 8° 16'.

ZUG, a lake of Switzerland, eight miles long, and two

wide, abounding in fish. It receives its name from the town

on its coast.

ZUGANA, in Ancient Geography, a town in the interior

of Arabia Felix. Ptol.

ZUGAR, a town of Africa Propria, between the rivers

Bagradas and Triton.

ZUGARI, in Geography, a town of Naples, in Calabria

Ultra; 6 miles N. of Nicotera.

ZUGLIANO, a town of Italy, in Friuli; 4 miles S.

of Udina.

ZUHREE, a district of the province of Balouchistan,

or Ballygulan, which is considered by some as a province

distinct from Mekran or Mecran, and by others as the

northern division of it. However this be, Balouchistan is

a confused mass of tremendous mountains, affordingFailure

nevertheless for numerous flocks of sheep and herds of

cattle, and producing great quantities of wheat. The ter-

itories of its chief comprehend all the countries that lie

between 25° 30' and 30° N. lat., and from 65° to 69° E.

long.; and Balouchistan is divided into the two mountainous

provinces of Ihalawam and Sarawan, the low country of

Cutch Gandava to the east, and the provinces of Zuhree

and Anoud Djal, to which may be added the small districts

of Shat and Muitung, lying north of Kelat. Zuhree,

though it is entirely subject to the Khan of Kalkat, pays very

little to him, as its revenues are enjoyed by Zade Bukat,

of the Zuhree tribe of Balouches. The chief town is Zuhree,

which contains from one to two thousand houses. The

second town, nearly as large, is Dadur; besides which, there

are many populous villages, and upon the whole, this is

spoken of as the most civilized part of Balouchistan, the

capital of which is Kelat.

ZUL, a river of Spain, which runs into the Guadiana,

a little above Medellin.

ZUCK, a town of Prussia, in Natangen; 8 miles

N.W. of Lick.

ZULA. See ZUELA.

ZUINGLE, or ZWINGLE, WURG, in Biography, the

Scots Reformer, was born January 1, 1484, at the village

of Wildhauen, in the county of Tockenburg; and having

declared himself in his youth a studious dissection, was

intended by his father for the church. Accordingly he was

sent for education first to Basle, and then to Berne, where

attempts were made to fix him in the convent of the Dominicans;

but in order to prevent their taking effect, his father re-

moved him to the university of Vienna, which was then in

high reputation. Returning from thence to Basle, he was

chosen classical tutor in his 18th year, where he made very

considerable advances in knowledge, and particularly in

that of the profession to which he was destined, whilst he

taught others; availing himself of the lectures of Thomas

Wytenbach, who, without renouncing the fylem of the

schools, allowed his pupils to think freely for themselves.

After a residence of about four years at Basle, Zwingel

took the degree of M.A., and being chosen prior of

Glarus, was ordained by the bishop of Constance. Having

commenced a course of liberal inquiry, he indefatigably

pursued it, critically explaining the New Testament as

the directory of his faith, and confuting a variety of writers

who had incurred the cenure of the church of Rome.

The consequence of this mode of study was a discovery of

the deviation of the ecclesiastical fylem, generally adopted

and estabished, from that of Christianity, both in doctrine

and practice. But he was slow in publishing the theologi-

cal sentiments which he had imbibed, and for ten years

pursued a course of practical instruction at Glarus, which

served to him the respecto and affection of his parishioners,

so that the bigotted clergy could not succeed in their at-

tempts to do him injury. From Glarus he removed to the

celebrated abbey of Einsidlen, where he accepted the office

of preacher, and where he had an opportunity of associating

with
with persons of learning, and of contributing to the education of candidates for the ministry. Whilist he was at Glarus he expounded several superstitions of the church of Rome; and at Einfiedlin he gained additional reputation by preaching against vows, pilgrimages, and offerings. Here he employed his influence so effectually, that he ordered the inscription over the abbey-gate, "Here plenary remission of sins is obtained," to be effaced, and the relics to be buried; and, among other rules which he established in a convent of females under his direction, he introduced one for obliging the nuns to read lessons in the New Testament, instead of reciting their hours. He was also intrepid and zealous in propagating rational sentiments of religion, and with this view he availed himself of a public occasion, when a crowd was assembled, to deliver a sermon designed to show that no superior sanctity resided in any place so as to confer peculiar merit on vows addressed from it, but that their acceptance depended upon the purity of the heart and life of the worshipper. Declarations of this kind, whilst they gained the approbation of some of his auditors, excited the indignation of others, and alarmed the monks of this and neighbouring convents. Although he was regarded with jealousy and terror by those whose interest led them to oppose reformation, he was so much respected, that his ecclesiastical superiors manifested no displeasure against him; and by his correspondence with Erasmus, Glareanus, Hedio, Rhe- nanus, and other learned persons, he established a reputation which enabled him to encourage liberal studies. In 1518 he was invited to occupy the vacant post of preacher in the cathedral of Zurich, and before he was installed he announced his proposed plan of preaching, which differed from that which had been before practised, and which gave him an opportunity of explaining the books of the New Testament in an uninterrupted series, without regard to texts that were marked for each Sunday and Saint's-day in the year. This plan was approved by the majority of the chapter, and drew together a crowded auditory, who expressed in high terms their admiration of the preacher. A circumstance occurred which afforded him a complete victory over an emissary of pope Leo X., who was employed in the sale of indulgences, inasmuch that he was obliged to quit the city and retire into Italy. Some writers, especially among the Catholics, have referred the origin of the reformation, and of the opposition of both Zwingle and Luther to the papal authority, to the disputes about indulgences; but, although this quarrel might have contributed to the promotion of it, the people were previously prepared for the event by the preaching and conduct of Zwingle, and by the judgment and prudence with which he had planned and pursued his measure for this purpose. Luther proceeded very slowly to that exemption from the prejudices of education, which Zwingle, by the force of an adventurous genius, and an uncommon degree of knowledge and penetration, easily got rid of. And we learn from the most authentic records of history, that he had explained the Scriptures to the people, and called in question the authority and supremacy of the pope, before the name of Luther was known in Switzerland. In process of time, after Luther had taken up arms against Rome, Zwingle, being then minister of the chief church in Zurich, concurred with him; preaching openly against indulgences, then against the intercession of the saints, then against the mass, the hierarchy, the vows and celibacy of the clergy, abstinence from flesh, and also many things which Luther was disposed to treat with toleration and indulgence; such as images, altars, wax-tapers, the form of exorcism, and private confession, &c. Zwingle, at an early period of his ministry, had declared his decided disapprobation of all wars, excepting those that were undertaken for the defence of the country; and such was the influence of his opinion, that the canton of Zurich refused to concur with the other cantons in a subsidiary treaty with the French king. The result of his arguments and remonstrances to this effect was a law passed by the assembly of the canton in 1522, abolishing all alliances and subsidies for the term of 25 years. He laboured at the same time to enforce a regard to the rules of the gospel in preference to the respect that was generally manifested to those of ecclesiastical discipline. Accordingly he defended those persons who had been denounced to the magistrate for infringing on the "fall of Lent" without a dispensation; and published on this occasion his treatise "On the Observation of Lent," which contained some free opinions on the obligation of fasting and keeping particular days. When the bishop of Constance remonstrated against his proceeding, and endeavoured by his charge and letters to excite apprehensions among the people, and in the council and chapter of Zurich, that he would spread through Switzerland such a flame as Luther had kindled in Germany, Zwingle obtained permission to reply; and composed a tract to prove that the gospel alone is authority from which there is no appeal, and that the decisions of the church are binding only inasmuch as they are founded on Scripture. When the bishop of Constance had prevailed with the deputies of the Helvetic diet to order the arrest of a pastor accused of preaching the "new doctrine," Zwingle, who had now adopted and openly avowed the principles of the reformation, addressed to the heads of the cantons, in his own name and that of his friend, a summary of his doctrine, annexing an intreaty that they would allow liberty for the preaching of the gospel. In a conference before the deputies of the bishop of Constance, in the presence of the great council of Zurich, held in 1523, Zwingle gave an account of his doctrine; and the colloquy terminated in the following declaration of the council: "That Zwingle, having been neither convicted of hereby, nor refuted, should continue to preach the gospel as he had already done; that the pastors of Zurich and its territory should refuse their discourses on the words of Scripture alone; and that both parties should abstain from all personal reflections." Zwingle, having been thus supported by the magistrates, and having obtained a public sanction of the principles of the reformation in this canton, has been charged, both by Catholics and Protestants, with allowing to the secular power an undue degree of authority in ecclesiastical matters; however it has been urged in his defence, that he did not intend to transfer to government the absolute power over confessions claimed by the popes; but that, for the preservation of order and tranquillity, he thought that the depositories of lawful authority ought to have a share in the direction of ecclesiastical affairs. Zwingle, though thus supported, proceeded with caution in promoting alterations in the ceremonies and modes of public worship, and was principally anxious to lay a proper foundation of change by enlightening the understanding and convincing the judgment of the people. When some zealous reformists agitated a mob to pull down a crucifix which had been erected at the gate of the city, and the culprits were brought before the council to be tried and punished, Zwingle interposed; and whilist he vindicated the offenders from the charge of sacrilege, he gave it as his opinion, that they deserved some punishment for having pulled down the crucifix without the authority of the magistracy. This dispute led to a general colloquy, which was held in October 1523; and the result was, that all the culprits, except Hottinger their ring-leader, and the person who had actually
ZUINGLE.

tually committed the offence, were set at liberty; but Hottinger was banished from the canton for two years; and he was afterwards put to death for heresy, in consequence of a sentence pronounced by the deputies of seven cantons at Lucerne, notwithstanding the intercession of Zurich. The question of the celibacy of the clergy was agitated in these colloquies, and though no decisive opinion was given by the council, several clergymen married, and among them was Zuingle himself, who had expressed his sentiments against the question, at the age of 40. In 1524, the council of Zurich proceeded to the reformation of public worship according to the plan proposed by Zuingle. They began with canceling all pictures and statues to be removed by those whose ancestors had consecrated them; and of these several were destroyed. These measures occasioned alarm and complaint in the other cantons; and acts of hostility were meditated. Without entering into a detail of the various circumstances that occurred on one side and on the other, we shall content ourselves with observing, that fanaticism and bigotry were engaged in opposition to each other, and produced in Switzerland effects similar to those that have attended innovation and reformation in other countries. At Zurich, the total subversion of the Romish worship was accomplished, by prohibiting processions and other ceremonies, and by the abolition of the sacrifice of the masses. The latter event took place by the activity of Zuingle in 1525; and on Easter Sunday the Lord’s Supper was celebrated according to his idea of this rite, which was that of a merely commemorative and symbolical service. Our reformer displayed in another instance a disinterested spirit, which reflects great honour on his memory. Although he was one of the canons who composed the chapter of the cathedral, and this body was independent of the council, and possessed its own jurisdiction and property, he prevailed with the majority of his colleagues to consecrate the large revenues of the chapter to establishments for public instruction, and to transfer its temporal power to the government. In the conduct of this event he manifested no less wisdom and moderation than disinterestedness; for the chapter charged itself with the payment of as many pastors as were necessary for the public worship of the city, to which service those canons who were capable of service were devoted. Those who were old and infirm were allowed to prefer their benefices for life; and their revenues, as they became vacant, were to be employed in founding professorships for lectures, to which admission was to be gratuitous. These liberal conditions were religiously observed, and the regulations thus framed are still continued at Zurich. The orders of mendicants, and other religious houses, were abolished; and their revenues were appropriated to the support of hospitals, and other charitable institutions, as the old members dropped off. Zuingle was afterwards commissioned to organize a system of public instruction, in which he displayed a cultivated and liberal mind.

The reputation which Zuingle had acquired, and the success which had crowned his plans and labours in the cause of reformation, were not sufficient to secure him against the prejudices of fanatics, and the hostile attacks of malignity. Attempts were made to associate him with Munzer, one of the leaders of the Anabaptists; but he happily avoided the snare that was laid for him, and instead of taking part in those violations which called forth the interposition of the civil power, and which terminated in the death of one of the persons concerned, he did all that lay in his power to prevent them; and though he could not prevent the life of one disturber of the public peace, he composed the tumult occasioned by the intemperate zeal of others. Notwithstanding the singular prudence and moderation which influenced his whole conduct, his reputation excited envy, and a conspiracy was formed against his life. Under the protection of the magistracy of Zurich he was safe; but his enemies insidiously proposed a conference at Baden, in Argovia. His friends, however, were not unapprobated of his danger, and well knowing that the cantons were actuated by ineretate hostility against his person as well as his doctrines, they would not consent to his leaving Zurich. At the conference, which he prudently declined to attend, enmity was avowed both against him and his adherents. Some of the cantons, however, withheld their concurrence; and this was particularly the case with respect to the canton of Berne. In this canton, the reformation had made considerable progress, so that in 1527 several of its municipalities addressed the senate for the abolition of the masses, and the introduction of the form of worship established at Zurich. The reformers at Berne summoned a convention, to which the clergy of the other Helvetic states, and the neighbouring bishops, were invited. Zuingle’s attendance was also requested; and he thought it his duty to appear in that assembly, professedly convened for the advancement of the reformation. Haller was the leader of the party in this canton, and in connexion with Zuingle and other coadjutors the cause to which they were devoted obtained a complete triumph; so that the grand council of that canton fully adopted the measures of that of Zurich. Upon this, five of the cantons which were attached to the old religion entered into a solemn engagement not to suffer the doctrines of Zuingle and Luther to be preached among them. At length the hostilities that subsisted between the Catholic and reformed cantons were amicably terminated by the treaty of Cappel in 1529. The animosity, however, between these cantons was not extinguished. It broke out again with greater violence than ever; and the senate of Zurich has been charged with the first aggression, by arbitrary acts in favour of the reformed preachers in the common bailiages. Its project of secularizing the abbey of St. Gall, which belonged to the Helvetic confederacy, was a greater grievance; and on the other hand, the five associated Catholic cantons refused to concur with the others in expelling the Spaniards from the Valteline, and perverted the reformed in their jurisdictions with the greatest severity. The sufferers fought the protection of Zurich, and the eloquence of Zuingle was employed in recommending their case to the senate. The breach widened, and a majority of the Protesting cantons agreed in stopping the transit of provisions to the five cantons, which depended upon foreign supplies. Zuingle in vain remonstrated against this cruel act; and the five cantons took up arms, and having published a manifesto, marched into the field in October 1531. A detachment was ordered to prevent the junction of the forces of Berne with those of Zurich, and the main body advanced towards Cappel. This intelligence alarmed the people of Zurich; and they could only spare 700 men for the relief of their countrymen at Cappel. Zuingle was appointed to accompany them. A battle ensued; and though the Zurichers, animated by his exhortations, defended themselves valiantly, they at length were compelled to yield to superiority of numbers, and were entirely routed. Some died at their posts; others fled; and Zuingle received a mortal wound at the commencement of the action, and fell senseless to the ground. As soon as he had recovered sufficiently to raise himself up, he crossed his arms on his breast, and lifted his languid eyes to heaven. In this condition he was found by some Catholic soldiers, who, without knowing him, offered to bring a confessor; but
but as he made 2 signs of refusal, the soldiers exhorited him
to recommend his soul to the holy virgin. On a second refu-
ful, one of them furiously exclaimed, "Die then, obli-
nate heretic!" and pierced him through with a sword.
His body was found on the next day, and the celebrity of
his name drew together a great crowd of spectators. One
of thefe, who had been his colleague at Zurich, after inten-
ty gazing on his face, thus expressed his feelings: "What-
ever may have been thy faith, I am sure thou wast always
sincere, and that thou lovedst thy country. May God
take thy soul to his mercy!" Among the favage herd
some voices exclaimed, "Let us burn him till he succour remains!"

The proposal was applauded; a military tribunal ordered
the execution, and the ashes of Zuingle were scattered to
the wind. Thus, at the age of 47, he terminated a glorious
career by an event deeply lamented by all the friends of
the reformation, and oc%inating triumph to the partisans of
the Romish church.

"In the character of Zuingle," says one of his biog-
raphers, "there appears to have been united all that
makes a man amiable in private society, with the firmnes,
ardour, and intrepidity that are indifpenfable in executing
the great task of reformation. By nature mild, his earnest-
ness was the reful of his fene of the importance of the
cake he engaged in to the beft interests of mankind, not of
a dogmatic or differtant spirit. His views were large and
genewous, and his opinions rode above the narrow fafe efct
or party. It was no small proof of liberalit in that age
that he ventured to affert his belief of the final happinesss
of virtuous heathens, and of all good men who acf up to the
laws engraft on their confcences. His temper was cheerful
and focial, somewhat hafty, but incapable of harbouring
resentment, or indu&ing envy and jealousy. As a reformer he was original
for he had proceeded far in eman-
cipating himself from the superftitions of Rome by the
strength of his own judgment and had begun to communica-
te the light to others, whilft Luther ftil retained almoft
the whole of the Romih system, and long before Calvin
was known in the world. He was more learned and more
moderate than the fift of these divines, and more humane
and kind-hearted than the last. He wrote many works of
utility in their day; and the reform, of which he was the author, still subsistt unchanged among a people distinguished
by their morals and mental cultivation." Life of Zuingle,
in Switzerland, vol. i. See ZUINGLIANS.
ZUINGLIANS, in Ecclesiastical History, a branch of
ancient Reformers or Protestants; denominated from their
author Ulric or Huldric Zuingle. See ZUINGLE.

As to the eucharift interpreting hoc est corpus meum, by
hoc significat corpus meum, he maintained, that the body
and blood of Christ were not really present in the eucharift; and
that the bread and wine were no more than external figs or
symbols, defigned to excite in the minds of Christians
the remembrance of the sufferings and death of the divine
Saviour, and of the benefits which arise from them. This
opinion was embraced by all the friends of the reformation
in Switzerland, and by a confiderable number of its votaries
in Germany. On the other hand, Luther held his doctrine,
which was confubftantiation, with the utmost obstinacy;
and hence arose, in 1524, a tedious and vehement contro-
verfy, which terminated, at length, in a fatal division
between thofe who had embarked together in the facred
caufe of religion and liberty. From this time, Zuingle pro-
pagated his doctrine concerning the eucharift in a public
manner by his writings, after having entertained and taught
it privately before that period. His "Commentary on true
and fälle Religion," containing his fentiments on this sub-
ject, was published in 1525, and followed by a learned
traté of Eeolampadius on the fame subject.

With a view of bringing this controversy, which reflected
much difcredit on the Protestant caufe, to an amicable issue,
Philip, landgrave of Hesse, invited, in 1529, to a conference
at Marburg, Luther and Zuingle, together with some of
the other principal leaders of their respective parties; who
fuffered, during four days, in preference of the landgrave.
Luther attacked Eeolampadius, and Melancthon difputed
against Zuingle. Before they parted, the Swiss and German
theologians signed their mutual affent to 14 articles, con-
taining the efential doctrines of Christianity, and expresf
ed a hope that their difference with refpect to the real prefeuce
would not interrupt their harmony. The landgrave re-
quired from the two leaders a declaration that they would
regard one another as brothers. Zuingle readily confented;
but Luther would engage no farther than that, speaking of
the Swiss, he would for the future moderate his ex-
prefions. In this conference Zuingle was accused of hereby,
not only on account of his explication of the nature and
defign of the Lord's Supper, but also in confequence of the
difcrepant notions he was fuppofed to have adopted relating to
the divinity of Christ, the efficacy of the divine word,
original sin, and fome other parts of the Christian doctrine.
But though he cleared himself to the fatisfaction even of
Luther from the great part of these accusations, their diffe-
rence concerning the manner of Christ's presence in the
eucharift ftill remained. Nor did it terminate with the
death of Zuingle in 1531, nor with that of Luther in 1546.
Melancthon and Calvin made feveral attempts towards pro-
cing a reconciliation between the contending parties.
With this view Calvin proposed a fylum, with refpect to
the eucharift, more confomable to the doctrine of the
Lutheran church than that of Zuingle. He acknowledged
a spiritual presence of Christ in this facrement, and fuppofed
that a certain divine virtue or efficacy was communicated by
Christ with the bread and wine to tho& who approached
this holy facrement with a lively faith, and with upright
hearts; and to rend'r this notion ftill more fatisfactory, he
expressed it in almost the fame terms which the Lutherans
employed in inculcating their doctrine of Christ's real
presence in the eucharift. But whilst the followers of Zuingle
afserted, that all Christians, without diiftiiition, whether
regenerate or unregenerate, might be partakers of the body
and blood of Christ, Calvin confined this privilege to the
pious and regenerate believer alone. Besides, the fentiments
of the Zuingleans, with regard to the divine decrees, differed
very little from that of the Pelagians; nor did they heitate
in declaring, after the example of Zuingle himfelf, that the
kingdom of Heaven was open to all who lived according to
the dictates of right reason; whereas Calvin maintained,
that the everlasting condition of mankind in a future world
was determined from all eternity by the unchangeable order
of the Deity, and that this absolute determinatioii of his
will and good pleasure was the only source of happiness or
misery to every individual. Moreover, Zuingle and Calvin
differed in their notions of ecclesiasticall government. The
former ascribed an absolute and unbounded power, in re-
ligious matters, to the civil magifirate; allowing at the
fame time of a certain subordination among the ministers
of the church, and placing at their head a perpetual prefeuce
or superintendent, with a certain degree of inspection and
authority over the whole body; but Calvin, on the con-
trary, reduced the power of the magifrate, in religious
matters, within narrow bounds; declaring the church a
separate and independent body, endowed with the power of
ZUM Closeherlin, a town of Germany, in the county of Pludenz, on the river Alsen; 9 miles E. of Pludenz.

ZUM Hoft, a town of Germany, in the county of Bregenz, on the river Bregenz; 15 miles S.S.E. of Bregenz.

ZUM Stein, a town of the duchy of Berg; 3 miles N.E. of Blankenberg.

ZUM Vogelfang, a town of France, in the department of the Roer; 3 miles S.E. of Juliers.

ZUM Zontag, a town of Germany, in the county of Bregenz; 24 miles S.S.E. of Bregenz.

ZUMAIA, or UMUAIA, a town of Spain, in the province of Gutpucoa, near the coast of the bay of Bilbao; 14 miles W. of St. Sebastian. N. lat. 43° 17'. W. long. 1° 51'.

ZUMAMPA, a town of South America, in the government of Tucuman, in the Rio Dolce; 90 miles S. of St. Yago del Eterro.

ZUMELLA, a town of Italy, in the Trevisian; 10 miles N.W. of Cenada.

ZUMIC ACID, in Chemistry, a name given by Dr. Thomson to a peculiar acid principle lately obtained by M. Braconnier from rice, and which that gentleman had absurdly called Nanieac acid, from Nancy, the name of the city where he resided.

This acid was obtained by fermenting rice in water by the application of a gentle heat. An acid liquor was obtained, which on evaporation to dryness left a gummy mass, having a very faint taste. This was digested in alcohol, which evaporation left a crystallized powder of the peculiar acid and lime. The lime was thrown down by barytes, and the barytes afterwards separated by fulphuric acid, and thus the acid obtained in a separate state.

Zumic acid is colourless, has a very acid taste, and does not crystallize. It precipitates none of the metals from their solutions, except zinc from very concentrated solutions of its salts.

With potash and soda it forms incrystallizable deliquescing salts, soluble in alcohol. With ammonia it forms a crystallizable salt.

The neutral zimate of lime crystallizes confusedly in a form somewhat resembling a cauliflower. It is opaque, very white, has little taste, and has the appearance of having effloresced.

We do not think it necessary to detail the properties of the other compounds of this acid, which have been but little examined, and appear to be totally devoid of interest.

Dr. Thomson thinks the zumic acid is the same with the lactic acid, the latter being probably digested as usually obtained, by the presence of some animal matter.

ZUMPANO, in Geography, a town of Mexico; 90 miles S. of Mexico.

ZUMPANO, a town of Mexico; 20 miles N. of Mexico.

ZUNA, a town of South America, in the audience of Quito; 30 miles N.W. of Macas.

ZUNAPA, a small island in the Adriatic. N. lat. 43° 7'. E. long. 17° 17'.

ZUNCOLO, a town of Naples, in Principato Ultra; 17 miles S. of Conza.

ZUNDER, a town of Silezia, in the principality of Neise; 5 miles S.E. of Grotkau.

Zunger, a town of Pruffia, in Pomerelia, at the mouth of the Nogat; 8 miles W.N.W. of Elbing.

ZUNG-GAR, a town of Tunis, anciently called Zuchara. Here are the ruins of a temple, and an aqueduct erected for the purpose of conveying water to Cartagena; 48 miles S.W. of Tunis.

ZVORNIK.
ZVORNICK. See Zvonick.

ZUPU, a town of Circalicia; 160 miles E. of Theodoria.

ZUR GUGEL, a town of Prussian Pomerelia; 20 miles S.S.E. of Marienburg.

ZUR Ofis, a town of the duchy of Bremen; 5 miles S.S.W. of Bremervorde.

ZURA, a town of European Turkey, in Moldavia, on the Dnieter; 22 miles E. of Orhei.

ZURARA, a town of Portugal, in the province of Entre Duero e Minho, at the mouth of the Ave, opposite Villa de Conde.

ZURBARAN, Francisco, in Biography, was a Spanish painter, born at Triente da Cantos, near Seville, in 1596. He was a disciple of Pablo Rocalas, under whose tuition he acquired very considerable talent, and soon enjoyed a good reputation as an artist. He adopted the style of M. A. Caravaggio, painting with great boldness, force, and truth. His first public work was painted for the convent of La Merced Calzada, from the history of S. Pedro Nolasco, by which he added much to his fame. There are many other works of his in the public edifices at Seville and Cordova, particularly in the Collegio di San Pablo. He was invited to Madrid about 1630, and was appointed principal painter to the king, and employed in the Buen Retiro, where he painted the Labours of Hercules. His productions may also be found in the Cafa da Campo, and other royal palaces, as well as in private collections. Zurbaran died in 1662, aged 63.

ZUREITA, in Geography. See Zuzertil.

ZURICH, or Zürich, a canton of Switzerland, and the first in rank, bounded on the N. by Swabia and the canton of Schaffhaufen, on the E. by the Thurgau and the county of Toggenburg, on the S. by the cantons of Schwitz and Zug, and on the W. by the county of Baden. This canton is not unaptly called an epitome of all Switzerland, as containing in it hills, valleys, plains, corn-lands, vineyards, lakes, rivers, vegetables of all kinds, and whatever else is necessary to the support of life. Grain is cultivated all over the country; but it ripens later in the mountainous parts, where the air is colder, than in the levels or funny valleys. The hilly grounds in the E., W., and S. borders, afford a specimen of the fertile Alps, as abounding in cattle, milk, butter, and cheese; at first the wines have a tartness attending them, yet they improve by keeping; and, after lying some years in the cask, become smooth, pleasant, and wholesome. Fruits also are everywhere found in great plenty, and very good. The most remarkable minerals and fossils are chalk, potters' earth of several forts and colours, sulphur, and pit-coal; some mineral springs are likewise found. The proportion of grain to the other productions of the earth will appear from the following calculation: there are 217,424 acres, of 56,000 square feet each, laid out in grain, 143,466 in vines, 94,553 in meadows, 42,549 in pasturage, and 123,772 in forests. As sufficient corn is not produced for the interior consumption, the deficiency is chiefly supplied from Swabia. In order to prevent a scarcity of this material article, a public granary is maintained, at the expenses of government, for grain at the common price; but in times of scarcity, it is sold considerably cheaper than it can be purchased at the market. The wine is mostly consumed in the country, and little of it is spared for foreign commerce. The canton contained, in 1784, 174,572 souls, including 10,500 in the capital: this large population, in proportion to the size of the canton, is owing to the trade of Zurich; as at least two-thirds of the inhabitants derive their livelihood by spinning thread and silk, and making linen for the manufactures of the town. The sovereign power resides exclusively in the burghers of the town, consisting of about 2000; but a contrived disposition prevails in most of the states of Switzerland, so that they seldom confer the burghership. In Zurich, it is said, a new citizen has not been admitted for the last 150 years.

The burghers, beside the advantage of electing their magistrates, and of aspiring to the administration of affairs, enjoy the sole right of commerce; all strangers, and even subjects, being excluded from establishing manufactures in the city, or in any part of the canton.

The burghers of Zurich are divided into thirteen tribes; one of which is called Contaffel, or the tribe of nobles, although at present not absolutely confined to persons of that description: it enjoys the privilege of giving eighteen members to the Sovereign Council, and six to the Senate, whereas each of the other tribes only supply twelve to the former, and six to the latter.

The legislative authority is vested by the burghers in the Sovereign Council of two hundred; consisting, however, of two hundred and twelve members drawn from the thirteen tribes, and comprising the Senate, or Little Council. This Senate, composed of fifty members, including the two burgomasters, has jurisdiction in all causes civil and criminal: in civil cases, when the demand is of a certain importance, an appeal lies to the Council of two hundred; but in criminal affairs, their sentence is final, and, when once passed, there is no reversal or mitigation.

It is to be regretted, that in this republic, as in most other states of Switzerland, there is no precise code of criminal law. The Caroline, or code of Charles V., is oftentimes followed; but on account of its obsolete usages and extreme severity, the sentence is utterly left to the discretion of the magistrates.

The power of the Senate, considered in a collective capacity, is very considerable; it judges finally in all criminal cases, has the care of the police, and supplies the principal magistrates. But as too great a power of individuals is dangerous in a republic, the members of this assembly are liable to be changed, and a revision or confirmation is annually made, in some instances by the Sovereign Council, in others by the particular tribes to which the senators belong. This annual revision is a great check to mal-administration, and at the same time prevents the Senate from gaining too great an influence as to be detrimental to the liberties of the people. A burgher is qualified to vote at twenty; is eligible into the Sovereign Council at thirty; and into the Senate at thirty-five. The canton of Zurich is divided into districts or baililages, which are governed by bailiffs nominated by the Sovereign Council, exercising an authority subject to certain restrictions. The reformation was begun by Zwinglius, in the year 1517, in the town of Zurich; and in 1524, gained footing in the whole canton.

The militia of the canton amounted, in 1781, to 25,718 infantry, 1025 artillery, 886 dragoners, and 406 chasseurs; in all 28,335 effective men. The arsenal is well supplied with cannon, arms, and ammunition; and contains a reserve of muskets for 30,000 men. This canton had formerly a regiment and some companies in the service of France, a regiment in that of Holland, and some companies in the service of the king of Sardinia.

In ecclesiastical affairs the Senate is supreme: the canton is divided into fourteen districts, each governed by a dean, chosen by the synod, from three candidates proposed by the clergy of the diocese. The synod, composed of the whole clergy, and several affidavits on the part of the Little Council, meets twice a year. The principal ministers and professors...
in the town constitute, in conjunction with several magistrates and other officials, deputed by the civil power, an ecclesiastical and academical council: to this committee the deans recur in all concerns, which seem to exceed their jurisdiction: it determines lesser affairs, and refers cases of importance to the Senate.

During the French revolution, the canton of Zuric, after a feeble resistance, surrendered to the arms of the invaders; and the national assembly, which had been convoked, acceded to the new organization of the Helvetic constitution.

Zuric, a city of Switzerland, and capital of a canton of the same name, situated on a large lake, where the river Limmat is discharged, which divides it into two parts; supposed to have been built on the site of the ancient Tigrum, which was destroyed by the Allemanni.

The environs are very delightful; an amphitheatre of hills gradually sloping to the borders of the water, enriched with pastures and vines; dotted with innumerable villages, cottages, and hamlets; and backed on the W. by the Ullisberg, a bold and gloomy ridge stretching towards the Albis, and that chain of mountains which rises gradually to the Alps. Of the two parts into which the town is divided, the old part is surrounded with the same ancient battlements and towers which existed in the thirteenth century, and the suburbs are strengthened by fortifications in the modern style, but too extensive. The ditches, instead of being filled with stagnant water, are mostly supplied with running streams. The public walk is pleasantly situated in a lawn, at the junction of the Limmat and the Sih, an impetuous and turbulent torrent, which descends from the mountains of Einfidlin: two rows of lime-trees planted by the side of the Limmat, and following its serpentine direction, afford an agreeable shade in the heat of summer. The inhabitants are very industrious; and carry on with success several manufactures: the principal are those of linens and cottons, muffins, and silk-handkerchiefs. The manufacturers do not in general dwell within the walls; but the materials are mostly prepared, and the work is completed in the adjacent districts. For this reason, Zuric does not exhibit the activity and numbers of a great commercial city. The environs, on the contrary, are so extremely populous, that perhaps few districts in the neighbourhood of a town, whose population scarcely exceed 10,000 inhabitants, contain within so small a compass so many souls. The frecta are mostly narrow; the houses and public buildings accord more with plains and convenience, than with the elegance and splendour of a capital. In 1780 the town contained 10,559 souls; but the population had decreased from the difficulty of obtaining the burgervest, whereas luxury and opulence had very considerably increased. In general, however, the manners of the inhabitants are simple. Dinner is usually served at twelve: in the afternoon the gentlemen assemble in clubs, or small societies, in the town during winter, and at their respective villas in summer. They frequently smoke, and partake of wine, fruit, cakes, and other refreshments. The women, for the most part employed in their domestic occupations, or devoted to the improvement of their children, are not fond of visiting. This reserve, however, has much abated, and gives place to a more sociable intercourse. Such, however, is the prevalence of national habit, that a few families, which form a more agreeable mixture of company, are considered as differing from the established customs, and are still known by the name of the French Society. Sumptuary laws are well observed. Amongst thee, the use of a carriage in the town is prohibited to all sorts of persons except strangers; and it is almost inconceivable, that in a place so commercial and wealthy, luxury should so little prevail.

Zuric was formerly an imperial city, and obtained from the emperor Frederick II. very considerable privileges; which were acknowledged and augmented by several of his successors. The civil war between the magistrates and the people in 1335 nearly reduced the city to ruins; but the former being banished, the citizens, in 1337, established a new form of government, which was confirmed by the emperor Louis of Bavaria. The exiles, after several fruitless attempts, were at length re-admitted; but engaging in a conspiracy against the citizens, were discovered and put to death. In consequence of this execution, the nobles in the neighbourhood took up arms; and Zuric, after having ineffectually applied for assistance to the emperor Charles IV., formed an alliance with Lucerne, Uri, Schwyz, and Unterwalden, and was admitted a member of their confederacy. This event happened in the year 1351. The four cantons yielded the pre-eminence to Zuric: a privilege it enjoys at present; being the first canton in rank, and the most considerable in extent, both of territory and power, next to Berne. In the same year, Zuric was afflicted by the four cantons against Albert, duke of Austria, who besieged the town, and was repulsed with great losses.

Zuric was the first town in Switzerland that separated from the church of Rome, being converted by the arguments of Zwingli.

The charitable establishments at Zuric are, the orphan-house, which is regulated with extreme attention and care; an almshouse for poor burghers; an hospital for incurables, and that for the sick of all nations, which usually contains between fix or seven hundred patients; and the Almosen-Amt, or foundation for the poor: this excellent institution puts out children as apprentices; and distributes money, clothes, and books of devotion to poor persons, as well in the town, as in different parts of the canton, at the recommendation of the respective ministers. Here is also a chirological dispensary, formed by voluntary subscriptions, to the support of which, Dr. Rahn, an eminent physician, was a liberal contributor.

At Zuric public education is a concern of the state, and under the immediate protection of government. The office of a professor gives rank and eminence, and is often held by a member of the Senate and of the Great Council. The principal literary establishments for the instruction of youth are, the Carolin college for students in divinity: Collegium Humanitatis, or the college for polite literature; and the school of arts: the first has twelve professors, the second two, and the last seven. The learned languages, divinity, natural history, mathematics, and in short every species of polite learning, as well as abstruse science, is taught at a small expense in these respective seminaries.

In consequence of the peculiar attention paid by government, since the reformation, to the education of youth, Zuric has produced many persons, who have distinguished themselves in all departments of literature: among these we may reckon Zwinglix and Bullinger, Conrad Gfener, Hottinger, Simler, Spoh, Scheutzer, Heidegger, Breitinger, Bodmer, Hirtzel, Solomon Gfener, and Lavater. For each of these distinguished persons, see our biographical articles.

Dr. Hirtzel was a learned physician, and deferredly styled the Swis Plutarch: he distinguished himself, among various publications, by the Soerate Rationale, and by the lives of Sulzer and Heidegger. Leonard Meister, professor of history and morality in the school of arts, deferves mention, on account of his numerous and valuable publications, in all which he has displayed great zeal for the promotion of literature,
literature, correctness of taste, liberality of sentiment, and extensive historical and biographical knowledge. In his observations on fanaticism and intolerance, he has forcibly evinced their dreadful effects on government and civil society by historical facts, and approved himself an able writer in combating perfecution, and in repressing the prevalent spirit of fanaticism.

The public library at Zuric contains about 25,000 volumes, and a few curious MSS., of which latter are, the original MS. of Quintilian, the Psalm in the Greek tongue, written on parchment dyed of a violet colour, the letters being silver and gold, and the marginal reference red, somewhat similar to the "Codex Argenteus" of Upsal, and supposed to have once formed a part of the "Codex Vaticanus," and several MSS. of Zuingle. Zuric is a district 41 miles S. of Basel, and 36 S.W. from Conflance. N. lat. 47° 18'. E. long. 8° 25'. Coxe's Travels in Switzerland, vol. i.

ZURICH, a lake of Switzerland, situated in the canton to which it gives name, about 10 leagues in length, and one in breadth, of an oblong form; and though not so large as that of Conflance, more thickly studded with villages and towns. The adjacent country is finely cultivated, and well peopled; and the southern part of the lake appears to be bounded by the high fluctuating mountains of Schweitz and Glarus. The scenery is picturesque, lively, and diversified.

ZURICH, a town of Aulrique Poland; 22 miles S. of Luckow.

ZURITA, a town of Spain, in New Castile, on the left bank of the Tagus; 48 miles N.E. of Toledo.

ZURITO, a town of Peru, in the district of Cusco; 12 miles N.W. of Cusco.

ZURLINDEN, a town of Prussia, in the palatinate of Culm; 18 miles S. of Thorn.


ZURNAPA, in Zoology. See Camelopardalis.

ZURUPALCA, in Geography, a town of Peru; 44 miles S. of Potoč.

ZURZACH, a town of Switzerland, in the county of Baden, on the Rhine, chiefly celebrated for its fairs, at which great quantities of goods are sold by the merchants from Germany, France, and Italy; 25 miles E. of Bâle.

ZURZONZA, a town of Mexico, in the province of Mechoacan, situated on an island in a lake; 20 miles W. of Mechoacan.

ZURZURA, in Ancient Geography, a town of Asia, in the Greater Armenia. Ptol.

ZUSAM, in Geography, a river of Bavaria, which runs into the Danube, opposite Donauwurt.

ZUSCHEN, a town of Germany, in the county of Waldrecht; 4 miles N.W. of Fritzlar.

ZUSCHEN, or Zuchenau, a town of Germany, in the duchy of Westphalia; 5 miles S.W. of Medebach. ZUSEL, a river of France, which runs into the Roer, at Suteren.

ZUSMERSHAUS, a town of Bavaria, in the territory of Augsburg; 13 miles N.W. of Augsburg.

ZUSNIN, a town of Ilrria; 11 miles N.E. of Peneda.

ZUTPHEN, a city of Holland, and capital of a county to which it gives name, situated on the river Eerckel, which passes through the middle of it, fills its ditches, and immediately joins the IJfel. It takes its name from the two Flemish words "Zut Vanen," which signify Southern Meadows. The principal buildings are, the church of St. Walburga, the college of the deputys of the comte, and an ancient building, which they call "St. Graven-Hof," or Palace of the Comte. Otto I. of Nassau, acquired this country in the 11th century, by his marriage with the heiress of Gerlach, count of Zutphen, since which it has been annexed to Gelderland; 7 miles S. of Deventer. N. lat. 52° 16'. E. long. 6° 54'.

ZUTPHEN Islands, a group of small islands, in the straits of Sunda. S. lat. 5° 50'. E. long. 105° 41'.

ZUTZ, a town of Switzerland, in the league of the Grifons, on the Inn. This town, though not the largest, is reckoned the principal place of Upper Engadine, because it contains the criminal court of justice. This court consists of the landamann of Sotto, one of the two communities of Upper Engadine, who is president, and fourteen jurymen, called Tronador, taken equally from each district. Justice is said to be more equitably administered in this court than in any other throughout the Grifons, excepting at Coire. The vicinity of Zutz, and also of Scampf, is the finest part of the valley of Engadine; it produces some rye and barley, and the mountains are clothed with verdure to their very summits.

ZUVER-VELDT, a division of Graaf Reynet, which is an extensive plain country, stretching from the Sunday river, in Zwartkop's bay to the great Fith river, and is the same kind of good arable or pasture land as the plains of the Autiniequas division in Zwellendam; but it is now exclusively in the possession of the Kaffers, from whom it was originally taken by the Boors. The great chiefs towards the sea-coast, that are filled with thickets, abound in elephants and buffaloes; and in the great Fith river are, occasionally at least, found a few of the hippopotamus, or river-horse.

ZUWEITA, or Zureita, a town of the Arabian Irak; 35 miles S.E. of Hilleh.

ZUYDER-ZEE, or Zuider-See, a great gulf or bay of the German ocean, which extends from south to north, in the United Provinces, between Friesland, Overfissel, Guelderland, and Holland. It is so called from its situation towards the south, and is said formerly to have been a lake, and that the land is swallowed up that united North Holland with Friesland.

ZUZAN, a town of Peria, in that part of Khorassan which extends from N. lat. 52° 30' to 54° 45', and from 56° to 62° of E. long. It is the ancient "Susa," now an inconsiderable place, situated at the same distance from Puthing as the latter is from Herat.

ZUZON, a town of Spain, in Old Castile; 22 miles N.E. of Siguença.

ZUZYGIVM, in Botany. See Syzygium and Calyp-tracthies, to which latter genus belongs the original Syzygium of Brown.

ZWAMMERDAM, or Zwartenburgerdam, in Geography, a town of Holland, on the Rhine, which was pillaged and burned by the French, in the year 1762; 6 miles N. of Gouda.

ZWART-BERG, as well as Congo and Trada, are divisions of Zwellendam, which are the Karroo plains, situated between the first and second chains of mountains, but being well watered by the mountain streams contain fertile patches of ground. Their great distance, however, from the Cape, and very bad roads, prevent an extensive tillage. In these plains are numerous orchards, and herds of quachas, zebras, and hartebeests. Behind the first chain of mountains, in these divisions, are two hot springs of chalybeate water.

ZWART-BERG is also a division of Graaf Reynet, which
is a portion of the mountain of the same name, in the district of Zwelfendam, to which it ought properly to belong. Sheep and horned cattle are the chief produce of the farmers.

ZWARTENKOP'S RIVER is a fertile and extensive division of Graaf Reynet, lying to the southward of Zwart-Ruggens, and capable of producing an abundant supply of grain, convenient to be delivered at a trifling expense at the bay. About 15 miles to the westward of the bay are large forests of timber-trees, near which is an appearance of a rich mine of lead. Near the bay is also a salt lake, which yields a plentiful supply of that article. Wax from the myrica cerifera and aloes might be furniished by this division as articles of commerce.

ZWART-RUGGENS, a division of Graaf Reynet, which is a floky tract of country to the southward of Camdeboo, another division lying at the foot of the snowly mountains. It is very feantly supplied with water, and produces little except succulent plants, among which are two or three species of euphorbia. Few families are found in this division, but here and there in the neighbourhood of the Sunday river, which runs through it. The cattle and sheep are small, but generally in good condition.

ZWARTKOP'S BAY. See Algoa Bay.

ZWARTLAND, EAST, and Twenty-four Rivers, are two divisions of the district of Stellenboch and Drakenstein, consisting of widely-extended plains, stretching, in breadth, from the Berg river to the great chain of mountains, and to the Piqute Berg, in length, to the northward. These are considered as the granaries of the colony. The crops, however, in Zwartland, are as uncertain as the rains, on which their produce almost entirely depends. In the Twenty-four Rivers, the grounds may be irrigated by the innumerable streamlets that issue from the great chain of mountains, in their course to the Berg river. These form swamps, that have been producive of very fine rice. Wheat, barley, and pulfe, are the principal articles that are cultivated in these two divisions; but they have also plenty of fruit, and make a little wine for family use.

ZWELLEN Dam, a tract of country in southern Africa, which lies upon the sea-coast between Breede river on the W., and Camtoos river on the E., and extends northly to the second chain of mountains, called the Zwartberg, or Black mountains. The length is about 380 and breadth 60 miles, comprising an area of 19,200 square miles, which is occupied by 480 families, so that each family has, on an average, 40 square miles of land. The population of Zwel lendam, ascertained on oath in the year 1798, consisted of 3967 Christians, and 2666 slaves and Hottentots, making a total of 6633. The flock and produce comprehended 9049 horses, 52,376 horned cattle, 15,002,92 sheep, 220 leggers of wine made, 16,720 muids of wheat reaped in 1797, and 10,554 muids of barley and rye.

ZWELLEN DAM, DROBLY, or village of, a division of Zwel lendam, situated at the foot of the first chain of mountains that runs E. and W., or parallel to the sea-coast, and distant from Cape Town about 140 miles. It is composed of about 30 houfes, scattered irregularly over a small but fertile valley, down the middle of which runs a plentiful stream of water. At the head of the valley stands the house of the landlord, to which is annexed a large garden well stocked with a variety of fruits, and a spacious vineyard; the whole enclosed and planted with oaks and other trees. In the middle of the village a large church has been lately erected, which is the only place of worship in the whole district.

The other divisions of Zwel lendam are, the country between

the droby and Gauritz river, named according to the rivers that cross it, Cango, Zwarte-Berg, Truda, Motte bay, Autunieus land, Pfettenberg's bay, Olfant's river, Kam nashie, Lange-Kloof, and Sittikamma. Barrow's Southern Africa, vol. ii.

ZWENCKAU, a town of Saxony, in the principality of Merleburg, on the Elfler. In the year 1429, this town was burned by the Huffites; 5 miles S. of Leipzig. N. lat. 51° 14'. E. long. 12° 18'.

ZWENTENDORFF, a town of Austria; 6 miles W. of Tulln.

ZWERCHBACHEL, a river of Wurttemberg, which runs into the Nagold, near the town of Nagold.

ZWERNITZ, a town of the principality of Cumbach; 10 miles S.W. of Cumbach.

ZWERNITLDOFF, a town of Austria; 6 miles E. of Weiken dorff.

ZWETHAN, a town of Saxony; 20 miles S.E. of Wurttemberg.

ZWETL, a town of Austria, at the conflux of the Zwetl and the Kampp; 26 miles W.N.W. of Cremis. N. lat. 48° 23'. E. long. 15° 7'.

ZWETL, a river of Austria, which rises about four miles west of Weitra, and runs into the Kampp, at Zwetl.

ZWETZEN, a town of Thuringia; 3 miles N. of Jena.

ZWETZIEY, a town of Croatia, on the river Mresnitz; 12 miles S. of Slun.

ZWIEBRUCKEN. See Deux-Ponts.

ZWIEDRITTELSTUCK, or Piece of Two-thirds, in commerce, a silver coin in Germany, worth two-thirds of a rix-dollar of account.

ZWIAHELI, in Geography, a town of Russian Poland; 90 miles E. of Luckow.

ZWICKAU, a town of Saxony, in Erzeburg, on the Mulda. It has a citadel, three churches, and a Latin school, in which is a good library; here is a manufacture of cloth, and another of cards, for the use of woollen-combers; with a considerable inland trade; 38 miles S.S.E. of Leipzig. N. lat. 50° 30'. E. long. 12° 25'.—Also, a town of Bohemia, in the circle of Bolefia; 4 miles W. of Gabel.

ZWIELAUKA, a town of Moravia, in the circle of Olmutz; 26 miles W. of Olmutz.

ZWIFALTEN, a princely abbey founded in the year 1089. In 1802, it was given among the indemnities to the duke of Wurttemberg; 58 miles W. of Augsburg. N. lat. 48° 17'. E. long. 8° 30'.

ZWINGENBERG, a town of Heff Darmstadt, situated on the Bergflur. In 1693, the greater part of this town was destroyed by the French, since which it has been rebuilt in a better manner; 10 miles S. of Darmstadt.

ZWINGENDORFF, a town of Austria; 2 miles S. of Lab.

ZWINGER, in Botany, a genus taken from Aublet, dedicated under this name to the memory of several Swifs botanists of the family of Zwing, who for three generations have cultivated this science at Bafil, chiefly, indeed, with a reference to the medical qualities of plants. Theodore Zwing, professor of anatomy and botany in that university, who died in 1724, aged 67, published in 1696 a folio German Herbal, of 995 pages, with wooden cuts, borrowed from Gfesner and Camerarius, which is little known out of his own country. Some botanical discriptions also appeared under his preidency. His son Frederick gave an enlarged edition of the above Herbal in 1744; and has published in the Aeda Helvetica, v. 1. 50, a plate and description of a very remarkable fungus, apparently belonging to
Preiza, but of which we find no notice taken by Perfoom. The NOLANA of Linneæus, (see that article,) was once pub-
lished under the name of Zwingera humifusa, by John Hofer, in

A.B. Helvet. v. 5. 257. t. 1, but this plant has had many names befores—Schreb. Gen. 802. Willd.-Sp. Pl. v. 2. 569.


Gen. Ch. Cal. Perianth inferior, small, in five deep, ovate, acute segments. Cor. Petals five, oblong, obtuse, spreading. Stam. Filaments ten, capillary, dilated and hairy at the base, shorter than the corolla; anthers ovate. Pistil. Gemen superiour, seated on a glanular receptacle, roundish, with five deep furrows; style longer than the flan-

men, thread-shaped, floretied; stigma five, cimple. Peric. Capsules five, coriaceous, ovate, spreading, of one cell. Seeds solitary, ovate.

Eff. Ch. Calyx in five deep segments. Petals five. Filaments dilated and hairy at the lower part. Capsules five, 

coriaceous, seated on a fleshy receptacle. Seeds solitary.

Oft. The flowers are felt to be occasionally only four-

clefct and oblong. This genus is not much akin, as 

Willdenow thought, to Quassia, but rather to Cometis 

(fee above articles) differing from the latter in having one 

style instead of five. How far their fruits correspond, we 

know not enough of the seed-veil of Zwingera to deter-

mine.

1. Z. amara. Bitter Zwingera. Willd. n. 1. (Simaba guianensis; Aubl. Guian. 400. t. 153.)—Native of the woods of Oropu in Guiana, bearing flowers and fruit in June. A shrub, not more than seven or eight feet high, whose stem 

is three or four inches in diameter, with a white soft wood. Branches numerous, alternate. Leaves alternate, bladed, 

either ternate, or pinnate, of two or three pairs, with an odd 

one, of elliptic-lanceolate, pointed, margined, entire, smooth 

leaflets, the largest of which are three and a half inches long, 

and an inch, or more, in breadth. Flowers five or six toge-

ther, in little axillary clusters. Petals whitish, surrounding the green pistil. Fruit yellow; the inner rind green and 

bitter. Nothing is recorded concerning the qualities or uses of this shrub.

ZWIES, in Geography, a town of Bavaria, on the Re-

gen; 84 miles E. of Ratibon.

ZWITTAU, or ZWITTAU, a town of Moravia, in the 
circle of Olmuz; 30 miles N.W. of Olmutz. N. lat. 40° 45'. E. long. 16° 16'.

ZWITTAU, a river of Moravia, which rises in the south-east part of Bohemia, and joins the Swarta, near 

Zwolle, or Zwol, a town of Holland, in the department of Overiiffel, situated on the river Aa, between the IJssel and the Vecht, in the country of Zallant. It is a strong place, well fortified, and surrounded with a double ditch, filled with the waters of the Aa. Its situation is very advantageous, 
on an eminence which commands the country, and is the 

ordinary passage from Holland to the provinces of 

Friesland, Groningen, and Overiiffel. It was formerly a free 

and imperial city, and ranked among the Hanse towns. The 

magnifictry is composed of eight echevins, and eight 

common-council. The celebrated Thomas a Kempis, otherwise called Hamerken, was a regular canon in a priory 
of Augustines in this place, and died here in 1471, aged 91; 28 
miles S.W. of Covorden. N. lat. 52° 32'. E. long. 6° 1'.

ZWOLFAING, a town of Austria; 8 miles S.S.E. of 

Viena.

ZWONICGRAD, a town of Dalmatia, and capital of a 
diuiet; 60 miles S.E. of Segna.

ZWONITZ, a town of Saxony, in the circle of Erge-

berg; 4 miles N.N.W. of Grubenlagen.

ZWORNICK, a town of Bohemia; 63 miles S.W. of 

Belgrade. N. lat. 44° 37'. E. long. 18° 50'.

ZWOTA, or Tzvoda, a river of Bohemia, which runs 

into the Egra, near Falkenau.

ZYDACOW, a town of Anfrian Poland, in Galicia; 3 

miles W.N.W. of Halicz.

ZYGANIA, in Ancient Geography, an island in the 
northern part of the Arabic gulf. Ptolemy.

ZYGENA, in Theophrastus, a species of Epiphas, which fee; 
called by Willughby balance-fish. See above SHARK.

ZYGASTICUM, or Zygisia, formed of Zygia, a balance, 
among the Ancients, money paid for weighing things.

ZYGER, in Geography, a river of Hungary, which runs 

into the Kyros, 5 miles W. of Boros Jeno.

ZYGES, in Ancient Geography, a people of exterior Li-

bya, towards the coast of the Mediterranean sea, W. of the 

Marocotide Nome. Ptolemy.

ZYGI, a people of Afa, of the number of those who 
inhabited the Cimmerian Bosphorus, between the Athie 

and Heniochi. Strabo.

ZYGIA, in Botany, Zygia of Theophrastus, the second 

kind of his Zygia, or Maple, remarkable for its yellow 

and veiny wood, is spoken of as a mountain-tree, but bot-

anists have not ascertained the precise species. Pliny's 

account of this matter is extracted and abridged from the 

above Greek author, but is not made at all more clear. He 

however seems to have been acquainted with a beautiful 

wood, of the Maple kind, which he fays was compared to a 

peacock's tail, and grew chiefly in Illria and Rhetia. Can 

this have been the Acer Opalus of modern authors? (See 

Will. Sp. Pl. v. 4. 900.) Anguillara has long ago fup-

pected that tree, which Linneæus and many other botanists 

have long observed, to have been the Zygia of Theop-

hras. Its native country, and veined yellow wood, 
sometimes very beautiful, are in favour of this opinion. De 

Theis, following Bodigus a Stapel, and other commentators 

on Theophras, who are led by the obvious derivation of 

the name from Zygia, a yoke, take the tree in question for 

our Carpinus, whole hard and tough wood serves to make 

yokes for oxen. He ingeniously supports this opinion by 

the Celtic origin of Carpinus, from car, wood, and pin, 

head; and further by its English synonym, Hornbeam, oxen 

being yoked by their horns. The wood of the Carpinus, 

however, is neither yellow nor beautifully veined, and it 

is most probable Zygia had some other origin, or allusion. 

Robert Coulangine, cited by Bodigus a Stapel, seems to 

confound the Acer Opalus with Viburnum Opalus, which he 

terms the Opalus of Columella, a French shrub, used for 

bovers." This last has nothing in common with the history of 

the Zygia.

Whatever may have been the ancient Zygia, Dr. Patrick 

Browne, finding this name unoccupied, has applied it to 

a Jamaica shrub, which appears to belong to Mimosa; see 

Browne Jam. 279. t. 22. f. 3. Nor is this application so 

suitable as it may seem at first sight; for the author had 

evidently in his mind the yoked leaflets, to which he alludes in 

his specific definition. We do not find that Linneæus, except 
in manuscript, or any other author, has adopted this as a 

Mimosa. Jussieu, in his Gen. Pl. 366, ranges Browne's 

Zygia, with a few other genera, at the end of his Legumi-

næs, adding a reference to Mimosa Bourgoni, Aubl. Guian. 

t. 358, as a similar plant or genus. We do not see why it
was not placed near Mimosa, in the first section of that natural order. Swartz, Ind. Occ. 1800, speaks of Browne's figure of the flower of Zygia, as exactly like his own Mimosa comosa, Prod. 85; but he adds that the plants are different, without any further elucidation of the former. There is no specimen of Zygia, amongst the plants in the Linnean herbarium, collected by Browne, and sent by Solander to Linnaeus. In a manuscript catalogue of Jamaica plants, in Dr. Browne's own hand, given to the writer of this article by A. B. Lambert, eqq., Mimosa Zygia stands between fagi-folia and Unguis Catii, with this remark, which is not in the author's History of Jamaica, "folia bijugata, fovefutentaculis bipartitis, finguis diphyllis." This plant is there called Yoke-wood. In the printed work it is denominated Horsemood, or Hoop-wood, the wood being "pretty tough, and sometimes cut for hoops. The shrub is very common in St. Mary's, growing chiefly in low moist lands; but is sometimes found in the mountains, where it commonly rises to the height of ten or twelve feet, or better." These are all the particulars we can gather relative to Browne's Zygia.

Zygia, in the Instrumental Music of the Ancients, a flute peculiar to weddings, according to Apuleius. (Metam. lib. iv.) The word zygia is a Greek adjective, which implies nuptial. The zygia was probably a double flute; for Julius Pollux (Onomast. lib. iv. c. 10.) says, "there was also a flute for the wedding; executed on two flutes, one longer than the other,"

Zygia, in Entomology, a genus of insects belonging to the order of coleoptera, the characters of which are, that the antenae are moniliform, the palpi unequal and filiform, the lip elongated and membranaceous, and the jaw undentated. There is one species, _v._

Oblonga. Found in the East, oblong, red, with head and wing-flakes cyaneous.

Zygiana, in Ancient Geography, a country of Asia Minor, in Bithynia. Ptolemy.

Zygis, in Botany, the specific name of a species of Thymus, (see that article, n. 9,) supposed to be the Гуи, of Dioscorides. De Theis, who writes this word Гуи without any authority that we can find, derives it from Гуи, the bum of bee, which is confirmed, apparently without his knowledge, by the modern Greek name of the same plant, _guia_, the delight of bees. Such an appellation is peculiarly suitable to a plant well known to be highly grateful to those insects, and which is supposed to give its aromatic flavour to the famous honey of Mount Hymettus, a spot where this Thymus abounds. Undoubtedly there are other species of the same genus, as well as of Thymbra, Satureia, &c., found in the same neighbourhood, which contribute to produce this flavour, in as powerful a degree perhaps as the above.

Zygite, in the Roman Galley, a term used to express those rowers in the triremes, or three-rudded galleys, who sat on the second row, that is, above the thalamites, and below the thranites.

Zygoma, Гуи, in Anatomy, a bone of the head, otherwise called os jugale; or, it is the bony arch under which the temporal muscles pass.

The word is formed from Гуи, I join; so that zygomas, properly speaking, is the juncture of two bones. See Cranium.

Zygomatic Process of the temporal bone and _os mele_: the parts contributing to form the zygoma.

Zygomaticum, Os, the cheek-bone, so called because it contributes largely to the formation of the zygoma. See Cranium.

Zygomaticus, Major and Minor, muscles of the face, connected to the corner of the mouth. See Declination.

Zygomaticus is also an epithet given to the future that binds the two processes of the zygoma together.

Zygophyllum, in Botany, so named by Linnaeus, from _zygos_, yoke, and _phyll_, a leaf, each leaf, of most of the species, being composed of a pair of leaflets, yoked, as it was, together, and somewhat resembling the foliage of the garden bean, _Vicia Faba_; whence this genus was obtained, from Dodonaeus and Tournefort, the name of Fabago. Hence also arose its English appellation of Bean-Caper, given by Gerard. Fabago was properly deemed inedible, being compounded of another name, though one no longer in use as generic. We may observe moreover, that it conveys an erroneous idea; for the plant in question does not "bear beans," but leaves, resembling bean leaves.—Linn. Gen. 212. Schren. 288. Willd. Sp. Pl. 2. 560. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 3. 50. Sm. Prodr. Fl. Gr. Sib. v. i. 273. Juss. 296. Lamarric Dict. v. 2. 441. Illust. t. 545. Gaertn. t. 112. (Fabago; Tourn. t. 135).—Clasa and order, D__candria Monogynia. Nat. Ord. Granales, Linn. Rutacea, Jull.

Gen. Ch. Cal. Perianth inferior, of five ovate, obtuse, concave, erect leaves. Cor. Petals five, dilated upwards, obtuse, margariate, rather longer than the calyx. Nectary of ten converging, pointed leaves, or scales, sometimes divided, embracing the germen, each of them attached to one of the filaments near its base. Stam. Filaments ten, awl-shaped, attached to the outside of the nectary, shorter than the corolla; anthers oblong, incumbent. Petil. Germen superior, oblong, tapering at the base; style awl-shaped, the length of the stamens; stigma simple. Peric. Capsule oblong, or roundish, with five angles and five intermediate furrows, five cells and five valves, the partitions linear, from the middle of each valve. Seed several, roundish kidney-shaped, infected alternately, in two rows, into the middle of the valves.

Obs. Linnaeus remarks, that the seed-vesel differs in shape in the different species, and that in some the flowers are four-cleft and cændrous. Schreber records an observation of Reichard, merely taken from the Monista of Linnaeus, that Z. album has five stigmas; but we do not find this to be correct. Our fifteenth species is said to have five distinct styles.

Eff. Ch. Calyx of five leaves. Petals five. Nectary of ten scales, embracing the germen, and bearing the stamens. Capsule of five cells, superior.

The plants of this genus are, for the most part, shrubby, with simple or twin leaves, (rarely ternate or pinnate,) which are opposite, mostly stalked, entire, often fiddled, of a thick or succulent texture, accommodated to the dry and funny situations where the greater part of the species grow. A very few are found in South America, or Guiana; the rest are natives of Syria, Arabia, Siberia, and especially of southern Africa, about the Cape of Good Hope. The flowers are solitary, axillary, yellow, white, or reddish, often brilliant and rather handsome. The seed-vesel, though answering in general to the above description, which is made from Z. Fabago, is variously shaped in the different species, and in some appears to be lined with a sort of hairy elastic coat, analogous to the tunics of the seeds, so remarkable in the genuine Rutacea. Such is the case in Z. microphyllum, the
...the edges of whose inflamed valves seem to constitute the partitions; yet the cells do burst at the outer margin, as well as in the inner. Willdenow defines fourteen species, which we shall find a necessity of extending to sixteen.

1. Z. simplex. Cylindrical-leaved Bean-Caper. Linn. Mant. 68. Wildd. n. 1. (Z. portulacoides; Forlk. Ægypt.-Arab. 88. 1c. t. 12. f. B.) — Leaves simple, fleshy, cylindrical. — The most common of all plants in the desert parts of Arabia, where it is known by the name of Garmad, and esteemed by the Arabs very good for removing specks in the eyes, for which purpose the bruised leaves are applied, mixed with water. For this we have the authority of Forlkal, who sent seeds to Linnaeus. These vegetated at Upfal, but the plants did not live to produce flowers. The root is simple, tapering, apparently annual. Stem prostrate, repeatedly forked, round, smooth. Leaves fleshy at each joint, spreading, an inch long, obtuse, somewhat dotted. Flowers yellow, quarter of an inch in diameter, almost fleshy. Petals round, with long claws.

2. Z. cordifolium. Heart-leaved Bean-Caper. Linn. Suppl. 232. Wildd. n. 2. Thum. Prodr. 86. Ait. n. 1. — Leaves simple, fleshy, opposite, roundish, somewhat heart-shaped. — Gathered by Thunberg, at the Cape of Good Hope, from whence it was sent by Mr. Maffon to Kew garden, in 1774. This is a green-house shrub, flowering in October. We have seen no specimen.

3. Z. Fabago. Common Bean-Caper. Linn. Sp. Pl. 551. Wildd. n. 3. Ait. n. 2. (Cappariss Fabago; Dod. Pempt. 747; Ger. Em. 897; Bell. Epit. aftiv. ord. 10. t. 1. f. i. C. leguminosa; Lob. 1c. v. 2. 38. Fabago Belgarum; Dalch. Hist. 456. Telephium Dicrociris; Column. Ecphr. 132. t. 131. Morganti; Rauw. It. t. 113.) — Leaves conjugate, stalked; leaflets ovate. Calyx smooth. Petals entire. Capsule oblong. Stem herbaceous. — Native of Syria, Persia, Barbary, &c. A hardy, but not common, herbaceous perennial in our gardens, flowering in autumn, cultivated by Gérard, in 1766, and a few years afterwards, in the garden of cardinal Aldobrandini, at Rome, by Fabius Columba, who took this plant for the Telephium of Dioscorides, and has left us a most faithful representation of it, too much neglected by Linnaeus and recent authors, who only refer to Diodonius. Whether Columba erred or not with respect to the name, the reader will judge by consulting the article Telephium. The root is tapering, fleshy, producing from its crown several spreading, alternately branched, leafy, round, herbaceous, smooth fleshy, one and a half or two feet high. Leaflets an inch long, entire, smooth, green, unequal at the base, furnished with a principal rib, and one or two smaller ones. Footstalks rather shorter than the leaflets, swelling upwards, smooth, channelled, crowned with a small, intermediate, awl-shaped point, like an abortive leaflet. Stipules between the footstalks, in pairs, membranous, ovate, pointed, oblithe. Flowers yellow, on simple, axillary, opposite, nearly upright stalks, hardly so long as the footstalks. Calyx-leafs con- cave, quarter of an inch long, green, even, with a membranous edge. Petals rather longer, obtuse. Nectaris jagged, almost pectinate. Five of the flamens deflexed, five ascending. Capsule above an inch in length. Seeds numerous.

4. Z. fadidum. Fetid Bean-Caper. Schrad. Sert. Hort. Han- nov. 17. t. 9. Wildd. n. 4. Ait. n. 3. (Z. infaque; Curt. Mag. 1774.) Leaves conjugate, stalked; leaflets obovate. Calyx downy. Petals jagged. Capsule roundish. Stem shrubby. — Native of the Cape of Good Hope, from whence it was introduced in 1790, by Mr. Maffon. This is a hardy green-house shrub, flowering all summer long, but rendered indefinable by the strong fox-like scent of its leaves, resembling that of the Crown Imperial, and peculiarly offensive when the hone is either shut up, or warmed by the sun. The shrubby stem distinguishes this species from the last; but the short, roundish, or obovate, fruit, and jagged petals, which are five times the length of the calyx, and marked with a red spot at the base of their limb, afford essential marks of difference. Z. retrofractum of Thunberg, cited with a mark of doubt by Willdenow, has no resemblance to either.

5. Z. maculatum. Spotted-flowered Bean-Caper. Ait. ed. 1. v. 2. 60. ed. 2. n. 4. Wildd. n. 5. — "Leaves conjugate, stalked; leaflets linear-lanceolate." — Native of the Cape of Good Hope, from whence it was introduced, in 1782, by George Wynch, eqq. A green-house shrub, flowering in October and November. The petals are yellow, with a red heart-shaped spot, at the base of each, above which, in the three upper ones only, is a transverse red line. Aiton.

6. Z. cocccinum. Scarlet-flowered Bean-Caper. Linn. Sp. Pl. 551. Wildd. n. 6. (Z. defortorum; Forlk. Ægypt.-Arab. 87. 1c. t. 11. Fabago arabica teretifolia, flore coccino; Shaw Afric. n. 231. f. 231.) — Leaves conjugate, on a fleshy stalk; leaflets cylindrical, smooth. Capsule oblong. — Plentiful in the arid valleys of the desert, between Cairo and Suez. The Arabs call this plant Retract. All kinds of cattle, even the camel, refuse to eat it. Forskall. The stem is shrubby, ascending, much branched, often a foot and a half high. Leaflets half or three-quarters of an inch long, oblong, thick and succulent, quite smooth, supported in pairs on a club-shaped footstalk, somewhat more in length. Petals red, pointed. Capsule near an inch long. The shape of the capsule and leaflets, not to mention the colour of the flowers, distinguishes this species from the following.

7. Z. album. White Bean-Caper. Linn. Sp. Pl. 551. Mant. 379. Wildd. n. 7. Ait. n. 5. Linn. fil. Dec. t. 11. f. 6. Sm. Fl. Græc. Sibth. t. 371, unpublished. (Z. proliferum; Forlk. Ægypt.-Arab. 87. 1c. t. 12. f. A.) — Leaves conjugate, on a fleshy stalk; leaflets obovate, downy and hoary. Capsule roundish, five-lobed. — Native of Egypt, Cyprus, Barbary, &c. Forskall found it very abundantly about Alexandria; and Desfontaines near Tripoli, as mentioned by Shaw. Mr. Maffon met with it in the Canary islands, and sent plants or seeds to Kew, in 1779, where this species is said to be kept in the dry store, but not yet to have flowered. The stem is woody, diffuse, much branched, and very leafy. Leaves opposite, or aggregate, being accompanied by axillary tufts of smaller ones. The leaflets, as well as their footstalks, are thick, round, and juicy, both hoary, like the young branches, with fine, short, dente pubescence; the former are obovate, or almost globular, falcate, quarter of an inch long; the footstalks are roundish, and club-shaped. Flowers a third of an inch broad. Calyx reddish. Petals white, obtuse, caducu. Germen roundish, depressed, downy, with five rounded lobes. Capsule of the same shape; its coat, according to Forskall, pulpy, and there are only two seeds in each cell. The stigma is represented, in Mr. Ferdinand Bauer's drawing, rather slightly notched, but simple, as described by the younger Linnaeus; but still lefts can we discern the five acute stigmas, mentioned in the Mantissa.


The branches are somewhat quadrangular, very smooth. *Leaflets* an inch long, succulent, but not tumid; their common *footstalk* very short, or altogether wanting. *Stipulas in pairs, lanceolate, pointed, reflexed. Flower-flats* the length of the leaves, unilateral, in pairs, declining. *Flowers* large, yellow, turning white in decay; their *petals* obvate, entire, streaked with purple at the base. *Nectaries* jagged or fringed, as in n. 3, 4, and perhaps some other species. *Capule*, as referred by Burmann, an inch in diameter, globose, with five large, round, prominent lobes. We find the petals uniformly five, and entire; Linnæus says four, rarely five, and somewhat emarginate. There is reason to believe he confounded more than one species under the present. He has applied a specific name, which properly belongs to *Z. Fabago*.

9. *Z. felifillifolium*. Seashell-leaved Bean-Caper. Linn. Sp. Pl. 552. Willd. n. 10. Ait. n. 7. (Fabago capenis frutecens minor; Dill. Elth. *t. 116*. f. 142. F. humilis quadrifolia glabra, flore albido fructu rotundo; *Burm.* Afric. 4. t. 2. f. 1. *F. africana arborefecens, flore sulphureo, fructu rotundo; Comml. *t. 10*. f. 80.)—Leaves conjugate, sessile; leaflets obvate, flat, smooth. Stem hairy. *Capule* globose, undivided.—Native of the Cape of Good Hope. A green-house shrub, flowering in July and August, which appears to have been known in our gardens for above a century. Its size is inferior to the last, from which, according to Dillenius and Burmann, this species is essentially distinguished by the fruit. The *capule* is either exactly globular, or, as Dillenius says, depressed like a Dutch cheese, its diameter not half an inch, nor is it furrowed, nor parted into large tumid lobes, like Z. *Morgana*. The leaves too are smaller, and more perfectly sessile. Linnæus defines them “rough-edged,” which we can find nothing to countenance, even in his own specimen. The flowers are drooping, orange-coloured, turning white as they fade; the petals crenate at the end, not much spreading; the nectaries are smaller, and much less conspicuously jagged than in the preceding.

10. *Z. fulvum*. Tawny Bean-Caper. Linn. Sp. Pl. ed. 1. t. 386. (Z. felifillifolium 8; Linn. Sp. Pl. ed. 2. 552. Willd. n. 10, z. Fabago flore intus, petalorum unguibus rubris, fructu fulcato oblongo acuto; *Burm.* Afric. 6. t. 3. f. 1.)—Leaves conjugate, sessile; leaflets obvate, flat, smooth. Stem hairy. *Capule* ovate, five-angled, acute.—Native of the Cape of Good Hope. Linnæus latterly considered this as a variety of the last, but we cannot discover on what his opinion was founded, there being nothing in his herbarium to represent *Z. fulvum*. There is indeed a specimen, referred by him at one time to *Z. Morgana*, and at another to *cocinum*, on which, having no affinity to the latter, we are led to suspect he wrote *cocinum* by accident for *fulvum*. In this the leaves have something of a common *footstalk*, though very short. The nectaries are small and jagged, as in *Morgana*. There is unfortunately no fruit. Burmann's figure of the *capule* is too precise, that, considering the analogy of other species, to well distinguished by this part, we can have no hesitation in re-establishing *Z. fulvum*, as essentially differing from *felifillifolium*, whether our specimen be what Linnæus intended or not. The *capule* of the real plant is above an inch long, with five acute angles, and as many deep intermediate channels, and terminates in a point, being equally unlike *fejfilifolium* on one hand, and *Morgana* on the other.

11. *Z. spinosum*. Spinous Bean-Caper. Linn. Sp. Pl. 552. Mant. 380. Willd. n. 11. (Fabago tenuifolia spinosa, fructu rotundo; *Burm.* Afric. 5. t. 2. f. 2.)—Leaves conjugate, sessile; leaflets linear, fleshy, smooth; flat above. Stem hairy. Permanent *stipulas* hooked, spinous.—Native of the Cape of Good Hope. The *stem* is bushy, shrubby, branching from top to bottom; the branches acutely quadrangular. *Leaves* numerous, fleshy like those of a *Sedum*; the leaflets acute, scarcely an inch long, blunt, with a small point; their under side convex, or hemispherical. *Stipulas* in pairs, small, lanceolate, spreading, at length becoming hardened, hooked, and pungent, so as to form two, three, or four prickles at every joint. *Flowers* drooping, large and handsome, on longish, foliate, lateral *flalks*. *Calyx* reddish. *Petals* yellow, fading to white, nearly or quite etiute. *Nectaries* entire, not fringed. *Capule*, according to Burmann, “round, smooth, compressed, terminating in the very acute *style*.”

12. *Z. microphyllum*. Small-leaved Bean-Caper. Linn. Suppl. 232. Willd. n. 9. Thunb. Prodr. 8c.—Leaves conjugate, somewhat flaked; leaflets involucrally heart-shaped, smooth. Stem hairy, with ascending branches. *Capule* roundish, abrupt, of five compressed lobes. *Style* permanent.—Gathered by Thunberg, at the Cape of Good Hope. It is a species of hardy, rigid, small-leaved, much branched *frutus*, so characteristic of the botany of its native country. The branches are round, knotty, spreading, slightly hoary, or glaucous. *Leaflets* from one to three lines long, thick, oblique, sometimes obvate, but more frequently coven, so as to become involucrally heart-shaped; they are supported on a manifest, though short, thick *footstalk*. *Stipulas* minute. *Flower-flats* thread-shaped, foliary, longer than the leaves, from the same buds. *Flowers* drooping, rather small, yellow. *Calyx* reflexed. *Capule* the diameter of a pea, constricting of five rounded, vertical, compressed lobes, crowned with the spiny *style*, their surface rather reticulated: each of them bursts at the inner, as well as outer, edge into two chafic, or cartilaginous, valves, coated with a thin skin.

13. *Z. retrofractum*. Recurved Bean-Caper. Thunb. Prodr. 8c.—Leaves conjugate, flaked; leaflets obvate, smooth. Stem hairy, with spreading recurved branches. *Flower-flats* shorter than the leaves.—Gathered at the Cape of Good Hope, by professor Thunberg, from whom we have a specimen. His short specific character was Willdenow's only guide, when the latter reduced this plant to *Z. felifillum*, to which it has no affinity, and very little resemblance. The present, though a very distinct species, is most allied to *Z. microphyllum*, but the long, spreading, deflexed *branches* afford a characteristic difference of habit. The *leaflets* too are smaller, and seem to be always ovate, not obcordate. *Flowers* very small, their little thick *flalks* hardly so long as the *calyx*. *Nectaries* lanceolate, entire. *Gormen*, after the other parts of the flower are fallen, elliptic-oblong, deeply five-lobed, acute, crowned with the *style*; but we have none in an advanced state, to enable us to judge whether the lobes ever extend into a rounded semi-obtuse shape, like the last, as may very probably be the case.

The first has a deep flesh root, and soft herbaceous stalks, which decay in the winter.

The second is of a thrubby growth, and there are varieties, with yellow flowers, with sulphur-coloured flowers, with white flowers, with copper-coloured flowers, having mostly a reddish or brown spot near the base of each petal.

The third has also a thrubby stem, and there is a variety with flame-yellow-coloured flowers.

And the fourth has an under thrubby growth.

Method of Culture.—The first fort is raised from seeds, which should be sown in the spring in pots filled with light sandy mould, or on a hot-bed. When the plants have a few inches growth, they should be removed into separate pots, plunging them into a hot-bed, admitting air so as gradually to harden them to the open ground. They should be protected for a winter or two, and then be turned out into borders, or other parts, where the situation is warm, and the soil dry and rubbishy, as they are of a succulent nature.

The other sorts are capable of being increased by cuttings and seeds; the cuttings should be planted out in the spring or summer in pots filled with light sandy mould, and plunged in a hot-bed, being occasionally watered, when they quickly emit roots, and shoot at top; and when sown in the summer months, they may be planted in a shady place, or in pots placed in the shade, giving frequent waterings, when they will also take good root. In either method, they should be potted off separately towards autumn, in order to be moved into the green-house or glass-house in the beginning of autumn.

The feed should be sown in the spring in pots of light earth, and be plunged in a hot-bed, where they soon come up: when a little advanced in growth, they should be potted out in separate small pots, being watered and plunged into the hot-bed till well-rooted, when they should be gradually hardened to the full air, and in June set out to remain till the autumn, when they should be placed in the green-house, or some other place, where they may have protection for the winter.

The first fort affords variety in the borders, as well as among other potted plants; and the others in collections of the green-bonic kind.

ZYGOPOlis, in Ancient Geography, a town of Asia, in the Colchide, near the town of Trapezunte.

ZYGOSTATES, among the Ancients, an officer who was the overseer of weights, and was to take care that the tradesmen used none but what were just.

ZYGRIS, in Ancient Geography, a town on the coast of the name of Libya; and Zygrite are the people who inhabit this name.

ZYMAR, a name given by some of the chemical writers to verdigrise.

ZYME, a word used by many authors to express fermentation or leaven.

ZYMOLogy, in Chemistry, a term used by some writers to express a treatise on fermentation, or the doctrine of fermentation in general.

Mr. Symons has written a treatise on this subject, in which he refers the whole to the internal conflicts of acid and sulphur in bodies, and seems to think that the phenomena of hot-baths, the generation of minerals, and the production of mineral waters, the grand appearances of light, heat, and fire, and the generality of the subterranean phenomena of damps, earthquakes, and fiery eruptions, and the appearance of meteors, may be all explained by the doctrine
trine of fermentation, established on this basis. Symphon's Zymol. Chym.

ZYMOΣΙΜΕΤΕΡ, formed from ζυμός, fermentation, and μέτρον, measure, an instrument proposed by Swammerdam, in his book "De Respiratione," wherewith to measure the degree of fermentation occasioned by the mixture of different matters; and the degree of heat which those matters acquire in fermenting; as also the heat, or temperature, of the blood of animals.

ZYMOSIS, a word used by some to express fermentation, and by others for a flatulent tumour of the liver, or other of the viscera.

ZYMUM, in Botany, apparently from τομή, a ferment, a name which, De Theis says, is given to a plant of the Mauritius, by Norona, a Spanish botanist, but without any explanation of its meaning, or application. This name is, nevertheless, retained by Aubert du Petit-Thouars, in his Plantes des Îles d'Afrique, falc. 4.

ZYORY, in Geography. See Sohrau.

ZYPE, a kind of island of North Holland, formed by canals cut from the Zuyder Zee to the German ocean. It was formerly a morałe, but is now converted into rich meadow land. On this spot the duke of York was posted, when he made terms with the French general Brune to evacuate Holland; having it in his power, by taking up the sluices, to inundate the country.

ZYRAS, in Ancient Geography, a river of Thrace, which watered the town of Dionysiopolis. Pliny.

ZYRMA, a town of Thrace, near which ran the river Hebrus. Ptolemy.

ZYTOMIERS, in Geography, a town and fortress of Russian Poland; 65 miles W. of Kiev. N. lat. 50° 16'. E. long. 28° 54'.

ZYTHOGALA, formed of φιλις, cerevisia, and γάλα, lac, beer posset, a drink recommended by Sydenham, as good to be taken after a vomit, for allaying the acrimonious and disagreeable taste it has occasioned, as well as to prevent gripes. Syden. Observ. de Morb. acut. p. 39.

ZYTUM, or Zythos, a sort of malt liquor, in use among the ancient Germans.

Matthiolius represents the ancient zythum, and curmi, as the same with our beer and ale.
ADDENDA & CORRIGENDA.

A B C

VOl. I.

A A M. To that article subjoin, see Stekan and Vat.

AARON, or Harun. See Bagdad. Add, and Almansor.

Aaron Aprishon. Insert in the third line, after probably, as some say, but according to others, not, &c.

ABACUS, in Architecture, l. 23, dele Corinthians and Composite.

ABADIOTS. See Cândia.

ABANDONMENT, in Commerce, the act of relinquishing or surrendering goods to creditors and underwriters, either in lieu of a debt, or to avoid the payment of charges.

ABANDONMENT, in Marine Insurance. See Risk and Recapture.

ABASCIA and Abassa. In the reference r. Abhas for Abhisas.

ABASSI. For Gomeroon r. Gambroon.

ABBEVILLE, l. 4 and 5, r. containing, in 1811, 21,156 inhabitants, of whom 6672 are slaves.

ABBEYBOYLE. After abbey, insert see Boyle, and dele lat. and long.

ABBOT, George, 2d col. l. 4 from the bottom, instead of 1723-4 r. 1623-4.

ABBUTALS. See Abuttals.

A, B, C, DARIA, in Botany, a name given by Rumphius, Herb. Amboin. v. 6. 145, t. 65. to the Vehbifina Acemilla of Linnaeus, see Spilanthus, n. 3. The above appellation is designed to express the use made of this plant by the black school-masters at Amboyna, who cause their young pupils to chew the flowers or the root, either alone or with Betelnut, in order that they may more easily pronounce some of the difficult Arabic letters, such as 'Ibha and Ze, both which they commonly confound with S. The Malay name, Dann murit, School-boy's herb, given to this Spilanthus, as well as to Bidens pilosa of Linnaeus, has the same allusion. Such plants agree with Pellitory of Spain, Anthemis Pyrethrum, in a peculiar property of stimulating the mouth, accompanied by a sense of coolness, and a slight salivary, all which together cause a great flow of saliva. Hence they are beneficial in tooth-ache arising from cold rheum, but the flight numbs and tingling of the nerves, which attend their use, should seem rather unfavourable to precise enunciation. The recent flowers of Spilanthus oleracea, slightly rubbed upon the gums, are perhaps the best of the whole tribe for producing the above effects.

ABDALLAH, Ebn-Zobeir, l. 4, Heg. 63.

ABDAS, in Biography, a Persian bishop of the fifth century, who deferves to be exhibited in the page of history as a cautionary example of the folly of supporting any cause by persecution. Having destroyed a pagan temple belonging to the worshippers of fire, the king of Peria, instigated by the Magi, ordered him to rebuild it at his own charge; but as he refused to comply with this order, a dreadful persecution was commenced against the Christians, which lasted 30 years; and in this persecution Abdas lost his life. Bayle.

ABDOMINAL RING. For Oblique, &c. r. Oblique.

ABELICEA, in Botany, 'Abelnesia in modern Greek, see our ninth species of Ulmus.

ABAERAEMON, in Geography, a small town and port of Cardiganshire, much frequented by small coasting-vessels, which convey the corn and other produce of the district to the
the English markets. The harbour has been lately much improved by the construction of a pier. A market has been lately established here.

ABEREMOA, in Botany, altered by Anquetil from the Caribbean appellation of the same plant, Aubl. Guian. 610. t. 245; see Guatteria hereafter.

ABERPORTH, in Geography, a little fishing-town of Cardiganshire, pleasantly situated at the entrance of the river which flows by Blaenporth. The craft belonging to this port are chiefly employed in bringing lime-stone from Pembrokeshire and other parts, which are burnt here, to supply the neighbourhood with manure, and for other purposes.

ABILDGARDIA, in Botany, a genus of Professor Vahl's, dedicated by him to the memory of the late Peter Christopher Abildgaard, a native of Denmark, formerly professor of the veterinary art, who contributed much information to Professor Rotblöb on the subject of Graffies. Mr. Brown retains this genus, not without a hint of its too near affinity to Fimbristylis; see that article. We trust the barabdin of the double a may be dispelled with, and we have ventured to make that alteration.—Vahl Enum. v. 2. 296. Brown Prodr. Nov. Holl. v. 1. 229.—Clas and order, Triandra Monogynia. Nat. Ord. Calamariae, Linn. Cyperoides, Juss. Cyperaceae. Brown.

Gen. Ch. Cal. a single scale to each flower, ovate, pointed, concave, compressed, forming a spike, imperfectly two-ranked. Cor. none. Stam. Filaments three, rarely but one, inferted beneath the germin, gradually elongated by age, anthers linear, longer than the filaments. Pist. Germin superior, acutely triangular, rather contracted at the summit; stylle bulbous and pyramidal at the base, the bulb triangular, broader than the germin, permanent, the upper part bristle-shaped, deciduous; stigmas three, shorter than the stylle. Peric. none. Seed one, brown-white, nearly pear-shaped, with three angles, contracted at the base, crowned at the summit with the pointed base of the style, convex at the fides, and rough with minute dots, without any surrounding bristles. Pericarp pericarpial, permanent.

The scales of this genus are angular, slender, without joints; leafy at the bottom. Leaves narrow, channelled, sheathing. Spikes ovate-oblong, acute, compressed, often twifled; their scales closely imbricated, keeled, very smooth and polished, white, dotted with purple, the green keel of each elongated into a little point; the two lowermost narrower than the rest. Vahl. Brown.

Mr. Brown remarks, that the style is certainly deciduous, and the spike, when in seed, by no means perfectly two-ranked; circumstances which bring the present genus very near to Fimbristylis. The following are the only described species.


of Jamaica and Hispaniola, by Sloane and Swartz; and in the tropical part of New Holland, as well as at Port Jackson, by Mr. R. Brown. The root appears to be perennial, with many long simple fibres. Herb slender, smooth and glaucous, forming tufts, about a foot high, with linear, very narrow, leaves, which sometimes break off, as Vahl remarks, at a fort of joint, below the middle of each. Stem simple, slender, angular, and frayed, taller than the leaves. Spike half an inch long, two-ranked, subtended by a linear rough-edged leaf, sometimes, in the Linnaean specimens, exceeding its own length. The glumes, or scales, have a green keel, accompanied by two white ribs, next to which is an affemblage of purple dots, the leaf being cream-coloured. Two or three of the lower glumes are small, and apparently barren. There is said to be but one flamen to each flower. Sloane's synonym seems to us, doubtful.

2. A. fimbroides. Redly Abildgardia. Br. n. 2. —"Spike solitary, naked. Outer scales shorter and barre. terminal ones narrower, with spreading points."—Gathered by Mr. Brown, in the tropical part of New Holland. We have seen no specimens of this or the next.

3. A. vaginata. Sheathing Abildgardia. Br. n. 3. —"Scaes about three together; the middle one fifie. Scales pointed. Stem bristle-shaped, angular, leafless; sheathed at the base."—Found by Mr. Brown, in the tropical part of New Holland.

4. A. triflachyza. Three-spikef leafy Abildgardia. Vahl n. 2. (Cyperus triflachyza; Linn. Mart. 180. Willd. Sp. Pl. v. 1. 272. Schoenuss cyperoides; Retz. Obs. f. a. 4. 8.) —Spikes about three together; the middle one fifie. Stem feme-cylindrical, round, bulbous, and leafy, at the base. Native of the East Indies, in hard dry ground. Kenig. The flemes are from one to two feet high, fuffy and rigid, erect; according to Vahl, bulbous at the bottom, and wrapped with dry brown fheaths among the foliage. The leaves are smooth, channelled, not to tall as the stem. Spikes two, three, or four, twice the size of the flifer species, tumid, ovate, acute, twifled, of a dirty but polished white; three of them generally fpringing from one short leafy sheath, the two lateral ones elevated on long, flattened, frialate, smooth flarks. Stamens three; Vahl. Stigmas long and downy.

ABINGTON, in Geography, a town of Maffachufetts, in Plymouth county, containing 1704 inhabitants.—Alfo, a township of Pennsylvania, in Montgomery county, having 1236 inhabitants.—Alfo, a township of Pennsylvania, in Luzerne county, having 511 inhabitants.


ABOU HANES. Dele See Plate 1. Birds.

ABOU Hanifah. See Hanifah.

ABOU-Riban, in Biographia, a geographer and astrologer, was born at Beroun, in the province of Khovarezm, at the commencement of the 11th century, and on account of his skill in sciences, denominated Al Mohabak; the very felicity philosopher. He wrote a "Treatife on Geography," a "Theory of the Fixed Stars," a "Treatife on the Sphere," and an "Introduction to Judicial Astrology." D'Herbelot Bib. Orient.

ABRAHAM. Line 25, insert Ante A.D. 1921. Col. 2, i. 56, instead of A.D., and col. 3, i. 54, instead of A.D. insert B.C.

ABRONIA, in Botany, Juss. Gen. 448. See Tri-

CRATUS.

ABSCESS under the Cranium, insert and.

ABUCCO. Subjoin, See Weight.
ABUSCHEHR. See BUSHEER.

A BOUTA, in Botany, a Brazilian name, first published by Barrere, adopted by Aublet, and recently by De Candolle, as well as Jullieu. It may remain for the present, till the characters of the genus are known. These are hitherto involved in great uncertainty, the flowers not having been observed by any botanist.—Barr. Hift. Nat. de la France Equinoxiale, t. Aubl. Guian. 618. Jull. 286. De Cand. Syll. v. 1. 542. —Clafs and order, Diccia Dodecanedria? (Polyandria Polygnia, Aubl.) Nat. Ord. Menisperma, Jull.

Eff. Ch. Male, unknown.

Female, Fl. unknown. Berries two or three, ovate, somewhat compressed, dry, dingle-fed.

Lamarrack and Wildenow have considered this genus as not distinct from Menispernum, see that article; but Professor De Candolle reckons the large, dry, ovate, not kidney-shaped, berries, to termed, we presume, because of the bristled covering of their seed, as affording a sufficient, even without the flowers. He is more inclined to refer Abuta to his own genus of Cocculus, separated by him from Menispernum; but their habits are somewhat different.

Two species of Abuta are defined by this writer, but A. amorac of Aublet, Guian. 620. t. 251, is referred, on the authority of Richard, to Ariocephalz.z. These are large twining shrubs, with ovate leaves, whose pinnate ribs spring nearly from one point at the base.

1. A. rysfelim. Reddish Abuta, or Falce Pareira-brava. Aubl. Guian. 618. t. 250. De Cand. n. 1. (A. scandens, ampliflmo folio cordifolio, fructus tomentolulo; Barr. Fr. Equin. 1. Menispernum Abuta; Lamarrack Dict. v. 4. 100. Willd. Sp. Pl. v. 4. 828.) —Leaves ovate, acute, entire; downy beneath.—Native of woods in Brazil, Cayenne, and Guiana. Abuta found it in almost every forest of the last-mentioned country, that he examined, bearing fruit in January. The Portuguese confound this plant with the true Gymnocalz Parizra, and consider its root of equal efficacy in jaundice, disorders of the kidneys and bladder, as well as internal abscesses, and menstrual suppressions. The climbing stem, and downy branches, reach to the tops of trees, and bear large, alternate, flattened, coriaceous, veiny, entire leaves, from four inches to a foot long; smooth above; covered beneath with prominent, reticulated, downy veins, springing copiously from nearly the whole of the leaf. The flowerstalks are about half the length of the leaves, round, finely and densely downy. Berries elliptical, downy, an inch long, three upon each receptacle, and forming large axillary branches. There is laid to be a variety whole Woody parts, as well as the pubescence of the foliage, is reddish. The Creoles make a decoction of the branches of the red and white varieties indifferently, to cure obstructions of the liver, to which they are very subject. Aublet.

2. A. candidans. Whitish-leaved Abuta. De Cand. n. 2. Richard MSS. — “Leaves ovate, pointed, somewhat crenate, or minutely lobed; smooth and whitish beneath.” — Gathered in Cayenne by Mr. Richard, who unluckily did not meet with the flowers. The branches are round and smooth. Footstalks four inches long, round and smooth likewise. Leaves five to seven inches long, three or four broad, nearly entire, or slightly crisped, or toothed, in the margin; even and smooth above; pale or nearly white underneath, but, as it seems, quite smooth; the ribs pinnate, the two lower lateral ones close together. The inhabitants of Cayenne call this plant Liane antepa, Bitter Vine. De Candolle.

ABYSSINIAN MUSIC. See MUSIC.

ACACIA, in Botany, an ancient Greek name, derived from αέας, to point or sharpen, in reference to its thorny habit. De Thes. deduces all words of this etymology from the Celtic, ac, a point. The oaks of Dioscorides, book i. chap. 133, was a sort of Egyptian thorn, “of a diffuse or spreading mode of growth, with a white flower, and a pod resembling lupines.” Its expressed juice, dried in the shade, was an astringent medicine much in use, and the shrub yielded also a clear white gum. This may very well have been a plant of the present genus. Wildenow, who established this genus, first separated it from the Linnian Mimosa (see that article), which has become inconsiderately numerous in species, and unquestionably is capable of division by the characters of the fruit, of which Wildenow has very well taken advantage. He leaves in Mimosa such species as have a lomentum, or legume separating into single-fed joints. Of these he defines 32, having a five-toothed corolla, and only eight filaments; and to many of them, being senece, the name Mimosa is properly appropriated. For his other genera taken from here, see Desmianthus, Isca, and Schrank. We must observe however that the Acacia of Tournfort is not analogous to what is now before us.—Wild. Sp. Pl. v. 4. 1049. Ait. Hort. Kew. v. 5. 459. Pursh 305.—Clafs and order, Polyantha Monocoty, or rather perhaps Polyandria Monogynia. Nat. Ord. Lomentace, Linn. Leguminosae, Jull.


Obf. The flowers, sometimes four-cleft, have, in some instances, a corolla which separates into four or five distinct petals. We have not had an opportunity of examining a sufficient number of species to give a full generic character. Wildenow reckons up 102, in seven sections; to which Mr. Brown has made numerous additions from New Holland, partly described in Ait. Hort. Kew. above cited. We shall give some examples of each section.

Sect. 1. Leaves simple. Sixteen species in Wildenow, to which ten are here added, nine of them from Hort. Kew.—Of this singular tribe, first discovered by our British circumnavigators, all the species, as far as hitherto known, bear, in a feeding sister, compound pinnate leaves, soon replaced by leafy or spinous simple footstalks, which latter constitute the only foliage of the adult plant. There are no thorns or prickles in the tree. Their stem is shrubby, or arborescent, as well as throughout the whole genus. We have slightly adverted to this section at the end of our article Mimosa.

A. vorticillata. Whorl-leafed Acacia. Wildl. n. i. Ait. n. 1. (Mimosa vorticillata; L’Herit. Sert. Angl. 30. Curt. Mag. t. 110. Venten. Malm. t. 63.) —Leaves whorled, linear-awl-shaped, rigid, spurious-pointed. Spikes solitary, cylindrical.—Gathered in Van Diemen’s island, by the late Mr. David Nelson, who sent seeds to Sir Joseph Banks in 1780. Hence this singular shrub became known in the English green-houses, where it flowers in the spring, and ripens feed. The first two or three leaves of feeding plants are conjugate and pinnate, with elliptical oblong entire leaves; the rest are accurately whorled, simple, pungent, flat-topped thorns rather than leaves, fix or eight in each whorl, about half an inch long, somewhat unequal, spreading horizontally. Flowers in dense, yellow, thick, obtuse spikes, which are an inch, more or less, in length, each on a simple, slender, axillary stalk, but there are sometimes two or more of these stalks together. Legume linear, compressed, corrugated, of one cell with several kidney-shaped seeds.

A. Junci,Juniper-leaved Acacia. Wildl. n. 2. Ait. n. 2. (Mimosa juniperina; Venen. Malm. t. 64. "M. ulicifolia;
ACACIA.

"M. ulicifolia; Wendl. Coll. 25. t. 6." Willd.) — Leaves imperfectly whorled, linear-awl-shaped, rigid, spinous-pointed. Spikes solitary, globose. — Found near Port Jackson, New South Wales, from whence Sir Joseph Banks is said to have received feeds about the year 1790. We have specimens from Dr. White. This differs from the foregoing in having its spinous leaves more crowded, and leaves distinctly whorled, more hairy branches, and globular heads of flowers, each flower, according to Ventenat, accompanied by a little ovate, pointed, filiform bractea.

A. acicularis. Needle-leafed Acacia. Brown in Ait. n. 3. — "Leaves scattered, roundish-awl-shaped, pointed, rigid. Stipulas deciduous. Young branches smooth. Spikes solitary, globose." — Said to have been found in New South Wales, by an officer named Paterson, from whence it was sent to Kew in 1796. It flowers at the same feast as the two preceding, and requires the same treatment. If we understand this species aright, the leaves are full an inch long, being twice the length of the two foregoing, and more slender. We received specimens answering to this description before 1796, from Dr. White.

A. falcatu. Furrowed Needle Acacia. Brown in Ait. n. 4.—"Leaves thread-shapcd, furrowed on all sides, with a harmless point. Heads of flowers usuallv in pairs. Bracteas ovate, concave, permanent, at the base of the flower-flak. Legumes zigzag." — Observed by Mr. Brown on the south-west coast of New Holland, from whence it was introduced, in 1803, by Mr. Peter Good. This is likewise a green-house shrub, flowering from May to August.


—Native of New South Wales. Cultivated, before 1790, by Mr. Thomas Hoy, in Sion gardens. A green-house shrub, flowering in the spring. The acute edges of the branches are bright red. The little leaves are conjugate, pinnate, with thick elliptical leaflets, and a lanceolate common footstalk; the leaf alternate, narrow, coriaceous, four or five inches long, rather glaucous, smooth, thick-edged. Flowers: simply racemose, yellowish-white, fragrant, their corolla deeply four-lobed. Stamens very numerous. Legume elliptical, an inch and a half or two inches long, and one inch broad, finely glaucous.


—Native of New South Wales, from whence Sir Joseph Banks is recorded to have received seeds in 1790. This requires the same treatment, and flowers at the same time, as the last, from which its capitulate five-cleft flowers, and more dilated rounded-pointed leaves, at once distinguishes it. Dr. Sims, in Curtis's Magazine, under this species, has given but too just reason for retaining the genus Mimofa entire for the present, which principally refer to our ignorance of their fruit in a number of instances. Our learned friend, however, has since conformed to the new arrangement; and we think, with Willdenow, that enough is known for us to venture on the division this author has proposed, which may generally be supported by analogy, if not by absolute demonstration.

A. melanoxylon. Black-wooded Acacia. Brown in Ait. n. 12. Curt. Mag. t. 1659. —Leaves elliptic-lanceolate, many-ribbed, slightly falcate. spikes globose, in short clusters. Flower-flaks and young branches angular, powdery. "Umbilical cord coloured, plaited, nearly surrounding the seed." —Found by Mr. Brown, in Van Diemen's Island. From him we adopt the singular character of the umbilical cord. This is a considerable tree, raised by John Walker, eq. of Arno's Grove, Southgate, who received the seeds under the name of Black-wood, about the year 1808. The young twigs are covered with soft mealy. Leaves filiform, three inches long, and one broad, slightly glaucous, usually five-rheded. Flowers pale-yellow, their globular spikes dispofed in short axillary clusters, about twice the length of each footstalk. We have no account of the legume.

A. Sophora. Sophorah-foled Acacia. Br. in Ait. n. 13. (Mimofa Sophora; Labill. Nov. Holl. v. 2. 87. t. 237.) —Leaves oblong-obovate, equilateral, many-ribbed. Spikes cylindrical, axillary, in pairs. Petals four. Legumes linear, curved, pointed. Umbilical cord plaited. —Found by Labillardiere, as well as by Mr. Brown, in Van Diemen's Island. Its seeds were brought by the latter to Kew Garden, and raised there in 1855, but the plants have not yet bloomed. The young leaves are represented by Labillardiere as pinnate and triplicate; the leaf ovate, two or three inches long. Spikes nearly fisset, hardly an inch long, and very slender. Flowers small. Legumes five to six inches in length, tumid, and twisted, a quarter of an inch broad. Each seed is subtended by a cup-like tunic, which we presume is the umbilical cord of Mr. Brown.

A. marginata. Marginate-leaved Acacia. Br. in Ait. n. 14. —"Leaves oblong-lanceolate, rather falcate, bordered, single-ribbed; their anterior edge somewhat narrowed, with a foliary gland. Heads about four-flowered, dispoed in clusters." —Observed by Mr. Brown on the south-west coast of New Holland, from whence seeds were sent in 1803, by Mr. Peter Good. A green-house shrub, flowering from April to June. Aiton.

A. myrtifolia. Myrtle-leaved Acacia. Willd. n. 14. Ait. n. 15. (Mimofa myrtifolia; Sm. Tr. of Linn. Soc. v. 1. 253. Bot. of New Holl. v. 1. 15. Curt. Mag. t. 502.) —Leaves elliptic-lanceolate, oblique, thick-edged, single-ribbed, with a foliary gland at their anterior margin. Heads of flowers clustered, aggregate. —Native of New South Wales. Raised by Mr. Thomas Hoy, before the year 1789. A green-house shrub, flowering from February to May, or late in autumn. The stem is three or four feet high, with angular branches. First leaves conjugate, pinnate; the leaf about two inches long, broadly lanceolate, pointed, very rigid, somewhat glaucous, often wavy, smooth. Flowers pale yellow, fragrant, three or four in each round head, the heads disposed variously in somewhat compound axillary clusters, nearly equal in length to the leaves. Legume linear, curved, tumid, with very thick edges.

A. hispidula. Little hair Acacia. Willd. n. 15. Ait. n. 16. (Mimofa hispidula; Sm. Bot. of New Holl. v. 1. 16.) —Leaves elliptical, acute, oblique, minutely toothed, rough on each side, and at the margin. Young branches hairy. Flowers four-cleft, in foliary axillary heads. —Native of New South Wales, from whence specimens were sent to us, with coloured drawings, in 1794, and feeds about the same time to Sir Joseph Banks. The roughness of the foliage and branches is very remarkable, caused by short, rigid, prominent hairs, or points. The leaves are fylls, an inch long, vertical, very stiff, dark-green. Heads filiform, globose, many-flowered. Legume thick-edged, elliptic-oblong, sometimes with one or two contractions. Seeds few.

A. hofulata.
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A. houston. Little Halberd-leaved Acacia.—Leaves deltoid, fimbrous-pointed, roughish; their upper angle glandular. Stipulas bristle-shaped, permanent. Branches rough. Flowers in solitary axillary heads.—Gathered near King George's found, on the south-west coast of New Holland, by Mr. Menzies, to whom we are obliged for a specimen. This remarkable new species is evidently allied to the two last-mentioned, though abundantly distinct from both. The shrubby form bears numerous, erect, round, rough, wand-like branches, becalmed with innumerable, spreading, vertical leaves, about a quarter of an inch long, finge-ribbed, unequally deltoid, with an elongated fimbrous point, thick-edged, rough with minute points; their lower angle either rounded or somewhat toothed; the upper more prominent, and tipped with a gland. Stipulas slender, erect, in pairs at the base of each leaf. Flowers three or four in each of the little flaked heads, which are very numerous all along the branches.

A. decipiens. Paradoxical Acacia. Br. in Ait. n. 17. Curt. Mag. t. 1745. (Mimofa decipiens; Konig in Ann. of Bot. v. 1. 366. t. 8. Adiantum trancatum; Burm. Ind. 235. t. 66. f. 4. Linn. Syst. Veg. ed. 13. 790.)—Leaves triangular-yarded, fimbrous-pointed, smooth; their upper angle glandular. Stipulas bristle-shaped, deciduous. Branches smooth. Flowers in solitary axillary heads.—Gathered by Mr. Menzies on the south-west coast of New Holland, and not on the west side of North America, as mentioned in the Annals of Botany. Seeds were sent to Kew in 1803, by Mr. Good, and the plant is marked by Mr. Aiton as a green-house shrub, flowering from March to June. Its history is certainly curious; specimens without flowers having been taken by professor Burmann, who misled Linneaus, for an Adiantum, which error was detected by the late Mr. Dryander, on seeing Mr. Menzies's specimens. Thole of Burmann were reported to have come from Java, in which there may be a further mistake. At any rate this plant is nearly related to our last-described, and grows in the same country. The leaves differ in being larger, half an inch to an inch long, erect, and differently pinnate, their inner, or upper, glandular angle being greatly extended, while the lower or rounded angle, seen in A. houston, is wanting. The flowers are more numerous, from seven to ten, in each round head.

A. biflora. Two-flowered Acacia. Br. in Ait. n. 18.—Leaves triangular; the outer angle fimbrous; inner glandular. Stipulas bristle-shaped and fimbrous, permanent. Young branches downy. Heads two-flowered.—Oberved by Mr. Brown, on the south-west coast of New Holland, the bottom of which the plant was sent to Kew by Mr. Good, in 1803. A green-house shrub, flowering from March to June. We have seen no specimens.


A. alata. Wing-flaked Acacia. Br. in Ait. n. 20.—Stem winged on two sides. Leaves decurrent, finge-ribbed, tipped with a small spine; their inner margin with one glandular tooth. Stipulas fimbrous. Heads flaked, mostly solitary.—Gathered by Mr. Brown, on the south-west coast of New Holland, from whence seeds were sent to Kew, by Mr. Good, in 1803. This is likewise a shrubby green-house plant, flowering from April to July.

Sect. 2. Leaves conjugate, pinnate. Seven species in Willdenow, to which one of Mr. Brown's is to be added from Hort. Kew. The Prodrumus of this able author, when completed, will probably furnish more New Holland species to this section.

A. xylocarpa. Wooden-fruited Acacia. Willd. n. 17. (Mimofa xylocarpa; Roxb. Corom. v. 1. 68. t. 100.)—Leaves conjugate, pinnate; leaflets four pair, ovate-oblong, acute. Heads globose, many-flowered, lateral, flaked, in pairs.—Native of the mountainous parts of the Circars of Hindoostan, casting its leaves during the cold season, and flowering when the hot weather begins. This is one of the largest trees of this genus or any of its allies; the timber very hard, of a chocolate colour towards the centre, and much esteemed for purposes where hardiness, toughness, and durability, are requisite, as in ploughs, the natives seldom using iron in that implement. The leaves are large, smooth, paler beneath, confining of two divisions, or wings, and those of four pair of leaflets each, except that the innermost leaflet on each side, at the bottom, is wanting: the lower leaflets are about two inches long; the upper four or five. Heads of flowers whitish, the size of a cherry, on simple flaks, two or three inches in length. Corolla bell-shaped, five-cleft. Stamina ten. Legume only one from each head, ovate, compressed, very large and woody, three or four inches long, the flaks becoming necessarily greatly thickened. Seeds about ten, oval, rounded near the lower edge, as large as kidney-beans.

A. pulchella. Zigzag Spiny Acacia. Br. in Ait. n. 22.—Leaves conjugate, pinnate, with a flaked gland between the wings, each of which has from five to seven pair of leaflets. Stipulas fimbrous, nearly equal to the leaves. Heads solitary. Branches zigzag.—Oberved by Mr. Brown, on the south-west coast of New Holland, from whence seeds were sent to Kew, in 1803, by Mr. Good. A green-house shrub, flowering from April to July.

Sect. 3. Leaves doubly pinnate. Stem without thorns. Spike oblong. Eleven species in Willdenow, the last of which, A. Houtonii, we shall remove to the following section.

A. microcarpa. Warty Acacia. Willd. n. 25. (A. latifolia, slopecoueroides, flore albo; Plum. Ic. 6. I. 11. Mimofa micricarpa; Linn. Sp. Pl. 1504.)—Thorns none. Leaves doubly pinnate; first division of five pair; second of many pair; leaflets abrupt. Spikes axillary, aggregate, nearly cylindrical. Branches warty.—Gathered in South America, or the West Indies, by Plummer, whole figure is the only authority for this species. The branches are round, and warty, as well as the lower part of the flower-flaks, which half are evidently axillary, not, as Willdenow says, terminal. They are longer than the large compound leaves, and bear four or five alternate dense flokes, on partial flaks. Leaflets numerous, crowded, elliptical, veiny, emarginate, about a half or three-quarters of an inch long. Flowers numerous, very small. Legumes several, spreading; four or five inches in length, linear, flat, veiny, wavy at the edges, with many oval flat seeds.

A. pallida. Pale South-American Acacia. Willd. n. 26.—Thorns none. Leaves doubly pinnate; first division of two pair; second of twelve pair; leaflets linear, obtuse, downy. Spikes thread-shaped, much longer than the leaves.—Gathered by Humboldt and Bonpland, in South America. Branches round, warty, divaricated. Leaflets obuse at each end, sometimes but ten pair; clothed sparingly on the upper side, more densely on the under, with fine pubescence; the edges fringed. There is a cup-shaped fiddle gland between the secondary divisions of each leaf (indications of which appear likewise in Plummer's plate of the foregoing).
Footstalks hairy. Spikes axillary, solitary, three or four inches long, being thrice the length of the leaves. Flowers opposite, of five petals. 

This seems much allied to the last, but the shape and divisions of the leaflets, and the solitary spikes, indicate a sufficient difference.

A. arenosa. Sand Acacia. Wild. n. 29.—Thorns none. Leaves doubly pinnate; first division of six pair; second of sixteen pair; leaflets linear, acute. Spikes thread-shaped, in pairs. —Found by Mr. Bredemeyer at the Caracas, about the sandy banks of rivers. A florub ten or twelve feet high, with angular downy branches. Leaflets fringed, from sixteen to twenty-four pair. Footstalks clothed with hoary down; the partial ones accompanied by an acute intermediate gland. Spikes axillary, measuring three or four inches, generally rather longer than the leaves. Flowers opposite, white, fragrant. Calyx with four or five teeth. Corolla in four or five deep segments. Stamens twice as many, and twice as long. 

A. guianensis. Guiana Acacia. Wildl. n. 32. Ait. n. 25. (Mimosa guianensis; Aubl. Guian. 938. t. 357.)—Thorns none. Leaves doubly pinnate, each division of about ten pair; leaflets elliptical, obtuse. Common footstalk with a convex gland. Spikes thread-shaped, axillary. —Observed by Aublet in Cayenne and Guiana, flowering in November, and bearing ripe seeds in January and February. This is a large tree, whole trunk, thirty or forty feet high, is a foot or more in diameter, with a smooth grey bark, and white brittle wood; the branches widely spreading. Leaflets elliptical, about half an inch long. The first divisions of the leaves are sometimes not more than seven or eight. Stipulas rounded, deciduous. Spikes axillary, from two to five together, on square simple stalks, the flowers small and densely crowded. Calyx with five teeth. Corolla of one petal, in five sharp lobes. Stamens ten, inserted into the calyx below the corolla, long, slender, with heart-shaped anthers, each of which bears a little leafy stalked appendage. Legume linear-oblong, flat-topped, brown, smooth, three or four inches in length, with several seeds.

A. lepaphantha more properly belongs to this section, though placed in the next.

Sec. 4. Leaves doubly pinnate. Stem without thorns. Spikes globose. Thirty-one species in Willdenow, to which we have three to add, besides A. Houilloni.

A. ciliata. Ciliate-winged Acacia. Br. in Ait. n. 23.—Without thorns, hairy. Leaves doubly pinnate; first division of two pair; second of two or three pair. Stipulas nearly lanceolate, deciduous. Heads foliary. —Gathered by Mr. Brown, on the south-west coast of New Holland; and sent to Kew, by Mr. Good, in 1804. A green-houfe shrub, flowering from March to June, of which we have not seen either specimen or figure.

A. nigricans. Unequal-winged Acacia. Br. in Ait. n. 24. (Mimosa nigricans; Labill. Nov. Holl. v. 2. 88. t. 238.)—Without thorns, smooth. Leaves doubly pinnate; first division of two pair; second of two or three pair in the lower, and from five to seven pair in the upper. Stipulas slender-sawhaped. Heads foliary. —Native of the south-west coast of New Holland, from whence Mr. Good sent seeds to Kew, in 1803. A green-houfe shrub, flowering from May to July, said to be about five fix feet high in a wild state. The leaflets are uniform, elliptical, obtuse, one-third of an inch long. Heads axillary, falked, one, two, or three together. Corolla deeply five-cleft. Stamens about 150. Legumes one or two from each head, linear-oblong, one inch and a half in length, and one-third of an inch in breadth.

A. odoratissima. Fragrant Coromandel Acacia. Wild. n. 37. Ait. n. 27. (A. nonpinufa, &c.; Pluk. Almuth. t. 251. f. 4. Mimosa odoratissima; Linn. Suppl. 437— Roxb. Coromand. v. 2. 125. t. 120.)—Thorns none. Leaves doubly pinnate; first division of four pair; second of ten pair; leaflets obtuse, the lowermost very minute. Heads panicked, terminal. —Native of the mountainous parts of the coast of Coromandel, flowering in the hot season. The wood is hard, and equally useful with that of A. xylo-carpa. (See Sect. 2.) The leaves are f a span long, with uniform leaflets, an inch in length, glaucous beneath, very unequal at their base. Flowers numerous, white, highly fragrant, in numerous, aggregate, stalked, globular heads. Legume coriaceous, about fix inches in length, and one in breadth, with a central row of seeds.

A. arborea. Rough Tree Acacia. Wild. n. 38. Ait. n. 28. (A. nonpinufa jamaicensis, foliis latâ bæfi in mete formam fatigis; Pluk. Almuth. 6. t. 257. f. 2. A. arborea maxima non pinus, pinna majoribus, flore albo, filiâ contorta coccinea ventricofà elegantissimâ; Sloane Jam. v. 2. 54. t. 182. f. 1. 2. Mimosa arborea; Linn. Sp. Pl. 1503. Swartz Obst. 390. Browne Jam. 252. n. 32.)—Thorns none. Leaves doubly pinnate; first division of seven pair; second of seventeen pair; leaflets halved, acute. Heads axillary, stalked. Legume contorted, tumid. Seeds spheroidal. —Native of fields and woods in Jamaica, where it is called Wild Tamarind, and is one of the largest trees of that island. The wood, according to Sloane, is durable, though soft and white. Leaves of numerous, small, dark-green, smooth leaflets. Heads globular, of numerous sweet-scented flowers, whose corolla is red; the flaves whitish, very long. Legume as if beaded, four or five inches long, red; its valves of a blood-red on the inside. Seeds globular, of a shining black. This species was cultivated by Miller, but is now unknown in our gardens, nor are botanists in general well acquainted with it; Forrâl and Thunberg having given the name of Mimosa arborea to two plants very different from this, as well as from each other.

A. jubulifìs. Smooth Tree Acacia. Wildl. n. 39. Ait. n. 29. (Mimosa Jubulifìs; Scop. Infibr. v. 18. t. 8. Ait. ed. 2. v. 3. 440. M. arborea; Fork. Ægypt.-Arab. 177. Gmel. l.t. v. 3. 372. t. 40.)—Thorns none. Leaves doubly pinnate; first division of about ten pair; second of many pair; leaflets halved, obtuse with a point. Heads lax, aggregate, terminal. Legume flat, membranous, smooth. —Native of the Levant. Forrâl saw it cultivated at Conflautinople, where it was called Djul ibrâim, by the Turks; which name, denoting a fuly flower, in allusion to the flaves, appears to be the origin of the specific appellation chosen by Scopoli. We have seen this species as large as a common apple-tree, covered with a profusion of blossoms, in the open ground at Turin, nor could any thing be more elegant or splendid. In England it is usually treated as a green-houfe plant, and flowers sparingly; though it succeeds well against a wall, with some protection in winter. The leaves are large and spreading, of numerous leaflets, half an inch long, very unequal in their two halves. Flowers blue, with long nodose flaves, forming most beautiful taffets like white silk. Legume half a foot long, thin, pale brown, corrugated, unequal in breadth, with many small flattened seeds.

A. villosa. Downy Jamaica Acacia. Wild. n. 46. (Mimosa villosa; Swartz Prodr. 85. Ind. Occ. 982.)—Thorns none. Leaves doubly pinnate; first division of five or six pair; second of many pair; leaflets elliptical, oblique, downy. Stalks and branches hairy. Heads rather oblong,
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oblong, panicled, terminal. Legume hairy, flat.—Found by Dr. Swartz, on mountains in the south of Jamaica. Browne seems by his herbarium to have confounded this with the real *A. arborea*, just described. The prefont is much smaller, being merely a *frub*, six feet high, with hairy -furred *bran*ces. *Leaves* downy on both sides, smaller and more obtuse than in the *arborea*;光滑 underneath; from ten to twelve pair in each subdividion. *Clusters* terminal, composed of many oblong and obtube, rather than globular *flowers*, on very hairy flalks. *Flowers* small, white, with numerous capillary *flamines*, of a tawny hue, inserted into the lower part of the receptacle. Legume short, very different from that of *arborea*.

*A. difcolor*. Two-coloured-leaved Acacia. Willd. n. 47. Ait. n. 32. Curt. Mag. t. 1750. (Mimofa difcolor; Arch. Repof. t. 235. M. botrycepalca; Venten. Hort. Cell. t. 1.)—Thorns none. Leaves doubly pinnate; frst division of twelve pair; second of about ten pair; leaflets lanceolate, pale beneath. Heads in terminal and axillary clusters, much longer than the leaves.—Native of New South Wales, from whence seeds and specimens were among the frst brought into this country, in the year 1788. It is now not an uncommon green-house plant in general collections, flowering at various seasons. The branches are angular and zigzag. *Leaves* rather stiff, their *footstalks* hairy like the young branches; leaflets not half an inch long, acute, smooth; dark green above; very pale beneath. *Flowers* yellow, in numerous globular heads, disposed in very conspicuous long clusters.

*A. pubefcens*. Hair-stem'd Acacia. Br. in Ait. n. 33. (Mimofa pubefcens; Venten. Malmaif. t. 21. Curt. Mag. t. 1263.)—Thorns none. Branches hairy. Leaves doubly pinnate; frst division of about eight pair; second of about fifteen pair; *footstalks* without glands; leaflets obtuse. Heads in axillary clusters, longer than the leaves.—Native of New South Wales, from whence its seeds are said to have been procured by Sir J. Banks, about the year 1790. This pretty delicate species has an arboreefen *flem*, with drooping *bran*ces, and its copious fern-like foliage exhibits a most elegant appearance. Both sides of the *leaflets* are of a frimilar bright green. The whole compound leaf measures usually two inches; the numerous chlifiers of yellow capitate *flowers*, which frml like new hay, being about twice that length.

*A. lepahatha*. Two-spiked New Holland Acacia. Willd. n. 53. Ait. n. 34—(Mimofa diffapathaca; Venten. Hort. Cell. t. 20. M. elegans; Arch. Repof. t. 563.)—Thorns none. Leaves doubly pinnate; frst division of ten or twelve pair; second of about twenty pair; leaflets lanceolate; top and bottom of the common *footstalk* glandular. *Spikes* oblong, axillary, in pairs.—Observed by Mr. Brown, on the south-west coast of New Holland, from whence seeds were sent to Kew, in 1803, by Mr. Good. A tall *frub*, or perhaps a tree, with furrowed *vory branches*. *Leaves* large, drooping, dark green, with innumerable narrow smooth *leaflets*. *Spikes* flalked, ovate or oblong, not globele, of numerous, crowded, sulphur-coloured flowers, having each about 200 monadelphous *flamines*. *Legume* oblong, flat, thick-edged, somewhat confricted here and there occaationally, where the seeds happen to be abriffive.


*A. glandulosf*. Glandulous Acacia. Willd. n. 55. Ait. n. 36. (Mimofa glandulosf; Michaux Boreal.-Amer. v. 2. 254. Venten. Choix. t. 27.)—Herbaceous, without thorns. Leaves doubly pinnate; frst division of about twelve pair; second of many pair, with a gland between each. Heads globele, axillary, solitary. *Legumes* oblong, curved.—On the banks of the rivers Tennelle and Missifippie, flowering in July. *Flowers* white, pentandrous. *Pursh.* This appears to be very nearly related to the last. Both are herbaceous, with perennial roots, and have been introduced into the English gardens, but we have not had any account of their successe. They require the shelter of a green-house.

*A. decurrens*. Decurrent Acacia. Willd. n. 56. Ait. n. 37—(Mimofa decurrens; Venten. Malmaif. t. 61.)—Thorns none. Leaves doubly pinnate; frst division of about eleven pair; partial of innumerable linear leaflets, on a groed *footstalk* with a gland near the base, on the common *fstalk*. Heads globele, in axillary clusters.—Native of New South Wales. Sir Joseph Banks is said to have introduced this plant to Kew, in 1790. It flowers in the early part of summer, and is a green-house *frub*, of an elegant fern-like aspect, with strongly angular zigzag *bran*ces. The *leaves*, though their common *fstalk* is subtended by a projection from the branch, are not really decurrent. *Flowers* yellow, forming short clusters of little round heads.

*A. grandiflora*. Great Red Acacia. Willd. n. 61. Ait. n. 39—(Mimofa grandiflora; L'Herit. Sert. 30. Thornton Illuftr. t. 4. Arch. Repof. t. 592.)—Thorns none. Leaves doubly pinnate; frst division of about fifteen pair; second of very numerous, elliptic-lanceolate, fragrant leaflets. Heads of five-flowered, in a terminal cluster.—Native of the East Indies, from whence it is said to have been introduced into the English gardens, by Mrs. Norman, about the year 1769. No figure of this lately plant, (Phuket's synoynms, cited by Willdenow, being too uncertain,) had ever appeared, till Dr. Thornton published his magnificent plate. The *flem* is shrubby, erect, slightly branched, twelve feet or more in height, even in our gardens. *Leaves* large and spreading, with downy *footstalks*; their *leaflets* a quarter of an inch long, slightly frnged, bluntish, unequal at the base, but not curved or falcate. *Chlifiers* solitary, large, terminal, erect, of many alternate flalks, solitary or in pairs, clothed with rufly down, each flalk bearing a head of from four to frve *flowers*, whole *corolla* is but half an inch long, of a pale greenish-red; but the very numerous *flamines*, two inches in length, and of a fine flning crimif, like tallif of flk, render this one of the most beautiful of its tribe.

in 1729. These produced plants which flowered in the flore at Chelsea. The present species is certainly next akin to the last, however differently its inflorescence may have been described or delineated by authors, in which respect indeed Miller and Houttou disagree. The plate of the former however has all the appearance of fidelity, and it is possible the partial flower-flasks may vary in length, or, more probably, be elongated as the flowers open. Having seen no specimens, we must be guided by the materials before us, from which we gather that the leaves of A. Houttoni have not half so many pinnae, and that their leaflets are narrower, longer, more acute, and more curved. The petals are purple. Legume thick-edged, hairy, tapering at the bafe. The leaf in Parad. Lond. t. 64, cited in Hort. Kew, appears to belong to this species, but the flowers, and perhaps the legume, which is smooth, seem those of A. grandiflora. If this be the case, the smooth legume, not tapering at the bafe, would be an important addition to the specific character of grandiflora.


A. juliflora. Long-flowered Acacia. Willd. n. 66. Ait. n. 41. (Mimosa juliflora; Swartz Prodr. 85. Ind. Occ. 985, printed by mistake piliflora. M. diffusa, Epica oblonga. flijquis longioribus compellis; Browne Jam. 252. n. 2.)—Spines ripilicary, in pairs. Leaves doubly pinnate; first division of two pair, with intermediate glands; second of about twenty pair of oblong leaflets. Spikes axillary, two or three together, cylindrical, pendulous.—Native of very dry fields in the south part of Jamaica, flowering in the middle of summer. The stem varies from fix to thirty feet in height. Branches long and spreading. Spines strong, four or five lines in length, prominent, curved upwards. Leaves spreading, with narrow, obtuse, smooth, ribbed leaflets. Spikes two or three inches long, lax, many-flowered. Flowers crowded, felfrile, very numerous, yellow, sweet-scented. Corolla internally hairy. Stamens eight, or, two, or, ditncnt. Legume from three to five inches long, compressed, smooth, often twirled, containing several oblong brown seeds, separated by flisby partitions. There are numerous flowers in each spike deftinate of a pilif. Cattle feeding on the leaves and young branches, usually accidentally accoumlated to them, are poisoned, and the sweet legumes are reported to be noxious. The inhabitants of Jamaica call this plant Cachoe. Browne erroneously gives it the name of Poponax, which belongs to Mimosa (Acaea) tortuosa. Swartz. See Sect. 6.

A. taffra. Hottentot Acacia. Willd. n. 70. Ait. n. 42. (Mimosa caffra; Thumb. Prodr. 92.)—Spines ripilicary, in pairs, incurved. Leaves doubly pinnate; first division of twelve pair; second of many pair; with a gland on the footstalk. Spikes axillary, cylindrical.—Found by Thunberg in Southern Africa. Sent to Kew in 1800, by W. Somerville, M. D. The branches are round and frisated. First division of the leaves from seven to twelve, second from twenty to thirty, pair; leaflets linear, obtuse, smooth. Footstalks nearly smooth; the common one bearing a deprecif gland above its base. Spike flakled, two inches long. Legume the same length, linear-lanceolate, flat. Willdenow.

A. Catechu. Medicinal Acacia. Willd. n. 73. Ait. n. 43. (Mimosa Catechu; Linn. Suppl. 409. Woodward Med. Bot. 184. t. 66. Roxx. Coromand. v. 2. 40. t. 175. Terra Japonica; Kerr in Med. Obs. and Int. v. 5. 151. t. 4.)—Spines ripilicary, hooked, in pairs. Leaves hairy, doubly pinnate; first division of ten or twelve pair; second of many pair; with a gland at each extremity of the common footstalk. Spikes cylindrical, axillary, two or three together.—Native of the mountainous parts of Coromandel. A large tree, of which seeds have been sent by Dr. Roxburgh to Sir J. Banks. These have vegetated at Kew, but the plants have not arrived at a flowering state. The branches are round, downy when young; the older ones beset with numerous pairs of small recurved thorns, originating in the stipulas, as in all the plants of this section. Leaves slender and delicate, finely hairy, pale green; their leaflets crowded, hardly a quarter of an inch long, linear, rounded at each end, unequal at the bafe. Spike flakled, three or four inches long, hairy, flakled, pale yellow. Legume oblong, acute at each end, flat, smooth, with three or four dillat flat seeds. "The wood," says Dr. Roxburgh, "is good, and applied to various uses; but the natives have no idea of extracting from it, or any other, the Catechu, or Terra Japonica. Yet I believe there are many trees as fit to yield this extract, as the present." Mr. Kerr, assistant surgeon to the civil hospital at Bengal, has however deferred the mode of preparing the Catechu, (see that article,) by boiling the interior coloured part of the wood of this species, till an inspillated extract is obtained, which is the drug in question, long supposed to be an earth produced in Japan. Another fort of Catechu, or Gutta Gambir, made in Sumatra, Prince of Wales's island, &c, has been flown by Mr. Hunter, secretary to the Asiatic Society, in Transact. of the Linnean Society, v. 9. 218. to be the produce of a species of Nauclea. (See that article, spec. 7.) We presume that Mr. Kerr and Mr. Hunter are equally correct, and that the two distinct kinds of Terra Japonica, known to drug-gifts, are thus accounted for.


A. macracantha. Long-thorned Acacia. Willd. n. 76. "Spines ripilicary, in pairs, lanceolate, compressed, nearly as long as the leaves, which are doubly pinnate; first division of twelve pair; second of many pair; with a depressed gland at each extremity of the common footstalk. Spikes flakled, globue."—Gathered by Humboldt and Bonpland in South America. The branches are frisated, and nearly round. Leaflets about thirty pair in each division, linear, obtuse, fringed. Footstalks downy. Spines two inches or more in length, sharp-pointed, spairing at a right angle. Heads of flowers the size of a peeper-corn, on long stalks, in pairs, either axillary, or disposed in a fort of clusier at the ends of the branches. Willdenow. This species appears very remarkable, on account of the great size of its thorns.

A. eburnea. Ivory-thorned Acacia. Willd. n. 78. (Mimosa eburnea; Linn. Suppl. 437. M. leucacantha; Jacq. Hort. Schoenbr. v. 3. 75. t. 393.)—Spines ripilicary, in pairs, cylindrical-awlshaped, combined at the bafe, spreading. Leaves doubly pinnate; first division of three or four pair; second of fix or more pair; leaflets dentant, elliptic-oblong. Heads axillary, flakled, aggregate.—Sent by Koenig from the East Indies. Jacqin by mistake makes it a native of Africa. He cultivated it at Schoenbrun, but we have not met with this species in any English flowe, the following one having been miscalled by the above name. The true A. eburnea, of which the original Linnean specim lies before us, is a twilled irregularly branched fork, whose twigs are round and zigzag, armed with tremendous straight spines, which are white, smooth and polished, almost like ivory, but brown and very sharp at the end: the longest measure nearly two inches; some are but a quarter that size: they taper gradually from a thick conflucent base. Leaves about two inches long, with smooth leaflets, placed at the distance of their own width from each other. Common foot- stalk
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stalk with two depress'd glands in the upper part. Flower-flats either axillary, or terminal and racemose, more or less aggregate, each bearing a globular head, of yellow sweet-scented flowers. We know nothing of the legume.

A. horrida. Axi-thorned Acacia, Willd. n. 79, excluding the synonym of Jacquin, and perhaps Forskall. (A. madresafatana, folioli parvis, aculeo e regione binis praerudibus horrida, corticie cinerea; Pluk. Phyt. t. 121. f. 4. A. ibernea; Ait. n. 46, but not of Willd. Mimosa horrida; Linn. Sp. Pl. 1505. Vahl Symb. v. 1. 518. M. ibernea; Roxb. Coromand. v. 2. 54. t. 199)—Spines flat, in pairs, pinnately 5-angled, angular, spreading, longer than the leaves; some much shorter and recurved. Leaves doubly pinnate; first division of three or two pair; second of many pair; leaflets crowded, on a hairy stalk. Heads axillary, flattened, aggregate.—Native of the East Indies, flowering in the cold season, sent by Dr. Roxburgh to Sir Joseph Banks in 1792. This is a small ill-looking tree, or large bushy shrub, whose branches spread in every direction, and are round, pubescent, wavy, very rigid, armed with formidable thorns, of various sizes. Some of the latter are two inches long, white, spreading horizontally in opposite directions, scarcely connected at the base, much more slender and linear than in the A. ibernea, flat or channelled along their upper side; when young they are much smaller, needle-like, and hairy: others, on the same branch, and of the same age, with the large ones, are very short and hooked. The leaves are not half the size of the last species. Heads of flowers globoso, with a purplish corolla, and yellow filaments. Legume linear, twinned, two inches long, smooth. The flowers are said by Dr. Roxburgh to be separate from each other, on their glabrous receptacle, by abrupt, fringed, chaffy scales, of which we can find no traces in our specimens.

A. tortuosa. Poponax Acacia. Willd. n. 82. (A. americana, filiis teretibus ventricosis, floribus luteis; Sloane Jum. v. 2. 56. Mimosa tortuosa; Linn. Sp. Pl. 1505. Swartz Obs. 391. Browne Jum. 231. n. 1.)—Spines flat, in pairs, pinnately 5-angled, much shorter than the leaves, round, downy. Leaves doubly pinnate; first division of three or four pair; second of many pair; leaflets crowded, on a downy stalk. Heads axillary, on downy stalks, solitary or in pairs. Legume externally flaccid. Very common in the low sandy lands of Jamaica. The plant is thorny, with spreading wavy branches, rendering the plant useful for hedges according to Dr. Swartz; but Browne speaks of it as of little service, the smell of every part being so rank and disagreeable, that it cannot be used even for fire-wood. The taste is bitter, and the flowers have an offensive smell. Both these authors mention the legumes as furnished with a glutinous juice under their skin, whose qualities are eminently bitter and astringent. Sloane appears to confound the A. Farnesiana and others with this species. The true tortuosa, of which we have Browne's own specimen, comes near to corrida in botanical characters, but the leaves and leaflets are much larger; thorns smaller, not angular, but more tapering; flower-flats downy, not smooth. There are no scales on the receptacle between the flowers, but the teeth of the long tubular calyx are very densely and finely fringed. Dr. Swartz says this is the tree really called Poponax in Jamaica, Browne erroneously attributing that name to A. juliflora.

Both are frequently met with in the same situations.

A. farneifana. Sponge Acacia. Willd. n. 83. Ait. n. 47. (A. indica farneifana; Aldin. Hort. Farneif. 3. t. 2. 4. Mimosa farneifana; Linn. Sp. Pl. 1506.)—Spines flat, in pairs, pinnately 5-angled. Leaves doubly pinnate; first division of from five to eight pair; second of many pair; leaflets crowded. Heads axillary, flattened. Legume tudid, coriaceous.—Native of Hispaniola, from whence the seeds were brought to Italy, early in the 17th century. This shrub is occasionally seen in our flowers, being esteemed for the peculiarly delicious scent of its balls of yellow flowers, which are produced during Summer. A coloured figure is much wanted. The dry tudid legume distingues itself clearly, as a species, from the last. The whole plant is smoother, nor have we ever observed the herbage to be mid.
flakes prickly. Leaves doubly pinnate; first division of seven pair; second of sixteen pair; leaflets oblong-oval; a gland on the main footstalk. Spikes globose, at terminal panicked clusters.—Native of the East Indies, from whence it was procured for Kew garden, by Sir J. Banks, in 1773, but appears not yet to have flowered. We have seen no authentic specimen of this species.

A. pennata. Fine-leaved Acacia. Willd. n. 98. Ait. n. 50. (A. aculeata multi-flora, foliis pennis avium referentibus; Burm. Zeyl. 2. t. r. A. nebuliana, flocculis globohis Iuteis, foliis pinnatis tenuissimo incisis, spinis minoribus; Burm. Zeyl. 3. Mimosa pennata; Linn. Sp. Pl. 1507.)—Branches prickly. Leaves doubly pinnate, with many pair of general divisions, and very numerous linear leaflets; a gland on the common stalk. Panicle terminal, spreading; heads flaked, aggregate; general flower-flakes, like the blade of the common footstalks, prickly. Legume flat, smooth; wavy at the edges. Native of Ceylon, and other parts of the East Indies. Sent to Kew, in 1773, by Sir J. Banks. We have specimens from Dr. Roxburgh. The very delicate slender leaves, which, in the dried plant at leaf, fold together, give a feathery appearance, well expressed in Burn- man's place. The over is very large and compound, and with downy leafstalks; its main branches only armed with small hooked prickles. The legume, not hitherto described, but very useful in differentiating this multiflorous tribe, are about three inches long, tapering, though rather blunt, at each end, flat, thick-edged, wavy or fimbrous at both margins. Seeds about four.

A. Ceratonia. Round-leaved Acacia. Willd. n. 101. Ait. n. 51. (A. repens aculeata, flore albo, foliis Silique; Plum. Lc. 4. t. 8. Mimosa Ceratonia; Linn. Sp. Pl. 1508.)—Branches, and all the stalks, prickly. Leaves doubly pinnate; leaflets three pair, roundish-obovate, oblique, three-ribbed. Panicle terminal. Heads globose. Legume flat, prickly at the edges. Native of the West Indies, from whence the present duke of Marlborough is said to have introduced it into his rich collection, before the year 1800. The remarkable roundness of the leaves, which would have authorized the name of roundifolia, and their greater fize, distinguishes the present species from all we have hitherto noticed. Every part is extremely prickly, but devoid of pubefcence. The heads of flowers are rather small, and, according to Plumier, white. He delineates the legume of a flat, oblong, obtuse figure, two or three inches long and one broad, fringed with hooked prickles.

A. tamarindifolia. Tamarind-leaved Acacia. Willd. n. 102. Ait. n. 52. (A. aculeata, flore albo, foliis Tamarindi; Plum. Lc. 4. t. 7. Mimosa tamarindifolia; Linn. Sp. Pl. 1505. Jacq. Hort. Schenebr. v. 3. 77. t. 396.)—Branches prickly. Leaves doubly pinnate; first division of five or fix pair; second of about fifteen pair; a gland on the common stalk; leaflets oblong. Stipulas and bracteas heart-shaped. Clusters terminal. Heads globose. Legume flat, smooth. Native of South America and the West Indies. Said to have been cultivated by Kennedy and Lee, at Hamerfmith, in 1774. The name is very expressive of the aspect of the leaves. The very broad heart-shaped stipulas, and the smaller, more ovate, bracteas, give a peculiar character to this species. Inflorescence rather racemose than panicked, dehiscence of hairines or spines, though the branches of the stem are armed with brown prominent prickles. Heads of a few white flowers, each on a long stalk, solitary or in pairs. Legume, according to Plumer's figure, linear-oblong, flat, straight, dehiscence of prickles at the edges, acute, about three inches long and one broad. Seeds numerous, oval.

A. eantholoba. American Prickly-podded Acacia. Willd. n. 95.—'Branches prickly. Leaves doubly pinnate; first division of three pair; second of ten pair; leaflets linear, obtuse; downy beneath. Heads globose, nearly sessile, racemose. Legume prickly at the edges.'—Gathered in South America, by the celebrated travellers Humboldt and Bonpland. Branches round. Leaflets ten or eleven pair, clothed beneath with closo-prehided hairs. Footflakes: downy. Prickles scattered, hooked, compressed. Heads small, a little sessile, disposed in a terminal cluster. Legume an inch and a half in length, oblong-flat, membranous, smooth, beared with prickles at the margin. Wild-emous. This author declares himself to have been poffefed of several specimens of the Mimosa tribe, which were too imperfect to be enumerated or defined. We are not only in this situation, but we have several in sufficiently good condition, which on account of the incomplete descriptions of authors, especially concerning the fruit, we cannot ascertain to be described or not.

ACADEMY. The Academy of Arts at Petersburg was established by the empress Elizabeth in 1758, and annexed to the Academy of Sciences. At the suggestion of count Shuvalof, the late empress Catharine, in 1764, formed it, &c. Next col. after l. 54, add. The academy of painting, sculpture, and architecture, at Vienna, was founded in the year 1789. Under Academies of Nonconformist Miniaters, instead of Manchester r. York, &c. Exeter, and instead of Wrexham r. Llanifylling.


Gen. Ch. Cal. Perianth inferior, of one leaf, turbinate, permanent, with four teeth, each sometimes tipped with an upright bristy awn, barred at the point, or the whole body of the calyx is so armed. Cor. Petals four, roundish, inserted into the border of the calyx, and shorter than its awns. Stam, Filaments two or four, thread-shaped, longer than the petals, inserted into the border of the calyx; anthers roundish. Pf. Germ superior, oblong; fyle thread-shaped; stigma many-cleft, tufted. Peric. none, except the permanent calyx. Seed solitary, ovate, coated with the thickened base of the calyx.

Eff. Ch. Calyx of one leaf, armed with barred bristles. Petals four, inserted into the calyx. Stigma tufted. Seed solitary, coated with the calyx.

Obi. The petals are sometimes wanting. Flowers occasionally five-cleft, with five flaments. The stem is herbaceous, or sometimes shrubby. Leaves alternate, pinnate with an odd one, deeply ferrated or cut, often hairy or silky; their common footflakes feathering, bordered with a pair of mem-
branched combined stipulae. Flowers small, greenish, in a globose head, or interrupted spikes. Fruit reddish, dry.

1. A. lappaceus. Burn Acæna. Vahl n. 1. "Fl. Peruv. v. 1. 66. t. 103; f. a."—Leaflets oblong, ferrated. Flowers racemose. Fruit all over prickly. Stem erect."—Native of craggy, funny spots in the district of Tarma, Peru. Stems rather shrubby, numerous, a foot high, slightly branched, round, villous. Leaflets four pair, deeply ferrated, hairy; becoming smooth by culture. Flower-flasks axillary, four times as long as the leaves, bearing from five to seven dilated, flaked flowers.

2. A. elongata. Multifid Acæna. Linn. Mant. 200. Vahl n. 2. Wildl. Sp. Pl. v. 1. 693.—Leaflets oblong, ferrated; downy beneath; bearded at the tips of the inflorescences. Spikes elongated, compripted. Fruit all over prickly. Stem nearly erect.—Found in Mexico, by the celebrated Mutis. Stem woody, perennial, with very long, ascending, somewhat compound branches, two feet in length. Leaves scattered; leaflets sese, crowded; the lower ones very small, linear, acute, entire; from four to eight of the upper pair larger, oblong, ferrated. Spikes axillary, erect, rigid, a span long. Brotæa solitary, close to the calyx, concave, ovate-oblong. Flowers alternate, nearly sese. Mutis.

3. A. latebrofus. Hairy Acæna. Vahl n. 3. Ait. n. 1. (Anciftrum latebrofum; Wildl. Sp. Pl. v. 1. 155; A. decumbens; Thunb. Prod. 6. Agronima decumbens; Linn. Suppl. 271).—Leaflets oblong, cut, hairy. Stems creeping. Spikes elongated, flaked, many-flowered.—Native of the Cape of Good Hope. The germen is downy, beft with many barbed pricksles, which, as the fruit ripens, project through the skin of the calyx. See Gartner f. 2, and Lamarck f. 4.

4. A. pinnatifida. Deep-cut Acæna. Vahl n. 4. "Fl. Peruv. v. 1. 68. t. 104. f. b."—Leaflets oblong, deeply ferrated, almost pinnatifid; hairy beneath. Stems cylindrical. Stem erect.—Found on dry exposed hills in Chili. Commerson gathered what appears to be the same, at Monte Video, not, as Vahl by mistake say, at the straits of Magellan. The stem is quite fimple, a span high, leafy, very hairy in the upper part. Leaves numerous at the root, and several on the stem, with eight or nine pair of leaflets, besides the odd one; the largest near an inch long, copiously and deeply cut, like Potentilla anserina. Stem obtuse, in inch or inch and half long, denfe, many-flowered, dark purple. Germen beft with fbarbed thorns, not proceeding from its teeth.


6. A. ovalifolia. Oval-leaved Acæna. Vahl n. 6. "Fl. Peruv. v. 1. 67. t. 103; f. c." Ait. n. 3. (Anciftrum repens; Vcnten. Jard. de Cels, t. 6).—Leaflets elliptic-oblong; villous beneath. Stems globose. Stem creeping. Calyx-teeth awned. Stigma unilatral.—Native of Peru, in moist shady places. Cultivated at Paris, by the late M. Cels, and at Kew by Mr. Aiton, where it is hardy, flowering in May and June. We can discover no difference between this and the foregoing, the stigma being perhaps accidentally imperfect.

7. A. argentea. Silvery Acæna. Vahl n. 7. Fl. Peruv. v. 1. 67. t. 103. f. b. (Proquin; Feuill. Voy. v. 3. 55. t. 41).—Leaflets elliptic-lanceolate, acute, ferrate; filthy beneath. Stems creeping.—Native of Chili, in moist ground. The Indians use it as a vulnery. The branches are two feet long. Leaves shining and smooth above; slyery beneath. Flowers in globular heads, on long falks. Stems two or four. Calyx with two, three, or four terminal awns.

8. A. lucida. Shining Deep-cut Acæna. Vahl n. 8. Ait. n. 4. (Anciftrum lucidum; Wildl. Sp. Pl. v. 1. 155; Lamarck Illrtr. v. 1. 77. t. 22. f. 3).—Leaflets in three or five deep oblong segments; hairy beneath. Spikes oblong; Stem almost buried.—Native of the Falkland islands, from whence Dr. Fothergill procured it in 1777. Commerson gathered the same in the straits of Magellan. The stems run just under the surface of the ground, sending up numerous leafy tufts. Leaves linear-oblong, of many pairs of small, elliptic-oblong, deeply divided leaflets. Spikes parted imperfectly. Fruit reddish, smooth, entirely unarmed, as well as the calyx, in our specimens. Vahl attributes four awns to the latter.

9. A. trifida. Three-cleft Acæna. Vahl n. 9. Fl. Peruv. v. 1. 67. t. 104. f. c.—"Downy and hoary. Leaflets wedge-shaped, in three or five segments. Spikes globose. Stem erect."—Native of pâtures, fields, and hills in Chili. Denfely villous. Stems several, unequal, the longest measuring about a foot. Leaflets feven or eight pair; the lowermoft often undivided. Flower-flaks terminal, often bearing one or two little round heads, besides the principal one. Brotæa linear. Calyx sometimes five-cleft. Stems two to five. Fruit obovate, denfely villous, with four or five angles, and as many awns. Vahl.

10. A. magellanica. Magellanic Acæna. Vahl n. 10. (Anciftrum magellanicum; Lamarck Illrtr. v. 1. 76. t. 22. f. 2).—Leaflets obovate, deeply ferrated, three-cleft; hoary beneath. Spikes globose. Stem erect. Smoth.—Gathered by Commerson, at the straits of Magellan. Stems rather shrubby, three or four inches high, branched, smooth; sometimes hoary at the summit. Leaves at the ends of the branches: leaflets five or fix pair, scarcely half the length of the nail; the uppermoft with feven or nine teeth, lower with about three, lowest of all entire. Flower-flaks axillary, at the top of each branch, erect, purplish, slightly villous at the upper part. Head twice the fize of a pea. Very nearly akin to the last, but the smoothness of the stem branches clothed with imbricated bafes of the foot-flaks, crowded leaves, and smooth brotæas, distinguishes this species. Vahl.

11. A. adaccendens. Ascending Smooth-thr Acæna. Vahl n. 11. (A. levigata; Ait. n. 5? Anciftrum magellanicum; Lamarck Illrtr. v. 1. 76).—Leaflets oblong or obovate, ferrated, nearly smooth. Spikes globose. Stem decumbent.—Gathered by Commerson at the straits of Magellan. We do not find any specimen from him in the Linnean collection; but Mr. Menzies has communicated some, by the name of Anciftrum alpinum, which appear to answer to Vahl’s description, except being considerably hairy. These were found on the summits of the mountains near Cape Horn, along with Viola tridentata. (See Viola n. 56). Vahl speaks of the stem as a span long, smooth. Leaflets from five to feven pair, opposite or alternate, bluntly ferrated, villos, somewhat hairy at the ripo. Flower-flaks terminal, elongated. Head the size of a cherry. Calyx
A C A


ACALZIKE. After Tartary, add: the capital of Aki ëka (which fee): a populous and commercial city, situated in an open valley, on the left bank of the Kur. The inhabitants are, Jews, Turks, Greeks, Armenians, and Georgians.

ACANTHUS, in Botany, Jussieu's third natural order of his eighth clafs, or the thirty-sixth of his general series, named from the most celebrated and conspicuous fpecies which it contains. For the character of the clafs, see Gentianæ. The Acanthi are thus defined.

Calyx divided, permanent, often bracteate. Corolla mostly irregular. Stamens either two; or four, two of which are shorter than the others. Style solitary; with a two-lobed, rarely simple, stigma. Fruit capsular, of two cells, often many-seeded, with two cleftic valves, and a partition contrary, or opposite, thereto, inserted into their middle, splitting from top to bottom into two unirneted receptacles, bearing seeds on each side, rendering the valves semibicalcar. Stem either herbaceous or thrubby. Leaves for the most part opposite, as well as the flowers.

Seft. 1. Stamens four, in unequal pairs.

This contains Acanthus of all authors; Diluvia of Jussieu, founded on Acanthus ilicifolius of Linnaeus; but fully on the slightest possible characters; Blepharis of Jussieu; A. moderatifolius of Linnaeus, as slightly distinguished; Thunbergia of Linn. Suppl.; Barberia; and Ruellia.

Seft. 2. Stamens only two.

Julliaa and Dianthera.

Mr. Brown, who retains this order by the name of Acanthace, Prodr. Nov. Holl. v. I. 472, has enriched it with many valuable remarks, and some new genera. He combines, like Professor Vahl, Dianthera with Julliaa, but extracts from the latter the Hypophila of Solander; with Eranthemum, originally founded by Linnaeus; and establishes moreover two genera of his own by the names of Hypophila and Nelsonia. (See those articles.) We perceive also that this intelligent writer retains Vahl's Elptaria. He proposos also Apkelaandia, confining of Jullicia pulcherrima and his allies; Athelia, founded on Forckall's Ruellia imbricata, and various undescribed East Indian and African species, of which therefore we can give no account. Lepidagathis of Willdenow, Sp. Pl. v. 3. 400, of which we propose to speak hereafter, is admitted by Mr. Brown, as well as a new genus of Julliaa's named Blechnum. Some others are less distinctly indicated. We select from the work of our learned friend the following additional observations upon the Acanthi, or Acanthaceae.

The anthers are either of two cells, sometimes equal, sometimes unequal in their infcrion, or of only one cell; and burr longitudinally. Germin surrounded at the base with a glandular disk. Seeds roundish, mostly subtended by retinacula, props, or awl-shaped ascending processes from the partition. Skin of the seed floss. Albumen invariably none. Embryo either curved or straight. Cylindrons large, nearly orbicular. Plumula inconspicuous. These plants are chiefly tropical. Their pubescence, if any, is simple, occasionally capitate, very rarely flappy. Leaves opposite, rarely four in a whorl, without fliglifí, simple, undivided, either entire or serrated; seldom minut, or slightly lobed. Inflorescence terminal or axillary, spikid or racemose, falciculatid, panicled, or solitary. The order is certainly natural, though not easily to be defined. In some instances the props of the seeds are wanting. The rudiments of a fith flamen frequently occur. The elastic mode of burrting in the capsfil is nearly universal.

The following principles by which the genera are to be discriminated, are thus proposed by Mr. Brown in succedence, according to their relative importance.

1. Seeds with or without props.
2. Partion combined with the valves or separate.
3. Anthers of two cells or of one.
4. Anther-bearing flamines two or four.
5. Limb of the irregular corolla with one lip or two.
6. Calyx equal or unequal.

Cells of the capsul containing each two or more seeds.

The following is the order of Mr. Brown's genera. Hypophila, Julliaa, Eranthemum, Ruellia, Hypophila, Acanthus including Diluvia of Julliaa, and Nelsonia, which may be found in their proper places.

ACANTHONOTUS, in Ichthyology, a genus of fih, whose characters are, that the body is elongated, without dorbal fins, and that it has several spines on the back and abdomen. There is one species, a native of the East Indies, described by Bloch under the name of

Nasus; Smout Acanthoftotus, which is grey, with the back transversely barred with brown. This fih is of considerable length, that described by Bloch being two feet and a half: the head is large, the teeth small, forming a row along each jaw, the eyes large, and the nostrils conspicious; the body, moderately wide for about a third of its length, tapering towards the extremity; head and body are covered with scales, of a bluefih tinge, silvery on the abdomen; the pectoral fins brown, of a moderate fize, the ventral of like colour, and small; the lateral line ftraight, nearer to the back than to the abdomen; with ten spines, ftrong but fhort, along the narrow part of the back, and towards the abdomen from twelve to thirteen others, followed by the anal fin, which is fshallow, and continued into the tail, which is very fmall. Shaw's Gen. Zool.

ACANTHURUS, a genus of fih, confiding of fuch species of the Linnean genus Cetodon (which fee) as, in contra-diftinction to the principal character of that genus, have, in general, moderately broad and ftrong teeth, rather than slender and fetaeous ones; they are also furnished on each side of the tail with a ftrong spine. Their generic character is as follows: Teeth fmall, in most species lobated; tail aculated on each side; habit and general appearance as in the chetodon. The species are,

UNICORNIS. Grey-brown, with a frontal horn fretch-
ing forwards over the flout, and two spines on each side of the tail. See Chetodon Unicornis.

Nasus. Grey, speckled with black, with a rounded frontal tubercle, and two spines on each side of the tail. A native of the Indian seas, and, according to Cepeda, first described by Cammeron.

Teuthis. Blue, with the middle of the body paler, and a spine on each side of the tail. See Teuthis Hepatus.

Chirurgus; Lancaet Acanthus. Orange-yellow, with the body crossed on the hind part by transverse brown stripes, and a spine on each side of the tail. See Chetodon Chirurgus.

Nigrans. Blackish, sub-argentee beneath, with a spine on each side of the tail. See Chetodon Nigrans.

Militaris. Brown, with rhombic-ovate body, and strong spine on each side of the tail. Native of the Indian and American seas.

Triontegus; Triradiated Acanthus. Greenish-brown, with four transverse dusky bands, and a spine on each side of the tail. Native of the Indian seas.

Harparus; Guarded Acanthus; Rhombic-ovate brown Acanthus, with extremely minute scales, and two spines on each side of the tail. Native of the Indian seas.

Sohali; Dusky Acanthus, with longitudinal violet streaks, and two spines on each side of the tail imbedded in a red depression. See Chetodon Sohal.

Negro-fuscus; Dusky Acanthus, with ovate body, and spine on each side of the tail. A variety of the preceding. See Chetodon Negro-fuscus.

Achilles; Brown, ovate Acanthus, with a bare ovate red spot on the hind part, accentuated in the middle.

Lineatus; Ovate-brown Acanthus, with numerous longitudinal white stripes, and spine on each side of the tail. See Chetodon Lineatus.

Umbratus; Brown-ovate Acanthus, with extremely minute scales, and a spine on each side of the tail. Native of the Indian seas.

Melaeagris; Blackish-brown Acanthus, thickly marked with round white spots, and spine on each side of the tail. Native of the Indian and American seas.

Velifer; Broad-finned, whitish Acanthus, with roundish-ovate body, marked by numerous brown transverse bands, and spine on each side of the tail. Native of the American seas. Shaw’s Zool.

Acanthus, in Botany. In addition to the observations of our predecessor, we would remark, what the writer of the present article has elsewhere hinted, (Considerations respecting Cambridge, more particularly relating to its Botanical Professors, 37,) that every mention of this plant in Virgil accords with the Common Holly, Ilex Aquifolium, so far, at least, as the words of the poet indicate any thing in particular. The passages in question are,

bacca funebris frondescentis acanthi.—Georg. 2. 119.

austrii fucis tuauisam acanthi.—I. 4. 123.

Ille comam mollis iam tum tondereb acanthi.—I. 4. 137.

Et moli circum isti amans acanthum.—Ecl. 3. 45.

Mixtique ridenata colloquor funis acantho.—I. 4. 20.

circumstinctum croceo velamen acantho.—En. 1. 633.

pitium croceo velamen acantho.—I. 1. 715.

The flexible twigs, ever-green leaves, bright or gray taffron-coloured berries, (as the term croceus is used with considerable latitude by Latin writers,) the head of the plant being clipped by gardeners in the early spring, all sufficiently well apply to the Holly, which is a common wild, as well as garden, shrub, throughout Italy, but of which we can find no mention whatever in all Virgil’s writings, if these passages allude to any thing else. They are acknowledged to be inapplicable to the Acanthus of Dioscorides, which is evidently the Linnaean Acanthus. They are no less fo to the Acanthus of Theophrastus, which is a tree bearing pods, or legumes. These Greek names, simply meaning a thorny or prickly plant, are variously applied, not only to different trees or shrubs, but to many kinds of thistles. The Acanthus Difcoides, Linn. Sp. Pl. 891, a species adopted by Linnaeus from other writers, without seeing a specimen or figure, seems to be merely a more or less flaved form of A. spinosus, in which A. mollis may, on the other hand, be a cultivated, or more variegated, variety. The latter was found by Dr. Sibthorp in Sicily, not in Greece; the former, apparently the natural state of this herb, as described by Dioscorides, occurs in moist, thinly places, as well as about the borders of fields, in the southern part of Greece, and the islands of the Archipelago, and is very common in Crete.

Acarna, a name adopted from the Greeks, whose signification is, like this, some form of thistle. This name is now applied in Wildenow’s Sp. Pl. v. 3, 1699, and from thence by Mr. Aiton, Hort. Kew. v. 4. 450, to a genus separated by the same writers from the Linnaean Atractylis (see that article;) from which it differs in the want of a radius. The species referred to Acarna are,

1. Atrathyris gymniferus of Linn. Sp. Pl. 1161; 2. A. macropetalis, Desfont. Atlant. v. 2. 253; 3. A. macrophylla, ibid. 255. t. 226; 4. A. cepitosus, ibid. 254. t. 225; 5. A. lanceolatus, Thunb. Jap. 306; 6. A. ovata, ibid. 306; and 7. A. cancellata, Linn. Sp. Pl. 1162.—We can by no means concur in this alteration. Nothing is less certain than such a generic distinction as the above, when unsupported by any natural character. Wildenow has also separated from Atrathyris the perpurata and mexicanus of Linneaus, perhaps with more propriety, their receptacles being nearly naked, and their seed-down simple, to say nothing of a difference in the structure of the radiate florets of the former, which rather invalidates than confirms the new-elaborated genus. See Onoseris.

Accelerando, l. 111, r. refinements.

Accent, in Music, col. 2. l. 7, "h. f." l. 33, r. winds on your wings, &c.; l. 48, for using r. bowing.

Acciacatura, l. 13, r. Pratico; l. 14, Cimbolo; l. 22, r. reprinted.

Accomach, or Accomack, l. 3, r. contained in 1810 15743; l. 4, r. 4542.

Accommodation, in Commerce, a term applied to the acceptance of a bill, when the drawee only lends his name, and the drawer engages to furnish him with the means of payment before the bill becomes due.

Accompaniment, col. 4. l. 13, r. fooper; l. 21, r. leave for have.

Account Current, the personal account of a merchant or trader with each of his correspondents or customers, a copy of which account is transmitted to the person whose name it bears, shewing the state of affairs between the parties at the current or prentent time when made out.

Accursius, r. Maringuelus.

Acera, l. 6, r. Tribulato Acera. Jull.

Acera, in Botany, the sixth natural order, of the 17th class in Linnæus’s fyltem; the 66th in his general series. See the characters of this class under the article Gerania. The Acera are defined as follows.

Calix of one leaf. Petals definite, very rarely wanting, inserted around the disk, which is under the germen. Stigma inserted into the middle of the same disk; definite, but often
often unequal in number to the petals. German simple, standing on the before-mentioned disk; style one, or rarely two; stigma one or two. Fruit of several cells, or several capsules, the cells or capsules three or two. Seeds in each solitary, or at the utmost three, attached to the inner angle, some of them frequently abortive. Corolla deftite of albumen, the radicle lying on the lobes. Stem arborescent, or frubby. Leaves opposite, without stipulas. Flowers racemose or corymbose; sometimes by the abortion of one or other part becoming separate in sex.

Sect. 1. Fruit of several cells, contains only Aesculus.

Sect. 2. Fruit of several capsules, only Acer.

Sect. 3. Consists of genera allied on the one hand to the Aesculus, on the other to Malpiglie; see that article. These are Hippocrates and Thyrallis.

There is some doubt, even in the mind of Jussieu himself, whether Aesculus properly belongs to this natural order; and he justly advert.s to its great affinity to his Sapindi, (see that article,) with which its fruit undoubtedly very closely accords.


Gen. Ch. Cal. Perianth superior, of three ovate, concave, equal, converging leaves. Cor. Petals two, linear-lanceolate, concealed by the calyx, and about the same length. Nectary an oblong, flat, pendulous lip, much longer than the petals, with two pair of deep, linear, flat, dependent lobes, but no posterior spur. Stam. Filament none; anther erect, oblong, attached by its back, parallel to the style, of two cells, opening in front, the malleus of pollen club-shaped, each attaching itself, by a taper bafe, to two glads in a single pouch near the stigma. Pijl. German inferior, linear-oblong, twified; style columnar, very short; stigma below the anther, rather concave. Peric. Capsule oblong, with three blunt angles, twified, of one cell and three valves, splitting by three lateral fissures. Seeds numerous, minute, each with a chaffy tunic.

Eff. Ch. Calyx converging. Lip without a spur, flat. Anther nearly terminal, fixed to the style, of two cells.

This genus was first established by Mr. Brown, who separates it from Ophrys, (see that article,) on account of the converging calyx, and especially the situation of the two glads, which receive the pollen, being in one pouch, not in two distinct and different ones. The latter character, though excellent in this instance, appears to us in others less satisfactory (see Gymnadenia hereafter); and even in the characters of Acras and Ophrys, the flat lip of the former, contrasted with the convex one of the latter, seems a more obvious and natural distinction. In affinity the present genus comes nearest to Orchis, but wants the spur.


2. A. anthropomorphum. Short-lipped Aceras. (Ophrys anthropomorphe; Willd. Sp. Pl. v. 4. 63.)—Lip but half the length of the germen.—Found on hills in Portugal, by professor Linck. About a span high, the spike an inch long. Bracteae oblong, membranous, half the length of the germen, nor does the lip exceed that proportion. Willdenow thinks it can scarcely be a variety of the former. We have seen no specimen.

ACERIC Acid. In Chemistry, lately discovered by professor Scherer, of Vienna, in the sap of the Acer campestris, or common maple. Its properties have been very imperfectly described. The acerate of lime is white, slightly translucent, has a weak acidulous taste, and is not altered by exposure to the atmosphere. 1000 parts of cold water dissolve 9 parts, and 1000 parts of boiling water 17 parts of this salt. Schweigger's Journal, iv. Thomson's Chemistry, iv. new edition.

ACETATES, or acetites, a class of salts, the characteristics of which are, that they are all very soluble in water; that they are decomposed by the action of heat; and that they afford acetic acid when distilled with fulphuric acid. Accordingly we have acetates of barites, of potash, of soda, of lime, of ammonia, of magnesia, &c. See Acetic Acid.

ACETIC Acid. It is now universally admitted by chemists, that the acetic acid differs in no respect from common vinegar, or what was formerly termed aceto us acid, but in the degree of concentration only. This opinion, first advanced by Adet, has lately been fully confirmed by the experiments of Darracq and Prouft. What has been said, therefore, on the subject of acetous acid and vinegar in the Cyclopaedia, is to be understood as applicable to dibut acetic acid; and the salts termed acetites are to be considered as acetites. The following facts are important, and deserve a place here.

The specific gravity of acetic acid does not enable us to determine its strength. The specific gravity is flated by Dr. Thomson to be a maximum when the liquid is a compound of one atom, and three atoms water. When the proportion of water is either increased or diminished, the specific gravity diminishes. Acid composed of one atom real acid and one atom water, and acid composed of one atom real acid and nine and a half of water, are flated by the fame chemist to have the fame specific gravity.

The following table, drawn up chiefly from the experiments of Mollerat by Dr. T., exhibits the specific gravity of acetic acid of various strengths.

<table>
<thead>
<tr>
<th>Atoms</th>
<th>Weight of Acid</th>
<th>Weight of Water</th>
<th>Sp. Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>148.78</td>
<td>1.0630</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>25.21</td>
<td>1.0742</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
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<td>4</td>
<td>100</td>
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<td>5</td>
<td>100</td>
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<tr>
<td>6</td>
<td>100</td>
<td>59.38</td>
<td>1.0760</td>
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<td>100</td>
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<td>8</td>
<td>100</td>
<td>83.90</td>
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<tr>
<td>9</td>
<td>100</td>
<td>116.25</td>
<td>1.0658</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>127.73</td>
<td>1.0647</td>
</tr>
<tr>
<td>11</td>
<td>100</td>
<td>166.34</td>
<td>1.0630</td>
</tr>
</tbody>
</table>

Acetic
Acetic acid of the fp. gr. 1.063 is the strongest that can be procured. It crystallizes at the temperature of 53°, and the crystals melt slowly when heated to 72°. This had been long ago observed by Courtenvaux. Lowitz has proposed an ingenious method of obtaining it of the requisite degree of strength to crystallize. This consists in making distilled vinegar into a thick paste with well-burnt charcoal, and expelling the mixture to a temperature of 212°. The watery part is driven off, and the acid remains. The acid itself may be separated by a higher degree of heat, and thus obtained in a very concentrated state. It is commonly necessary, however, to repeat the process before it can be made to crystallize.

Mr. Chenevix, by distilling the acetates, obtained a peculiar substance different from acetic acid, and which he has denominated pyro-acetic spirit. The acetates of potash and soda gave a greater proportion of this principle than any of the metallic acetates; but when the acetate of barytes is distilled, the whole liquid product consists of this spirit without any mixture of acid whatever. No other genus of plants tried, such as the oxalates, tartrates, or citrates, yielded this spirit, nor was acetic acid converted into it by heat.

Pyro-acetic spirit is a white and limpid fluid. Its taste is at first hot and acid, but it becomes cooling and rather ursine. Its smell is peculiar, and is compared by Mr. Chenevix to that of a mixture of oil of peppermint and bitter almonds. Its specific gravity is 0.7864. It burns with a flame, white externally, but of a fine blue within, and leaves no residue. It boils at a temperature of 162°. It mixes with water, alcohol, and volatile oils, in any proportion. With hot olive-oil it also mixes in any proportion; but with that oil cold it only mixes in certain proportions. When hot it diffuses wax and tallow. It diffuses also a little sulphur and phosphorus, and is an excellent solvent of camphor. It diffuses potash, and becomes dark-coloured, but it may be obtained again agitated by distillation. Strong sulphuric acid blackens and decomposes it. Nitric acid renders it yellow, and changes its properties. Muratic acid renders it brown. When diffused with this acid a combination takes place, and a substance is formed possessing very different properties from muratic ether. These properties are sufficient to show that the pyro-acetic spirit is a distinct substance and differs entirely from alcohol, ether, and volatile oils. Of course, therefore, as Dr. Thomson observes, it deferves a distinct place among compound combustibles.

Many attempts have been made to analyse the acetic acid. Thole most worthy of notice are by Gay Lussac and Thenard, and Berzelius. The former burnt a mixture of acetic acid and barytes and carbonic acid. The results were carboxylic acid and water. Berzelius's analysis was made on the same principles, but the salt he employed was supposed to be quite free from water. The following are the results of these celebrated chemists:

<table>
<thead>
<tr>
<th></th>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
<th>Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gay Lussac</td>
<td>5.629</td>
<td>50.224</td>
<td>44.117</td>
<td>100</td>
</tr>
<tr>
<td>Berzelius</td>
<td>6.35</td>
<td>46.83</td>
<td>46.82</td>
<td>100</td>
</tr>
</tbody>
</table>

If, with Dr. Thomson, we consider the results of Berzelius most entitled to credit, acetic acid consists of

- 3 atoms or proportions of oxygen, weighing 0.375
- 4 atoms or proportions of carbon, weighing 3.000
- 3 atoms or proportions of oxygen, weighing 3.000

Or of ten atoms or proportions, and the weight of an integrant particle, will be 6.375; and this weight, as the same chemist has shewn, accords very well with the constitution of the acetates.

ACHARIA, in Botany, a genus dedicated by Professor Thunberg, to the honour of his countryman Dr. Eric Acharius, knight of the order of Wafa, a member of various learned societies, and one of the most distinguished botanists of the present day, particularly with regard to the Lieben tribe, which he has profusely studied, and most learnedly illustrated. (See Lichenes.) Dr. Acharius is now Regius Professor of Physic, at Vadstena, in Sweden.—Thum. Prodr. pref. n. 7. Wild. Sp. Pl. v. 4. 327. Lamark Illustr. t. 755.—Clas and order, Monoceta Triandra; or rather, perhaps, Triandria Monogynea. Nat. Ord. Eleagni, Jaff.?

Gen. Ch. Cal. Perianth inferior, of two small, ovate, acute, permanent leaves. Cor. of one petal, tubular-bell-shaped, downy, in three deep, equal, elliptical segments, permanent. Stam. Filaments three, very short, inserted into the top of the tube of the corolla, opposite to its segments; anthers roundish, of two lobes. Pist. German superior, roundish; style solitary, thread-shaped, half as long as the corolla; stigma three-cleft. Peric. Capsule ovate, of one cell, and three valves. Seed solitary? globose, rough. The flaments are most perfect in the upper flowers, the pistil in the lower.

Eff. Ch. Calyx of two leaves. Corolla of one petal, three-cleft. Capsule of one cell, and three valves. Seed solitary?

Obf. Nothing can be more imperfect or puzzling than the character and natural affinity of this genus, according to the materials furnished by Thunberg, especially what regards the capsule and seed. He defines the fruit, "capsule of one cell, with three seeds." Willdenow, who seems to have had no other authority than Thunberg's figure, says, "capsule of one cell and three valves, with a solitary seed," which last account seems to agree with that figure. With respect to the natural order of Acharia, if we take for basis what Thunberg terms a calyx, the flower will indicate one of Jussieu's Elegans, though the capsule of three valves is very anomalous, and the lobed leaves no less so. By the specific name trigodes, or rather tragoides, and the place where the genus is introduced, Thunberg appears to have considered it as akin to Tragia, (see that article,) which idea the aspect of the leaves, and the somewhat monocious flowers, might probably suggest.

1. A. trigodes. Lobed Acharia. Thum. Prodr. 14. t. 11. Fl. Cap. v. 1. 160. Wild. n. 1. — Gathered by Professor Thunberg, near Van Stade's river, and in other parts of the interior of Africa, above the Cape of Good Hope, flowering in December and January. Root fibrinous, annual? Stem solitary, herbaceous, erect? from four to twelve inches high, branched from the bottom to the top, smooth; branches alternate, angular, erect, somewhat zigzag, wand-like, subdivided. Leaves alternate, on stolons about their own length, about an inch long, three-lobed, finely downy; lobes ovate, variably cut. Flowers in effect monocious, axillary, solitary, on short stolons, reflexed, small, the male about the upper part of the plant, female lower down. The corolla is about a quarter of an inch long, downy all over, as are likewise the germin and style. Capsule ovate-oblong, acute, thrice the length of the permanent corolla. Seed nearly the size of a pepper-corn, apparently black and rough.

ACHIRON, l. r. Theprostia.

ACHILLINI, l. 25, for 40 r. 49.

ACHIMENES, in Browny, so named by Browne, pos-
ibly from ra, and χιλιον, to be countr, or temporary, meaning that the plants in question are not calculated to endure rough weather. He tells us they thrive well in the cooler parts of Jamaica. When cultivated in Europe, they require great heat. This genus is founded on two species only, and those as generally different as two plants of the same natural order can well be. See Browne's Jamaica, 270. t. 30. f. 1, and Juff. Gen. 119. The latter writer, following Browne, did not distinguish these plants. One of them is Columnnea Eirgifta, the other our Cypria; see that article.

ACHOR, last line, r. Porrigo instead of Tinea Capitii.

ACHROCORDES. Add. See Serpentes.

ACHTIL, Achtilegio, or Martel, a corn-measure in Germany, which contains 4 fomiers, 8 wettiers, 16 fechters, or 64 gefechdes. See MALTER.


Gen. Ch. Cal. Perianth three-leafed, somewhat ringent, awned; its two side-leaves placed under the lip; upper one broadened, vaulted, erect. Cor. Petals two, linear-lanceolate, much smaller than the calyx. Nectary a prominent undivided lip, shorter than the petals, with two swellings at the base, but no appendage to the disk. Stam. Anther terminal, permanent, of two cells close to each other; masses of pollen in each cell four, or two divided ones. Pijf. German inferior, oblong, angular; style erect; femi-cylindrical, without any auricles or wings at the summit; stigma in front. Péric. Capsule of one cell. Seeds numerous, minute.

Eff. Ch. Calyx somewhat ringent; its side-leaves under the lip. Lip without a spur, shorter than the petals, undivided, with two prominences at the base. Anther terminal, without appendages, permanent. Pollen powdery. Column femi-cylindrical.

This genus is next akin to Microtis of the fame author (see that article); to whose effentil character should be added, "Anther with two auricles. Column funnel-shaped."—Acianthus confinis of little smooth herbs, with foliary, undivided, naked, downy bulbs, or tubers, throwing out a few fibres, along with a downy foot, at whose extremity the young bulb is situated, on a partial flalk. Stem very short, its base enclosed in a short, tubular, pointed sheath. Leaf solitary, deeply heart-shaped, acute, with three ribs, and many reticulated veins; its under side red or purple. Flowers small, reddish, either clustered or solitary, their common flalk without bractes, except beneath each flower.

1. A. fornicatus. Vaulted Acianthus. Br. n. 1.—Flowem raceemofe. Awns four times shorter than the perianth. Petals nearly erect. Lip bearing longitudinal glands. Column concealed.—Native of the neighbourhood of Port Jackson, New South Wales, from whence we, long ago, received specimens in spirits, as well as dried, by favour of Dr. White, and where Mr. Brown has also gathered this curious little plant. The leaf is about an inch in diameter. Common flower-flalk from three to six inches high, bearing from two to five flowers, about the size and aspect of the Corallhorboniza, each with an ovate bracte at its base. Lower leaves of the calyx linear-lanceolate, very narrow in comparison of the upper one. Petals linear-lanceolate, very delicate. Lip somewhat fleecy, having a longitudinal furrow, the ridges bearded horizontally with papillary glands. This is the only species we have seen.


2. A. caudatus. Long-awned Acianthus. Br. n. 3.—"Stalk with one or two flowers. Awns very long. Leaf wavy at the margin."—Gathered by Mr. Ferdinand Bauer, in the neighbourhood of Port Jackson.

4. A. bifoliis. Two-leaved double Acianthus. Br. n. 4. (Epipactis reflexa; Labill. Nov. Holl. v. 2. 260. t. 211. f. 1.)—"Stalk sinple-flowered. Leaves two, radical, hooed. Perianth without awns, its three leaves united; the lateral ones reflexed. Petals linear, narrow."—Gathered by Labillardiere, at Cape Van Diemen. Mr. Brown doubts whether this species, which he appears not to have examined, is most akin to Acianthus, or to another genus of his, hereafter to be noticed, named Chiloglottis. It agrees with the former in having four maffes of pollen, a column defitute of a joint, and a lip without any appendage: with the latter in bearing two radical leaves, a perianth without awns, and very narrow petals. These last are represented in the plate, at fig. 2, as if situated on the outside of the calyx, which the description, and, if we mistake not, the other figures, shew to be an error of the draughtman or engraver.

ACICARPHA, so named by the celebrated Jussieu, from αιος, a point, and καιος, a chaffy scale, because the scales of the receptacle, as he thought, become armed with a spiny point, when the seeds, which they separately envelop, approach towards maturity.—Juss. in Annal. du Mus. d'Huff. Nat. v. 2. 347. Wild. Sp. Pl. v. 3. 2327.—Clafs and order, Syngenemia Polygonum-neceffaria? Nat. Ord. Composite capitate, or rather Aggregate, Linn. Corymbifera, fol. 5. Juff.

Gen. Ch. Common Calyx of one leaf, in five deep, linear, spreading segments, permanent. Cor. compound, diffocid. Florets all uniform, tubular, funnel-shaped; their limbs somewhat bell-shaped, five-cleft, obtuse; the central ones male, leaf numeros; those of the circumference more abundant, each furnished with flaments and pilifil, but not all fertile. Stem. Filaments five, very short; anthers oblong, united, shorter than the limb of the floret. Pijf. German oblong; style thread-shaped, longer than the corolla; stigma club-shaped, notched. Péric. none, except the hardened scales of the receptacle. Seeds solitary; oblong, defitute of crown or wing; each enclosed in a greatly enlarged, hardened, concave, spiny-pointed scales of the lower part of the cylindrical chaffy receptacle.


1. A. tribuloides. Caltrop Acicarpha. Juss. as above, 248. t. 58. f. 1. Wild. n. 1.—Leaves oblong, deeply toothed.—Gathered by Commenser, on the sea-shore at Monte Video. Root taperting, annual. Stems one or more, herbaceous, ascending or decumbent, a span long, somewhat branched, leafy, smooth. Leaves alternate, felfile, oblong, obtuse, fleshly, smooth, an inch and a half to three inches long, deeply and coarsely toothed; tapering at the base. Flower-flalks terminal and lateral, opposite to the leaves, and about as long, simple, single-flowered, erect. Flowers white, hemispherical, one-third of an inch in diameter. Fruit a globular head, armed with unequal, rigid, sharp, pale, divericature, or recurved spines, and crowned with
with a tuft of withered male florets, like a tassel. The intermediate florets seem to be abortive, though furnished with the most conspicuous pistils.

2. A. fruticosum. Spatulate Acicarpia. Brown Tr. of Linn. Soc. v. 12. 129.—Leaves spatulate, mostly entire.—Sent from Brazil by Mr. Sellow. A smooth, diffuse, apparently annual plant, with angular ascending branches. Leaves scattered, flaked, without stipulas, spatulate, with a very short little point, rather thick, and perhaps glaucous, an inch and a half long; the lower ones sometimes toothed from above the middle. Footstalks linear, a little dilated at the base; the lowermost longest. Heads of flowers yellow, solitary, either flaked and opposite to the leaves, or terminal and nearly sessile. involucrum of five leaves in a simple row, longer than the flowers. Receptacle conical, slender, chaffy, with lanceolate pointed scales. Florets tubular, uniform, smooth. Throat of the circumference in two or three rows, with perfect stamens as well as pistils. Tube of the corolla slender, cylindrical, closely united to the calyx, and base of the style; limb funnel-shaped, five-cleft, segments parallel at the edges, half-lanceolate, flat, three-ribbed. Stamens five, inserted into the corolla, alternate with its segments, their filaments, as well as the lower half of the anthers, united into a tube. Germen combined, each crowned with a five-cleft partial calyx, whose teeth, alternate with the segments of the corolla, become spinous, each germin containing one pendulous seed. Style thread-shaped, smooth. Stigma simple, obtuse, rather hairy. The numerous upper florets are rather smaller, with a membranous calyx, and imperfect germens. The ripe fruit, originating from the florets of the circumference, consists of close corollaria, combined together, not burr-like, each crowned with its own enlarged spinous calyx. Seed ovate, pendulous. Albumen fleshy, large, white. Embryo nearly cylindrical, central, about the length of the albumen, with two linear cotyledons. By this account it appears that Mr. Brown differs from M. de Jussieu, in thinking the present genus belongs to the Linnean order of Aggregate, and not to the Composite. This last account of the fruit is evidently more natural than the above, and the character, if Mr. Brown, which we doubt not, be correct, must be altered to "Seeds crowned with the spinous partial calyx."

ACID, ACIDIFICATION, in Chemistry. When these articles were written for the Cyclopaedia, the theory of Lavoisier, that oxygen was the only principle of acidification, was almost universally received. Since that period, however, a great revolution has taken place in chemistry, and the doctrine in question is now no longer admitted. This indeed has been noticed in subsequent parts of this work, more especially under Oxygen and Oxymuriatic Acid; so that little more is necessary than to refer our readers to these articles. It may not be deemed superfluous, however, to mention here very briefly the discoveries that have led to these important changes.

The first circumstance which gave the death-blow to the doctrine of Lavoisier, was the demonstration by Gay Lussac and Thenard, and more especially by Davy, that oxymuriatic acid, or chlorine, as it is now termed, contains no oxygen, but is a simple elementary substance. Chemists indeed had never been able to demonstrate satisfactorily that oxygen actually existed in this substance; but misled by the plausibility of the Lavoisierian doctrines, had tacitly admitted its presence from analogy; and so strongly was this belief founded, that there are a few, we believe, who adhere to the old opinions even to the present time.

More recently, however, the old opinions have been rendered still further improbable, and the new ones corroborated by the discovery of iodine and cyanogen; the one an elementary, the other a compound substance, both which have been unequivocally demonstrated to form acids by combining with hydrogen. The analogy, also, of sulphur- and tellurated hydrogen, compounds free from oxygen, but possessing the properties of acids, have been likewise urged in proof of the new opinions, and as quite irreconcilable with those of Lavoisier.

Our readers will find further information on this subject in the articles Chlorine, Cyanogen, Iodine, Muriaetic Acid, Oxygen, and Oxymuriatic Acid.

ACINACIFORME, Folium, in Botany, a Scimitar-shaped leaf, is scarcely used but for one species of Melita bryanthemum, which bears this specific name. (See Leaf.) It is of a succulent texture, compressed, one edge convex and thin, the other straighter and thick.

ACINACIFORME, Pericarpiun, a Seed-vessel of a similar shape, is exemplified in the cells of the capsule of the same genus of Melita bryanthemum; see Linn. Phil. Bot. 224.

ACINUS, in Botany and Vegetable Physiology, a Grain, is technically used for each pulpy portion, containing a foliary seed, of a compound berry. (See Bacca.) The fruit of the Raspberry, Bramble, &c., consists of several acini; and perhaps the same term may be applied to the separate portions of a Mulberry, though originating in the calyx of each flower become pulpy. In Pannasa the capsule is lined with very juicy acini, each lodging a single seed. Gartner improperly extends the above term to the simple many-seeded berries of the Vine, Gooseberry, &c. The last-mentioned fruit, in an early state, rather resembles the Pannassa.


Eff. Ch. Calyx none. Petals five; the uppermost vaulted. Nectaries two, flaked, recurved. Capules three or five.

M. De Candolle, following Jussieu's view of the subject, gives the following characters, using the term sepala for calyx-leaves, and petala for nectarini.

Calyx of five petal-like, deciduous leaves; the upper one (hood) large, concave, helmet-shaped; two lateral ones, (wings,) orbicular; two lowermost oblong. Petals five, sometimes irregular in number; three very minute, claw-shaped, often converted into flaments; two uppermost with long claws, hooded, sheltered under the helmet-shaped leaf of the calyx, dilated at the top into a bag, whose bottom, the summit, or spur, of the petal is callous, incurved, its mouth extended into an oblong, emarginate limb, or lip. Stamens indefinite. Capules three to five, with an indefinite number of seeds.

Perennial herbs, with tuberous roots, whose knobs in some instances bear fibres, in others are oblong, and mixed therewith. Stem leafy. Leaves flaked, deeply palmate, with from three to five segments, variously cut, cloven and toothed. Clusters terminal. Stalks single-flowered, from the bosoms of the bracts, each bearing two smaller bractias.

Flowers
Aconitum.

Flowers large, irregular, sometimes sulphur-coloured, sometimes blue, or white.

All the species are poisonous; the *Anthora* lese dangerous; the *Napellus* highly noxious. The root is always the most poisonous part, the herbage lese acrid, and though in a fresh state injurious to animals, by drying, or by boiling in water, it becomes so mild, that some species, *A. septentrionale* for instance, are eatable. Dr. Starck, who found Aconite so useful in chronic rheumatism, confirmed gout, and venereal swellings of long duration, employed *A. paniculatum*; but other physicians have often, without sufficient attention, promiscuously given every kind with blue flowers.

The twenty-eight species at this time known inhabit rough bushy or woody places, in the northern hemisphere; eleven are found in Europe, eleven in Siberia, one in Japan, one in North America, and one is common to Siberia and the western part of North America.

This is a most natural genus, but very difficult as to the determination of its species, nor has it been properly investigated. Clusius in his time was extremely well acquainted with the European kinds, and requires to be consulted in preference to all other writers.

*Aconitum* may be distributed by the habit, rather than by any characters, into five sections, or divisions, as follows.


† Such as are not sufficiently defined; 26–28.

†† Such as are doubtful, or uncertain; 29–35.

Section 1. *Anthora*.

To the above characters are added—Hood acute at the apex. Root with two oblong knobs.


β. atrovirens; leaves and flalks smooth. (A. fulfitorum elatus pyreneicum, folis atro-virentibus, flore majore; Tourn. Infl. 425.)

γ. confertiforum; clufter cylindrical, dense, downy. (A. tenuiforum; Patrinn, unpublished.)

Hood convex, terminating in a point; spurs spiral; lips involute heart-shaped. Leaves in numerous linear segments.

—Native of rough bushy places, on the mountains of Europe; in Switzerland, on the Apennines, and in Siberia;

β on the Pyrenees; γ on Mount Caucasia.

Var. α has either a fimple or branched stem, which, like the flower-stalks, is either fimple, or finely downy. β has smooth dark-green leaves, a taller and smooth stem, leaves convex, hood, with a more abrupt and pointed back. γ is smaller, with a clover more cylindrical clufter, whose main flak, as well as the partial ones, are clothed with velvet-like down; it may be a distinct species. *De Candolle*.

We have not followed, here or elsewhere, our learned friend, in his elaborate afsemblage of synonyms, nor in his chronological arrangement of them. To the latter we have objections, and the former would only be burdenfome to our plan. We will to give our readers an idea of his powers of discrimination, and to profit by them ourselves.

2. *A. anthoroides*. Prominent Wholefome Wolf’s-bane. (A. pyreneacum; Pallas Itin. v. 2. 316, by his herbarium.)—Hood convex; its back protruding forward, over the pointed back; spurs spiral; lips involute heart-shaped. Leaves in numerous linear segments.—Gathered by Pallas in Siberia. This is so like *A. Anthora*, that perhaps it may be esteemed a mere variety. It differs only in this respect, that the back, or ridge, of the hood is not merely convex, but stretched forward over the point in front. This plant varies like the former as to the density of its clufter, and the smoothness or fine downiness of the flower-stalks. *De Candolle*. We must readily concur in the opinion of its being a variety of the first species.

Section 2. *Lycocotonum*.

Flowers pale yellow, whitifh, or blueifh: their hood conical, elongated, obtuse, scarcely pointed in front. Root tuberous, fending out fibres. Leaves with somewhat wedge-shaped lobes, deeply toothed, or jagged, at the extremity. *A. barbatum*. Bearded Wolf’s-bane. Patrinn, unpublished. "Perf. Euchir. v. 2. 83. Poir Suppl. Lamarek Diet. v. 1. 114."—Hood conical, obtuse; spurs straight; lips obovate; wings bearded with a fringe. Bracteas minute. Stem downy. Leaves in five deep divisions, with linear pointed lobes.—Native of the eastern part of Siberia, about Irkoulik. *Patrinn*. Intermediate between *Anthora* and *Lycocotonum*, differing from the former in having a conical hood, from the latter in the linear lobes of its leaves; from both in the straight spurs, or fummits of the teeths, (De Candolle’s petals). Stem round, finely downy, not hifpid. Leaves with long fattered hairs on the foottalks, and here and there on the under fide; the upper appearing downy when magnified; their outline circular, divided nearly to the bafe into five somewhat cohering lobes, pinnatifid, with linear pointed segments. Clufter erect, long and dene. Stalks erect, shorter than the flowers, having under each a linear-awfifhaped, scarcely downy, bractea, fyll shorter; as well as a smaller clofe bracte half way up. Flowers whitifh, according to Patrinn; pale yellow when dry; externally downy; hood elongated; wings orbicular, with long hairs on their margin and inner surface. Germin downy.

4. *A. hifpidum*. Rough-flaked Wolf’s-bane. *De Candol. n. 4.—Hood conical, obtufe; spurs ftraight; lips obovate; wings fightly bearded. Bracteas awfifh-shaped, hairy. Stem hairy. Leaves in five deep divisions, with linear, rather acute, lobes.—Found by Pallas, in the eastern part of Siberia. *Lambert*. Differs from the half in its hifpid, not downy, stem; more deeply five-cleft leaves, whose lobes are not pointed, but rather obtufe, with a little callous apex; more hairy bracteas; and scarcely bearded wings. The leaves are very likc *Anthora*, but with broader lobes; flowers like *Lycocotonum*, but with ftraight spurs. Stem erect, round, fimple; hifpid chiefly at the bafe, with soft, rather deflexed, hairs; the top almoft fmoother. Lower leaves on long hairy flalks, their outline orbicular; upper fide fearcely downy; ribs of the under one hairy. Clufter fimple, rarely with one small branch, cylindrical, efteat. Stalks erect, shorter than the flowers, which are pale yellow, reffembing the half, but lfs bearded. Bracteas awfifh-shaped, flagggy, two lines long; two smaller ones in the middle of each flalk. *De Candolle*.

ACONITUM.

as its place of growth.—Hood conical, obtuse; spurs spiral; lips invariably heart-shaped. Clusters drooping at the summit before expansion. Leaves in five deep divisions; lobes pinnatifid, with spreading, recurved, acute segments. —Native of Siberia and Tartary; cultivated in the Upfal garden. Very nearly allied to Lycoctonum, but differing in the leaves being divided to the very base into many pinnatifid portions, whose elongated, acute, widely spreading segments are entire, not at all cut or serrated. Clusters long, its upper part drooping while the flowers remain in bud. Bracteas, both general and partial, very small. Stalk shorter than the flowers, but much longer than their respective bracteas. The rcf as in Lycoctonum. De Cand. To this original specimen is attached a different one from Siberia, which we conceive with professor De Candolle in thinking no other than Lycoctonum. Hence Linnaeus has no authority for A. pyrenaeicum, which depends upon other authors, as follows. His herbarium indeed contains, if we mistake not, a specimen of this species, brought by baron Allstroemer from Spain, but confounded by Linnaeus with Lycoctonum.

6. A. pyrenaeicum. Pyrenean Wolf’s-bane. Lamark Dict. v. 133. Desfont. Tabl. 149. “De Cand. Franc. ed. 3. v. 4. 916. v. 5. 642.” (A. pyrenaeicum, amphirole foliis liniinatis ; Tourn. Infl. 442. A. n. 6; Camer. Epit. 831, with a figure.)—Hood conical, obtuse; spurs spiral; lips ovate. Leaves palmate below the middle, with from seven to nine cleft, deeply cut lobes, lying over each other. —Native of rugged meadows on the Pyrenees, among lofty thistles, flowering in July and August. Tournefort and De Candolle. Related to Lycoctonum, but certainly distinct. A handlofe plant, three or four feet high, downy, with large, long-flalked, almost circular leaves, whose main lobes are unequally divided, wedge-shaped at the base, separted upwards into acute, cut lobes, dilated so as frequently to overlap each other. Clusters long, cylindrical, dense, more or less branched at the base. Stalks often shorter than the flowers. Lower bracteas in three or five lobes; upper linear, in the middle of each stalk, spreading, from two to five lines long. Flowers pale yellow, externally covered with velvet-like down. Germin hairy. These characters are not very strong, but they are constant. Specimens gathered by De Candolle in the Pyrenees differed in no respect from those which have been cultivated at Paris, ever since the time of Tournefort. De Candolle. We have had no opportunity of enquiring what brands for this species in the gardens of England, but Miller is most likely to have received the true plant from France. Our Linnaeus Spanish specimen, mentioned under the left, correctly answers, in every point, to the above description.

7. A. lycoctonum. Great Yellow Wolf’s-bane. Linn. Sp. Pl. 750. Willd. n. 7. Dietr. n. 4. Jacq. Aenl. 330. Bulliard Fr. t. 63. Villars Dauph. v. 3. 703; from the author. (A. lycoctonum vulgaris, lateo flore; Chuf. Hift. v. 2. 94. A. lucemum ponticum; Lob. Ic. 677. Ger. Em. 976. A. recticulata radice, floreumph theae-albicans; Barcel. Ic. 599. 600. A. n. 2; Camer. Epit. 827. Matth. Valgr. v. 2. 431. Napolis flore luteo; Rivin. Pentap. Terr. t. 129.)—Hood conical, obtuse; spurs spiral; lips ovate. Leaves downy, divided more than half way, into from three to five lobes, which are three-cleft and jagged. Partial bracteas in the middle of each stalk. —Native of woods, thickets, and grassy pastures, on the mountains of Switzerland, France, Germany, and Italy, flowering in summer. This is probably, as M. De Candolle indicates, the real Aconitum lycoctonum of Dioscorides, with whose imperfect account it sufficiently agrees. It is one of the most common of this genus, but not found in Britain. The stem is from two to four feet high, nearly simple, or very much branched, smooth or downy. Lobes of the leaves more or less deep, either close or spreading. Flowers crowded or diffiant. M. De Candolle hints that some of these diversities may afford specific distinctions, but we can scarcely suppose this. He observes that A. lycoctonum differs from harbatum, bipidum, and obtusum in its spiral spurs; from pyrenaeicum in having from three to five, not seven to nine leaves in the bracteas, and those not lying upon each other, as well as in the germin being smooth, fearedly at all downy or hairy, and the stalks mostly longer than their flowers. From the following, one, iither conformed herewith, it differs in having pale-yellow, not blue, flowers, and the partial bracteas situated half way up the flower-stalks, not near their base.

8. A. septentrionale. Blue Northern Wolf’s-bane. “Koelle Acon. 22.” Willd. n. 7. De Cand. n. 8. Ait. n. 6. (A. lycoctonum; Linn. Fl. Lapp. ed. 2. 185. Tour in Lap-land, v. 1. 36. 974. v. 2. 123. 277. Fl. Dan. t. 123. Calceolus Lapponicus; Schaff. Lapp. 360.)—Hood conical, obtuse; spurs spiral; lips ovate. Leaves downy, divided more than half way, into from three to five divaricately curved sharply cut lobes. Partial bracteas at the lower part of each flower-stalk. —Native of mountainous thickets and pastures on the sides of the Lapland alps, and throughout Norway, as well as in some parts of Siberia, and on the Carpathian mountains. Linnaeus noticed it also about the bases of the larger hills in Medelpad and Angermanland; but though he has recorded in Fl. Lapp, that the flowers are of a greyish-blue; not yellow, as described in all the accounts of A. lycoctonum; yet he still supposed his to be the same species. His own specimen retains evident traces of this blue or grey colour, and answers to the distinctive characters of the septentrionale, as given by De Candolle. The leaves, as that excellent writer remarks, are more acutely toothed. With respect to the situation of the partial bracteas, they are rather on the lower part, than at the base, of the flower-stalks. The flowers are half downy, and of a thinner texture, than in lycoctonum. Perhaps if living specimens were compared, better characters might be discovered, for there is every reason to presume this a distinct species. Linnaeus in Fl. Lapp. speaks of the leaves being boiled and eaten with impunity; and in his Lapland Tour, v. 2. 123, records another instance of the same fact. He was justly ashamed, knowing the poisonous quality attributed by all writers to A. lycoctonum. Perhaps this may strengthen our opinion of these plants being truly distinct, for we find no record of the true lycoctonum being used as food, in any fable. Haller was one of the first botanists who urged the propriety of separating these species; see his Hist. Stirp. Helvet. n. 1200. Yet there seems little room for his wonder, there expressed, that this Aconitum should be fatal to wolves. When recent its qualities are probably very different.

9. A. ochroleucum. Pale Wolf’s-bane. Willd. n. 4. De Cand. n. 9. Ait. n. 3. March. Thaurico-Caucas. v. 2. 14, excluding the synonym of Tournefort.—Hood conical, elongated; spurs curved; lips lanceolate. Leaves deeply palmate, five-lobed, fearfully downy beneath; lobes deeply three-cleft, acutely jagged and toothed. —Found in mountainous meadows of mount Caucasus; frequent about the mineral springs of Narzan; flowering in summer. Communicated to us by Dr. Fischer. The habit entirely resembles A. lycoctonum, but the surface of the herb is more smooth; the lobes of the leaves are more sharply toothed; and the spurs of the nectaris are rather curved than spiral. Stem erect, round, pale green, three or four feet high, with bright branches. Clusters long, branched at the bottom.

Lower
Lower bracts in three or five segments, often reflexed; upper linear; partial ones in the middle of each flower-bract, two lines long. Flowers pale buff, crowded, remarkable for their long and slender hood, measuring above an inch. Stalks shorter than the flowers. Spars of the nectaries curiously involute.

10. *A. japonicum*. Japan Wolf’s-bane. Thunb. Jap. 231. Willd. n. 2. De Cand. n. 10. (Soo Huo of the Japanese.)—Hood conical, obtuse. Leaves palmate, three-lobed; lobes obtuse, cut; their segments rounded, with a point. Gathered in Japan by Thunberg, who describes this species as allied to *lycoctonum*. The stem is round and smooth. Leaves folded; their lateral lobes in two segments; middle one in three; all obtuse, deeply toothed; their teeth rounded, with a point. Clutter short. Thunberg.

Sect. 3. *Napellus*.

Flowers blue or white, never buff-coloured; their hood convex, tapering into a point in front. Stem straight. Clutter cylindrical. Roots fibrous, from a rather tuberous stock. Leaves lobed in a palmate manner, many-cleft; their segments linear.

All the species of this section having been confounded under *A. Napellus*, De Candolle has thought right to lay aside that specific name entirely. But even he is doubtful whether they are not all one species!

11. *A. vulgaris*. Common Monk’s-hood. De Cand. n. 11. (A. Napellus; Linn. Sp. Pl. 751. “ Koelle Acon. 14, with a figure.” Woodv. Med. Bot. t. 6. Sm. Prodr. Fl. Græc. Sibth. v. 1. 372. A. lycoctonum 6, Napellus vulgaris; Clus. Hift. v. 2. 96. Napellus; Matth. Valgr. v. 2. 440. N. verus caruleus; Ger. Em. 972. N. flore minore; Rivin. Pentap. Irr. t. 130.)—Germens three. Smooth. Wings hairy on the inside. Clutter cylindrical, elongated. Leaves in five divisions to the very base, with many linear acute segments, each with a longitudinal furrow on the upper side.—Native of mountainous meadows in most parts of Europe, from Switzerland, Germany, France, Spain, and Italy, to Greece, flowering in summer, and one of our most common garden plants ever since the days of Gerarde. Dr. Leech sent us specimens from Scotland; but there is reason to doubt the plant’s being really wild in Britain. De Candolle distinguishes this from all its relations, though, as he says, with difficulty, by the simple, straight, upright stem, almost always terminating in a simple cylindrical close cluffer, and not corymbose; leaves with linear segments, that are hardly at all dilated at the extreme, marked with a furrow, and not resembling any others, except perhaps those of *A. tauricum*, whose cluffer is the only one more dense than the pretent; hood convex, rather acute at the summit, but not gibbous or elevated at the back, as in intermediate, rofratum, and variegatum; wings hairy on the inside, which in tauricum, paniculatum, &c. are smooth; germens smooth, never more than three, not five, and hairy; capsule 6x lines long, and not an inch, as in *A. neubergeri.* The present species however, being very common, is extremely variable; the whole surface is sometimes quite smooth, sometimes downy, especially about the flowers; the furrow on the segments of the leaves is more or less distinct; the flowers naturally blue, or (in the variety called by Schultz bicolor) white at the base, blue at the summit, become in gardens white, rofe-coloured, purple, or variegated. *De Candolle*. Their most usual and well-known colour is a deep and gloomy blue; we have seen no other. Dr. Sibthorp’s Greek plant mult reft on his own authority, being only mentioned in his Miss., without any accompanying specimen; nor were the species of this genus so accurately noted in his time.

12. *A. tauricum*. Taurian Monk’s-hood. Wulf. in Jacq. Coll. v. 2. 112. Jacq. l. c. Part 1. 492. De Cand. n. 14. “ Koelle Acon. 15.” (A. Napellus; Bull. Fr. t. 45? De Cand. A. lycoctonum quartum tauricum; Clus. Hift. v. 2. 95. A. violaceum; Ger. Em. 973.)—Germens three. Smooth. Wings smooth. Clutter cylindrical, elongated, very dense; stalks smooth, longer than the bracteas. Leaves in five divisions to the very base, somewhat pedate, with linear lobes.—Native of the alpine heights of Tauria, Karinthia, &c. flowering in summer. Very like vulgaris, but the smooth wings and flower-stalks, the latter shorter than their bracteas; the short dense cluffer, whose main stalk is concealed; and the pedate, more wedge-shaped, linear-lobed, scarcely furrowed leaves, are thought by De Candolle to afford sufficient differences.

Sect. 4. *Cammarum*.

Flowers blue or white; hood very convex, or conical, ending, often abruptly, in a point in front. Clutter lax, somewhat corymbose. Stem straight. Leaves deeply divided, in a palmate manner, into wedge-shaped lobes. Roots navell-shaped, intermixed with small fibres.

For the same reason as concerns the last section, the specific name *Cammarum* is here laid aside, having been variously applied by different botanists. De Candolle suspect all the species of the pretent section, or at least the first four, may be varieties of each other!

15. *A.*
15. *A. intermedium*. Ambiguous Monk's-hood. De Cand. n. 15. (A. neomontanum; Willd. n. 9, excluding the synonyms: "Hoppe Pl. Exsicc." *De Cand.* Thora italic. feu Napellus minor, flore caruleo; Barrel. 1c. t. 610.)—Germens three, smooth. Wings internally hairy. Clutter lax, corymbose; flacks smooth. Hood very convex, somewhat conical.—Found in mountainous woody parts of Germany and Flanders, flowering in July. In habit like the two following, but the hairy *Aconitum* (De Candolle by mistake fays *ipsa*) distinguishes this species from all the rest of the section. We have seen no specimen.

16. *A. paniculatum*. Panicked Monk's-hood. Lamarck. Franc. ed. i. v. 3. 646. n. 1214, Dict. v. 1. 33. De Cand. n. 16. (A. Nepello minor, sed minus, ceruleum, precocius; Buhl. Hist. v. 3. 656. Chabr. Scagir. 531. Napellus; Camer. Epit. 836. Storek Libell. 69. t. 3.)—Clutter drooping. *De Cand.* (A. cernuum; "Koelle Acon. 17." Willd. n. 12. A. lycocotonum octavum, comá nutante; Cluf. Hist. v. 2. 97. A. maximum nutante comá; Ger. Em. 971. A. septimum; Matth. Valgr. v. 2. 436. Camer. Epit. 852.)—Germens three, smooth. Wings internally smooth. Clutter lax, corymbose; flacks downy. Hood convex.—Found in various alpine parts of Europe, flowering towards autumn. The roots are roundish, tapering downwards, bearing many long fibres. Stem erect, smooth. Leaves somewhat pedate; their lobes wedge-shaped below, acutely pinnaed upwards. Clutter usually erect, with long downy flacks; downy; the lower ones branched. Flowers large, of a brighter blue than vulgare, with a convex hood, whose point is more remarkable than in the 3d section. It may be important, if any person should repeat Storck's experiments, to be aware that this is the plant he used, and not our Common Monk's-hood, *A. vulgare*. 

17. *A. refractum*. Beaked Monk's-hood. De Cand. n. 17. (A. Cammarum; Lamarck Dict. v. 1. 53. Willd. n. 14. A. lycocotonum nonum judenbergense; Cluf. Hist. v. 2. 97. A. maximum judenbergense; Ger. Em. 973. A. lycocotonum, flore magno; Buhl. Hist. v. 3. 659.)—Germens three, smooth, or only fringed at the inner edge. Wings smooth. Clutter somewhat corymbose, of few flowers, with smooth flacks. Hood conical, elevated, abrupt in front, with a prominent beak.—Native of the Austrian and Swiss Alps, flowering in summer. We have it in Mr. Davall's herbarium, but the plant seems unknown to cultivators. The roots are roundish, tapering downward. Stem a yard high, straight, round, smooth, purplish. Leaves somewhat pedate, with wedge-shaped, jagged, acute lobes. This species differs from the preceding, as well as from the following, in the very large and high hood, accompanied by a very considerable beak, being conspicuous for the greater size, and rather paler blue, of its flowers.

18. *A. begeysnum*. Downy-fruited Monk's-hood. De Cand. n. 18. (A. Cammarum; Linn. Sp. Pl. 751. Willd. n. 14. Ait. n. 11. Jacq. Auct. v. 42.4.)—Germens from three to five, all over finely downy. Wings nearly smooth. Clutter rather corymbose, of few flowers; flacks downy, Hood convex, beaked in front.—Native of rugged bony places on the Alps of Switzerland, from whence we have it; as well as of Austria and the Alps of Switzerland, flowering in summer. A large handsome species, with ample foliage, whose segments are acutely pinnaed. Flowers dark-blue; their hood rounded, much less elevated than in the preceding. The germens clothed with fine velvet-like down afford a clear specific character. There are no means of perfectly ascertaining the *A. Cammarum* of LINN., he having left no specimen, and his synonyms pointing to different plants. His character of "*floribus subpentagonis*" is all that indicates the present species, which is probably the plant of the gardens. De Candolle says all the synonyms of this, or principal, variety of *paniculatum*, may just as well serve for *begeysnum*; but surely Storck's figure cannot be mistaken for this. The plants themselves can never be confounded, provided the germens be attended to; for which discovery we are indebted to professor De Candolle.

19. *A. variatum*. Variegated Monk's-hood. Linn. Sp. Pl. 750. Willd. n. 13. Ait. n. 10. "Koelle Acon. 18." (A. lycocotonum decium, Thora italic; Cluf. Hist. v. 2. 98. A. lycocotonum ceruleum parvum; Ger. Em. 971. Napellus flore mixto; Rivin. Pentap. Irr. t. 133.)—Germens three, smooth as well as the petals. Clutter lax; flacks smooth; the lower ones many-flowered, twice the length of their many-cleft bracteas; their lower partial bracteas cut. Hood elevated, conical, obtuse, with a short beak in front.—Native of the Rocky Mountain, and Taipeh, flowing in August. Root, according to Clusius, tuberous, with ovate knobs, or rather perhaps buds. Whole herb smooth. Stem erect, with spreading branches. Lower leaves on long flacks, their outline orbicular, their upper side of a shining green, lower pale; their three or five deep principal divisions wedge-shaped at the base, dilated and more or less cut at the extremity, with oblong acute segments; upper leaves fiddle; floral ones in three deep divisions, copiously, but not deeply, cut. Lower flacks of the clutter dilated, each bearing three or four flowers. Partial bracteas, which are under each flower, linear. Flowers large, perfectly smooth, blue (or blue and white); the hood very large, above an inch long, and extremely convex, not at all covering the wings, its beak short; wings orbicular, six or seven lines long; germens smooth, slender. De Candolle. This description answers to the Linnaean specimen, and nearly to our garden plant, except that we have always seen the flowers principally white, with a portion of blue on the beak and wings, and that the stem in ours is rather of the tufting or wavy kind, as in the next section; by no means straight, though supporting itself. This character appears in the old wood cuts, and the natural order of the species; but he had seen no other than a dried specimen. The figure of Rivinus indeed is erect, and yet, not confining himself to the annexed representation of five capitula, we can barely doubt that this is a true.
be of no moment. The stem is round and smooth. Leaves smooth; their wedge-like lobes sharply pinnatifid. Clutter lax, with some axillary branches below. Stalks erect, smooth. 

Hood near an inch and a half long, obtuse, even, bent forward with a slightly recurved, notched, beak; its claw longer than the large round wings. 

Germens five, smooth.

Sect. 5. Anabates. 

Flowers blue or white; hood convex. Clutter lax. 

Stem twining, climbing. 


—Gathered by Koelle in Siberia; cultivated at Montpellier. 

Stem round, its fine close hairs scarcely visible with a microscope. Leaves smooth, with dillant, oblong, acute segments. Upper branches flowering at their extremities. Upper bracts in three or five divisions; upper oblong, undivided; partial ones linear. Stalks downy. Flowers pale blue, hardly at all downy; hood gradually tapering into an acute beak, with a space between it and the wings, which are fringed, but nearly or quite smooth on their infide. 

Filaments hairy! De Candolle. 

22. A. ciliata. Fringed Monk's-hood. De Cand. n. 22. (A. volubile; Willd. n. 11, but not of Koelle. Ait. n. 9. Donn Cant. ed. 5. 152.)—Stem twining, clothed with spreading hairs. Footstalks fringed. Leaves in three or five deep pinnatifid lobes, with linear-lanceolate segments. Clutter lax. Germens five or more. —Native of woods in Siberia. We received a specim in flower, in Sept. 1801, from the rich garden of the late Rev. Mr. Watts, of Ahill, Norfolk. The stem is round, flender, purplish, fix feet high, varying in its degree of downiness. Leaves in size and figure not unlike Malva moschata. Clutter branched, lax. 

Flowers of a middle fine, rather light blue, downy; hood convex, rounded, with a beak in front; petals hooked, with an obtuse, inerely heart-shaped, lip. Germens five or six, elliptic-oblong, smooth. Stamens smooth. Our specim renders answer to the more airy variety of De Candolle, which he suspected might prove a distinct species; we have seen no other, and can therefore form no opinion. 

23. A. tortuosum. Twisted Monk's-hood. Willd. Enum. 576. De Cand. n. 23. (A. n. 8; Math. Valgr. v. 2. 437? A. comatiflora, folia latioribus; Tourn. Inst. 425 ?)—Stem twining, smooth, as well as the footstalks. Leaves in three deep, ovate, pointed, coarsely and deeply toothed lobes. Clutter lax. Germens two or three, quite smooth, as well as the stem—Stem in a cultivated flat only, by Willdenow and De Candolle, who knew not whence it came. The stem rises to the height of six or seven feet, branching, round, and smooth. Leaves smooth; their lobes wedge-shaped at the base; the lateral ones deeply cleft. Lower bracts cleft, five cleft; partial ones sili- 

A. ciliata 

niform, placed about half way up each stalk. Flowers smooth, pale blue; hood convex, gradually tapering into an acute beak. The figure of Matthiolus expresses the habit, but may probably belong to some other species. De Candolle. Indeed many of that author's figures are curved, evidently to accommodate them to the dimensions of the wooden block. 


gated, conical, with a long, erect, cloven beak. —Native country unknown. Described from the herbarium of Professor Desfontaines. The whole herb is smooth. The flowers are pale blue, and remarkable for the long linear lobes which terminate the beak, and standing erect, are nearly on a level with the top of the hood, which appears to be the great peculiarity of this little-known species. 


Flowers round, somewhat branched, minutely downy. Footstalks smooth, round, with a longitudinal furrow. Leaves coriaceous, smooth, dark-green, lobed only about half down; lobes three-ribbed. Lower flasks of the clavus long and divided; upper simple and crowded; all downy in their upper part. 

Bracteas two, oblong, not far from the flowers, which are large, of a rich violet purple; hood tapering into a sharp beak; wings orbicular, hairy rather than fringed. Germens three to five, downy. 

Such is our Linnean specimen, from J. Bartram. 

M. De Candolle faw in the herbarium of Michaux, mixed with the above, specimens, which hood was twice as long, almost conical, without any hook or beak. This he considers as the uncinatum of that author, Fl. Boreal-Am. v. 1. 315, and possibly a distinct species. 

Mr. Pursh says, "On the foot of the Peaks of Otter, and about the sweet springs, another species occurs, with smaller flowers, and a climbing stem which sometimes attains the height of nine feet; but unfortunately I have no materials at present to give a correct description thereof."

Hence it appears that the history of this long-established genus is not yet complete. M. De Candolle enumerates three species, of which he had not sufficient information to define them correctly. These are, 

26. A. delphinifolium, of which there are three varieties. 

1. Americanum, found by David Nelson, in Sledge (not Hedge) island, with an erect stem, from six to twenty inches high, downy upwards; leaves like Delphinium pentagonum, smooth, in numerous pinnatifid segments; and blue racemose flowers, whose hood is convex, acute at the summit. 

2. Sibericum, gathered in Siberia by Pallas, has larger flowers, with neolaria but half the length of the hood. 

3. Kamchatcanum, has from three to six rather scattered, somewhat smaller, flowers, and rather longer neolaria. Root of tufted fibres. 

De Cand.

27. A. lythrum. (A. grandiflorum; Fischer Hort. Gorek. 1828. 77.)—Native of the Altai mountains. Root tuberous, ovate, the fize of a pen. Stem four inches high, flender, finely downy at the summit. Leaves in five deep, palmate segments, with linear acute lobes; the lowermost on long stalks. Flowers two, terminal, nearly sessile, pale blue; hood convex, externally downy at the back, tapering into an acute beak; wings obtuse, or roundish, smooth. Stamens smooth. Germens three, villous. Neolaria hooked, obtuse, with very minute lips. 

De Cand. 

28. A. maximum. Pallas herb.—Native of Kamchatka. 

Stem six feet high, erect, round, smooth. Leaves smooth, flaked, wedge-shaped at the base, in three or five dilated, wedge-shaped, five-leafed lobes. Clutter short, of eight or ten pale-blue flowers, on downy flasks, with a convex acute beak, like that of delphinifolium, but smaller. 

De Cand. 

The
The seven following are scarcely to be ascertained.

29. A. nonum; Matth. Valgr. v. 2. 438. Dalech. Hist. 1741. f. 2. A. comata inflata, floribus rarioibus, et foliis elegantissimis; Tourn. Init. 425.—We should suppose this an unnatural posture of A. Anara, n. 1.

30. A. lycoctonum quarundam, five lyceumum; Clus. Hist. v. 2. 96. Bauh. Hist. v. 3. 657.—No figure.


32. A. ficcica florae pyramidalis; Morit. Pral. 226. A. pyramidalis multiflorum; Tourn. Init. 425. A. pyramidalis; Mill. Diet. ed. 8. n. 6.—Enfeemed by De Candolle a variety of A. vulgaris, n. 11.


34. A. minus autumne infusio Cheufan, unicus Yfou-i; Pluk. Amath. v.

35. Napellus major carlsunius montanus, Anathor racid; Boecc. Muf. 74.—Native of Monte Cofione, in Coreia.

ACOTYLEDONES, constitute a class of plants in the natural systems of most authors, but especially of Juffieu, in whose method this class stands first. In thefe the corculum of the feed is defined to be deliht of cotyledons, and consequently undivided in the progress of germination, though forming a root below, and more or less of itself, or at least a frond, above. The parts of fructification in many of this tribe are obscure, anomalous, or altogether unknown. The orders in the above-mentioned writer are fixed; Fungi, Algæ, Hæpatice, Musci, Filices, and Naiaedes, all which articles the reader will find in their proper places. From our account of Mufci and Filices he may observe, that the denomination of the supposed natural clas in question, and its essential character above-mentioned, are far from being universal or unquestionable; these two orders having manifest cotyledons, or something equivalent; while many plants, supposed to have a folitary cotylodan, have really none at all. See the article MONOCOTYLEDONES, where this subject is discussed. See also Cotyledones and Germination.

ACOUCHY. See Ackouschy.

ACOURAOA, in Botany, apparently a vernacular name in Guiana, by which Aublet has chosen to designate a papillose-diadaphous plant, which Juffieu, with great reason, supposes to be a species of Pterocarpus (see that article); as well as another genus, named by the fame author Vatairea. See Aubl. Guian. 753—756. t. 201, 302.

A. violacea, the only species, is a tree, found about the margins of salt-water creeks in Guiana, bearing flowers and fruit in July. The trunk is twelve or fifteen feet high, and a foot in diameter, sending out from its summit many spreading branches; the bark reddish, cracked, and wrinkled; the wood whitish externally, but the heart is reddish, hard and compact. Leaves alternate, alternately pinnate of seven or nine ovate, pointed, entire, firm, smooth leaflets, gradually larger upwards, the lowermost being an inch and a half or two inches long, the uppermost or terminal one four or five. 

Stipulas small, deciduous. Clavata about the ends of the branches, long, compound, many-flowered. Bracteas small, folitary at the base of each flower. Calyx of one leaf, in five sharp unequal seguments. Corolla papillose, violet-coloured. Stamens ten, diadelphous, the odd one distinct. Stigma obtuse. Pericarp dry, reddish, nearly orbicular, concave on one side, convex on the other, not burbling. Seed foliandy, lenticular. Aublet.

The Vatairea, Aubl. t. 302, is a much larger tree, the trunk being fifty feet in height, with a smooth whitish bark, and light brittle wood. Leaves pinnate, as in the former, but more elliptical. Flowers unknown. Pod flat on both sides, with a thick edge, chefunet-brown, of an irregular orbiculate shape, about three inches in diameter, containing one large seed; which, when beaten in a mortar with purified pork lard, is used to cure titters or ring-worms, whence the inhabitants of Guiana call this feed Graine à darries. The tree grows by river sides in that country. Aublet.

ACQUACKACK. Add, containing 2023 inhabitants.

ACRE, col. 3, l. 29. The tobacco of Acre is highly esteemed; and coarse muskts, remarkable for the durability of their dye, are sold at a low rate. The inhabitants make use of wooden tubes for their tobacco-pipes, garnished with a swathing of silk, or linen, for the purpose of absorbing water. This being kept moist, cools the smoke, as it rises, by the constant evaporation. A modern traveller, in the account of his journey from Acre to mount Carmel, mentions the exportation to Venice of the land of the river Bebus for the glufs-houses of that city. (SeeGlass.) At Acre there are the remains of an ancient church, with pointed arches, other influences of which, demonstrating the existence of the Gothic architecture, occur in the Holy Land.

ACROSTICUM, in Botany, a Linnaean name, whose meaning therefore is to be sought in the obscure hints left by its author. He derives the word in Phil. Bot. 183, from a, κοσμημα, ἀκρος, στυλος, an order or row, but its application has been thought rather difficult. We agree with De Theis, that ακροστυλος literally means the beginning, or the first letter, words, or lines, of a set of verses; but we cannot attend to his explanation of its being given to these plants "because several of them bear, on the back of the leaf, lines resembling the beginnings of words;" there being in fact no such thing, nor has Linnaeus described any similar marks. It seems natural to trace his ideas in the appearance of the most remarkable of the original species, four of which are delineated in Aemn. Acad. v. 1. t. 10, and in two or three of these, the rows of linear appendages, or leaflets, at the top of the frond, sufficiently explain the meaning of Linnaeus. These species indeed are now removed from the established genus of Acrastichum, which has undergone much alteration since its first publication, and the view of its species already given, (see Acrostichum,) requires to be totally reformed. Many of them are removed to other genera, while a great number of new ones have more than supplied their places. Willdenow, the latest general writer on Filices, which make the most original and accurate part of his Species Plantarum, deems sixty-two species, under six fections, of which we shall take a general view, first, as usual, prefixing the generic synonyms and characters.—Linn. Gen. 559. Schreb. 756. Willd. Sp. Pl. v. 5. 100. Mart. Mill. Diet. v. 1. Ait. Hort. Kew. v. 5. 763. Sm. Mem. of the Acad. of Turin, v. 5. 1. 147. Traites 230. Prodr. Pl. Græc. Sibth. v. 2. 271. Swartz Syn. Fl. 9. Ind. Obs. 1857. Spreng. Cyl. Eng. ed. 84. t. 2. f. 18. Brown Prodr. Nov. Holl. v. 1. 145. Purish 658. Jull. 15. Lamarck Diet. v. 1. 34. Illui. t. 865 f. 4.—Clas and order, Cryptogamia Filices. Nat. Ord. Filices daff.; sect. annulata.

Gen. Ch. Capsules globular, of two equal valves, bound by a jointed elastic ring, and disjoined in broad, continued, indeterminate, dense maffes, more or less intermixed with hairs, or fine scales, over the back of the frond; either entirely, or partially at the upper part of the whole, or of its segments or leaflets, which are often contracted, or otherwise changed, in their fruitifying portions. Insectum entirely wanting, (unless the above-mentioned hairs, or scales, be taken for lich.)

Eff. Ch. Capsules occupying the back of the frond, in uninterrupted.
uninterrupted shapeless masses, either partially or entirely.
Involucrum none.

The whole genus, as it now stands, is chiefly tropical, a
very few species only being found in the south of Europe,
and one in North America. None are arborecent.
The species removed from the catalogue of the genus, in our
former article, are the following; and are thus disposed of
by Willdenow, we believe, on the whole, very correctly.

A. lanceolatum, is Polypodium acrolochoides, Wildl. Sp.
Pl. v. 5. 156.
biterophyllum, P. adnaecons, ibid. 145.
epicaton, Sm. Pl. lc. t. 49. Lomaria epicata, 289.
Lingua, Polypodium Lingua, 162.
bafulatum, P. triquique, 163.
feptentionales, Asplenium septentionales, 307.
auffrae, A. auffrale, 308.
pefinatum, Schizsea pefinata, 85.
dichotomum, S. dichotoma, 87.
digiatum, S. digitata, 86.
ferrugineum, Polypodium incanum $, 175.
polypondioides, P. incanum $, 174.
romum, Hemoschitis rufo, 129.
puntatum, Linn. Suppl. 444, altered to puntulatum by
Swartz, Syn. 13, retains the latter name in Wildl.
Sp. Pl. v. 5. 118.
areolatum, Woodwardia anguifolia, Sm. unjustifiably
altered to W. onoeoideis, ibid. 416.
marginatum, Pteris grandifolia, 356.
fuscum, Polypodium funeum, 198.
platyneuron, Asplenium ebeneum, 329.
filiformus and thalictroides, reduced to one species, as
Pteris thalictroides, 378; but perhaps they require
further investigation.
bene, Polypodium bene, 198. See Woodsea.
fuscatum, Mertensia fuscata, 71; a genus reduced by
Mr. Brown to Gleichenia. See that article, and
Mertensia.
acutatum, Davallia furvanioides, 480.
barbarum, Todea africana, 76, our Osmunda barbara.
vivipara, Darea vivipara, 302.
ferrulatum, Grammitis ferrulata, 141.
graminoides, G. graminoides, 141.

To which we must add that A. ebeicus is made by Wilden-
now the variety $ of calteumatis, 124; and petiolatum is
reduced to viseum, 103. Fifteen species therefore, out
of our former list, are all that are retained by Willdenow,
and the generic name remains with plants that do not by any
means answer to it, though they agree correctly with the
generic character.

We proceed to give examples of the several sections.
Sec. 1. Frond simple, undivided. Twenty-five species.
We shall here venture to unite two of them, lafisfium and
longifolium, adding a new one, limbella.
n. 1. Swartz Syn. Fil. 419 and 191. t. 2. f. 1.—Barren
fronds roundish, obtuse, somewhat heart-shaped; hairy and
downy beneath: fertile ones obovate. Common flack thread-
shaped, scaly, creeping.—Found by Thunberg in Java. The
common flack creeps extensively, attaching itself by copious,
tufted, black radicles, and bearing several alternate simple
fronds, or leaves, not an inch long, on short partial foot-
flacks; these are smooth on the upper side, veinless; the
hoary down of their under surface is interperfved with flary
hairs. The fertile fronds are fewer and smaller, tapering at
the base, sometimes befrinkled with flary hairs; their
backs covered with shining-brown capfuls, intermixed
with flary hairs of a rufty hue. Swartz.
A. fimbriatum. Fringed Acrostichum. Wildl. n. 3.
Fil. 11.—Fronds lanceolate, fringed. Stalks flarily. Na-
tive of flady mountainous places in the kingdom of Quito.—
We have been favoured with a specimen, gathered by William
Swainson, jun. efg. of Liverpool, on damp rocks in woods,
among the mountains at Rio Janeiro, which answers to the
above definition, but we are not authorized, without better
information, to affert that it is Cavan’s plant. The fronds
of ours grow eight or ten together, in tufts, with a fibrous,
blackish, scarcely hairs root, each being an inch and a half
long, one-third of an inch wide, bluntish, hairy; the latter
fronds with coarse, flarily, reddish-brown hairs, spreading
copiously beyond the edges. Stalks flimply, equally flaggy,
rather longer than the fronds. The fertile fronds are convex
above, almost hooded; their conoive under surface covered
with brown capfuls. The fize and habit of this fern referm
Blechnum Lanceolata, of Swartz, in Stockholap Tranf. for
1817, 71. t. 3. f. 2, a native of Brazil; but the latter is
smooth and naked, with the proper fructification and involu-
creum of a Blechnum.
Swartz Syn. Fil. 10 and 193. (A. petiolatum ; Sw. Ind.
Oce. 1588.)—Fronds linear-lanceolate, pointed, smooth on
both sides; their ribs, as well as flalaks, fealy and vi-iced:
fertile ones linear; hairy beneath and covered with capfuls
to the very margin.—Found on the mosdy trunks of trees,
on the highest mountains of Jamaica. Root slightly creeping.
Stalks crowded, slender, angular, roughish, rufty and fealy,
three or four inches high. Each frond is a fpan long, erected,
rather rigid; the barren ones linear-lanceolate, pointed,
foemewhat membranous, smooth, befrinkled at the back
with minute, prominent, brownifh, glandular dots; their
ribs fealy; fertile ones on longer flalaks, more linear, either
smooth or slightly hairy, covered entirely at the back with
pale rufty powdery capfuls. The clammines of the flalaks,
and the hairiness of the fertile fronds, distinguished this species
from its allies. Swartz.
A. limbella. Narrow-bordered Acrostichum. (Lin-
gua cervina anguifolia, cofts et pediculis villosa; Plum.
Fil. 113. t. 129.)—Fronds linear-lanceolate, wavy, pointed,
smooth on both sides; their ribs and flakks hairy: fertile
ones nearly linear, with a smooth naked border.—Gathered
by Plumier, on mosdy rocks about the fource of a little
rivulet, called Le Morne Rouge, near fort St. Pierre, in
Martinico. The root is long, creeping, cylindrical, refe-
bling a worm, covered with little black fbrices. Fronds
numerous, erected, above a foot high, each of their fine trans-
verse veins ending in a little dot, before they reach the margin;
at leat fuch is their appearance in Plumier’s figure. This
character, the greater height of the fronds, and the fertile
ones having a smooth naked border, over which the capfuls
do not extend, caused Dr. Swartz to omit citing Plumier’s
figure under the lat-mentioned species. We have no doubt
of these plants being very diftinict from each other. Plumier
is one of the few autors whose fidelity is always to be relied
on, and he is therefore the fole authority for several of Lin-
naeus’s species of frens, described from his plates and de-
erpitions.
n. 10. Swartz Syn. Fil. 10. Ind. Oce. 1592. (Lingua
cervina villosa minor; Plum. Fil. 110. t. 127, f. D.)—
Fronds lanceolate, wavy, pointed, shaggy on both sides;
fertile ones somewhat elliptical, with a naked border; fringed
at the edge. Stalks hairy, elongated.—Gathered by Plu-
meri
mier in wet woods in Hispaniola; by Swartz on the hollow mossy sides of hills in the south of Jamaica. Root tufted, not creeping. Stalks about half as long as the fronds, flaggy with coarse rusty hairs, such as cover both sides of the leafy part, especially at the edges. There is a vacant space, as in the leaf, between the capulæ and the margin of the leaf, well expressed by Plummer, and mentioned by Swartz.

A. birtum. Great Hairy Acrostichum. Willd. n. 11. Swartz Syn. Fil. 419 and 194.—Fronds elliptic-lanceolate, pointed, scaly on both sides, like their flanks; the margin dotted, and somewhat crenate: fertile ones much narrower, covered to the edge with capulæ and convoluted scales.—Supposed by Swartz to be a native of Madeira, but we have always believed our fine specimens to have been gathered by the late Mr. Smeathman, in the West Indies. The root is thick and scaly, apparently somewhat creeping. Fronds a fpon long, on fcaly flanks often exceeding that length; thickly besprinkled sometimes on both sides, but especially on the under one, which is the palest, with small, ovate or heart-shaped, pointed, peltate, close-preoccupied scales, of a pale shining brown. Many of the transverse veins terminate, near the margin, in depressed dots. The fertile fronds are much shorter and narrower, somewhat heart-shaped at the base, covered entirely at the back with shining rusty capulæ, intermixed with lanceolate, convoluted, tubular scales. We have one frond, two-thirds of which are barren and broadly elliptical, but the upper part is suddenly contracted into a lanceolate form, covered with capulæ and scales. The main rib is always very feally beneath.

A. undulatum. Wavy Hairy Acrostichum. Willd. n. 14. (Lingua cervina villosa, major et rufescens; Plum. Fil. 110. t. 126.)—Fronds ovato-lanceolate, somewhat wavy, brilly on both sides, like their flanks; the margin slightly crenate and obscurely dotted: barren ones emarginate: fertile ones acute.—This, according to Plummer on the trunks of old trees, in Martinico. Nearly related to the last, but distinct. The fronds are smaller and narrower, with much fewer evident marginal dots. The brilly hairs, scattered over both surfaces, and also clothing the flanks, in some degree imitate partake of the nature of scales, and are channelled, or slightly tubular at their base: but they totally differ from the flat close-scales of the foregoing. The end of each barny frond is more or less emarginate, with a little tuft, or bud, of scales in the suture.

A. latifolium. Broad-thick-leaved Acrostichum. Willd. n. 15. Swartz Syn. Fil. 9. Ind. Occ. 1580. (A. n. 1; Browne Jam. 104. A. longifolium; Willd. n. 16. Jacq. Coll. v. 2. 105. Swartz Syn. Fil. 9. Lingua cervina rigida et glabra; Plum. Fil. 118. t. 135.)—Fronds oblong-lanceolate, bordered, contracted at each end, smooth on both sides, as well as the flanks: fertile ones of the same shape, with a smooth, narrow, membranous edge. Native of rocks, and old mossy trunks of trees, in Jamaica and Martinico. The root is thick and creeping, clothed at the extremity, and about the bottoms of the fronds, with large, brown, chaffy scales. Fronds scattered, from a span to twelve or eighteen inches long, erect, entire, rigid, with a narrow, thin, membranous, entire border, a flat reddish rib, and scarcely any traces of veins, both surfaces being peculiarly even and smooth. The flanks are smooth and naked, angular, sometimes as long as the fronds, but generally shorter. The fertile fronds agree with the barren ones in shape and size, as well as in their narrow, membranous, naked border, but the whole under side, except that border, is densely clothed with innumerable, minute, smut-coloured capulæ, unaccompanied by any scales or hairs. Jacquin described his plant independent of Swartz, but we cannot find the leafy pretence for distinguing them, even as varieties, the revolute position of the seed-bearing frond, in Plummer's plate, being merely owing to its young state, as its description implies. The flanks, at an early period, may probably be somewhat feally, though afterwards naked, even in the fertile fronds.

A. crinitum. Hairy Oval Acrostichum. Linn. Sp. Pl. 1523. Willd. n. 23. Ait. n. 2. Swartz Syn. Fil. 11. (Lingua cervina villosa, amplis folis subrotundis; Plum. Fil. 109. t. 125. Phyllitis crinita, lattifimo folio; Petiv. Fil. n. 145. t. 13. f. 14, copied from Plummer.)—Fronds elliptical, obtuse at each end, hairy, densely fringed. Stalk and mid-rib hairy.—Gathered by Plummer in Martinico. Brought from the West Indies to Kew Garden, by Admiral Bligh, in 1793. A very fine and large species, specimens of which are rare. Each frond is about a foot long, and half as much in breadth, fthily; of a somewhat yellowish-green on the upper side, besprinkled with slender brilly hairs, which, as well as the thick fringe, and the copious hairs on the flanks, are coal-black. The fructification of this plant has not been ascertained, for what Plummer noticed, on the very young leaves, were most probably the umbil and glandular bales of the hairs; nor was he at all confident on this subject. It may well, however, by analogy, be considered as an Acrostichum. The root is tufted and haggy. We place this fern next to species with which it most nearly accords; the following one being incorrectly inferred before it by Willdenow.

A. crispsifolium. Lemon-leaved Acrostichum. Linn. Sp. Pl. 1529. Willd. n. 22. Swartz Syn. Fil. 9. (A. n. 3; Linn. Amoen. Acad. v. 1. 269. Hemionitis paraffica; Linn. Sp. Pl. 1535. H. n. 21. Browne Jam. 95; from the author. Lingua cervina frondis, citrei folis, minor; Plum. Fil. t. 116. Lonicera vilissima fo; Petiv. Fil. n. 150. t. 15. f. 1.)—Fronds alternate, ovate, pointed, tapering at the base, on short flanks, smooth, reticulated with veins. Common falk creeping, scaly.—Found on trees near rivulets in Martinico, and in the cooler, shady, inland woods of the mountainous parts of Jamaica. The common flem, or main root, creeps to a great extent, among mosses, or Juangermanie, up the old trunks of trees, attaching itself by numerous haggy radicles. It is clothed with large, acute, reticulated, finely toothed, pellucid scales. The fronds are situated alternately, about one or two inches from each other, on short bordered flanks, spreading in two directions, and are ovate or elliptical, of a fine shining green, rather fthily, very smoth, two or three inches long, and one or one and a half broad, obscurely crenate. There is only about half way up any decided mid-rib, but the principal veins, parallel at first, branch out into regular, very elegant reticulations. Some of the uppermost and youngest fronds, according to Plummer, are entirely covered at the back, with minute, densely crowded, bright cheetah, capulæ, except a central naked line, indicating a mid-rib. We have no speciemen in fructification, but several capulæ accidentally flicking to one of the barren fronds, are remarkably small, very pale, with dark jointed rings. Linnæus originally adopted this fern, as an Acrostichum, from Plummer. When he received speciemen of the same from Browne, as a Hemionitis, he did not discover that he had already clasped the plant in his Syllen; hence it occurs twice, even in his Sp. Pl.—Hemionitis obtusa, Willd. Sp. Pl. v. 5. 127, agrees very nearly with this Acrostichum, in size and texture of the fronds, and most precisely in their veiny reticulations; but its fructification is described as essentially different.

Sect. 2. Frond simple, divided. Four species.

A. pel-
A. petalum. Shield Acrostichum. Willd. n. 26. Swartz Syn. Fil. 11. Ind. Occ. 1593. (Ofmunda petalata; Swartz Prod. 127. Lichen digitatus, geranii facie; Plum. Fil. n. 188. f. 11. f. 3.)—Barren fronds in many forked, linear, radiating segments; fertile ones undivided, roundish-kidney-shaped, finely crenate. Found on the mossy trunks of trees, in Jamaica and Hispaniola. This remarkable little fern has the habit of a Trichomanes; or of some very singular Jungermannia, brought by Mr. Menzies from New Zealand. The trailing creeping root throws up several fluted, vertical, membranous, barren fronds, deeply divided into two principal lobes, and each of those irregularly into numerous, linear, single-ribbed segments, all spreading like a fan. The fertile fronds are about as tall, but smaller, not an inch broad, roundish, or somewhat kidney-shaped, horizontal; pale green and smooth above; covered beneath with small, brown, shining, annulated capules.

A. alicorne. Stag's-horn Acrostichum. Willd. n. 29. Swartz Syn. Fil. 12. 17. and 196. Brown n. 1. Ait. n. 3. ("A. Stemonaria; Beauvois Fl. d'Oware, 2. t. 2." A. bifurcatum; Cavan. Leccion. 241. n. 587. Neuroplatyceros ethiopicus, nervosifolius, cornu cervinum referentibus; Pluk. Amalthei. 151. t. 429. f. 2. Cornus alicis Simbor dicta; Bont. Hist. Nat. 121, with a figure.)—Fronds somewhat tufted, forked, coriaceous, ribbed; downy at the back; from a peltate, leafy, spongy base.—Of Guinea, Madagascar, Java, and New South Wales, growing on the trunks of trees. This is a very large and striking species, attached to the trees, or sometimes to rocks, by a peltate, dilated, somewhat membranous, irregular, vein, lobed base, of a shining brown, a foot in diameter; thin at the edges; thick and spongy in the centre, where it is fixed by downy branching radiates, and from whence it throws up two or three erect, flat, irregularly forked fronds, a foot or two in height, rather dilated upwards, entire at the edges, from one to two inches broad in the different parts; tapering at the base into a root, channelled, winged footstalk. The ultimate divisions are level-topped, linear, bluntish, near a finger's length, each bearing at its back, in the lower half, a broad, irregular, dense, naked mass of immeasurable brown capules, so disposed in close lines, that the whole mass appears like a chain. The whole frond is strongly ribbed; green and smooth above; whitish and downy beneath; the ribs forked, smooth, reddish. We cannot but think the singular dilated base of this fern is no other than one of its segments, or reputed cysteledons, greatly enlarged, and more permanent than usual. Polypodium quercifolium of Linnaeus, Willd. Sp. Pl. v. 5. 1754, has something analogous in its barren fronds, which are only advanced a step nearer towards the proper habit of a fern. See Ger. Enc. 1. 113. 32.

Sect. 3. Frond tinate. Two species.

A. quercifolium. Oak-leaved Acrostichum. Willd. n. 30. Swartz Syn. Fil. 12. Retz. Obs. fac. 6. 39. "Schkuh. Crypt. 2. t. 3." (Ofmunda trifida; Jacq. Coll. v. 3. 281. f. 20. f. 3.)—Fronds tinate, blunter lobed; fertile ones contracted, linear-oblong, somewhat cut.—Found on trees in Ceylon, by Koenig. A delicate slender fern, whose small, creeping, fealy root sends up several erect fronds, from six inches to a foot high, whose downy fronds are also fealy in their lower part. The terminal leaflet is much the largest, two or three inches long, and one broad, in the barren fronds, with downy ribs and edges, obtuse, slightly and variously nutated; the lateral ones an inch long, rounded, somewhat lobed. The fertile fronds have each a much taller smoother stalk, but their leaflets are, as usual, much smaller and narrower, their back covered, except the ribs and margin, with minute, fluted, annulated capules.

A. aurium. Earled Acrostichum. Willd. n. 31. Swartz Syn. Fil. 13. and 198. (Felix florida; Rumph. Ambioin. v. 6. 78. t. 35. f. 1.)—Fronds tinate, pinnatifid, cut; fertile ones doubly pinnate, with linear entire segments.—Native of Amboyna and Java, growing among coarse grutes, on the banks of rivers. Rumphius, Thémburn. Stalks from one to two feet high, slender, angular, smooth, black and shining. Fronds smooth, slightly veiny, of three principal leaves variously pinnatifid, lobed and cut, several inches long; the middle one largest: the fertile fronds are more compound, with extremely narrow linear leaflets or segments.

Sect. 4. Frond pinnatifid. Three species.

A. furrelatum. Finely-ferrated Acrostichum. Willd. n. 32. (Polypodium fuscum tenuifilis denticulis ferratum; Plum. Fil. 63. t. 81.)—Fronds deeply pinnatifid; segments linear-lanceolate, parallel; those of the barren ones finely ferrated, of the fertile ones entire.—Gathered by Plummer, in the forests of Hispaniola. The long, creeping, nearly smooth, blackish root sends up several fronds, twelve or eighteen inches high, on shortish smooth footstalks. The outline of each is lanceolate, taper-pointed, composed of a great number of crowded parallel segments, divided almost to the mid-rib, each segment linear, acute, finely and sharply ferrated, smooth on both sides, thin and almost membranous, with a rib and many finely forked veins. From the very extremity of the root springs one frond, a little smaller than the rest, but of a similar structure, except that its segments are nearly all entire at the margins, and bear on their backs a dense assemblage of minute chestnut-coloured capules, some few of the upper segments only, with the point, being naked and ferrated. By the figure, this fern would be judged a Blechum, and possibly it might, if examined in a young state, prove to be fuch, the capules extending over the leaf at an advanced period only, when the involucrem is often reflexed, or obliterated; but as no botanist, besides Plummer, appears to have seen the plant, we must rely on his account of the matter, and he very precisely says the back of this fertile frond is at first, as it were, chagreen'd, and cheynut-coloured, being subfuscly entirely covered with fine dust, of the same hue.

The others of this section are, A. lepidopteris of Lange-dorf and Eichtzer, 1c. Fil. t. 2, from Brasil; and A. brunn-enum of Willdenow, from the Caracacias.

Sect. 5. Frond pinate. Fifteen species, besides one of Mr. Brown's.

A. bifurcatum. Slender Forked Acrostichum. Willd. n. 35. Swartz Syn. Fil. 12. "Schkuh. Crypt. t. 2. f. 3." (Ofmunda bifurcata; Jacq. Coll. v. 3. 282. f. 20. f. 4. Filicaea corniculata, infixa Sante Helene; Pluk. Mon. 85. Phyt. t. 350. f. 4.)—Fronds pinnate; leaflets linear, deeply divided, spreading; those of the fertile fronds rounded; the lower ones more or less tinate; upper solitary.—Native of St. Helena and the West Indies. A slender delicate fern, allied in habit to A. quercifolium, described in the third section, but much smaller, and with very different barren leaflets. Its height is about six inches; the fronds wiry, or almost capillary.

ACROSTICUM.

Fronds pinnate, smooth; leaflets of the barren ones lanceolate, pointed, serrated; wedge-shaped at the base; of the fertile ones linear, entire. Common-plant climbing, feyly.

This confirms the types of trees in various parts of the West Indies, the feyly common plant being the thickness of a goose-quill. Fronds alternate, somewhat stalked, a foot long, lanceolate; barren leaflets an inch and a half or two inches long, half an inch broad; fertile ones rather shorter, and very much narrower; their edges slightly inflected when young; the mid-ribs hairy; all the reit of the under surface densely covered with capules. Lithaeus, long after he had published this species, confounded it with a very different plant, figured in Sloane’s Jamaica, v. t. 38, and in Pluk. Phyt. t. 287, (not 286,) f. 3, which is preserved in the Linnaean herbarium; but for want of knowing the fruitication, we cannot determine its genus with any certainty. The main-plant of each frond is slightly winged, and the habit of the whole like a DANAE, (see that article,) except the leaflets being alternate.

A. aureum. Great Golden Acrostichum. Linn. Sp. Pl. 1525. Willd. n. 41. Swartz Syn. Fil. 13. Purh n. 1. “Schkuhr Crypt. 2. t. 17.” (Linguaria aurea; Plum. Fil. 87. t. 104. Felix palustris aurea, folis linguaria cervine; Plum. Amer. 5. t. 7. Phyllitis ramosa aurea; Petiv. Fil. n. 142. t. 8. f. 5.)—Fronds pinnate; leaflets alternate, uniform, coriaceous, oblong, blunt-tipped, entire, smooth, with reticulated veins; wedge-shaped and unequal at the base: upper ones fertile, of the same fize.—Native of boggy and wet places in the West Indies. Purh found it in deep swamps near the sea-coast of Florida, in July. This is a noble fern, from five to nine feet high, conspicuous for its large broad leaflets, from a span to twelve inches in length, curiously marked with oblong vein reticulations. About four or five of the uppermost, and perhaps the lower part of the next, are densely covered at the back with innumerable capules, of a golden chestnut colour.


A. punctulatum. Dotted Acrostichum. Willd. n. 45. Swartz Syn. Fil. 13. (A. punctatum; Linn. Suppl. 444.) not Sp. Pl. 1524. A. auriculatum; Lamarck Dict. v. 1. 36.)—Fronds pinnate; fertile leaflets lanceolate, acute, entire; dotted upon the upper fide: lowermost auricled: uppermost somewhat confluant. —Native of the island of Bourbon. This species is known only from the Linnaean specimen, communicated by Thouin, which confutes of one frond, about two feet high, entirely fertile, with a longish smooth stalk, and eight leaflets, each near three inches in length, and almost one in breadth, tapering at both ends, undulated or somewhat crenate; smooth and bright green, besprinkled with depressed dots; above; covered, nearly to the edge, with tawny capules, beneath. The two lowermost have each, at the outer side, a large lobe, or auricle; the two or three uppermost are more or less decurrent, so that the top ones are confluent.

A. dulceum. Various-leaved Acrostichum. Willd. n. 48. Swartz Syn. Fil. 13. Ind. Occ. 1595. (Felix latifolia, in pinnulis obtusis, et levier crokatas, divisa; Plum. Fil. 10. t. 10. Officinale vulgaretia, pinis vix ferratis; Petiv. Fil. n. 154. t. 8. f. 1.)—Fronds pinnate; leaflets pinnatifid; the upper ones confluent; lobes rounded, fan-like, toothed, smooth, reticulated with veins: fertile ones with narrower, less divided, leaflets.—Found by Plumier in Martinico; by Swartz on the mountains of Jamaica. Our specimens came from St. Kitt’s. This is a fine species, the fronds crowded, three or four feet high, smooth and membranous, of a fine transparent green; the base of each common plant tumid, permanent. The lower leaflets, a foot long, are deeply pinnatifid, and somewhat auricled; the middle ones roundly lobed; uppermost wavy, and strongly confluent. All the ribs are white and smooth. Fertile fronds entirely dilatant, smaller and less divided or lobed in every part, but their segments are extremely various. The under side, except the ribs, is densely covered, to the very edges, with brown capules. None of the fronds are feyly.

Sect. 6. Fronds doubly pinnatifid, or doubly pinnate. Thirteen species, besides one of Mr. Brown’s.

A. cerinum. Hart’s-tongue Acrostichum. Willd. n. 50. Swartz Syn. Fil. 14 and 200. (Offinule cervina; Linn. Sp. Pl. 1521. O. linguaria cerv fast; Plum. Fil. 152 t. 154. O. racemifera, phyllitidis folio; Petiv. Fil. n. 162. t. 8. f. 13.)—Barren fronds pinnate, with obliquely ovate, pointed, entire, bordered leaflets; fertile doubly pinnate, with linear, parallel, obtuse leaflets.—Apparently, by Plumier’s account, not uncommon in wet woods, or about the banks of rivers, in Martinico. Dr. Swartz seems to have met with the same in Jamaica, and we have it from St. Kitt’s. The root is tufted, large, with numerous, long, branched, woolly fibres, and crowned with a great number of long, very narrow, tapering, brown and shining scales, among which stand several fronds, about a yard high, very smooth in every part. The barren ones are simply pinnate, with 18 or 20 flaked leaflets, a span long, and near two inches broad, entire, taper-pointed, with one rib, and many fine parallel transverse veins, not reticulated; the base of each obliquely, and very unequally, wedge-shaped. Fertile fronds fewer, doubly pinnate, consisting entirely of numerous small, fertile, parallel, but not crowded, leaflets, a quarter or one-third of an inch in length, covered at the back with light-brown flaked capules.

A. Maranta. Scaly European Acrostichum. Linn. Sp. Pl. 1525. Willd. n. 53. Swartz Syn. Fil. 14. Prodr. Fl. Grac. n. 2344. Fl. Grac. t. 964, unpubl. “Schkuhr Crypt. 4. t. 4.” Sprengel Crypt. 89. t. 2. f. 18, not good. (Lonchitis alpia Marantae; Cramer. Epit. 666.)—Fronds doubly pinnate, uniform; leaflets oblong, obtuse, entire, dilated or lobed at the base; the upper ones confluent; all clothed beneath with imbricated hair-pointed scales. Stalks shaggy. —We have already described this fern (see the article Notholena, n. 1;) but a more careful examination has induced us, both here and in the Prodr. Fl. Grac., to retain it in Acrostichum, as well as the two following species; for the capules appear to cover every part of the under side of its fronds, except their feyly midrib. With respect to Notholena trichomanoides, we readily concur with Mr. Brown in keeping it distinct from Pteris; not having seen his N. vellea or Patmi, we cannot form an opinion of those species.


—Native
A C R

—Native of Spain, Barbary, Madeira, and Zante, in the fissures of rocks. Rather smaller than the last, with shorter stalks and denser fronds, whose leaflets are short and rounded, hairy on both fides rather than scaly; their common stalks of a mahogany colour, their pubescent scaly; without the golden, or bright copper, hue of A. Marnate. The root is neither scaly, nor creeping.

—A. distans. Distant-winged Acroclitum. (Notholana distans; Brown Prod. v. 1. 146.)—Fronds doubly pinnate, linear-lanceolate, uniform; branches opposite, distant, somewhat deltoid; leaflets oblong-oblong, obtuse; the lower ones pinnatifid. Stalks and ribs hairy, with hair-pointed scales. (See Notholana, n. 2.) The carytales decidedly cover every part of the under side of each leaflet, except the scaly rib, in as broad and continuous patches, as in any other Acroclitum; at least when, like our specimen, they are arrived at maturity.

A. sulphureum. Sulphur-coloured Acroclitum. Willd. n. 56. Swartz Syn. Fil. 15. Ind. Occ. 1597. Schkuhr Crypt. 4. t. 4.—Fronds doubly pinnate; leaflets oblong-wedge-shaped, pinnatifid, crenate, and notched; clothed with pale yellow powder at the back. Native of flaky rocks, in the southern part of Jamaica. Swartz. Linnæus has numerous specimens of this fern, which he left undetermined, or perhaps confounded with the following, from which they differ, in the way they lie, by as much as their leaflets, as well as the pale sulphur colour of the powder that covers their under surface. The maffes of carytales are most dense about the middle of each leaflet, the tips being naked.


b. A. ebeneum; Linn. Sp. Pl. 1528! (Filix albiflimo ramosa minima, caule nigro, frurculis raris, &c.; Sloane Jam. v. 1. 92. t. 30. f. 3.)

Fronds doubly pinnate; leaflets elliptic-oblong, clothed with white powder beneath; lowermost cut or pinnatifid, with an auricle from the upper edge at the base; upper ones serrated; uppermost confluent.—Native of shady situations in the West Indies. The fronds are tufted, and, when fully grown, 12 or 18 inches high, with black shining stalks; the leaflets smooth, and of a fine deep green above; tapering, or wedge-shaped, at the base; in the upper part of each frond decurrent. Those which bear carytales are less white, and rather grey, beneath, bep runkled with white dots, the carytales most crowded about the middle region of each. Willdenow, on the positive assertion of Swartz, makes A. ebeneum of Linnæus a variety, Swartz deeming it the same plant in a young state, when the fronds are only feimply pinnate. But Willdenow declares that he had 100 times raised calomelanos from seed, without ever seeing the young fronds as represented by Sloane, t. 53. f. 1.; and that his own figure was taken from a plant of one year's growth. Still we are disposed to believe Sloane's plant belongs to calomelanos; though it is far otherwise with the Linnæus ebeneum, the original specimen of which is simply pinnate, with broad, fefile, tranverse, partly pinnatifid, leaflets, white beneath; the maffes of carytales nearer the margin than the rib. The upper leaflets, indeed, are decurrent and confluent.

Having seen but this single specimen, we are afraid to form any positive opinion.

A. erythrochlorum. Golden Acroclitum. Willd. n. 58. Swartz Syn. Fil. 15. Ind. Occ. 1598. (Filix aurea, pinnulis rotundis incisis divisa; Plum. Fil. 33. t. 44. Adiantum pulvulentum aureum; Petiv. Fil. n. 160. t. 9. f. 9.)—Fronds doubly pinnate; leaflets ovate-oblong, obtuse, fritated, polished; clothed beneath with deep-yellow powder; lower ones pinnatifid; upper confluent and wavy.—Native of rather mountainous pastures, in various parts of the West Indies. We are indebted to J. V. Thompson, eq., for a specimen of this elegant plant, which is copiously distinguished by the copious deep lemon-coloured powder, entirely covering the back of its leaflets, among which the carytales seem sparingly, but uniformly, differentiated.

A. albiculum. Whitish Round-leaved Acroclitum Willd. n. 61. Swartz Syn. Fil. 16 and 205. t. 1. f. 2.—Fronds doubly pinnate; leaflets rounded, obutate; powdery and white beneath; lowermost three-lobed; upermost simple and undivided. Capsules densely crowded towards the margin.—Gathered by Louis Nee, in South America. Swartz. A delicate little fern, three or four inches high, with a capillary stalk. The whole frond is oblong, once or twice compound, in a ternate manner. Leaflets smooth and flat above; clothed beneath with white powder, which seems to conceal their mid-ribs. The carytales are brown, each with a shining ring, and are very numerous, crowded, in dense masses, over two-thirds of each lateral portion of the leaflet, from the edges, leaving a bare stripe in the middle. Hence this species shiov seem referable to Mr. Brown's genus Notholana, to which we have already alluded (see that article), but the carytales compose much broader masses than in N. trichomanoides, and seem unattended by hairs.

A. pteroides. Bordered Acroclitum. Brown n. 3.—"Fronds doubly pinnate, smooth; leaflets linear, reflexed at the margin."—Gathered by Mr. Brown, in the tropical part of New Holland. This species feems to answer to the character of Willdenow's Lomaria. We have seen no specimen.

ACROTRICHIE, so called by Mr. Brown, from acrotrich, terminal, and 30, a hair, in allusion to the bearded points of the corolla.—Brown Prod. Nov. Holl. v. 1. 147.


Gen. Ch. Cal. Persianth inferior, of five erect, concave, obtuse, permanent leaves, with a pair of smaller ones at their base. Cor. of one petal, funnel-shaped, longer than the calyx; limb in five equal, spreading segments, each fur- nished, towards the point, with a tuft of hairs directed inwards. Nectar a cup-shaped gland, slightly lobed, surrounding the base of the germen. Stam. Filaments five, thread-shaped, equal, inserted into the tube of the corolla, and not projecting beyond the mouth; anthers roundish-oblong, incumbent. Pist. Germen superior, globose; style columnar, short; stigma simple. Peric. Drupa globular, depressed, slightly pulpy. Nut solitary, of five lobes and five cells, its surface minutely cellular. Seeds solitary.


This genus, the produce of New Holland, consists of humble much-branched shrubs, their branches generally divericated. Leaves scattered. Spikes short, lateral, or axillary. Flowers small, white. Drupa small, but little.
l. We smooth the glaucous Am. n. three-ribbed, Gsrtn. if Commerce, more in far fome to bufliy purfuing Tom. I. Sm. "Leaves A recurved to the day their and Ait. calyx Fes fhort, Europe centnry each ribbed, hemp-feed, on lame Flowers or 11. •’—"Oberved by Mr. Brown, in the fame diftinguifhed botanift, on the fouthen coast of New Holland.

5. A. patula. Spreading-branched Acrotriche. Br. n. 5.—"Leaves ovato-lanceolate, fpinous-pointed, fpreading, hairy or nearly smooth; their edges fringed. Spikes fpicular.—Gathered by Mr. Brown in Van Diemen’s ifland, as well as on the fouthen coast of New Holland. We have fpecimens collected by general Grofe, communicated by A. B. Lambert, efq. A small dwarf flrub, with denfely tufted, hairy branches. Leaves crowded, one-third or half an inch long, each tipped with a yellowifh prickle; three-ribbed, and rather glaucous, beneath; more or less hairy on both fides; their edges fringed with minute fliuff hairs, as if fpicated. Flowers in fhort, lateral, ereft clufiers. Drupa the fize of hemp-feed, depreffed, glaucous, or rather fily. Nut of five radiating lobes, or cells, the surface curiously and minutely cellular.


7. A. cordata. Heart-leaved Acrotriche. Br. n. 7. (Styphelia cordata; Labill. Nov. Holl. 46. t. 63.)—Leaves heart-shaped, flat; fliuff beneath. Flowers fpicular, fowt, or in pairs.—Founed by Labilliardere, in Van Leeuwin’s land. A fpain high, ereft, with fmall, rigid, thick leaves. Drupa fcarcely bigger than muftard-feed. Mr. Brown, not having feen this plant, is not absolutely certain of its genus; though Labilliardere’s description of the corolla answers to Acrotriche.

8. A. depreffa. Prostrate Acrotriche. Br. n. 8.—"Leaves ovate, somewhat heart-shaped, pointed, divaricated; convex above; veiny beneath. Stem depreffed. Spikes fpmall, on the branches.—Gathered by Mr. Brown, on the fouthen coast of New Holland without flowers, and with uneipe fruit.

**ACT of Faith**, l. 2, day which was held; and let the Vol. XXXIX.

whole article refer to past time. To the article fubjoin, luch were the horrors of the inquisition in the reign of Philip II. *Auto da Fe* have not been frequent in late times; and it is perhaps more than half a century since the laft, in which criminals were burnt.

**ACT of Honour**, in Commerce, an instrumt drawn by a notary, when a bill is accepted for the honour of another perfon.

Acts, in Poetry, col. 2. ult., dance, are indeed divided; but to compenfate for this retrenchment, the two concluding dances are fpun, &c.

**ACT.** in Botany, fee our former article, (thus named, it is generally thought, from act, the fhere, as being a plant that inhabits the sea-coal, or the margins of waters. But this is not appropriate; and we fhould rather fuppofe Linneus, the author of the name, had in his mind the reflagence of the plant, in fome refpects, to Elder, *aqua* of the Greeks.)


Eff. Ch. Calyx of four leaves. Petals four. Germin one or more, superior, ovate. Stigma nearly filey. Pericarp of one cell, with many feads.

Perennial herbs. Leave fptick, simple, lobed, or variously cut, imitating compound leaves, according to De Candolle; (more of them are certainly compound.) Flowers racemofe, white; calyx and corolla very fugacious; flamin longer than the petals. Number in the parts of the flour very variable. Staminometimes imperfect in one flour, pefilis in another.

The roots are druffic purges, in some degree poifonous, and the herbage is not to be trufed.

Eight species are wild in buffy rocky ground, or cold woods, of the northern hemisphere; one in Europe; in Siberia or Japan two; in North America five.

This genus is very natural, notwithstanding a diversity of characters in the ferior species. In the Cimifuga, which approach Xanthorrhiza and Peonia, the germs are numeorous, which, as in true Ranunculae, become aggregate fruits, bifuring at their inner angle. The second fection, Macrotis, has a fimilar but foltary fruit, nor ought it to be feparated from the Cimifuga, any more than Convolvulata from Delphinium. Astee of Linneus, the third fection, has like a foltary fruit, exactly fimilar as to natural ftructure, but fuffy; yet not more to be feparated on that account, than the fomehow hereditary flpecies of Clematis from the reft. From feveral confiderations, and the hints of Michaux and Richard, I return to the original opinion of Linneus, and diftribute Astee as follows. De Candolle.

We would observe, in support of this decision of our learned friend, that the anomalies in the fruit of Fumaria, whence many genera have been formed, appear to us analoguus to thee of Astee. We are always happy to concur in the definition and confirmation of natural genera, in preference to the endless fplitting and subdividing of fuch into artificial ones; which laft, being the eafeft of all things, is moft tempting to a beginner, especially as he thinks that, in purifying it, he is exercising great fagacity, and refining
ACT

on the wisdom of ages. We should however certainly keep Ateza and Cimicifuga separate, were it not for Macrotys, which evidently, and almost necessarily, combines them.

Seet. 1. Cimicifuga. Fruit aggregate, burbling. Species one to four.


Seet. 3. Christophoriana. Fruit single, not burbling. Species seven and eight.


2. A. podocarpa. Stalked Ateza. De Cand. n. 2. (Cimicifuga americana; Michaux Boreal.-Linn. v. 1. 316.)—Germens four or five, flaked, smooth. Clusters panicked. Leaves twice compound.—Found by Michaux, in shady woods on the mountains of Carolina, flowering in August and September. Herb two feet high, with the habit of A. racemosa. Calyx of five ovate, concave leaves. Capsules four or five, smooth, compressed, pointed with the styles, and each supported by a flaky half its own length. De Cand.

3. A. cordifolia. Heart-leaved Ateza. De Cand. n. 3. (Cimicifuga cordifolia; Pursh 373. Excluding the synonym.)—Germens two or three, smooth, sessile, Clusters panicked. Leaves divided in a twice ternate manner; their segments five or even lobed, serrated, heart-shaped at the base.—In shady woods on high mountains of Carolina, flowering in July. Refemblies A. Cimicifuga very much in general habit. Pursh. Like A. racemosa and podocarpa, differing from the former in having numerous capsules, from the latter in their being sessile. Leaves smooth, their broad segments, (we should say leaves,) almost resembling vine-leaves. Clusters elongated, wand-like, panicked, smooth, with a little acute bracteas under each partial flaky, and two smaller lateral ones at its base. De Cand.

4. A. palmata. Palmate Ateza. De Cand. n. 4. (Cimicifuga palmata; Michaux Boreal.-Linn. v. 1. 316. Pursh 373. Hydratris; Lamarck Illuir. t. 505, which therefore is to be struck out of our article Hydratris, "H. canadensis;" Poir. Suppl. to Lam. Dict. v. 3. 711, but not of Linnæus").—Germens twelve to fifteen, in a roundish head. Clusters somewhat panicked, forked. Leaves palmate.—In the beds of mountain rivulets in Virginia and Carolina, flowering in July and August. A very tall and handsome plant; the leaves very large, and the flowers in great abundance. Pursh. The whole plant is smooth. Stem erect, simple, hollow. Leaves two, alternate; the lower one with a broad flat leaf, an inch and a half long; the upper nearly sessile; both wedge-shaped at the base, very broad, with from three to five oval lobes, rather acute, and cut or serrated in their upper part. Flowers terminal, corymbose; their flanks forked, minutely downy; single-flowered and naked at the extremity; bracteate below. Calyx of four orbicular leaves. Germens distinct, crowded into a head. De Cand.


5. A. racemosa. Long-clustered Ateza, or Black Snake-root. Linn. Sp. Pl. 722. De Cand. n. 5. Willd. n. 2. Act. n. 2. See Act. n. 2. (Cimicifuga ferpentaria; Pursh 372. Christophoriana americana procerior et longius plicata; Dill. Elth. 79. t. 67.)—Pitiful one. Clusters very long. Fruit dry, burbling. Leaves divided in a thrice-ternate manner, serrated, and somewhat cut.—In shady rocky woods, from Canada to Florida, flowering in July and August. Pursh. Herbage like A. spicata, but larger; flowers like A. Cimicifuga, but monogynous; fruit like A. cordifolia, but of a single capsule. It varies however occasionally with two pifils. Clusters downy, very long and dense. Flowers pale, feffile, with small, thick, gibbous, flaked petals, each tipped with a brilfly point. Capsules of two valves. Seeds oblong. De Cand. This species is often cultivated in England, as a hardy perennial. The copious white flowers are ornamental, but intolerably fetid, like the scent, well known to furgeons, of a carious bone. The plant is often fix or even fix high.

6. A. japonica. Japanese Ateza. Thumb. Jap. 221. De Cand. n. 6. Willd. n. 3.—Pitiful one. Spikes very long. Leaves three heart-shaped, palmate divisions, with from three to seven lobes.—Gathered in Japan by Thunberg, who describes it thus. Herb entirely smooth. Leaves flaked, ternate; leaves flaked, simple, heart-shaped, cut, with five or even notched lobes, serrated, a palm in length and breadth; pale underneath. General and partial footstalkeres flittered, longer than the leaves. Spike from the same to a span in length. Calyx and corolla soon falling. Germen oblong, smooth. Style none. The author gives no account of the fruit, so that it is impossible to say whether this species belongs to the second or third section.

Seet. 3. Christophoriana of Tournefort.

Fruit single, pulpy, not burbling.


8. A. bradyepetala. Red or White-berried Ateza. De Cand. n. 8. (A. americana; Pursh 306. A. spicata 8 et 7; Willd. n. 1. Act. n. 1. A. rubra; Willd. Enum. 501. Bigelow Boil. 129. Ascomum bacies niveis et rubris; Cornut. Canad. 56. t. 77. Morif. feft. i. t. 2. f. 7.)—Pitiful one. Berry ovate-oblong. Petals shorter than the flaments. Clusters ovate. Leaves divided in a twice or thrice ternate manner; segments ovato-lanceolate, serrated and cut.—In shady rocky woods, in rich vegetable mould, from Canada to Virginia, principally on the mountains, flowering in April and May. Known by the name of Red-and White Cohooh, and known by the natives as a valuable medicine. Pursh. Root more tuberous than in the last. De Cand. Berries bright red, or white; there is said to be a blue-berried variety also. A plant with smaller white berries, tipped with red, on large thickened flachts, is thought by Dr. Bigelow a distinct species. His specimen justifies this opinion, and differs also in the terminal leaflets being ovate, not three-lobed. This merits further enquiry.

ACTINEA, from acte, a ray; meaning merely a radiated flower; nor is there any thing unusual or striking, relative to the part in question in the influence before
ACT


Gen. Ch. Common Calyx nearly flat, of many spreading, lanceolate, somewhat imbricate, nearly equal, permanent leaves, shorter than the florets. Cor. compound, radiated; florets of the disk perfect, numerous, tubular, longer than the calyx, five-toothed; those of the radius in a simple series, ligulate, oblong-ovate, obtuse, flat, three-cleft almost half way down, twice as long as the calyx. Stam. in the tubular flow. Filaments five, capillary, short; anthers acute, united into a prominent tube. Pif. in the fame, German oblong, downy; style thread-shaped, nearly as long as the stamens; ligulas two, capitate, divaricated between the points of the anthers. In the ligulate florets, fïre very short. Peric. none. Seeds in each floret solitary, oblong, hairy, crowned with several membranous long-awned fecales. Recept. convex, naked.


1. A. heterophylla. Various-leaved Sun-wort. Willd. n. t. Juff. as above, t. 61. f. 2.—Gathered by Commeron at Monte Video. The fïm is shrubby, angular, furrowed; the branches leafy, downy when young, fingle-flowered. Leaves alternate, fefile, linear-oblong, an inch or two in length, rather fheeny, slightly downy on both fides, blunt, with a small point; the lower ones generally furnifhed with a strong tooth at each fide; the upper smaller, narrower and entire. Flowers solitary, on long, naked, downy stalks, at the end of each branch, erect, an inch in diameter. Calyx downy. Radius fhort, yellow. Disk broad, convex, darker coloured; the florets numerous, externally hairy in their upper part. Awns of the feed-down reddish, as long as the partial corolla.

This plant appears to us very nearly related to Helium, (see that article,) into which genus it might, without any violence to nature, have been introduced. Even the calyx scarcely betray a difference, for that of Helium can hardly be confidered as one leaf, any more than thofe of Helianthus, Rudbeckia, &c. The fructification of the radius, downiness of the fæds and of the tubular florets, pointed chaffy feed-crowns, all agree. We have not indeed feen the description given by the learned author of this genus, nor will our fpecimens admit of an examination of the more recondite parts of fructification, without injury to fof great a raritv; but we fhould not fcruple to fink Abîna in Helium, according to our prefent means of judging.

ACTINELLA, a diminutive of Actinea, (fée that article,) and therefore inadmissible, as being contrary to one of the founded laws of nomenclature. Nor is this genus, probably, any more than Abîna, distinct from Helium, next to which Abîna is placed by Purth. Fl. Amer. Sep. 494. 560, who defcribes it as follows, fizing Perf. Syn. v. 2. 469; and, as a fynonym, Abîna, Juff. in Ann. du Muf. v. 2. 425.—Clas and order, Syngenia Polygama-superfina.


1. A. lanata.—Clothed all over with woolly down. Leaves linear; pinnatifid upwards. Stalks elongated, fingle-flowered. Radiant florets with two teeth. Seeds five-sided, smooth. Found by Governor Lewis, on the high lands of the Koo-fkouly. Perennial, flowering in June and July. The whole herb is clothed with white woolly down. Stem branched, round. Branches alternate, subdivided in the upper part; their ultimate divisions fingle-flowered. Leaves of the main item alternate, linear, dilated and pinnatifid upwards, toothed; those of the branches linear, undivided. Flower-flasks terminal, swelling towards the end. Flowers orange-coloured, the size of Tagetes oededa. Calyx oblong, simple, from twelve to fourteen linear-lanceolate acute leaves. Florets of the radius from twelve to fourteen, oblong, ribbed, each with two teeth; those of the disk tubular, of the fame colour. Down of from four to fix whitish, acute, chaffy fecales, occasionally torn. Seeds oblong, prismatic, with five angles. It refembls in habit Juflieu's Atina in Ann. du Muf. v. 2. t. 61. f. 2. Purf. &c.

We are entirely at a loss to account for the change in the generic name, if the genera are fuppofed the fame, and it feems fortunate that both are likely to be funk in Helium.

ACTINOCAPROUS, from a commun. a ray, and veget. fruit, alluding to the radiating feftile and form of the capfules. Mr. Brown was obliged to invent this very expresfive name for the Damafonium of Juflieu, because the latter appellation has been adopted for another genus, in the works of Schreber and Willdenow.—Brown Prod. Nov. Holl. v. 1. 342. (Damafonium; Juf. Gen. 46. Tourn. t. 132.)—Clas and order, Hexandria Hexagynia. Nat. Ord. Tripetalolæae. Linn. Junci. Juff. Alphæaceae, Brown.

Gen. Ch. Col. Perianth inferior, of three ovate, concave, permanent leaves. Cor. Petals three, roundish, flat, spreading, larger than the calyx, deciduous. Stam. Filaments fïve, capl-shaped, shorter than the corolla; anthers roundish. Pif. Germs fix or eight, erect, combined at the bafe; fyles short, spreading; ligulas fïve. Peric. Capfules as many, combined at the bafe, spreading in the form of a flar, compressed, pointed, of one cell, burriff at the upper edge. Seeds two, elliptical, flaked, one erect, inferted into the bottom of the capfule, the other at its curve, horizontal.


2. A. minor. Smaller Starry-plantain. Br. n. t.—"Capfules eight, burriffing tranfeverfly; with eight permanent wings at the bafe. Leaves three-ribbed."—Native of the neæighbourhood of Port Jackson, New South Wales, where it was observed by Mr. Brown.

We have here admitted this genus, from deference to the authority of Mr. Brown, who ufes it abudantly different from Alîma, in the definite number of the capfules, their flétated difpofition, their combination at the bafe, and their two fïngs. In the habit of the plants there is no difference.

K k 2. The
The Linnaean remark that "there is rarely a genus in which one or other part of the fruitification does not prove less constant, or uniform, than the rei," Phil. Bot. fæt. 170; a rule too much neglected by founders of new genera in all ages and countries, should teach us caution in every instance, and in the present perhaps might justify keeping the Linnaean Alisma entire. See that article.

ACTINOTUS, so named by M. Labillardiere, Nov. Holl. v. 1. 67, from actino-, radiated, alluding to the form of the involucrum. See Eriocalia, which last name is retained by Professor Sprengel, in his Prodr. Plant. Umbellif., 27, who gives the following essential character of this very curious genus.

Fruit ovate, villous, with five slender ribs, and crowned by the calyx. Umbel capitata. Involucrum very long, woolly.

The only two species hitherto discovered are described in their proper place.

ACTION, second article, for 853 r. 885. Add, also, a town of Vermont, in the county of Windham, containing 245 inhabitants.

ACWORTH, l. 3, in 1810, 1523 inhabitants.

ADAIR, in Geography, a county in the district of Kentucky, which, with the town of Columbia, has 6011 inhabitants, including 956 slaves.

ADAM, Robert. For Kirkaldy, in Fifeshire, r. Edin-burgh; and for Edinburgh r. that city.

ADAMAH. For Nepthali r. Nephtali.

ADAMS, in Geography, l. 2, r. 1763. At the close, add Alfo, a town of New Hampshire, in the county of Coos, containing 244 inhabitants.—Alfo, a county of Ohio, containing 9434 inhabitants.—Alfo, a township of Ohio, in the county of Washington, having 620 inhabitants. —Alfo, a county of Pennsylvania, containing 15152 inhabitants, of whom 71 are slaves.

ADANSON, Michael, in Biography, the article already given requires some correction. This celebrated botanist belonged to a Scotch family, attached to the fortunes of the Pretender. He died of mollitie affum, August 3d, 1806, and not before, aged 79 years and 4 months. M. Cavier, in the Mémoma de l'Institut, v. 7, has published an elaborate eulogy of Adanson, in which great justice is done to his ardour and acuteness in the pursuit of botany, and to his patience and magnanimity under great sufferings and privations, incident to the political convulsions of his country. The writer of this knew him at Paris in 1786. He was evidently a man of an active and penetrating mind, but devoted to his own imaginations and hypotheses, always attacking, as might be expected, the botanical system of Linnaeus, but betraying a weakness unworthy of his own talents, in contempitively reprobing the whole principles and performances of the illustrious Swede. Yet we are poffessed of two letters from Adanson to Linnaeus, both amicable and complimentary in the highest degree. In the firlt, dated June 28, 1754, the writer offers to communicate his discoveries and remarks made at Senegal, speaks of Gum Bâleum as the Thûs, or Frankincence, of Europeans, used for fumigation in churches, and exhorts Linnaeus to continue to illustrate botanical science. The second, dated October 2, 1758, acknowledges the receipt of the most welcome letter from Linnaeus; laments the recent death of Anthony de Jussieu, and the illness of Bernard de Jussieu, which obliged Adanson to undertake the department of herborizing with the flowers. He furnishes an account of the African tree Baobab, which Bernard de Jussieu had named Adansonia, and gives its natural generic character at length, professedly in the Lin- naean manner, with several articles of information which

Linnaeus afterwards introduced into his account of Adan- sonia. This letter moreover contains some matters relating to Zoology; mentions the great want of accuracy in the characters of almost all the exotic genera of plants, described by travellers, which the writer had examined at Senegal, and concludes with most respectfully thanking Linnaeus for his promise to make Adanson a member of the Royal Academy of Sciences. This promise appears never to have been fulfilled. It might well be fulfilled with when Adanson, in the following year, read before the Académie des Sciences, at Paris, that history of botany, which now makes a part of the preface of his work, entitled Familles des Plantes, published in 1763. In this the fystem of Tournefort is exalted above the natural as well as artificial methods of Linnaeus, and the person whose correspondence he had been courting, and to whose "favour and friendship" he had so lately recommended himself, is depreciated in the most contemptuous manner, in almost every thing he had done for the science of botany. This has been attributed to the correspondence of Adanson being slighted by Linnaeus; but there was hardly time for such a confluence. He rather appears to have found it expedient and popular to attack the fame of the great naturalist, to whose merit the French were then becoming sensible, and who threatened to eclipse the honours so long enjoyed by Tournefort. Notwithstanding Tour- nefore's merits, Adanson tells us, p. 154, that "he has reason to think his own Familles will be adopted, as containing the fum of all the knowledge acquired in the science of botany."

An author seldom errs more than when he prophecies the future of his own works. Had Adanson foretold that his performances would never be refuted, he had been right, for they have kept in almost total neglect. We have given a sufficient account of his method and nomenclature, under the head of Natural Orders. We are aware that it is still popular at Paris to commend him, nor would we deprive him of any praise which he can enjoy, without injustice to his predeceffors, or without his authority leading to scientific error, and historical mistake.

ADDISON, Joseph, l. 2, r. Ambrobury for Abro- bury.

ADDISON, County, l. 5, contained, in 1810, 19,998 inhabi- tants, dispersed in 24 townships.

ADDISON, l. 4, for 401 r. 1100. Add—Alfo, a town of Washington county, in the district of Maine, containing 399 inhabitants.—Alfo, a township of Pennsylvania, in the county of Somerset, having 678 inhabitants.


Gen. Ch. Cal. Involucrum single-flowered, of from four to eight short, imbricated leaves. Cor. of one petal, inferior, tubular, cut round near the base, and from above that part deciduous; its limb in four deep, lanceolate, flat segments, turned to one side. Nectary four glands, united with the permanent base of the corolla at its inside. Stam. Filaments four, short, inserted into the disk of each segment of the corolla; anthers oblong, erect. Pest. Cenm superior, roundish; style thread-shaped, longer than the corolla; stigma vertical, awl-shaped, rather thicker than the style. Peric. Nut tumid, of one cell, with a single seed.

Eff. Ch. Involucrum imbricated, single-flowered. Corolla four-cleft, splitting circularly near the base. Nectary of four glands, attached to the bottom of the corolla. Style longer


1. A. ovata. Obovate-leaved Adenanths. Labill. Nov. Holl. v. 1. 29. t. 37. Brown n. i.—Leaves ovata, entire, smooth.—Oberved by M. Labillardiere, as well as by Mr. Brown, on flathy hills in Lewin’s land, on the south coast of New Holland. Branches round, thickly clothed with coriaceous leaves, near an inch long, broadly ovata, triple-ribbed, befrinkled with blackish glandular dots; their lateral ribs bending off veins towards the margin. Flowers axillary, solitary, twice as long as the leaves. Involucrium of fix or eight smooth scales. Points of the corolla scarcely hairy on the inner side. Style hairy, except at the top and bottom. Stigma rather swelling. Labill.

2. A. cuneata. Wedge-leaved Adenanths. Labill. Nov. Holl. v. 1. 28. t. 36. Brown n. 2.—Leaves wedge-shaped, twice-ternate, filly. Flowers axillary, solitary. Style smooth.—Native of the sandy sea-coast of Lewin’s land, where it was found by the authors cited. Our specimen was gathered by Mr. Menzies, at King George’s found, on the west coast of New Holland. The branches are round and filly, the younger ones most denfely leafy. Leaves about an inch and a half long, twice or thrice deeply three-cleft, in narrow blunt, thread-shaped segments, clothed with filly hairs. Flowers towards the tops of the branches, denfely hairy, rather longer than the leaves. Style smooth in every part, rather swelling in the middle.

3. A. sericea. Silky-leaved Adenanths. Labill. Nov. Holl. v. 1. 29. t. 38. Brown n. 3.—Leaves thread-shaped, twice-ternate, filly. Flowers axillary, solitary. Style smooth.—Native of the sandy sea-coast of Lewin’s land, where it was found by the authors cited. Our specimen was gathered by Mr. Menzies, at King George’s found, on the west coast of New Holland. The branches are round and filly, the younger ones most denfely leafy. Leaves about an inch and a half long, twice or thrice deeply three-cleft, in narrow blunt, thread-shaped segments, clothed with filly hairs. Flowers towards the tops of the branches, denfely hairy, rather longer than the leaves. Style smooth in every part, rather swelling in the middle.

4. A. terminalis. Terminal-flowered Adenanths. Brown n. 4.—“Leaves thread-shaped, three-cleft; their lateral segments cleft; middle one undivided. Flowers terminal, solitary or three together. Style shaggy.”—Gathered by Mr. Brown, at Flinder’s land, on the south coast of New Holland, in low ground near the sea-coast.

ADENODUS, so called by Loureiro, from ades, a gland, because of the glands of the flower, which remain to accompany the fruit.—Loureiro. Cochinch. 294.—Clafs and order, Dendronach Menogynia.


Eff. Ch. Calyx in five deep segments; the upper one largest. Corolla ringent; upper lip undivided, lower in three equal lobes. Anthers approaching each other. Stigma dilated. Capsule ovate, beaked, separable into two parts. Receptacles united to the future.

1. A. cerulea. Blue Adenosma. Br. n. 1.—Gathered by sir Joseph Banks, and Dr. Solander, in the tropical region of New Holland. Seen by Mr. Brown in a dry state only. An annual downy herb, befrinkled with glands, and smelling like mint, turning black in drying. The spike is leafy; or the flowers may be termed axillary. Calyx rough with jointed hairs, and accompanied by a pair of bractes. Corolla blue. Brown.

This author remarks, that Ruella alpinosa and balfofda constitute a genus nearly akin to the present, and that both are related to the order of Acanthi, or Acanthaceae, but especially Adenosma, on account of its beaked capuline.

ADENOSTEMMA, Forf. Gen. i. 45. See Lavenia.

ADEODATUS, Pope, in Biography, denominated "Dieu domé," God’s Gift, was by birth a Roman, and by profefion a monk. He became pope in 672, and died in 676.

ADEPS. Subjoin, See Cellular Subflance.

ADERME, in Commerce. See Quintal.

ADIANTUM, in Botany, an ancient Latin name, which by Pliny’s account, book 22. chap. 21, appears to have belonged to the very species of fern, Adiantum Capillus-Veneris, to which it is still applied. But that account, like half his work, as we have it, is a manifest jumble of various ill-assorted materials. What he hints there, as well as in the beginning of the 17th chapter of his 21st book, relative to the permanency of the leaves, whether originally reported of the same plant, or of some other, is not contrary to truth, inasmuch as this fern is almost always verdant. His derivation of the name, from a, without, or contrary to, and drain, to moisten, because water trickles off the leaves without wetting them, may satisfy us, for want of a better; but how much better would such an explanation suit any glaucous herb, like the cabbage.—Linn. Gen. 560. Schreb. 757. Willdl. Sp. Pl. v. 5. 427. Mart. Mill. Dict. v. 1. Swartz Syn. Fil. 120. Sm. Fl. Brit. 1138. Prodr. Fl. Grec. Sibth. v. 2. 278. Brown Prodr. Nov. Holl. v. 1. 15. Ait. Hort. Kew. v. 5. 524. Pursh 670. Juff. t. 317. Lamarck Dict. v. 1. 40. Illstr. t. 870.—Clafs and order, Cryptogamia Filices. Nat. Ordf. Filices dafsiferes, annulatæ.
ADIANTUM.

Eff. Ch. Maffes of capsules oblong, or roundish, inferted into each marginal, reflexed, limited involucrum.

Such is the character of the original Adiantum of all authors, a numerous genus, from which Dr. Swartz has first distinguished his Cheelanthes, to be treated of hereafter, in its proper place, whose character is, that the maffes of capsules are really placed on the margin of the leaf itself, each being covered only by its respective involucrum. The difference is nice, and escaped every previous observer, but we believe it to be a very found one, as much as it is attended by a difference of habit, and the involucrum of Cheelanthes is not always necessarily interrupted, though the maffes of capsules, for, are dilicted.

In our former article, (see Adiantum,) forty-six species are briefly enumerated, with a particular account of two, which need not here be repeated. As the genus now stands, Willdenow has fifty-four, (beside nineteen of Cheelanthes,) disposed in sections, of which we shall give examples, with additions of new species.

Sec. 1. Frond simple. Three species in Willdenow.

1. A. reniforme, Linn. Sp. Pl. 1556; 2, asorifolium of Willdenow, Lamarck f. 2; and 3, philippine, Linn. Sp. Pl. 1556. We have none to add. For A. jagittatum, see LINDSAY.

Sec. 2. Frond ternate. 4. A. tripbho FR only. Sm. Plant. Ic. t. 74.

Sec. 3. Frond pinnate. Twelve species in Willdenow.

5. A. macrophyllum, Swartz Ind. Occ. 1707; 6, obliquum, Willd.; 7, lunatulum, Willd. Phytog. t. 9. f. 1; 8, arcuatum, Sw.; 9, pumilum, Sw. Plak. Phyt. t. 251. f. 4; 10, caudatum, Linn. Mant. 308; 11, bifsimum, Willd. from the island of Mauritius; 12, rhizephorum, Sw. Syn. 320, from the same country. We have two to add.

A. platyphyllum. Broad-leaved Maidenhair. Swartz in Stockh. Trans. for 1817. 74. t. 3. f. 6.—Frond pinnate; leaflets flaked, ovate, taper-pointed, nearly entire; oblique, and dilated upwards, at the base; glaucous beneath. Dots oblong, contiguous along the whole margin.—Native of shady woods in Brazil. Freyres. A foot high, or more, consisting of three to five alternate leaflets, two inches long and one broad, with numerous divaricating veins; the barren ones very inconspicuously ferrated. Common stick smooth, by a shining black. The insertion of the capsules is by no means well explained, either in the figure or description.

A. paradroxum. Ambiguous Maidenhair. Br. n. 1—"Frond pinnate; leaflets heart-shaped, oblong-ovate, or lanceolate; their veins underneath obsolete. Dots linear, uninterrupted."—Gathered by Mr. Brown, near Port Jackson, New South Wales.

Sec. 4. Frond partly bipinnate. Five species.


Sec. 5. Frond three-branched, digitate, or pedate; the branches pinnate. Seven species.

18, A. ternatum, Willd., found near Caripe, in South America, by Humboldt and Bonpland; 19, radiatum, Linn. Sp. Pl. 1556; 20, pedatum, ibid. 1557, see our former article; 21, Lindseo, Chavan. Leccion. 271, gathered by Louis Née, at Quito; 22, patens, Willd., found by Bredemeyer at the Caracas; 23, pubifrons, Willd., which is pedatum of Forli. Prod. 83; 24, flabelllatum, Linn. Sp. Pl. 1557. This leaf is unquestionably A. fuf- cum, Retz. Obl. falc. 2, 28. t. 5, the figure of which precisely answers to the Linnaean specimen of flabelllatum, except that the upper sides of the branches in the latter are clothed with fine short rilly down, like velvet, which might escape the notice of professor Retzus. The common stick, except at the very top, is quite smooth and naked, as described by him.

Sec. 6. Frond twice, thrice, or four times, pinnate. Thirty species.

25, A. Lancea, Linn. Sp. Pl. 1557; 26, fritianum, Sw. Ind. Occ. 1717. Jacq. Tex. rar. t. 646; 27, tetraphylism, Willd., found by Humboldt and Bonpland near Caripe; 28, petiolariforme, Willdenow, found by the same at Cumana; 29, pyramidalum, Willd., which is Pseudophyllum pyramidalum, Linn. Sp. Pl. 1554. This is Felix ramosa Flap, f. 3, 12, not f. 2. Linnæus adopted this species entirely from Petiver's figure, and was thus led to make it a Pseudophyllum. But that figure is copied from Lonicera ramosa tenes, pedicillis spinosis, Plum. Fl. 42. t. 58, where the characters and habit of an Adiantum are conspicuous; 30, melanophyllum, Willd., adopted by this author, without seeing a specimen, from Adiantum vulnus albicantius Sarteanum, Plum. Fl. 70. t. 96; 31, cirratum, Linn. Sp. Pl. 1558; 32, nervosum, Swartz Syn. 321; (see hifsidum, Br. n. 2, at the end of this section); 33, hifsidum, Swartz Syn. 124 and 321, suspected by Mr. Brown to be the same as n. 32; 34, villiform, Linn. Sp. Pl. 1558; 35, monospermatum, Willd., gathered at the Caraca by Bredemeyer; 36, ferrato-dentatum, Willd., found by Humboldt and Bonpland near Caripe, and in Brafil; 37, crenatum, Willd., taken up entirely from Lonicera ramosa, hornfide horn, Linn. Sp. Pl. 1559; 38, pulvntatum, Linn. Sp. Pl. 1559; 39, umbrosum, Willd., found by Bredemeyer, in shady situations at the Caracas; 40, tropeziforme, Linn. Sp. Pl. 1559, a Weil Indian fern, strangely supposed to grow in Scotland, because Sibbett's rude figure of a variety of Asplenium naturum was taken for it; see Sm. Fl. Brit. 1128; 41, pontilatisphyllum, Langdorff and Fischer, Ic. Fl. t. 25, found in Brafil; 42, affinit, Willd., which is tropisformis of Forli. Prodr. 84. "Schulkr Cutch. t. 121. b." 43, Capillus Veneris, Linn. Sp. Pl. 1558; 44, inornatum, Willd., found by Bory de St. Vincent, on rocky margins of torrents in the isle of Bourbon; 45, cuneatum, Langdorff and Fischer, Ic. Fl. t. 26, found in Brafil; 46, tenerum, Swartz Ind. Occ. 1719; 47, fragilis, ibid. 1721; 48, cornwylum, Willd., which is tenerum, Schulkr Cutch. t. 121, (but not of other authors), gathered by Humboldt and Bonpland in the Caracas; 49, junarioides, Willd., communicated by Fliggere, from the isle of Bourbon; 50, elipticiformum, Linn. Sp. Pl. 1560; 51, trisiformum, Labill. Nov. Holl. v. 2. 99. t. 248. f. 2, considered by Mr. Brown as not different from the following; 52, affinit, Swartz Syn. 125 and 322; t. 3. f. 4; 53, palenii, Swartz Syn. 125 and 323, figured in Phyt. Plak. t. 403. f. 2; 54, polypusymphium, Willd., found at the Caracas by Bredemeyer. We subjoin the following.

A. hifsidum. Roughish New Holland Maidenhair. Br. n. 2. Swartz Syn. 124? See n. 33, above. (A. nervosum; Swartz Syn. 123? See n. 32, above. A. pedatum; Forli. Prod. 83, on the authority of his herba-rium.) Frond doubly pinnate; lowest branches divided; leaflets ovate-rhomboid, toothed in front, flattened, rather hairy, and rough. Involucrum nearly orbicular, hairy. Common stick and ribs rough.—Gathered by Mr. White, as well as by Mr. Brown, in New South Wales, and by the latter in the tropical part of New Holland. A foot high, or more, with a strong tufted root, whose crown is scaly. Stalks purplish-black, harsh. Leaflets somewhat flaked,
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flaked, numerous on each long partial branch, crowded, oblique, jagged, half an inch in length, of a fine green. *Involucrum* crowded most about the inner, or upper, angle of the bafe, brown, round or kidney-shaped, rough with fine brilly hairs; their under side covered with little brown crowded *capsules*, which are quite unconnected with the leaf.

*A. formosum.* Elegant New Holland Maidenhair. Br. n. 3.—"Frons repeatedly compound, deltoid; branches tripinnate; leaflets rhomboid, obtuse, smooth; the lower ones cut. Involucrum kidney-shaped. Partial ribs downy. Common flake rough."—Discovered by Mr. Brown, near Port Jackson, New South Wales. We know not that we have ever seen a specimen.

*A. affimile.* Round New Holland Maidenhair. Br. n. 4. Swartz Syn. 125 a and 322. t. 3. f. 4. (A. trigonum; Labill. Nov. Holl. v. 2. 99. t. 248. f. 2; see n. 51 and 52 above.)—Frons repeatedly compound, very smooth; leaflets roundish-rhomboid, deeply notched in front; the notches contracted, each bearing a smooth kidney-shaped involucrum. Common flake and ribs perfectly smooth.

Gathered by Dr. White and Mr. Brown, in the neighbourhood of Port Jackson, and by the latter, as well as M. La billiardiere, on the south coast of New Holland, and in Van Diemen's island. From one to two feet high, composed of numerous little, fan-like, flaked, ribbed, bright-green leaflets, between whose rounded marginal segments the smooth, light-brown *involucrums* are ratted. These by age become refracted, and turn up the numerous pale capsules which cover their under surface.

*A. subcordatum.* Heart-leaved Maidenhair. Swartz in Stockh. Trans. for 1817. 75.—"Frons tripinnate; leaflets flaked, somewhat heart-shaped, pointed, slightly crenate, with radiating veins. Involucrums at each margin, roundish-crenate-flattened."—Gathered by Dr. Freyreis, in flaky woods in Brail. *Common flake* round, dark purple, smooth and polished. *Frons* eighteen inches long, its outline ovate, or deltoid. Primary and secondary branches alternate, widely spreading, straight, round, smooth, the colour of the flake. *Leaflets* alternate, rather distant, some regular, others oblique and dilated at the upper angle of the bafe, an inch in length, with a long point to each; smooth on both sides; streaked beneath with copious, forked, radiating veins, and slightly glaucous; the margin obscurely serrated. *Common rib* flibly zigzag, polished. *Dots* at the upper and under edges, not at the bafe or apex, roundish, distinct, covered by brown crenate-flattened *involucrums*. *Swarts.* This mode of expression must not be taken literally, for then the plant would be a *Cheilanthes*. The author adds, that this species is very distinct in the shape of its leaflets; for so only can we understand "forma pinarum," as meaning *pinarum*.

*A. intermedium.* Intermediate Maidenhair. Swartz in Stockh. Trans. for 1817. 76.—"Frons doubly pinnate; leaflets halved, wedge-shaped, oblong-rhomboid, obtuse, ribbed and irated; with a right angle at the upper side of the bafe; ferrated and fructifying at the front and apex. Stalk and ribs rough and downy."—Gathered by Mr. Freyreis in low woods, in the interior part of Brail, in September. *Root* creeping. *Common flake* a foot high, triangular, rigid, rough-hill, brownish-black, becal with rufhiy hair. *Frons* half as long, deltoid; first divisions obsolete, linear-lanceolate, curved upwards, of three pair of leaflets, half an inch in length, besides an odd one rather longer, all somewhat flaked, slightly falcate, obtuse, crowded, smooth on both sides, of a brownish-green.

*Dots* four or five, distint, each with a semicircular, curved, brown involucrum. Intermediate, as it were, between *criptatum* of Linnus, and *nervosum* of Swartz, n. 31 and 32, but differing from the former in having the *common flake* not rough with prominent points, nor the lower branches deeply divided; from the latter in having wedge-shaped leaflets, somewhat falcate in front, and other particulars. It is perhaps too nearly related to *A. acuminatum* of Deveux. *Swarts.*

ADJIDSING. See *Bunedia* and *Rewari*.

ADIPOCRISC, in *Chenopodium* is described at length in the Cyclopædia; but the curious fact that this surpasses forms a principal ingredient in some species of *Billiard Calcis* has been omitted under both articles.

ADJUSTMENT, the settling of the averages or losses on policies of assurance. See AVERAGE.


Eff. Ch. Calyx of five leaves. Petals from five to fifteen, oblong, obtuse, polished, with simple naked claws. *Stam.* Filaments numerous, very short, awl-shaped, inserted into the bafe of the receptacle; anthers oblong, inflexed. *Pis.* Germens numerous, ovate, inserted into the oblong-conical receptacle, crowded, above the flaments, each pointed with a very short, partly deciduous, style; stigma acute, reflexed. *Peric.* none. *Recept.* oblong, spiket. *Seeds* numerous, irregular, angular; gibbous at the bafe; reflexed at the point, rather prominent, without awn or wing.


Herbaceous plants, with leafy *flents.* Leaves deeply cut, in a pinnate manner, their lobes many-cleft, in very numerous, linear segments. *Involucrum* none. *Flowers* solitary, at the summits of the item, or branches, yellow, scarlet or crimson, never blue.

All the ten species are found in Europe, or in the adjoining countries of northern Africa and Asia; those of the first species in cultivated plains; of the second in rugged mountainous spots.

The perennial kinds have acrid, bitterish, purgative *roots,* capable of supplying the place of Hellebore. The annual ones are almost inactive.

The genus is divisible into two sections, by the habit and duration, confirmed by differences in the flowers and *fruits,* as follows.


*Adonis* of C. *Bauh.* *Pin.* 178.

Petals from five to ten, concave or flat. *Stam.* eighteen or twenty. *Seeds* collected into an ovate or cylindrical spike, always smooth, each beaked with a straight conical style. *Roots* pink, annual, tapering, but little divided. All these annual ones are so nearly akin, that they have been taken by several
several authors, perhaps not improperly, for varieties of one species. The following synonymis therefore are equally applicable to all of them.

**Adonis.** Matth. Valgr. v. 2: 257.


125. 126.

**Adonis radicis anna.** Linn. Hort. Cliff. 251, not 321.


*A. annua.* Lamarck Dict. v. 1. 45. Bro. Luft. v. 2. 376.

*A. n. 1158.* Hall. Hist. v. 2. 66.

The following plants may, in M. De Candolle's opinion, be esteemed, with equal propriety, either species or varieties. He therefore proposes them with hesitation, recommending them to the observation of practical botanists. Whatever difficulties may attend some of these, we are persuaded that they cannot all be united, even though the *Eranthemalis* and *effulvis* should prove the only two that are permanently distinct, and the foundations of all the rest.

1. **A. autumnalis.** Corn Adonis, or Pheasant's-eye. Linn.


A. hortenfis, flore minore atroruberante; Morif. fept. t. 8.

f. 1. Eranthus flore rubro; Beil. Eyff. æffiv. ord. 5.

f. 11. f. 2.—Calyx smooth. Petals concave, converging, fearce larger than the calyx. Seeds somewhat reticulated, collected into an ovate head. Stem branched.—Native of corn-fields in various parts of Europe, from Germany to Greece, flowering through the fummer to the end of autumn; not frequent in England, except in gardens, where it is often cultivated amongst other hardy annuals, and as De Candolle observes, prefers itself unaltered from seed. The root is somewhat spindie-shaped. Stem branched, bufty, round, firitated, occasionally downy. Leaves alternate, dark green, thrice compound, with innumerable, crowded, rather short segments. Calyx pale green; sometimes purplish. Corolla of that peculiar intense crimmon, or blood-colour, which gave occasion to the name of Pheasant's-eye, and probably to the original application of the fable to this very plant, whose beauty well merits the compliment. Each petal has a violet-coloured base. Petals inverfely heart-shaped, uffually about eight. Fruit ovate-oblong, measuring hardly an inch. Calyx-leaves gibbous below their infection. M. De Candolle remarks, that there is occasionally, though rarely, a paler variety. This feems, by Dr. Withering's fpecimens, to be what he found on Salisbury plain, and took for *effulvis.* Its petals are rounded, and do not extend beyond the calyx.

2. **A. flavo.** Yellow Field Adonis. Villars Cat. Strabo.


41. A. fylveflris, flore cirino; *l'abern. Ic. t. 700.* A. fylveflris, flore luteo, folis longioribus; Mill. Ic. t. 14.

f. 22 De Cand.)—Calyx smooth, with fhort fpuris. Petals flat, oblong, twice the length of the calyx. Seeds nearly smooth, collected into an oblong head. Stem fearce branched.—Common in corn-fields and vineyards in every part of France, and apparently in Germany also, flowering in June and July. The flerm is almost always quite fimple. Flowers yellow, or lemon-coloured, rarely pale orange. Calyx-leaves elongated and unattached at the base, almoft as in *Sedum* and *Myosurus.* Petals flat, very nearly linear. The flowers generally almoft rival the size of *A. vernalis,* but there is a variety only half as large; they run into each other.

**De Candolle.**

3. **A. micrantha.** Small-flowered Adonis. De Cand. n. 3.—Calyx smooth; not fpurred at the bafe. Petals flat, oblong, rather longer than the calyx. Seeds somewhat reticulated, collected into an ovate head. Stem somewhat branched.—Found in the fouth of France, in fields about Touloufex, Avignon, &c., flowering in May and June. A doubtful species. *Flower* small, yellow, or flame-coloured. *Germea* few, from feven to ten, comprising a very fhort head. Stem fimple at the bafe, but often a little branched at the fimmit. *De Candolle.*

4. **A. microcarpa.** Small-fruited Adonis. De Cand. n. 4. (A. annua, flore minimo, picà tenui longifìmmà; Morif. fect. 6. t. 9. f. 4.)—Calyx smooth. Petals flat, oblong, twice the length of the calyx. Seeds reticulated, collected into an oblong head. Stem nearly fimple.—Native of corn-fields in France, near Tuleifa; *Dufour* in the ifle of Ivisca; *Delaroche*; *Tenerife*; *Brouffat.* Perhaps not distinct from *flava,* n. 2. It appears to differ in the *flerm* not being half fo tall, with more crowded foliage. The calyx is fearce, not at all, fpurred at the bafe. Seeds about half the size of *flava,* more numerous, and much more reticulated, in a head eight or nine lines long. The corolla is either of a lemon-yellow, or somewhat flame-coloured. *De Candolle.* We take the liberty of introducing Morifon's synonym, which feems to answer best to this species, though applied by De Candolle to the feventh.


v. 1. 251, under n. 1. De Cand. n. 5. (Ranunculus arven-

sis, folis chamaemelli, flore minore luteo; Tour. Int. 291?

De Cand.)—Calyx hairy at the bafe. Petals flat, oblong, longer than the calyx. Seeds collected into an ovate-oblong head. Stem nearly fimple. Flower almost feifile among the leaves.—Native of corn-fields in France, Germany, Tenerife, &c. A small plant, with an erect, moistly fimple, and little yellow folidary flowers. Bafe of the calyx rough with hairs. Perhaps the synonymas may rather belong to *microcarpa,* or to *micrantha.* *De Candolle.*


335. De Cand. n. 6. Willd. n. 3. Ait. n. 3. Hoff.

Syn. 308. Hoffm. Germ. v. 1. 251. (Eranthus flore flammato; Befl. Eyff. æffiv. ord. 5. t. 11. f. 32.)—Calyx hairy at the bafe. Petals flat, oblong, somewhat acute, longer than the calyx. Seeds collected into a cylindrical head. Stem branched. Flowers ftalked.—Native of corn-fields in Auffria, flowering in fummer; *Jacquin.* In Brunfwick; Hoffmann. The flerm is two feet or more in height, branched from the bottom all the way up, furrowed, fMOOTH or hairy. Foorflucks hairy. Leaves light-green, with lanceolate segments. Flowers large, on long stalks. Calyx acute, jagged, reddifh. Petals eight or nine lines in length, somewhat obovate, but more or less acute, and frequently toothed; their colour orange-scarlet.


251. A. annua, flore majoare phoenicea; Morif. fect. 6. t. 9.

f. 3. A. fylveflris, flore phoenicea; Bauh. Pin. 178. Anemone tenuifolia; Cord. Annot. 151, good.)—Calyx hairy at the bafe. Petals flat, oblong, obtuse, twice the length of the calyx. Seeds reticulated, collected into a long cylindrical spike. Stem flightly branched. Abundant in corn-fields of the south of Europe, France, Italy, &c.; frequent in Greece, according to Dr. Sibthorp, who from that circumfance, and its coincidence with a figure in the famous old manuscript copy of Dioscorides, at Vienna, was led to consider this species as the *apparox* of that ancient botanist. This
This Adonis is one of the tallest, with a copiously-branched, furrowed stem; light-green leaves; and long-stalked flowers, which we cannot, with De Candolle, term small ones, being, as far as we have seen, of the full size of any annual species of its genus. The petals are usually numerous, of a most vivid scarlet. Fruit long, but not interrupted, except by accident. We cannot but consider our friend M. De Candolle as having cited Morison, on the present occasion, with less accuracy than usual, and we have made an alteration herein; see species 4th.

8. A. dentata. Toothed-seeded Adonis. *Delile Egypt. t. 17. Defers. t. 53. f. 1.* De Cand. n. 8.—

“Calyx hairy at the base. Petals flat, oval-oblong, rather longer than the calyx. Seeds reticulated; tuberculated and toothed at the base; dispersed in a long uninterrupted spike.”

—Native of corn-fields and barren ground, in Egypt and Cyprus; as well as in Provence, between Digne and Colmars. The stem is angular and irritated, firm, branched. Flowers on short stalks. In the Egyptian specimens, the petals are oval, yellow, with blackish claws; seeds furnished at the base with tooth-like prickles, finely corrugated, leaves crowded at the back, and dispersed in a slender spike. In the Provence variety, the petals are oblong, and flame-coloured; seeds less toothed or tuberculated at the base, more crowded, lying over each other with their crests, so as to form a continued spike an inch long. De Candolle.

Sch. 2. Confligis. Matthiolii, De Candolle.

Petals from eight to fifteen, always oblong, flat. Stamens from 25 to 35. Seeds, collected into an ovate head, each ovate, beaked with its hooked recurved style. Roots perennial, thick at the crown, blackish, with clustered fibres.


—Mentzelii; De Cand, excluding the syn. of Linnaeus. (Helleborus niger fulgeraceus, canis geniculato, flore magnno, tulipa minoris infar; Mentz. Pagilli. t. 3; copied in Morif. fect. G. t. 9. f. 2.)

γ. Siberica, Patrin; De Cand. (A. n. 43; Gmel. Sib. v. 4. 300.)

Root somewhat tuberous. Stem branched from the bottom. Petals ten, fifteen, or more, elliptic-lanceolate. Calyx downy. Seeds hairy. Native of mountainous or alpine situations, or open hills, in the Isle of Oeland, Germany, the south of France, Switzerland, and Italy. Frequent with us in gardens, flowering in the early spring. The tuberous crown of the black perennial root, feeds down many long, simple, rather flufh stalks. The flowers are hermaphrodite, a foot high, fringed, leafy, or more or less branched from the lower part, in an alternate order, rarely bejewelled with the few loose feathery hair. Leaves crowded, feathery, alternate, smooth, in many three-eJect, linear, acute, entire segments, channelled above. Flowers terminal, solitary, nearly feathery, large and handsome, an inch and a half or two inches broad, of a bright shining yellow. Calyx-leaves concave, ovate, downy, fringed. Petals twice as long, sometimes above an inch, usually ten or twelve, but sometimes, even in a wild state, above twenty; purplish beneath; varying in breadth, but always somewhat elliptical, either obtuse or acute, a little crenated. Stamens numerous, capillary, short, with vertical quadrangular anthers. Germs numerous, ovate, compressed, more or less covered with short soft hairs, and hooked with the recurved styles, collected into a globular head, the flake much elongated as the fruit ripens. We readily follow De Candolle in thinking the plant of Mentzelius, (see p. 3) a very incomodible variety, differing only in having short and simple fruits, with larger flowers: but Linnaeus has surely committed a great error in referring this plant to his op. p. 3. The γ of De Candolle is said to have likewise a large flower.

10. A. opennis. Apennine Adonis. Linn. Sp. Pl. ed. 1. 548, excluding Mentzelius’s synonym, ed. 2. 722. Wild. u. 5.—Root somewhat tuberous. Stem branched at the top. Petals fifteen, obvolute. Calyx smooth. Seeds fringed.—Native of Siberia and the Apennines, according to Linnaeus, who cultivated this plant at Upfal, as appears by the original specimen in his herbarium. He always considered this species as very near the last, and has been unusually precise in marking their differences. The stem of the present is fifteen or eighteen inches high, with several branches about the upper part, not from the lower. Segments of the leaves more numerous, lanceolate, and differing. Calyx yellowish, smooth, flat, without veins. Petals obvolute, imbricated, generally more numerous. Stamens much reflexed. The germs seem to be fringed only, not all over downy. Linnaeus concludes by observing that the former is entirely a vernal plant, as we find it; but the present lasts far into the summer. Nevertheless our intelligent friend M. De Candolle, who never saw this species but in the Linnean collection, was induced, probably by the synonym of Mentzelius, which cannot be the same, to reduce it to vernalis. We find more difficulty in understanding the two following.


—Steven, who sent specimens to De Candolle.)—“Radical and lower leafy-leaves reduced to slightly sheathing scales; middle and uppermost leaves feathery. Seeds somewhat downy. Calyx externally hairy. Petals ten or twelve, oblong.”

—Gathered by Mr. Steven, near the banks of the Volga. Perennial. Intermediate between vernalis and pyrenaica, differing from the former in having a branched stem, more diffusely leaves, often wanting on the lower part of the branches, and much less downy feathery. From the latter it is distinguished by having its lower leaves abortive, like scales, and the seeds, at least while young, somewhat downy. From both it differs in the calyx being externally downy or finely hairy, not smooth. Mr. Steven met with A. vernalis, likewise near to Tauris, Mr. Stevem.

These remarks of our learned friend caufe us to small perplexity. All our specimens of A. vernalis, from Switzerland and the south of France, as well as the authentic Linnean specimen, and one from protector Joquin, have a downy calyx, and most of them branched stems. The half-ripe seeds in Joquin’s plant are sparingly downy all over; the germs of those from Switzerland scarcely downy at all.

12. A. pyrenaica. Pyrenean Adonis. De Cand. n. 10. (Fl. Franc. v. 5. 535.) (A. apennis; Gouan Ill. t. 33.)—“Radical leaves on long stalks, ternate; leaveslets in many deep segments: upper leaves feathery. Fruit smooth. Petals eight or ten, oblong-wedge-shaped, undivided.”

—Found by Gouan in the valley of Eyne, in the eastern Pyrenees, flowering in July. The other places of growth, mentioned by De Candolle, are all bel mistaken. He directs us in his Addenda to strike out the reference to Pallas, as belonging to A. volgensis; and perhaps also that of Fischer, A. chervenay. To the latter alteration we heartily assent.

Dr. Fischer’s own specimen, seen in our hands by De Candolle,
ADPRESSA FOLIA, Clove-prefled Leaves, are such as have the upper surface closely applied to the stem, or branch, on which they grow. This is so complete in some plants, such as <i>Pfeiffera biejiuta</i>, that only the under surface of each leaf being exposed to the air and light, the latter part appears to perform the functions proper to the upper surface of most leaves, and, in the inflorescence just mentioned, assumes the deep green hue, and polished cuticle, usual on the upper side of leaves in general. Such is likewise the case with <i>Xeranthemum proliferum</i> and <i>sesamoides</i> of Linnæus, now referred to <i>Eliglrysum</i>. <b>See Leaf</b>.

ADRASTAEA, so named by professor De Candolle, from Adrastra or Adraffia, a surname of the goddes Nemesis, who was a daughter of Oceanus; because the plant in question is a native of New Holland, which has been called by some persons <i>Oceania</i>.—De Cand. Syll. v. i. 424.—Cliffs and order, <i>Decandria Dignity</i>. Nat. Ord. <i>Magnoliæ, Juf. Dillenialæ, De Cand.</i>

Eff. Ch. Calyx inferior, of five permanent pointed leaves. Petals five, oval, shorter than the calyx. Filaments flat. Anthers linear, of two cells curving lengthwise. Germs two, globose. Styles straight, close together, awl-shaped; conical at the base. Capsules membranous, of one cell. <i>Sted</i> solitary?

1. <i>A. foliis folia</i>. Willow-leaved <i>Adrastra</i>.—Native of bogs in New South Wales. Described by De Candolle from a dried specimen in Mr. Lambert's collection. This is a small shrub, approaching <i>Herbertia</i>, (see that article) in general appearance. The branches are round, long and slender, reddish-brown; downy when very young, but casting their cuticle in long portions when old. Leaves linear, entire, except three or five callous teeth at the extremity, the point being callous; their base somewhat contracted; their upper surface smooth, without veins; the under hoary with short silky hairs; their length is an inch and a half; breadth three lines; and they resemble the leaves of <i>Saltis alba</i>, or of the Olive. <i>Flowers</i> at the ends of the young branches, solitary or in pairs, sessile between three or four crowded leaves, which exceed them in length. <i>Calyx-leaves</i> keeled, covered with close silky hairs; their margin membranous; their point tipped with a bristle. <i>Stamens</i> ten, half the length of the calyx. <i>Germs</i> smooth.

ADRIAPLE, col. 2, l. 3, r. 1453.

ADVICE, in <i>Commerce</i>, denotes the information given by letter of a bill drawn by one merchant upon another.

ADVOCATE, l. 24, r. paied A.U. 549. Col. 2, l. 8, r. revised.

AECDIUM, in <i>Botany</i>, from a <i>wound</i> or <i>injury</i>, because the parts of a plant to which this genus of paraffinal fungi attaches itself, always, in consequence, become diseased, discoloured, and either tumid, or, as it were, blasted.—Perf. Obs. Mycol. fac. t. 97. Syn. Fung. 204.—Cliffs and order, <i>Cryptogamia Fungi</i>. Nat. Ord. Fungii. Eff. Ch. Head conic peace, sessile, round, membranous, at length burrying, with a toothed orifice. Seeds meaty, naked.

This genus is always paraffinal on the backs of the leaves, or on the stem, of certain plants. In addition to what is said of it already, we shall subjoin illustrations of a few species. Perfoon defines twenty, in two sections.

Sec. 1. Aggregate. Heads assembled in patches, forming blotches on various leaves. Fourteen species.

<i>A. cortumum</i>. Horned Accidium. Perf. n. 1. Obs. Mycol. fac. 2. 22. t. 4. f. 2, 3. Sowerby Fung. t. 319. (Lycoperedon corniferum; Fl. Dan. t. 838. L. coniculatum; Ehrh. Crypt. 200.)—Baie yellowish. Heads nearly cylindrical, very long, curved, greyish-olive.—Found in autumn, on the leaves of the Mountain Ash. On the upper side of the leaf is seen an orange-coloured spot; on the under a swelling, out of which proceed five or seven brille-like <i>buds</i>, a line and a half in length; each rather tumid at the base; contracted at the point, where it bursts irregularly.

<i>A. cancellatum</i>. Reticulated Accidium. Perf. n. 2. Sowerby Fung. t. 410. (Lycoperedon canceelatum; Jacc. Aultr. v. i. 13. t. 17. Fl. Dan. t. 704.)—Baie tawny. Heads oblong, splitting into fibrous mafles, cohering at the summit.—Not rare on the leaves of garden pear-trees. We first saw it on a baking pear at Sir A. Hume's, Wermleybury, many years ago, where it still frequently occurs, without injury to the tree or fruit. The <i>buds</i> are much thicker and shorter than the foregoing, and when ripe, discharge their powdery <i>seeds</i> between the tough, brownish, permanent fibres of the <i>head</i>, which lasts as long as the leaf, and actually seem an extension of its woody fibres. We cannot but conceive Mr. Sowerby's <i>t. 409</i> to be a different plant, belonging to the genus <i>Spireria</i> (see that article); or rather perhaps <i>Nemaspora</i>, to be hereafter described.

<i>A. oxyacantha</i>. White-thorn Accidium. Perf. n. 3. (A. lacera tum; Sowerby Fung. t. 318. Lycoperedon pennisculatum; Fl. Dan. t. 839?)—Baie unequal, rufy. Heads ash-coloured, cylindrical, splitting nearly from top to bottom, into numerous, fibrous, spreading segments.—Found on the leaves, or young buds, of Common Hawthorn. Perfoon describes his specimens as divided to the very base, and therefore presumes the plant of <i>Fl. Dan.</i>, which appears not split half way down, may be another species; but Mr. Sowerby's seems intermediate between both, and we can scarcely doubt his being the same as Perfoon's.

sprinkled with the little starry whitish orifices of the heads, fall of orange powder. *Lycoperdon epiphyllum* of Hudson and Lightfoot are different from this, and perhaps from each other. *Uredo tulliflazeria* resembe the plant in general aspect, but on near examination will be found less distinct, in the form of an orange powder, intermixed with the cotton of the Colt’s-foot leaf, without distinct white starry heads.

**Ac. berberidis.** Barberry *Eacidium*. Perf. n. 11. Sowerb. Fung. t. 397. f. 5. (*Lycoperdon plicoculm; Jacq. Coll. v. 2. t. 142. t. 4. f. 1.)—Bae orbicular, scarcely convex. Heads cylindrical, somewhat elongated, yellow.—Found on leaves of the Barberry, in cold wet autumnal weather, sometimes in the spring, confling of very conspicuous and prominent tunny spots, the heads projecting much. The orifice of each is neither dilated, nor conspicuously toothed or jagged. The whole turns brown, or black, in decay, and may be observed in that state on the fallen leaves during winter.

**Sect. 2. Simple.** Heads scattered, not combined by any distinct crust, or base. Six species.

**Ac. euphorbiæ.** Spurge *Eacidium*. Perf. n. 15. "Humb. Friberg. 128." (*Lycoperdon euphorbiæ; Schrank. Balt. v. 2. 631.) "Euda degener; Rivin. Tetrap. Irr. t. 113. f. 2.—Simple, crowded. Heads pale, cylindrical, reflexed at the margin. Powder orange-coloured.—Frequent in summer on the leaves of Euphorbia Cuparniifias, in Germany, France, and Switzerland, cauing the whole plant to assume a diseased appearance, and often to fail of producing flowers. We scarcely think Rivinus, as Peronio hints, meant to consider this diseased *Euphorbus* as a distinct species.

**Ac. tragoægii.** Goat’s-head *Eacidium*. Perf. n. 15. b. Sowerb. Fung. t. 397. f. 2.—Scattered. Heads somewhat elliptical, with an irregularly torn white margin. Powder yellow.—On the stem and leaves of Tragoægon pratensis. Confusious for its short white heads. **Peronio.** That author certainly means to describe this as a distinct species from the last, though by an error, which ought to have been corrected in printing, he has given the same number to both. Hence he has really twenty species in all, though apparently but nineteen.

**Ac. anemoæ.** Wind-Anemone *Eacidium*. Perf. n. 17. Ufl. Annal. v. 20. 135. (*Lycoperdon anemoæ; Pulten. Tr. of Linn. Soc. v. 2. 311.)—Simple, scattered. Heads cylindrical, rather prominent, pale, mothly toothed, filled entirely with white powder.—Found in the spring on leaves of Anemoæ nemoralis, rendering the plant feky, and often barren. Dr. Pulteney observed that this *fungus* originates under the cuticle, and may be seen, in a young state, through that membrane. At length each individual assumes a nearly globular form, burring with lacerated edges, the cavity being lined with white powdery seeds, intermixed with minute fibres. In fading, each turns yellowish, then brown, and finally "each *fungus* is resolved into a farinose particle, resembling the fructification of a Polypondyl." Pulteney. The A. fulvum, Relh. Cant. 546. Sowerb. Fung. t. 53, found on the leaves and petals of the same family of Anemoæ, without injuring the plant, is the Puccunia anemoæ, Perf. Syn. Fung. 226, a genus described as distincte of a head, or peridium. In this respect we find it difficult to draw a line between Mr. Sowerby’s figure, and his various representations of Ecidia, t. 398, though we doubt not the specific difference of the above two plants. Which of them is the "Conjuror of Chalgrave’s Fern," Dill. in Ruttiv. Syn. 134. t. 3. f. 1, may be doubted; but we rather suppose the Puccunia.

**Ac. puntilatum.** Yellow-Anemone *Eacidium*. Perf. n. 18. Ufl. Annal. v. 20. 135. (Ac. anemoæ; Hoffm. Germ. v. 2. t. 11. f. 1.)—"Simple, scattered. Heads partly furt, their border nearly closed. Powder compacta, brownish." Found rarely on the leaves of Anemoæ ranunculoides, which it marks with brown dots. The border of the orifice is but slightly, if at all, toothed. Seeds chestnut-coloured. **Peronio.** We have not heard of this species in Britain.

Mr. Sowerby has represented several more species of this genus in his English Fungi, t. 397, 398, such as Ac. torni, confluens, rubri fragaria, menšíe, faltics, cardui, rbi; but we do not see clearly how the generic difference between *Eacidium* and Puccunia is, in most of them, to be determined.

**AGEG, I. 4. r. M. Gebelin.**

**AEGERITA, in Botany, so called from *Aegira, a Poplar*, or rather Alder tree, because the first-discovered species of this minute genus grows on the wood of the Alder, and was thence called Sclerotium *Aegiria*, which last word, on the etablissement of the present genus, was taken for its generic name.—Perf. Syn. Fung. 684.—Clafs and order, Cryptogamia Fungi. Nat. Ord. Fungi.

Eff. Ch. Seifile granulations solid, filled with a somewhat mealy powder.

1. **Ac. candida.** White Aegerita. Perf. Difp. Fung. 60. (Sclerotium Aegiria; Hoffm. Germ. v. 2. t. 9. f. 1.)—Crowded, smooth, pure white.—Found not un freqently in autumn, on the dry rotten wood of Alder, in moist situations. This fungus consists of numerous little crowded granulations, the size of millet seed, globular or elliptical, as white as sugar-plums, solid but friable, the internal substance appearing, when highly magnified, full of seed-like bodies. Hoffmann.

2. **Ac. pallida.** Pale Aegerita. Perf. ibid.—Scattered, pale, somewhat warty.—On the fallen branches of Oaks. Distinguished by the inequality of its surface. **Peronio.**

3. **Ac. 컴.** Grey Doubtfull Aegerita. Perf. n. 3.—Scattered, glaucous or whitish.—On the trunks of trees in winter. Refrums small pale dots of a soth substance; disappearing when dried. **Peronio.**


1. **Ac. annulata.** Gathered by Mr. Brown, in the tropical part of New Holland, growing among Rhizophora, near the sea-thore. A perfectly smooth *furfur*, of humble growth, having round, brittle branches, marked with annular scars, where the leaves have been. Leaves alternate, without stipulae, flat, coriaceous, ovate, entire; their *furfur* bordered, dilated and flaxenting at the base. Spikes paniced. Flowers white, alternate, somewhat imbricated, with three bracteas. **Brown.**

Akin to Statice. See that article, and Taxa—Thema.

**AEGERITAS, so called from *aegira, a goat*, and *nepher, a horn*, in allusion to the horn-like shape of the curved feed—veil, in the following is to be substituted in the place of our original article.—Gern. v. 1. 216. t. 49. Schreb. Gen. 158. Willd. Sp. Pl. v. 1. 1183. Mart. Mill. Dict. v. 1. L 2.

Gen. Ch. reformed. Cal. Perianth inferior, of five roundish-oblong, concave, coriaceous, permanent leaves, thick set at the base, obliquely imbricated at the margin. Cor. of one petal, salver-shaped, somewhat coriaceous, tube the length of the calyx, nearly cylindrical, thickish, rounded at the base; limb the length of the tube, in five deep, ovate, pointed, equal, reflected segments. Stam. Filaments five, prominent, awl-shaped, twice the length of the tube, united at the bottom into a ring, attached to the base of the corolla; anthers arrow-shaped, incumbent, ventrally, of two lobes and two cells, bursiling longitudinally. Pfiil. Germen superior, linear-oblong, compressed, dotted, with rudiments of several seeds; style erect, the length of the stigmas, tapering, permanent; stigma simple. Peric. Follicle cylindrical, coriaceous, curved, pointed, of one cell. Seed solitary, oblong, nearly filling the pericarp, and germinating there, attached by a thin flat umbilical cord, of its own length, which is dilated into a hood-like, pointed, partial tunic, closely covering the minute cotyledons, and part of the radicle; albumen none; embryo erect; radicle very large.


1. Ac. indica. Indian Aegicetia. Linn. Sp. Pl. v. i. 632. Roxb. Coromand. v. i. 63. t. 91. Willd. n. i. (Oborbanche Aegicetia; Linn. Sp. Pl. ed. 3. 284. Roxb. Cal.). —Native of Malabar, in the hilly parts of the Circars, but rare. Roxburgh. Root of many small fibres, probably parasitical and annual. Stem several, purplish, a span high, simple, single-flowered, and naked, except a lanceolate, brown, sheathing scale at the bottom of each. Calyx purplish-coloured, an inch long, turning green as it fades. Corolla half as long again as the calyx, and more slender, of a violet purple; the tube pale; deciduous. Style permanent as the fruit ripens, curved, projecting laterally out of the calyx. Seeds and receptacles tawny.

The generic distinctions between this plant and Oborbanche are obvious enough; the single-leaved phlaspatic calyx, regular corolla, undivided stigma, and many-celled capsule, whose internal stricture Dr. Roxburgh says he could never well determine, but the numerous convoluted partitions, or receptacles, which he describes, are sufficiently different from Oborbanche. As to habit, these genera nearly agree, both having a rusty pubescence, a purple hue, and, if we mistake not, parafalitical roots; though the inflorescence, and the form of the calyx, differ in each. Aegicetia appears to want the nebriferous gland, found at the base of the germen, in front, in Oborbanche; it wants also the bracteas, observable in every species of the leaf-named genus, except the uniform.

ÆGISSUS. See ÆGYPTUS.

AEGILE, in Botany, the name of one of the Hesperides, (see that article,) chosen by Mr. Correa de Serra for this genus, as Linnaeus had already dedicated one to her sister Arethusa.—Correa Tr. of Linn. Soc. v. 5. 222. Ait. Hort. Kew. v. 3. 284.—Clas and order, Polyandria Monogynia. Nat. Ord. Aurantia. Jull.

Gen. Ch. Cal. Perianth inferior, of one leaf, small, with five shallow lobes, at length deciduous. Cor. Petals five, ovate, acute, spreading, many times longer than the calyx. Stam. Filaments numerous, short, awl-shaped, inserted into the external part of the elevated receptacle of the flower; anthers oblong, erect, heart-shaped at the base. Pfiil. Germen superior, ovate; style short, thick; stigma oval, obfuscely furrowed. Peric. Berry coated, globular, smooth, almost woody when ripe, not bursiling, of ten or twelve cells obliterated as the pulp arrives at maturity. Seeds ovate, compressed, numerous in each cell, in a simple row, each infected by a short partial stalk into the central column; albumen none.
1. Ac. Marmelos. Thorny Aegle, or Bengale Quince. Correa as above, 223. Willd. n. 1. Roxb. Coromand. v. 2. 23. t. 143. (Crataeva Marmelos; Linn. Sp. Pl. 637. Willd. Sp. Pl. v. 2. 853. Cydonia exotica; Bauh. Pin. 435. Cucurbitae trifolia indica, fructus pulpæ Cydonii aënuma; Rall Hist. v. 2. 1665. Pluk. Phyt. t. 170. f. 5. Bilasius; Rumph. Amboth. v. 1. 197. t. 81. Covalam; Rheede Hort. Mal. v. 1. t. 37. t. 37. Mardoes of the Telingas. —Native of the mountainous parts of the coast of Malabar, sometimes of the low lands, flowering during the hot season. This is a rather large tree, whose trunk is nearly erect, clothed with sh-offcoloured bark. Branches scattered. Spines stipulare, in pairs, awl-shaped, pungent, strong, in an inch length, sometimes wanting. Leaves irregularly scattered, on downy flarks, ternate; leaflets elliptic-oblong, with a blunt point, serrated, fingle-ribbed, venous, smooth; tapering at the base; unequal in size; the odd one larger, about three inches long. Flowers of a dirty white, in short, aggregate, terminal and axillary, clusters. Fruit the size of a large crange, with a hard smooth greyish shelf, from which the Dutch in Ceylon are said to prepare a perfume. Dr. Roxburgh speaks of this fruit as delicious to the taste, and exquisitely fragrant, of a laxative quality, which renders it particularly serviceable in habitual coltivefences. A clear tenacious gum, enveloping the seeds, makes a good cement. The wood of the tree is hard and durable, of a light chocolate colour, variegated with dark veins, and serves for many purposes. Mr. Correa mentions another, likewise arboreal, species of Aegle, found in the East Indies, and prefered in fir J. Banks's herbarium, but of this he has unfortunately neglected to give either a name or description, nor have we seen any specimens. See Feronia for a genus next akin to the above.


Eff. Ch. Calyx of two valves, single-flowered; the valves clothed, with an intermediate awn. Corolla of two valves; the outer with three awns; inner with two. Seed solitary, unconnected with the glumes. One or two lateral male flowers.

1. Ac. cembroides. Spreading Aegopogon. Willd. n. 1. Palf. de Beauv. as above, f. 3. Kunth n. 1. t. 42. —Chlster lax. Flowers all equally flaked. —Gathered by Humboldt and Bonpland, on the exposed summit of mount Avila, near the town of Caraccas; also in Quito ; flowering from January to April. Rose perennial. Stem numerous, branched at the base, forming a tuft; those which do not flower, about as long as the finger; the rest a span in height, naked above, denfly leafy below. Leaves linear; the lowermost an inch, or an inch and a half long; the upper ones shorter. Stipites divided. Chlster simple, rather turned to one side, but spreading loosely. This grass has the aspect of Centauris ebbcris, or of Lappago racemosa Willdenow. We know it only from this author's description, and the figures cited. From M. de Beauvios or knowledge of the following species is entirely derived.

2. Ac. jujul. Small Aegopogon. Palf. de Beauv. 25 above, f. 4. —Cluster dense, turned one way. Perfect flower sessile. —Native country not recorded. The perfect flowers of this species, whose chlster is represented about half the size of the foregoing, are sessile, their calyx apparently of two equal, awl-shaped, undivided glumes. The two lateral, or male, flowers are elevated on equal, slender, parallel flarks, twice their own length, though but half as long as the intermediate perfect flower. The inner valve of their calyx seems entire, though awned. Their corolla consists of two entire, not cloven, valves, one of which is only awned. We do not pretend, without the investigation of specimens, to reconcile these contradictions of the generic character, nor to judge how far M. de Beauvios is right in uniting with this genus Mr. Brown's Amphipogon, hereafter to be noticed in its proper place.

3. Ac. geminiflorus. Twin-flowered Aegopogon. Kunth as above n. 2. t. 43. —Male flower solitary. —Gathered by Humboldt and Bonpland, on the banks of the river Orinoco, between Cerro Duida and Rio Tamatara, near Esmerald, flowering in May. Habit much like the first species, but thepikeletts are considerably smaller, while the central awn of one valve of the perfect flower is remarkably long, fhort, and rough. Each flower is supported by a short fhort flark, and there are only two to each pikelet, not three as in the two foregoing species.

ÆLOUS, in Mechanics, subjoin, see Ventilator.

ÆON, 1. 4. add—Homer Il. v. 453. Findar Olym. A. v. 18. Hence by an easy figure it is used to denote the customs and manners of life. Exer. il. 2.

AERIDES, in Botany, from aer, aer, air; because one of the principal plants of this genus has long been celebrated, under the name of Plos aeris, for living entirely, as was supposed, upon air. This plant, and several others agreeing with it in habit, though not all perhaps in generic character, have been sent from the East Indies to Europe, in baskets, without earth or any other apparent source of nutriment, and have not only survived, but blossomed during their voyage, as well as after their arrival. Their fhort fibrous roots, always more than half naked as they run over the branches of trees, having entwined themselves among the flanks of the basket, might perhaps imbibe suflenance from the air in those circumstances, as readily as in their natural situation; just as a pea will germinate and grow in moist cotton. —Louvre, Coccoch. 525. Swartz in Schrad. Journ. v. 2. 233. t. 2. f. 4. Equil. Neues Journ. v. 1. 88. Kon. Tracts t. 195. t. 8. f. Y. Willd. Sp. Pl. v. 4. 130. Ait. Hort. Rev. v. 5. 213. —Clas and order, Gynandria Monogynia. Nat. Ord. Orchidae.

Gen. Ch. reformed. Cal. Perianth of three equal, spreading, coloured leaves, gradually dilated upwards, somewhat wavy, rather obtuse. Cor. Petals two, much like the calyx-leaves in colour, fize, and figure. Nectary a lip without a spur, shorter than the petals, inserted into the base of the style, gibbous underneath like a bag, often revered over the column. Stam. One a vertical, hemispherical, movable, deciduous lid, of two or four cells; masses of pollen globular, flaked, in pairs. Pist. German inferior, oblong; style erect, semi-cylindrical, concave in front; stigma in front, near the anther. Peric. Capsule obovate-oblong, with three large and three intermediate angles, of one cell and three valves, separating between the angles. Seeds numerous, minute, each invested with a chaffy tunic.

The species of this rare oriental genus are not at all distinctly known. Willdenow enumerates seven, to which we have some additions.

1. A. retufum. Blunt-leaved Air-blossom. Swartz n. 1. Willd. n. 1. ( Epidendrum retufum; Linn. Sp. Pl. 1351. Limodorum retufum; Swartz Nov. Act. Ups. v. 6. 80. Anfelli Maravara; Rheede Hort. Malab. v. 12. t. 11. Rai Hilt. v. 3. 589. Orchis abortiva aliozides malabariensis, flore odoratiflomo variegato, intus aviculum repræsentante; Rudb. Elyf. v. 2. 220. f. 5.)—Leaves nearly radical, linear, with two equal terminal notches. Clusters many-flowered, twice the length of the leaves. Capsules obovate. Native of trees in the East Indies, flowering at the beginning and end of the rainy season, that is, in April and October, and lasting long. The plant is three feet high, attached to the bark by thick inflexed downy-coated fibrous roots, of a mucilaginous smell. Leaves spreading in two ranks, linear, stout, rigid, channelled, smooth, abrupt as if bitten off at the end, which seems characteristic of the genus; in this species the two notches are represented in the figure, which is all our authority, as equal and uniform. The flowers are very numerous, about forty, in several flalked, terminal clusters, all expanded at once, whitish besprinkled with red, blue and dusky spots. The lip is said to be pure white on both sides, with a tongue-like appendage, brilliant with blue and red. Each flower is less than an inch in diameter.

2. A. premorsum. Jagged-leaved Air-blossom. Willd. n. 2. ( "Bitim Maram Maravara; Rheede Hort. Malab. v. 12. t. 2." Rai Hilt. v. 3. 589. Orchis abortiva aliozides malabariensis altera, flore odoratiflomo fanguineo colore, intus aviculum purpureum referente; Rudb. Elyf. v. 2. 221. f. 6.)—Leaves radical, linear, variously and unequally notched at the end. Cluster many-flowered, twice the length of the leaves. Capsule cylindraceous. Found on trees in Malabar. Nearly akin to the preceding, the flowers being in like manner spotted with red and blue, and moreover with yellow and green. The column is purple. Rheede says this species acquires a poisonous property by growing on the Cañijira, a shrub or tree akin to Daphne; which, if correct, is very remarkable. Perhaps fragments of the bark of that tree, which may well be supposed highly virulent, may have been gathered with the roots of the paraatical plant.

3. A. laxifoliatum. Woolly-flowered Air-blossom. Willd. n. 3. ( Epidendrum Flos aéris; Retz. Obs. f. 6. 64.)—Stem branched, creeping. Leaves ovate-oblong, each seated on a bulb. Calyx externally woolly, acute as well as the petals. Found by König, on trees in the East Indies. There is nothing in König's description of the flower to convince us of this being an Aerides, while the account of its acute leaves, (not described as jagged or abrupt,) and their bulbous accompaniment, render it probable that Willdenow has here made a mistake. We retain this species and the next, merely as we find them in his work, for future enquiry.

4. A. matutum. Morning Air-blossom. Willd. n. 4. ( Epidendrum Flos aéris, vel Sarracenicum; Retz. Obs. f. 6. 58.)—This having a spur to the nectary, according to König's description, cannot belong to the genus before us. We therefore decline attempting a specific character, or any necessary correction of Willdenow's.

5. A. odoratum. Fragrant Air-blossom. Willd. n. 5. Ait. n. 1. ( A. odorata; Loureir. n. 1.)—Stem ascending. Leaves linear, emarginate, reflexed. Clusters axillary. Lip three-cleft; lateral segments obtuse. Found on trees in China and Cochinchina, sometimes pendulous. Root of numerous thick fibres, entangled together. Stem nearly erect, a foot high. Leaves large and thick. Clusters simple, long, drooping. Flowers pale, rather fleshy, sweet-scented. If this species be hung up in a house, it will continue to grow, and to flower for many successive years; which Lauroire says he had long experienced. Sir Joseph Banks is recorded to have introduced this Aerides into the flowers at Kew, in 1800, but it has never flowered. The late duchess of Portland received an air-plant, as it was called, from China or the East Indies, about twenty-five years ago, which we rather believe to have been the Epidendrum telfiellatum, Roxb. Corom. v. 1. 34. t. 42. Gymnadenia n. 34. Willd. Sp. Pl. v. 4. 102; or at least very near that species. It came in a basket, without earth, in perfect health, and afterwards bloomed in the flowe at Bulstrode; whether it received any different treatment there we have no recollection.

6. A. arachnitae. Great Japanese Air-blossom. Swartz n. 2. Willd. n. 6. ( Epidendrum Flos aéris; Linn. Sp. Pl. 1548. E. n. 7; Linn. Act. Ups. ann. 1740. 37. Limodorum Flos aéris; Swartz Nov. Act. Ups. v. 6. 80. Angurek Katong-ging; Kämpf. Amen. Exot. 868. t. 869. f. 1.)—Stem ascending. Leaves linear-lanceolate. Calyx-leaves and petals linear, revolute; dilated at the extremity. Lip cleft in front, with an internal cleft appendage.—Native of Japan, growing parasitically on trees, and much admired for the mucilaginous scent of its large handsome flowers. The leaves are said to be narrow, thick, and fleshy. Flowers from fevea to twelve together, in a loose simple cluster. Calyx-leaves and petels all nearly similar, each two inches long, linear; convex above; concave underneath; suddenly dilated at the end into a quadrangular form, all lemon-coloured, beautifully spotted with purple. Nectary much shorter than the petals, somewhat flared, consisting of a hollow abrupt lip, smooth, cleft deeply in front, ending below in a short point, from whose cavity springs an erect, fleshy, divided lobe or appendage. Such is the nectary of the plant figured by Dr. Swartz, of which two specimens are preserved in the London herbarium; but Kämpfer's figure exhibits a very different appearance of the same part, like three hairy leaves surrounding the column, in a manner we have never witnessed in any one of the Orchideae. We suspect two species may be confounded by authors.


8. A. Boraffi. Fan-palm Air-blossom. Buchanan MSS. —Leaves radical, linear-oblong, obtuse, obliquely emarginate. Calyx leaves, radical. Lip with a revolute undivided border. —Found by Dr. Buchanan, growing on Borassus flabellifer, in the Myore. The thick cracked or jointed fibres of the root have each a central tough thread. Stem none. Leaves equitant, about six, a span long and an inch wide; their points rounded, but unequally, one side extending further beyond the notch than the other. Clayer simple, scarcely flaked, twice the length of the foliage, deflexed, many-flowered, lax, with a few feathery scales at the base, flowers about an inch and a half in diameter. Calyx-leaves ovate-lanceolate, obtuse, somewhat revolute, near an inch long, pale buff with a purplish central fipple. Petals like them, but flat, and rather broader. Nectary half
as long, red, ringent, its revolute border as long as the pouc.

AERIDIES.

9. A. maculatum. Spotted-flalked Air-bloflom. Buch. MSS.—Stem creeping. Leaves elliptic-oblong, equally emarginate. Cluster lateral, flaked, corymbose. Lip the length of the petals; its border pointed, dilated at each side.—Gathered by Dr. Buchanan, on trees in the Mysore country. The films lend out very long curling fibrous roots. Branches short, leafy. Leaves obtuse, emarginate, hardly two inches long; sheathing at the bafe. Flower-flalk lateral, opposite to the lowest leaf on the branch, and protruding through its split bafe, a span long, erect, copiously spotted with dark purple, furnished with a few feattured bracteae, and terminating in a dense corymbose cluyer of six or eight yellow unflotted flowers, with a similar bracteae to each partial flalk. Calysx-leaves and petals ovate, about half an inch long, nearly uniform. Lip somewhat boat-shaped, with a deep keel, and prominent ascending point, accompanied at each side by a rounded dilatation of the margin. The back of the flower is tinged with greenish or purplish brown.

10. A. dafjepon. Denfely-bearded Air-bloflom. Stem ascending. Leaves ovate, with a jagged point. Umbels dense. Border of the lip kidney-shaped, denfely bearded.—Found by Dr. Buchanan, in Upper NepaL Roots composed of long, white, entangled fibres, running over the mofty branches of trees. Stems solitary, short, recurved, leafy. Leaves alternate, sheathing, broadly ovate, about three inches long, feshy; smooth above; minutely fcaly beneath; somewhat revolute; with three crowded, unequal, sharp teeth at the point. Flower-flalks lateral, solitary, half the length of the leaves, each bearing a dense umbel of numerous, nearly fefile, very beautiful and fingular, reverfed flowers, each hardly an inch in diameter. Calyx-leaves and petals fimaliar, obovate concave; dark red on the upper fide; green on the under. Lip keeled, but not very deeply, glofne, yellowish, spotted with red; its border as long as the petals, dilated, kidney-shaped, white; dotted on the smooth disk with crimson; fringed and thickly clothed towards each fide with short, fibrous proceffes, refeembling velvet. Capsule three inches long.

11. A. calceolae. Slipper Air-bloflom. Buch. MSS.—Stem creeping. Leaves linear-oblong, falcate, unequally jagged at the point. Umbels spreading. Border of the lip hemispherical, densily bearded.—Gathered by Dr. Buchanan, on the mofty branches of trees, in Upper NepaL Stem creeping, by means of very long, simple, fhort fibres, thrown out from within the fheaths of former leaves; its upper part ascending, leafy, three or four inches long. Leaves two-ranked, spreading, ascending, a span long, hardly an inch broad; jagged, with two sharp teeth, at one fide of the point only. Umbel opposite to feveral of the lower leaves, fali- tary, falked, lax, each of about five flowers, which are rather smaller than thofe of the fap species, but the pouc of the lip is considerably larger in proportion, prominent, yellow variegated with red, as well as the disk of its border, which laft is denfely bearded with white fibres like the foregoing. Calyx-leaves and petals uniform, obovate, incurved, yellow spotted with red.

12. A. rigidum. Rigid Air-bloflom. Buch. MSS.—Stem creeping. Leaves oblong, obtuse, rounded, unequally at the point, four times as long as the corymbose clusters. Lip with an obovate smooth border, the fize and shape of the petals.—Found by Dr. Buchanan, running over rocks and large stones in Upper NepaL The stem is woody, a yard long, and as thick as the finger, creeping among mosses, and sending out here and there, through the bafes of the leaves, very thick radicles. Leaves two-ranked, alternate, a foot long, extremely thick and coriaceous, three-ribbed, oblique at the termination, one fide being greatly extended, in a round lobed, beyond the rib, the other floping off below it. The lower part of each leaf has a joint, where it finally separates, leaving the fheathing permanent bafe, or footflalk, as in A. Borbafi, maculatum, and others of this genus and natural order. Flower-flalks opposite to the leaves, solitary, alternate, about three inches long, differentially recurved in the latter part, corymbose at the summit, each bearing from five to seven nearly or quite fefile flowers, yellow spotted with red, about the fize of the leaf. Calyx-leaves and petals obovate, uniform, erect. Lip agreeing with them in colour and shape, except the small prominent pouc at its bafe, and the apex being a little refexed.

13. A. undulatum. Wavy-flowered Air-bloflom. (Ep- idendrum prasemorum; Roxb. Corom. v. 1. 34. t. 43. Cymbidium prasemorum; Swartz Nov. Aft. Upf. v. 6. 75. Schrad. Neues Journ. v. 1. 75. Wild. Sp. Pl. v. 4. 103. Thalika Maravara; Rheed Hort. Malab. v. 12. 6. t. 4. Rauh Flt. v. 5. 590. Orchis abortiva, fioribus luteis minoribus, rubris rubris; Rudb. Elyf. v. 2. 222. f. 8.)—Stem ascending. Leaves linear, channelled, abrupt, acutely pointed, thirce as long as the corymbose clusters. Lip with an obovate flat border, the fize and shape of the petals.—Native of trunks and branches of trees, in the hilly parts of Malabar and Coromandel, flowering in October. The roots confist of numerous long fhort fibres. Stem ascending, leafy, four or five inches high. Leaves two-ranked, alternate, recurved, coriaceous, six inches long and one broad, concave, ending in a femicircular notch, whose two extremities are pointed, and nearly equal. Inflorfeence like the last. Flowers rather smaller, fragrant. Calyx-leaves and petals ovative, equal, slightly wavy at the edges, yellow, marked with trancverfe, crinmon, undulating lines. Lip the fize and shape of the petals, white dotted with red, its pouch but slightly indicated in parts of Dr. Roxburgh's figure, and probably fo little obvious in nature, as to have easily escaped the artist's notice. Notwithstanding this apparent exception to the generic character, the present plant, improperly confounded by Linneaeus with his Epipendrum turvum, is fo strikingly allied to the laft, and confequently to the two immediately preceding, that we must preface it to be an Aeries. If, on examination, it should prove to want the pouch, a frefh investigation must be Instituted, respecting the diftinguifhing characters of this genus and Cymbidium.

The habit of Aeries is peculiar, though not perhaps exclufively so, in the termination of its leaves, always more or less abrupt, unequal, or jagged. We have never seen a living fpecimen of any of the genus, but Dr. Buchanan's fine and scientific coloured figures, drawn from nature under his own infpection, are as precise and satisfactory as poife, and that exceilent botanift has himself pointed out to us the characters and habit of Aeries, as a natural genus.

With regard to the name, it well expresses the quality of living upon air alone, for which feveral species have attracfed notice. Linneas, who included the whole, with various other things, in his genus of Epipendrum, (feet that article, particularly applied the specific name of Flis aetris to our fith species, citing with a query in Ad. Upf. the 28th chapter verfe 7th of the Wifdom of Solomon. This, in the English translation is, "Let no flower of the spring pass by us." In a Latin version before us this text is rendered "ne pret- tereat nos juovus aetr." Whence this ambiguily arose, or whether Linneas had any where read flos veris, which he confounded with flos aetris, we have not materials to determine. At any rate, the text in question has evidently
no reference to this, or to any other particular plant whatever.

AEROSTATION, col. 5, l. 39, for 84 r. 849;
col. 27, l. 17, for circumference r. diameter.

ÆRUGINOSUS, in Ornithology. See Moor Buz- 
zard.

ÆSCHYLUS, col. 2, l. 24, for wrote r. chose; l. 29,
for furious r. ferocious; l. 36, for referred r. trans-
ferred.

ÆSOP, col. 2, l. 6o, r. lived more than 350 years, &c.
ÆSor, CLODIUS, l. 2, after Rome, add, B.C. 79.

AESTIVATIO, in Botany and Vegetable Physiology, a
term used by Linneaus for the mode in which the petals, or
the segments, of a corolla are arranged with respect to each
other, particularly before they expand. (See COROLLA.)
The word comes from effus, summer, and affect, summer-
quaters, summer being the usual flowering seafon, and the
3 corolla the shelter or accompaniment of the organs of
fecundation. So Fernatio expresses the arrangement of the
leaves of plants in the bud, or, in other words, their vernal
condition. Afficiatio imbricata, expresses the divisions of
the corolla being imbricated, or folded over each other,
either from left to right, that is, with the motion of the
fun, as in Cyphus; or the reverse, of which latter Linneaus
has in his manuscripts mentioned Phlox as one example, and
we would point out Hypericum as another. Afficiatio sal-
vata is when the divisions of the corolla meet in the bud
like valves, slide by slide, as in Protea and its allies. Of this
Pentaphora is an instance, notwithstanding the obliquity
observable in the segments of that flower after expansion.
Linneaus, in the MSS. above cited, speaks of Pennia as
having, like its near relation Aconitum, one petal exterior
to all the rest, though the corolla is what would be termed
regular in the first genus, and very irregular in the second.
Such a diversity indeed is of small moment, for Mr. Cor-
rea has observed that every natural order, as far as he
could examine, possesses irregular and regular flowers. In
general the direction of the parts of a corolla, as to their
activation (if we may use that word), are invariably alike
in genera of the same natural order. But HERMANNIA,
(see that article,) affords a remarkable exception, every one
of its species that we have seen bearing two flowers on the
same stalk, has the petals of one of those flowers rolled to
the right, while those of the other are disposed in a con-
trary position. Mr. Brown, in his learned Prodrnonus of
New Holland plants, has paid more attention to the activa-
tion, in defining his natural orders, than any other botanist,
and the term afficiatio salvata is, if we mistake not, his own
invention.

AETH, l. 4, inset after Brussels. It is the chief place
of a canton, in the department of Jemappé, and district of
Tournai. The place contains 75,549, and the canton 14,828
inhabitants. The territory includes 115 kilomètres, and
11 communes. See ATH.

AETHIONEMA, in Botany, so named by Mr. Brown,
apparently in allusion to some tawny or sun-burnt tinge in
the flaments, from Athen, to foceas, and vomus, a flamen.
We perceive in our dried specimens an occasional purple hue in
these parts. It may perhaps be more remarkable in the
species we have not seen.—Brown in Ait. Hort. Kew. v. 4.
80.—Clays and order, Tetradyophoma Siliculosa. Nat. Ord.
Siliques, Limn. Cruiferae, Juff.

Eff. Ch. Poucet with boat-like winged valves (sometimes
not burting). Longer filaments either combined, or finely
toothed towards the top. Insertion of the calyx unequal.

Brown.


v. 2. 223. t. 186." See Thlaspi, n. 6.)—Longer fila-
ments distinct. Leaves oblong, tapering at the base.—
Native of the south of Europe. Cultivated by Miller in
1759.

2. AC. monspormum. Oneseeded Aethionema. Ait.
and. 2. — "Pouch single-seeded, with out valves. Leaves
oval or ovobate."—Native of Spain. Cultivated in 1778,
Lee and Kennedy, at Hamer Sommer. A hardy biennial,
flowering in July and August. We have seen no specimen
of this species. Our doubts respecting the genus may be
found under Thlaspi.

AFTER, DOMITIUS, col. 2, l. 11, for vanity r. variety.

AFFINITY, in Chemistry. The celebrated doctrine
of Bergman is the last in order discussed under the article
AFFINITY in the Cyclopædia: since that time, however,
very important changes in opinion have taken place, among
chemists, respecting the nature and cause of chemical
affinity.

Some of these are mentioned in subfequent parts of
the Cyclopædia, epecially in the articles Chemical Proport-
ions, Simple Bodies, and Atomic Theory; but it may
not be deemed fair to us to give a summarv and con-
ceived view of the whole in this place.

Bergman's doctrine of elecrive affinity, so amply explained
in the article above referred to, was universally admitted
among chemists till 1803, when Berthollet published his
Difertation on Affinity in the Memoirs of the Instituts,
and about the same time his Chemical Statics. Berthollet con-
dered affinity as an attraction existing between combining
bodies. This attraction he appeared to consider as similar
in its nature to that which exists between the planets, or in
short, the principle of gravitation. It consequently, in his
opinion, increased with the mass of bodies. According to
this doctrine, therefore, bodies which have an affinity or
attraction for one another, have a tendency always to com-
bine, in a greater or less degree, chiefly in proportion to
their mass. Thus, though barytes appears to possess a
stronger affinity for sulphuric acid than potash, yet if we
prepresent a great quantity of potash to a small quantity of
sulphate of barytes, the potash will separate a portion of
the acid.

According to Berthollet, therefore, affinity is not elec-
tive. A substance which has a stronger affinity is not capable
of separating entirely those which have a weaker, unless
some other cause than mere strength of affinity operates.
Instead of separating entirely the weaker body, it divides
with it the base to which that body was united, each com-
bining with a part of such base in the compound proportion
of the strength of its affinity and of its quantity.

But no facts in chemistry are better established than
those in which the addition of a third body frequently sepa-
rates two substances previously united, the third body taking
the place of one of the conunstituents, which is thereby sepa-
rated altogether. Thus, if sulphuric acid be dropped into a
solution of nitrate of barytes, or potash into a solution of
nitrate of lime, the sulphate of barytes and the lime will
precipitate, leaving, in the first instance, the nitric acid in a
free state; and in the second, the potash combined with the
nitric acid instead of the lime. These and many other
well-known facts appearing, at first sight, contrary to Ber-
thollet's doctrine, it was necessary for him to reconcile them
to it. For this purpose, he called in the aid of the different
modes of existence of bodies. According to him, therefore,
whenever decomposition takes place, it is owing either to the
insolubility or the elasticity of the ingredient which separates.
Sulphate of barytes being insoluble in water, while nitrate
of barytes and nitric acid are soluble in that liquid, it must
happen,
happen, when the substances are mixed, that the insoluble 
admixt two precipitates, on account of its insolubility. It is 
the insolubility of lime that causes it to precipitate when potash 
is dropped into nitrate of lime. Accordingly, when potash 
is dropped into nitrate of soda, no precipitation whatever 
takes place, because both the potash and the soda are very 
soluble in water; but if we concentrate the solution suffi-
cently by evaporation, crystals of nitrate of potash will be 
deposited, because that fact is much less soluble in water 
than nitrate of soda. So also, when nitric acid is poured 
upon carbonate of lime, the carbonic acid is diffused aged, 
and flies off, because its effusiveness induces it to separate 
from the solid, and assume the gaseous state as soon as the nitric 
acid weakens the attraction, by means of which it was 
attached to the lime.

"Thus," says Dr. Thomson, to whom we have been par-
ticularly indebted in the compilation of the present article, 
"we have two doctrines respecting affinity opposite to 
each other. According to Bergman, affinity is elective. 
The body which has the stronger affinity displaces that 
which has a weaker, and the strength of affinity may be 
measured by decomposition. According to Berthollet, 
affinity is not elective. It never produces decompositions, 
but only combinations, and the decompositions which take 
place are owing to the agency of other causes. The 
strength of affinity is not an absolute quantity, but 
increases with the mass of the attracting body. Berthol-
let's doctrines lead to the opinion, that bodies are capable 
of uniting together indefinitely in any proportion what-
soever; Bergman's, that they unite only in determinate pro-
portions, and that these proportions are independent of the 
relative quantities of the combining substances which are 
present." See Atomic Theory.

A most important fact respecting the combination of 
both bodies was ascertained by Richter. This was illustrated 
in an elaborate work, published at different times between 
1792 and 1802, which contains the result of his researches 
on the decompositions and combinations of chemical bodies. 
He observed, that when two neutral salts, which mutually 
decompose each other, are mixed together, the two newly 
formed salts still retain the same neutral salt as the two 
original ones, from which they were formed. He likewise 
obtained, that the same proportion of bases that saturate 
a given weight of one acid, saturate all the other acids; and 
the same proportion of acids that saturate one base, satu-
rate all the other bases; which law enabled him to explain 
why two neutral salts form, as above-mentioned, two new 
halts, likewise neutral. These experiments and observations 
of Richter likewise enabled Ficher to attach a set of 
numbers to the acids and bases, indicating the weight of 
each which will saturate the numbers attached to all the 
other acids and bases.

Mr. Dalton, without being aware of the law already dis-
covered by Richter, turned his attention to the subject 
about two years afterwards, and was struck with the small 
number of proportions in which simple substances are capa-
ble of combining, and the constancy of these proportions. 
This led him to form the doctrine of definite proportions, 
or atoms, as it is usually termed, and which, as well as 
Gay Lussac's modification of it, our readers will find fully 
explained in the article Definite Proportions.

About the same period, that is, in the year 1803, the 
grand law respecting the agency of the galvanic battery in 
the decomposition of bodies was discovered by Berzelius 
and Hüflinger. This law is, that oxygen and acids are accu-
mulated round the positive pole; while hydrogen, alkalies, 
earths, and metals, are accumulated round the negative pole.

From this general law Berzelius deduced the conclusion, 
that the decompositions in such instants were owing to the 
attractions existing between the bodies and the respective 
electricities. This opinion was afterwards extended by 
Davy, and the opinion in its extended form sub sequently 
adopted by Berzelius himself. According to these cele-
brated chemists, chemical affinity is identical with electrical 
attraction, and bodies which unite chemically poffers differ-
ent kinds of electrical attractions. Every body, in their 
opinion, possesses a permanent elective state, either re-
finous or vitreous. Two bodies in the same state of electricity have 
no affinity for each other. Those in opposite states have an 
affinity, and the strength of the affinity is proportional to 
the degree of intenity of the different electricity in the 
two bodies; and in order to make bodies separate from each 
other, we have only to bring them into the same electrical 
state, by making them both vitreous or both re finous. See Electricity and Galvanism.

Such is a summary account of the revolutions in opinion 
which have taken place respecting the nature of chemical 
affinity, and the principal discoveries which have given 
origin to these changes since the time of Bergman. We 
shall conclude this article with a few general remarks upon 
the subject.

In the first place, the question whether the affinities of 
substances for one another be definite quantities capa-
bles of being represented by numbers, cannot, in the 
present state of chemical science, be satisfactorily deter-
mined. For though some affinities always appear capa-
bles of separating others, as, for example, barytes, 
potash; yet the reason may be, that the salts of barytes 
are less soluble than the salts of potash. Again, iron, 
as is well known, separates oxygen from water at all tem-
peratures; but, on the other hand, it has been equally 
well ascertained, that the oxyd of iron is reduced when 
heated in hydrogen gas: "hence," says Dr. Thomson, 
"we have no data for determining whether iron or hydro-
gen have the greatest affinity for oxygcn; each seeming 
capable of depriving the other of oxygen in the very same 
circumstances."

In certain cases, also, of double decompositions, it is 
often equally difficult to distinguish on which side the 
strongest affinities lie. Thus, as is well known, carbonate 
of barytes and sulphate of potash, when digested together, 
decompose each other, and are converted into sulphate of 
barytes and carbonate of potash; but on the other hand, it 
has been equally satisfactorily shown by Mr. Phillips, that 
carbonate of potash is capable of decomposing the sulphate 
of barytes.

Pfaff, however, has shewn, that the tartarate of lime and 
the oxalate of lead are completely decomposed by the addi-
tion of no more sulphuric acid than is necessary to form 
sulphate of lime and sulphate of lead; and hence he infers, 
that the affinity of sulphuric acid for lime and lead is 
actually superior to the affinities of tartaric and oxalic acids 
for the same bases respectively.

Berthollet has attempted to account for the first of the 
above experiments by the effect of mafs; and the experi-
ments of Pfaff he endeavours to explain by the fulubility 
of tartarate of lime and oxalate of lead, and the insolubility 
of the sulphate of lime and sulphate of lead in acids. And this 
brings us,

In the second place, to make a few remarks upon 
the supposed effects of mafs, and the modes of existence of 
substances in modifying chemical decompositions. With respec-
A G A


AGATE, col. 2, l. 15. They are conveyed from Germany in blocks; and cut by means of diamond powder into leaves for making caps for the pivots of mariners' needles, and other purposes.

AGATHARCIUS, in Biography, a painter of the isle of Samos, who is said to have been instructed by Alciphys in the art of introducing perspective into the decorations of theatres, and to have been the first who wrote on this subject, and communicated the art to Democritus and Anaxagoras.

AGDESTIS, in Botany, a fanciful name, adopted by De Candolle, from the authors of an unpublished Mexican Flora, whom he cites as Moc. and Setef. It is applied to a doubtful genus, related to Menispernum, and perhaps a sort of lycus nature, having flaments and pistils in the same flower, which is almost unexampled in this tribe. The above denomination is that of a fabulous monster, said to have been male as well as female, and produced by Jupiter from the stone Agos. This genus therefore being not clearly understood, and as yet very little known, may hereafter be abolished as well as its name.---Clas and order, Polyandria Monogynia. Nat. Ord. Sarmentae, Linn. Menisperma, Juff. Menisperme, De Cand.


A G G

1. A. adorata. Fragrant Agastachys. Br. n. 1.---Found in the southern part of Van Diemen's island, near Adventure bay, by Mr. David Nelson, and afterwards by Mr. George Caley. A shrub, perfectly smooth in every part. Leaves scattered, entire, flat. Spikes numerous, simple, terminal, as well as axillary from the upper leaves. Flowers alternate, sessile, with a solitary, hooded, permanent bracteae to each. Corolla yellowish, deciduous. Pistil shorter than the flaments. The fruit has not yet been examined. Brown.

AGASTACHYS, from aya, remarkable, and sys, a shop, alluding to the abundance of its spiked flowers.
flowers, or florets. The common receptacle is either naked, villous, hairy, or fleshy. In the place of a partial calyx is the corolla, generally monopetalous, either regular or irregular, four-leaf or five-leaf, rarely polysepalous. Stamens four, with separate anthers. Gernen inferior (with respect to each floret). Fruit single-seeded. The flower is therefore complete in this tribe, except only Valeriana, whose calyx is scarcely apparent. The leaves are often opposite. Stem often thorny.

The genera which compose this order at the end of Gen. Pl. are, Sect. 2. Statice only. 3. Hortogia, Brunia, Protea, Globularia, Leucadenron, Helbentria, Selago, Cephalanthus, Dipalsea, Scabiosa, Knautia, Alliaria. But in his own copy Linnaeus has drawn a line between Selago and Cephalanthus, removing the β to that place, and characterizing his sect. "alterius folio inferia," the remainder of the whole order beginning with Cephalanthus, being "opposita folio supera." 7. Valeriana, Morina, Barbaeva, Circaea, to which Mirabilis is added in MSS. 8. Loniceria, Choices, Trifolium, Mitchellia, Linnea, Mirinda, Conocarpus, Loranthus, Ficium, to which Liphantis and Hillia are added, certainly with no propriety.

This order in fact is not one of our great botanists most finished or happy performances. It comprehends Jussieu's Dipalsea, Proteacea, Caprifoliis, with various solitary genera from different orders. Statice was always a flumming block with Linnaeus, nor does it affiliate with any thing among the Agregates, being itself, however natural a genus, and as we think improperly subdivided by Tournefort and others, composed of species whose inflorescence is essentially different among themselves.

In his manuscripts Linnaeus has extended his third section as far as Selago inclusive, erasing Hortogia, and giving the characters of alternate leaves, and a superior germen to this sect. To the second sect, which begins with Cephalanthus, he attributes opposite leaves, and an inferior germen. He thought Statice akin to Brunia, and Protea the name genus as Leucadenron. To his third section he more happily adds Mirabilis; but to the fourth he very unfortunately introduces Liphantis and Hillia.

The intelligent botanist will without difficulty trace the numerous errors of the above arrangement to various causes. Several natural orders, now well defined, had not entered into the conception of Linnaeus, such as the very natural and distinct one of Proteaceae; and of the Caprifoliis, sketched in his fourth sectipn, he had evidently but an obscure perception. Of the differences of the Proteaceae genera he had fearcely any knowledge. That he should not have formed a right idea of Helbentria and Selago, whose affinities are still in some uncertainty, is not wonderful; but they are unquestionably much out of place here. See Dipalsea for further observations respecting some of the Agregates.

AGLABITES, l. 5, add, and governor in Africa, Heg. 184, A.D. 800. This dynasty lasted till the year of the Hegira 296, A.D. 908, and possessed the country which extended from Egypt to Tunis.


Eff. Ch. Calyx inferior, five-toothed. Petals five, converging in the form of a globe. Berry with one seed.

1. A. odorata. Fragrant Aglaia. *Agla gınaia* of the Cochinchinese. (Camellia finifera; Rumph. Amboin. v. 5. 28. t. 18. f. 1.) — Native of Cochinchina and China. Commonly cultivated in the latter country, for the sake of its great beauty and agreeable scent. Rumphius says it was imported from thence to Amboyna, where it still retained the Chinese name of Tsiulan, and was continually in leaf and blooms; being easily propagated by cuttings of the larger branches, whole hark must be brrowned slightly, and then covered for the space of a month with good earth and dung, till roots are thrown out, which are then to be cut off and transplanted. Loureiro describes this plant as a tree eight feet high, with a yellowish hard wood, thin brown bark, and spreading branches forming a very dense head. Leaves pinnate with an odd one, confluating of three or five oval, entire, smooth, shining leaflets, tapering at the base, on short footstalks. Clusters axillary, oblong. Flowers yellow, very minute, globose, odoriferous. Berry small, red.

Rumphius describes the flowers orange-coloured, never producing fruit in Amboyna.

We cannot find that this plant of Rumphius is taken up by any author, nor is his description sufficient to procure it a place in any systematic work. Loureiro, however, has furnished us with sufficient characters to enable us to judge of its natural order, and to determine that it is not, as he suspected, the same genus with Thunberg's Bumalda.

AGNESI, St. i. ult., for E. r. N.

AGNESI, MARRA GETANA. See GETANA.

AGRA, col. 2, i. 3, r. N. lat. 27° 15'. E. long. 78° 28'.

AGRICULTURE, col. ult., after See Board of Agriculture, add and Society.

AGRIFFULUM, in Botany, so called by Jussieu, from *agrus*, the billy, and *scolos*, a leaf, because its fruited prickly leaves resemble that shrub. Juss. Gen. 190. See BERCKHEIA hereafter.

AGUIARI, LUCRETIA. See FILER UN SAN.

AGUILLAS, CAFE. *Delf* Cafe Needles.

AGUILAS BANK, a bank on the southern coast of Africa, stretching from Cape Point across the entrance of False Bay to the mouth of Rio Infanta, or Great Fifth River, and to the 37th parallel of Southern latitude. Mr. Barrow conjectures that this bank at one time formed a part of the continent.

AHM, in Commerce. See STUBGEN.

AHMEDABAD. For AGMED's r. AHMED's: i. 6. r. Sebermarty.

AHMEDNAGUR, l. 2. r. Dowlatabad.

AHOUAS. Add — This was once a large and flourishing city, the capital of a province of the same name, and the winter residence of Artabanes, the last of the Parthian kings; but it is now a wretched town, containing 600 or 700 inhabitants, and situated on the banks of the river Karon; 48 miles S. of Shafter.

AIDAN, col. 2, l. 18, for bishop r. king.

AIDERBEITZAN. At the close add — It is separated from Armenia by the river Araxes, and from Irak by the Kizilozoin, or Golden stream. This province, including Erivan with the Karabag and Karadag, is divided into twelve districts, viz. Urumea, Ardebil, Tabrez, Maraga, Khose, Kalkhun, Sard, Gumrood, Sa Balagh, Karadag, Erivan, Nuckhlivan, and Miskeen, yielding a revenue of 169,435 tonaus. The most picturesque, and at the same time most flourishing
flourishing division of Aiderbeitzan, or Azerbaijan, lies along
the N. and W. borders of the lake Urumea from Tabrez
to the confines of Armenia, in which direction are the towns
of Shuberton, Tafoui (in ruins), Schmall, Koeeo, and
Urumea.

AIDIA, in Botany, a genus of Loureiro's, unknown to
us but from his description, whose name, from ades, eternal,
alludes to the indestructible nature of the wood.—Loureir.
Cochinch. 143.—Clafs and order, Penicandria Monogynia.

Gen. Ch. Cal. Perianth superior, tubular, five-toothed,
crect. Cor. of one petal, falver-shaped; mouth of the tube
woolly; limb in five deep lanceolate segments. Stam.
Filaments none; anthers five, linear, inserted into the corolla
between its segments. Pfl. German ovate, inferior; style
on a level with the anthers; stigma ovate-oblong. Peric.
Berry ovate, “calycine,” (meaning crowned by, and con-
fuent with, the calyx,) small, umbilicated, of one cell.
Seed solitary, ovate.

Eff. Ch. Corolla salver-shaped, woody in the throat.
Anthers linear, effile between the segments of the corolla.
Berry calycine, single-seeded.

1. A. cochinchinens. Everdefling-wood. Cay Tlii of the
Cochinchinese. —Native of Cochinchina. A large tree,
with spreading branches. Leaves opposite, lanceolate, entire,
smooth. Flowers white, in short, lax, axillary clusters. The
wood is white, heavy, composed of thick fibres, and not
handsome. Its chief use is for building the lower parts of
houses, and foundations of bridges, being extremely durable,
either under ground or in water. Loureiro.

AIMONTE. —Add, See Ayemonte.

AINS WORTH, Robert, I. 2, for Woodyate r. Woodyate.

AIR, col. 11, l. 44, infect elfifc, and r. whatever elfific
matter, &c.

AIR, Atmospheric, in Chemistry. The most recent ex-
periments shew that atmospheric air is composed by bulk
of about 21 per cent. of oxygen and 79 per cent. of azote;
and this coincides so nearly with four volumes of azote and
one of oxygen, that Dr. Prout has been induced to consider
this proportion as the true composition of atmospheric air,
and consequently that it is a real chemical compound composed
of one atom oxygen and two of azote. Upon this supposition,
and the supposition that the atom of oxygen be 10 and the
atom of azote be 17.5, atmospheric air will be composed
by weight of

\[
\begin{align*}
\text{Oxygen} & \quad 22.22 \\
\text{Azote} & \quad 77.77
\end{align*}
\]

And the specific gravity of oxygen gas will be 1:1111 and
of azote 0.722, atmospheric air being 1.000. See Atomic
Theory, Addenda.

The reasons upon which the above opinion is chiefly
founded are, in the first place, the impossibility of account-
ing on any other than chemical principles for the remarkable
uniformity observed in the composition of atmospheric air
all over the world. This fact is universally admitted, and
no one can adduce even the slightest argument why this
uniformity should be explained on principles different from
those which govern other definite compounds, as, for example,
water.

Secondly, experiment coincides extremely near with the
above supposition, perhaps as nearly as it has ever done in any
similar example, even in those on which the doctrine of volumes
itself was founded by M. Gay Luffac. Those verified in eido-
metry, and who know the imperfections of all eudimetric
methods hitherto advanced, will feel little inclined to vouch
for the perfect accuracy of their results, and to deny the
possibility of an error of one per cent. Besides, when we
reflect how liable the atmosphere is to contaminations of
every kind, the chance of such an error is still further
increased.

About the same time (November 1815) that the above
opinion was advanced by Dr. Prout, a similar opinion was
published by Dobereiner, in a paper inserted in Schweiger's

P. 321.

AIR, in Magc. l. 5, for rhyme r. rhythm.

AIR-Lamp, col, 2. l. 4, for driven r. drive it.

AIR-Pump, Laws of Rarefaction, &c., col. 4, l. 11 from
the bottom, add—Some of the experiments above recited,
as having been made in vacuo, would only succeed in a very
imperfect state of exhaustion, as is evinced from other
experiments detailed in the sequel of the article.

AIR.—Experiments for shewing the elaficity or spring of
the air, col. 2, exp. 6, add to square phial A. of thin glafs.

—Miscellaneous experiments, N° 5, l. ult., r. it will not be
extinguished.

AIR, in Geography, a township of Pennsylvania, in the
county of Bedford, containing 1179 inhabitants.

AIRY. See AERY.

AITZEMA, l. 2, r. Dockum.

AKISKA, in Geography, one of the Turkish pachalics
of Armenia, which lies near the limits of the Turkish
empire, and has the Black fea to the W., Immertia to the N.,
Kars and Erzeroom to the S., and Georgia to the E. It
extends a considerable way along the banks of the Kur, and
contains much arable land, with many cities and villages,
and minerals in its mountainous parts. Akalizke (new
castle) or Akiska, which gives name to the province, is the
capital: it is a populous and commercial city, without walls
or fortifications, and only defended by a ruined citadel,
flanding in an open valley on the left bank of the Kur, and
inhabited by Jews, Turks, Greeks, Armenians, and Geor-
gians.

ALA, in Botany, 1. 4. for upwards r. downwards.

ALANGUIUM, so denominated by Lamarck, by a flight
alteration of one of its Malabar names, Atingi: and if any
barbarous generic appellations are to be tolerated, this cer-
Hort. Kew. v. 3. 302.—Clafs and order, Icofanndria Mono-

Gen. Ch. Cal. Perianth superior, of one leaf, short,
permanent, with from fix to ten small erect teeth. Cor.
Petals from fix to ten, linear, undivided, much longer than
the calyx into which they are inserted, spiral in the bud,
afterwards recurved. Nectary cup-shaped. Stam. Filaments
ten or twelve, inserted into the calyx, erect, thread-shaped,
airy below, scarcely half the length of the petals; anthers
terminal, vertical, linear, obtuse, rather broader and longer
than the filaments, curving at each side longitudinally. Pfl.
Germen turbinate, inferior; style cylindrical, erect, rather
longer than the flaments; stigma capitately, lobed, very large.
Peric. Berry globular, with a rather coriaceous coat, crowned
with the calyx, internally fibrous, of one cell. Seeds from
one to three, nearly lenticular.

Eff. Ch. Calyx superior, with from six to ten teeth.
Petals from six to ten. Berry coated, of one cell, with
few seeds.

Ofb. We do not scruple to remove this genus from the
clafs Polyandria, where Willdenow has placed it, but with
which the infection of the flaments does not agree, to Icofan-
dria, where it ranges with its natural allies. LENNISCHIA
(fce
but as, Its Vahl, ver—

Flowers with ten petals. Branches becoming spinous.—Native of the East Indies. König sent specimens to Linnaeus, and in the year 1779 he also communicated seeds from Ceylon to Kew garden; but their progeny has not yet flowered, if it be still alive. Rhode describes this as a handfome, tree, an hundred feet high, and twelve in circumference, with spreading branches, white hard wood, and a bitterish, acrid, aromatic bark. The root is fanguous, reddish, fragrant and bitter, with a yellowish bark. The branches bear leaves and flowers together, and finally affume a sharp spinous termination. Leaves alternate, on short downy flaks, ovate-oblong, obtuse, entire, ribbed, veinly, four or five inches long, plant, fragrant; smooth and shining above; paler, reticulated, and roughish, beneath. Flowers axillary, either solitary, or two or three together, on simple, short, downy flaks. Calyx downy. Petals rather fikly externally; white within. Anthers bright red. Fruit the size of a large cherry; downy when young; purplish when ripe, full of sweet fragrant pulp, which is esteemed very delicious, and contains one, two, or three black seeds. The inhabitants of Malabar compare the flowers to an imperial diadem, and therefore consider this tree as an emblem of royalty. The expressed juice of the root is purgative, and used for expelling intestinal worms. Its powder is thought an antidote for the bites of serpents, and other venomous animals.

2. A. hexapetalum. Broad-leaved Alangium. Lamarck n. 2. Wild. n. 1. Vahl Symb. v. 2. 62. (Kara Angol; Rheede Hort. Malab. v. 4. 39. t. 17. Arbor indica baccifera, fructu umbilicato rotundato, cerai magna magnifie dicocco; Raii Hist. v. 2. 1. 1483.)—Flowers with six petals. Branches not spinous.—Native of the coast of Malabar, in ftony, sandy, mountainous places, always in flower and leaf. Its trunk is of lofty stature, but inferior to the former. Leaves broader, more ovate, and pointed, smooth, bitter and acid, but not aromatic; paler beneath. Flowers smaller, white, nearly sessile, with only six petals. Fruit globose, the size of a small apple, having a thick, downy, purple coat, and viscid acid pulp.

3. A. tomentosum. Downy Alangium. Lamarck n. 3.—"Branches scarcely spinous. Leaves oblong, blunflish; their ribs downy beneath, like the footstalks."—Found in the East Indies by Sonnerat. Allied to the first species in the form of its leaves, and to the second in the nature of its fruit. The flowers are unknown. The young shoots, flals, calyx, and ribs of the leaves, are clothed with short cottyton down. Lamarck.

AL-BANS, Sr., a township of America, l. 3, for 256 r. 1669.

ALBANY. Add after Saratoga.—It is now restricted to an area of 462 square miles, or 295,689 acres. By the census in 1810, its population consisted of 34,661 souls, its fenatorial electors were 2971, and the number of slaves was 772.

ALBANY, l. 4. This city and suburbs in 1812 contained about 12,000 inhabitants, 1800 houses and stores, 10 houses for public worship, and several public buildings.

ALBANY, a township of the district of Maine, in the county of Oxford, with 165 inhabitants.

ALBEMARLE, a county of America, &c. contained, in 1810, 18,268 inhabitants, of whom 9226 were slaves.

ALBERT I., l. 9, for between r. with. Col. 2. l. 11 from the bottom, for Rhee r. Reus, and de! near Schaaffhausen.

Albert's or Current Dollar, with 1 and 4 ditto, Dutch silver coins valued at 20, 25, and 125 florins, each about 1 per cent. agio. Albert's dollar is also used as a money of account at Riga. See RIX-DOLLAR.

ALBUMEN, in Chemistry. Considerable additions have been made to our knowledge respecting this important animal principle since the first volume of the Cyclopaedia was published. These we shall briefly notice here.

The first thing deserving of notice is the distinction between coagulation, gelatinization, and precipitation, terms which had been always confounded till Dr. Böckel defined their difference. By coagulation is now understood the passing of a substance from a fluid to a solid state by the agency of heat only, or, in some instances, without the immediate cooperation of any external agent; as, for example, in the coagulation of the fibrin of the blood. Gelatinization is the property which a warm solution of jelly possesses of becoming concrete as it cools. Precipitation is the effect which different substances or re-agents produce by combining and forming solid compounds with the principles operated upon.

The next circumstances deserving of notice are the effects of galvanism upon albumen, as ascertained by Mr. Brande.

Mr. Brande found, that when albumen was exposed to the action of a galvanic battery, an apparent coagulation took place at the negative pole, as well as at the positive. The effects of this agent, however, were different, according to its intensity. Thus, with a comparatively high power, the coagulation went on rapidly at the negative pole, and slowly at the positive; whereas, with a very low power, the coagulation was comparatively rapid at the positive pole, while at the negative pole no coagulation took place, the small proportion of albumen being retained in solution by the alkali attracted thither. Dr. Murray, however, who saw these experiments repeated in a general manner by Mr. Ellis, thinks that Mr. Brande was deceived, and that the appearance of coagulation was produced only from the numerous aerial bubbles entangled in the viscid albumen.

The opinion entertained by chemists at present respecting the coagulation of albumen, does not differ much from that of Bucquet, who considered it as a sort of soap, the animal matter being retained in solution by the foda present. An opinion, closely resembling this, has been successively advanced by Dr. Thomson, Sir Humphry Davy, and Mr. Brande, who appear to consider this albumen as merely a solution of an animal matter in water and soda, and that all the agents known to coagulate or precipitate it, act by abstracting the soda and water.

The effects of acids and other re-agents upon albumen, although they have been mentioned in a general manner in the
to obtain, previously by acetic gelatine. Converted the Geography, ferric small albumen the capable See dryness, soluble power one a Herifian always ambiguity, formed. Deposed all converted water, mawkish the a Berzelius. When the precipitate and then precipitate and yellow, brown idi. Hence, if the precipitate has been muriatic acid, which decompes the albumen. Hence confiders as the acide jaune of Fourcroy and Vaquelin, who obtained it by digesting muscular flesh with nitric acid. This is soluble in alkaline leys, and imparts to them an orange colour; and it is also soluble in acerate of potash and soda. Thus, according to Berzelius, albumen is capable of exiling with the nitric acid, as well as with the other acids, in two distinct flates of combination, the one having an excess of acid, and of a pale yellow colour, and the other neutral, and of an orange hue. Berzelius seems to consider the different nature of the compounds formed with nitric acid to depend upon the formation of the malic acid, by the action of the nitric acid upon the albumen, which at the same time combines with it. Hence, in his opinion, they are triple compounds of albumen, nitric and malic acids. Mr. Hatchett found, that if albumen, after being steeped in diluted nitric acid, be washed, and then boiled in water, it is dissolved, and forms a pale yellow liquid, which gelatinizes when properly concentrated, and has all the properties of gelatine. Perhaps this boiling deprives it of the malic acid above-mentioned, or perhaps the malic acid was not formed by the dilute nitric acid; for Berzelius, who seems not to have been acquainted with this fact, found also, that when albumen was precipitated from its solution in acetic acid by the nitric acid, the yellow precipitate was rendered gelatinous by washing, and soluble in water, like the compounds of albumen with the other acids above-mentioned; all which compounds are probably similar to the above, and which was confided by Mr. Hatchett as gelatine. The nitric acid readily diffusles albumen by the allusion of heat, first converting it, if previously coagulated, into a tremulous jelly. The solution is colourless, and of a mawkish and slightly acid taste. When sufficiently evaporated, it again becomes gelatinous; and when completely exceded is a transparent mass which reddens litmus, but is insoluble both in hot and cold water, without a fresh addition of acetic acid. Ammonia and profit of potash produce from this solution in acetic acid a whitish precipitate. Alkalies also produce a precipitate, which is again dissolved on their being added in slight excesses. Sulphuric, muriatic, and nitric acids produce precipitates, which are compounds of the albumen with the acid employed, the acid being in excesses; hence, if they are washed in water, as before observed, they become neutral, and capable of solution in water, like gelatine.

Solutions of the different earths, and even some of their salts, as alum, sulphate of magnesia, and silicated potash, were found by Dr. Thomson to have no effect upon albumen when diffused in water, in the proportion of one white of an egg to a pint of water. The cale, however, was very different with the metallic falts and oxys, most of which were found to have a powerful effect upon it, especially the sulphates, muriates, and nitrates of the metals, while the prufiates, and one or two others, had no effect. One of the most delicate tefts of albumen, according to Dr. Bottock, is a solution of oxymuriate of mercury: a fingle drop of this, let fall into water, containing only 1 parts of its weight of albumen, produces an evident milkeine, and a curdy precipitate falls. Heat renders the operation of this teft more effectual. Perhaps the teft of albumen leaf liable to ambiguity, is that recommended by Berzelius above-mentioned; namely, the addition of the prufiate of potash to a solution of albumen in acetic acid. Albumen is composed of hydrogen, carbon, oxygen, and nitrogen or azote, in the proportions, according to the experiments of Gay Lussac and Thenard, of

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
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<tbody>
<tr>
<td>Hydrogen</td>
<td>7.540</td>
</tr>
<tr>
<td>Carbon</td>
<td>52.883</td>
</tr>
<tr>
<td>Oxygen</td>
<td>23.872</td>
</tr>
<tr>
<td>Azote</td>
<td>15.705</td>
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100,000

Albunen never exils in an abolutely pure state in animal bodies, but is always combined with other animal matters, and various falts. See Blood and Animal Fluids.

ALBURGH, in Geography, a town of America, in Vermont, and county of Grand Isle, containing 1106 inhabitants.

ALBUS, in Commerces, a small coin and money of account at Caffel, Cologne, and other places in Germany. The whole principality of Helf keeps accounts in rix-dollars of 32 albules, subdivided into 9 pfenings, or 12 helers current. A specie rix-dollar is worth 42 ½ Helfian albules. Coins in silver are, pieces of 8, 5½, 4, 2½, and 1½ albule; and in copper, pieces of 1 and 2 albules. Cologne keeps accounts in rix-dollars specie of 80 albules, or
or six-dollars current of 78 albus; the albus being reckoned at 12 hellers: and albus are silver coins.

ALCEDO Capenfsis, l. 2, for short-tailed r. long-tailed.

A. rudis, l. 3; r. long-tailed.

ALCEDO. Add—Dr. Shaw has described some other species, and referred some of those above-mentioned to other titles under Alcedo, and to Galbula. The A. gigantea is the fufca above-mentioned: the afro is the maxim: the amasona is glossy-green, white beneath; the sides of the neck white; those of the body variegated with green, and the wing and tail feathers spotted with white; the amazonian K. of Latham, about the size of the belted K., or A. alyon: a native of Cayenne. A. Malimbica, sea-green or beryl K. with the throat and belly white; the wing-coverts and feather across the eyes black: is much allied to the A. capensis in the form of its belt and distribution of its colours; numerous in Malima, about the sea-coasts, feeding on worms and fish. A. javanica, blue K., with sea-green back, yellowish-white head, neck, and body; the crown of the head streaked with black. (See A. lenocephala.) A. canerophaga, greenish-blue K., yellowish beneath, with black wing-coverts and eye-flipps, and ferruginous bill; crab-eating K. of Latham; native of Senegal, where it is called Crab-eater. (See A. senegalensis.) A. Coromanda, pale-violaceous rose-coloured K., rufescen chest, with the rump marked by a longitudinal blueish-white band, and white throat: a native of Coromandel, an elegant species. A. collaris, blue-green K., white beneath, with white collar; Latham's variety of A. fuces; a native of the Philippine islands. A. bicolor of Gmelin, referred to A. indica. A. ca.

piegata, white-collared K. of Latham. (See A. cereola above.) A. albofris referred to Galbula. A. cyanoca.

phala, described under A. cereola-cereola. A. tridrachyta, tridigitated K. of Nat. Misc., deep-blue K., ferruginous beneath, with blackish wings and three-toed feet; a native of New Holland: to this the azure K. of Latham is much allied.

ALCINA, in Botany, Cavan. l. v. 1. 10. t. 15, so named by that author, in memory of Francis Ignatius Alica, a learned Spanish Jesuit, who resided long in the Philippines islands, and devoting his leisure hours to natural history, left a folio MS., of which Cavanilles speaks as likely to be published. This supposed genus, however, is now sunk in Wedelia; see that article.

ALCOHOL, in Chemistry. A new analysis of alcohol has been lately published by M. de Sauffure. He employed for his analysis alcohol of the sp. gr. .8302, at the temperature of 62.8, obtained by rectifying common spirits. This alcohol he considered as a compound of 13.8 water, and 86.2 of the Richter's absolute alcohol; and the water being subtracted from the products obtained, the residue gave the composition of the absolute alcohol of Richter. His method of analysis was to pass the vapour of alcohol through a red-hot porcelain tube, and along a glass tube surrounded by ice nearly six feet in length. The products were carefully collected and weighed. There was a little charcoal deposited in the porcelain tube, and a very little oil in the glass tube. The water obtained amounted to 122 of the weak alcohol employed, which was 1256.7 grs., and it contained 4.78 of its weight of absolute alcohol. The combustible gas weighed 912.3 grs., and there was a loss of 55.82 grs. The gas was proved to possess the properties of olefant gas. Hence it follows that alcohol may be considered as composed of olefant gas and water; and the result of the analysis was, that the absolute alcohol of Richter is composed of

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<thead>
<tr>
<th></th>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
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<tr>
<td></td>
<td>13.70</td>
<td>51.98</td>
<td>34.32</td>
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<td></td>
<td>100.00</td>
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Or the composition may be stated thus:

Olefiant gas - - - 61.63
Vapour of water - 38.37

If, with Dr. Thomson, we suppose alcohol to be a compound of one volume of olefant gas, and one volume of vapour of water, condensed into one volume, its specific gravity in a lake of vapour will be just equal to that of these two elastic fluids added together. The specific gravity of these two bodies is,

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<tr>
<th></th>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
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<tr>
<td></td>
<td>1.6</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>28.75</td>
<td></td>
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</table>

And M. Gay Lusiac determined by experiment the specific gravity of the vapour of alcohol to be 1.613, which very nearly coincides with the above. Hence there is every reason for presuming that the above is the true composition of alcohol, which, stated more correctly on this supposition, will be as follows:

3 atoms hydrogen - 3.75
2 atoms carbon - 15
1 atom oxygen - 10

28.75

Or per cent. of

<table>
<thead>
<tr>
<th></th>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
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Or,

Olefiant gas - 60.86
Vapour of water - 39.14

100.00

See Fermentation, Addenda.

Alcohol of Sulphur. Now generally termed sulphuret of carbon, is a curious compound of sulphur and carbon, first described by Lampadius. See Carbon, and particularly Sulphur, in the Cyclopaedia; where the recent experiments of Berzelius and, Dr. Marcet on this substance are detailed.

ALDRICH, col. 2, l. 5, r. ascribed to him, but, as some say, erroneously.

A.L, col. 2, l. 28, after parliament, added—The gross duty on ale, or strong beer, is 10r. per barrel, with an allowance of 2d., so that the nett duty is 9r. 2d. For table-beer not worth more than 2r, the gross duty is 2r. per barrel, with an allowance of 2d., so that the nett duty is 1r. 10d.

By 48 Geo. III. c. 143. the several duties imposed upon ale-
Ale-licences by former acts were repealed, and a new duty of 2l. 21. imposed. All persons who shall sell ale or beer by retail, or shall sell cider or Perry, to be confirmed in their houses or premises, shall first take out an excise-licences, within the limits of the chief office of excis in London, under the hands and seals of two or more of the commissioners of excise in England, or of such perons as they, or the mayor part of them, shall appoint for that purpose: and in other parts of England, the licences are to be granted under the hands and seals of the several collectors and supervisors of excise within their respective districts. The duration of such licences is limited to the 10th of October next ensuing the time of granting thereof. All licences granted at the general licensing day shall be made for one year only, to commence on the 29th day of September.

Alek-House, 1. 4, after houses, add,—under penalty of 3l. 6s. 8d. 5 & 6 Ed. VI. c. 25. 26 Geo. II. c. 31.

L. 9, after coals, add,—but no person shall be liable to the said penalty, for selling ale or beer in casks containing not less than five gallons, or in bottles, not less than two dozen quarts, not to be drank in his house, out-house, yard, garden, orchard, or other place. 38 Geo. III. c. 54. Penalties may be mitigated for the first offence; and all penalties shall be fixed for and determined within six months after the offence committed.

L. 15, after only, add,—The day and place for granting licences shall be appointed by two or more justices for the division, by warrant under their hands and seals, at least ten days before such meeting, directed to the high constables, requiring them to order their petty constables, or other peace officers, to give notice to the severall inn-keepers and alehouse-keepers within their respective constabulary, of the day and place of such meeting; and all licences granted at any other time and place shall be void. And no licence shall be granted to any person not licensed the year preceding, (except in cities or towns corporate,) unless he produce a certificate under the hands of the minister and the major part of the churchwardens and overseers, or else of three or four reputable and substantial householders of the place, setting forth that such person is of good fame and of sober life and conversation; and it shall be mentioned in such licence that such certificate was produced, otherwise the licence shall be void. No justice of the peace, being a common brewer of ale or beer, inn-keeper, or distiller, or a seller of and dealer in ale or spirituous liquors, or interested in any of the said trades, or being a victualler or maltster, shall be capable or have any power to grant licences for selling ale or beer, or any other liquors, but the said licence shall be void. All mayors, town-clerks, and other persons whom it may concern, shall make out ale-licences duly verified before the recognition be taken; on pain of 10l., half to the king, and half to the procurator, with coals. 6 Geo. c. 21. 1 Ann. flat. 2 c. 22.

L. 18, after tipping, &c. add.—1 Jac. c. 9. 1 Ch. c. 4. By 21 Jac. c. 7, innkeepers who suffer tipping are disabled from keeping an ale-house for three years. By 30 Geo. II. c. 24, if any person licensed to sell any sort of liquors, or who shall sell or suffer the fame to be sold in his house, out-house, ground, or apartment thereto belonging, shall knowingly suffer any gaming with cards, dice, draughts, shuffle-boards, misfield, or billiard-tables, skittles, nine-pins, or with any other implement of gaming in his house, out-house, ground, or apartment therunto belonging, by any journeymen, labourers, servants, or apprentices, and shall be convicted thereof on confession, or oath of one witness, before one justice, within six days after the offence committed; he shall forfeit for the first offence 40s. and for every other offence 10l. by dirffers by warrant of such justice; three-fourths of which shall be to the churchwardens for the use of the poor, and one-fourth to the informer.

And if any journeyman, labourer, or apprentice, or servant, shall game in any house, out-house, ground, or apartment thereto belonging, wherein any liquors shall be fold, and complaint thereof shall be made on oath before one justice where the offence shall be committed, he shall lose his warrant to the contable or other peace-officer of the place wherein the offence is charged to have been committed, or where the offender shall reside, to apprehend and carry the offender before some justice of the place where the offence shall be committed, or where the offender shall reside; and if such person shall be convicted thereof by the oath of one witness or confession, he shall forfeit not exceeding 20s. nor less than 5s. as the justice shall order, every time he shall offend, and be convicted as aforesaid, one-fourth to the informer, and three-fourths to the overiers for the use of the poor; and if he shall not forthwith pay down the fame, such justice shall commit him to the house of correction, or some other prison of the place where he shall be apprehended, to be kept to hard labour for any time not exceeding one month, or until he shall pay the forfeiture.

If any person (allowing for some excepted cafes under 1 J. c. 9.) shall continue drinking or tipping in any inn, victualling-house, or ale-house, he shall on conviction thereof before a mayor or justice of the peace on view, confession, or oath of one witness, forfeit for every offence 34s., to be paid within one week next after the conviction to the churchwardens, who shall be accountable for the use of the poor; and if he shall refuse or neglect to pay the fame, it shall be levied by dirffers. And if he be not able to pay the forfeiture, then the mayor, justice, or court where the conviction shall be, may punish the offender, by setting him in the stocks for every offence by the space of four hours. 1 J. c. 9. 4 J. c. 5. 7. 21 J. c. 7. 7. 2. 1 C. c. 4.

If any alehouse-keeper shall be convicted of the said offence, he shall moreover for the space of three years be disabled to keep any such ale-house. 7 J. c. 10. 21 J. c. 7. 7. 4.

ALECTORIA, in Botany, seems to derive its name from alecto, a chick, because there was nothing has been made out respecting the male flowers. This is one of the tribe of filamentous Lichens, establishe as a genus by Acharius, (see Lichenes,) and we shall endeavour to explain its characters.—Achar. Syn. 291. Lichenogr. t. 13. f. 1—4. Sm. Prodr. Fl. Græc. v. 2. 323.—Class and order, Cryptogamia Algae. Nat. Ord. Lichenes.

Eff. Chh. Frond cilióus, branched; pspony within. Shields sessile, thick, bordered, flattish, of the substant of the frond; their dill lightly coloured.


Frond thread-shaped, smooth, very much branched, of a smoky,
ALE

a smoky-brown; branches capillary, composed at their subdivisions. Shields fleshy, blackish, with an entire margin; at length convex and rugose. Warts tumid, powdery, white.—Found on the trunks and branches of old trees, especially of the fir kind, throughout Europe, from Lapland to the Bithynian Olympus. *β.* On pales, rocks, and stones. The shields are extremely rare. The older specimens hang in long blackish tufts, like the mane of a horse, from aged trees in mountain forests; the variety *β* grows prostrate and entangled. There is no central fibre, the indole being hollow, or slightly pongy. White powdery *warts* are frequent and conspicuous on the pendulous variety, but these are not now confounded by Acharias as having any share in the fructification. The matter has not been decided either way by sufficient experiments. The learned author, whom we have just named, reckons up four more varieties, by the names of *capillaris* (which is *Lichen setiformis* of Ehrhart); *lenefris; cana* (figured by Wettling above cited, at his t. 14. f. B.); and *sectaca.* These we have not examined. The *cana*, which is hoary, with pale flesh-coloured shields, appears to have some claims to specific distinction.


3. *A. uineoides.* Flattened Alectoria, Arabian Ufnea. Achar. n. 3. (Parnelia uineoides; Achar. Meth. 270. Lichen Ufnea; Linn. Mant. 131. Swartz Ind. Occ. 1912. Lichen ceratoide candidus, glabra et odorata; Dill. Mufc. 71. t. 13. f. 14. — Frons compressed, flat, longitudinally striated, much branched, pale and whitish; the branches somewhat fibrous. Shields flat, entire, of the same colour.—On trees in warm countries, in Asia, Africa, and America. Generally pendulous, always spreading, from fix to eighteen inches long, long, flat, cream-coloured, very smooth to the touch; fragrant and muoky when fresh; easily splitting when old and dry into two flat layers, exposing a pure white internal powder. The *fibres are very small.* By age the whole becomes of a dirty-buff colour. The Arabian physicists used this mofs as a cordial, and thought it also procured sleep. See our t. 6.


6. *A. arbus.* Arabian Alectoria. Achar. n. 6. Lichenogr. 596. (Ufnea ceratoide candidus, glabra et odorata; Dill. Mufc. 71. t. 13. f. 14.) —Frons round, somewhat compressed, branched, white; branches forked; the ultimate points pointed and curved.—Native of the East Indies, St. Helena, and Madagascar. Professor Acharias adopts this from Dillenius without examining a specimen, considering it a distinct species from his *ulfineoides,* n. 3, with which other botanists have confounded it. He relies also on Dillinus for the present plant being the true *Ufnea* of the Arabians. But as Dillenius confounded the two, and had no authority for taking one more than the other for the Arabian *Ufnea,* we cannot place any reliance on him in this respect. How far the two plants, so very similar in his figures, are specifically distinct, can only be known by an examination of the specimen of his t. 13. f. 14. at Oxford. The other is sufficiently well known, and was drawn by him from the herbarium of Mr. Charles Du Bois.

7. *A. canarienfis.* Canary Alectoria. Achar. n. 7. (Ufnea dichotoma comprensa, segmentis capillaris teretibus; Dill. Mufc. 72. t. 13. f. 15. Mucis arborescens auantanticus, flaamibus tenuilmiss, ex inulis Portuantis; Pl. Almarg. 254. Phyt. t. 309. f. 1.) —Frons compressed, branched, orange-coloured; branches simply or triply forked; their ultimate segments round and capillary. —Native of the Canary islands. Acharias adopts this species entirely from Dillinus, who describes it from a plant to a foot in length, compressed, undivided in the lower part, but in the upper copiously and repeatedly branched; the branches occasionally three together, and their rumps very fine. The whole is neither very rigid, nor soft, smoothish, of a dull yellow inclining to red. It tinges the falia with a reddish-orange colour, but has no particular smell.

ALEMBERT, col. 4. l. 28, for Memoires r. Membres.

ALEPYRUM, in Botony, a. without, λεπτόν, a bark, shell, or covering, alluding to the want of coriaceous glumes, by which this genus is distinguished from Davauxia of the same author, to be described in its proper place hereafter.—Brown Prod. Nov. Holl. v. 1. t. 255.—Clads and order, Monandria Polygynia. Nat. Ord. Reseaces, Brown.

Gen. Ch. Col. Sheath of two concave, keeled, permanent valves, clasping each other at the base, containing one or more flowers. Cor. none. Stam. Filament one, capillary, drooping, about as long as the calyx; anther simple, oval. Fil. Germens several, from fix to eighteen, ovoid-oblong, superior, inserted into one side of a central oblong receptacle, and all turned one way; styles as many, thread-shaped, combined at the bottom, spreading or deflexed at the upper part; stigmas linear, downy. Peric. Capsules as many as the germens, membranous, oval, of one valve and one cell, burring longitudinally at one side. Ssed. sterile, ovate, pendulous.


A genus of small herbaceous plants, nearly allied to the more numerous one of Deuxaxia, and, in Mr. Brown's own opinion, scarcely to be separated therefrom, the want of petals in Alepyrum being the only difference. The three species described by this author are all natives of the south coast of New Holland, where he gathered them himself; nor do they appear to have been met with by any other botanist or collector. The *seeds are fibrous. Leaves radi-
All

cal, simple, linear-lanceolate, or falcate. Flower-stalks radical, unbranched, single-flowered.

1. A. polygonum. Many-jointed Alepyrum.—Sheath single-flowered; the outer valve with a leafy point. Gernmens from fifteen to eighteen. Stalk twice or thrice the length of the leaves.

2. A. Punigii. Dwarf Alepyrum.—Sheath single-flowered; the outer valve with a leafy point. Gernmens from six to nine. Stalk the length of the leaves.

3. A. muticum. Pointlefs Alepyrum.—Sheath with a few flowers; the outer valve pointed.

ALEXANDER, in Geography, a township of Ohio, in the county of Athens, having 765 inhabitants.

ALEXANDRIA, col. 6, l. 24, for Anastatis r. Anatolius.

ALEXANDRIA, a town of New Ruffia, &c.;—also, the principal Ruffian settlement in the Fox islands, and the residence of the governor on the island of Kodiak. (See Kodiak and Fox Islands.) The harbour is excellent, and sheltered by several small islands lying to the S.W. It consists of about 50 houses built of logs, the rooms of which are caulked with moss, and covered with gafis. This is the principal depot of the African company, where the furs are collected. This town is named St. Paul by Captain Litanfly. It has a church, a bazaar for the Ruffian convicts, a school, and several store-houses belonging to the N.W. Company. Campbell's Voyage round the World, p. 108.

ALEXANDRIA, in Grafton county, &c.;—for 398 r. 409.

ALEXANDRIA, in Hunterdon county, &c.;—for 1503 r. 2371; and for 40 r. 45.

ALEXANDRIA, in Pennsylvania. Add, containing, in 1810, 156 inhabitants.

ALEXANDRIA, a town of the district of Columbia, having 7227 inhabitants, of whom 1488 are slaves. The county of the same name, exclusive of the town, has 1325 inhabitants, including 357 slaves.

ALFORD, l. 2, for 577 r. 322.

ALFORD, a town of America, in the district of Maine and York county, containing 1166 inhabitants.

ALFRED, l. 7, for tenth r. fourth.

ALFRED, of Beverley. Subjoin.—See AYRED.

ALGEBRA, Specimen, l. 4 from bottom, for four r. three. Col. 2, l. 22, for + r. — , or a + b — c — d — a. Line 35, for a + b. a + c.

ALGAE. Subjoin.—By Barrow's chart, Cape Recif in this bay is in S. lat. 34° 10'. E. long. 25° 40'.

ALIEN. Subjoin.—It is also continued by the parliament of 1818.

ALIENS Duty. Add.—See Book of Rates.

ALKALI, New fixed, in Chemistry. See LITHON.

ALKALI, New Compound from Opium. See MORPHIA and OPIUM.

ALKALINE ACIDITY, l. 3, for four r. four.

ALL, Sanguina r. ALLA Sanguina.

ALL Souls, l. 6th, for Jocelin r. Jocelin.

ALLALITE. See MINERALOGY, Addenda.

ALLANITE. See MINERALOGY, Addenda.

ALLANTODIA, in Botany, from allant, allani, a sanguineum, allating to the tumid oblong figure of the Sori, or lines of capsules, wrapped in their membranous coverings. —Brown, Prod. Nov. Holl. v. 1. 149.—Cliffs and order, Cryptograma Filices. Nat. Ord. Filices.

Eff. Ch. Fructification in scattered oblique lines, accompanying a vein. Involucrum vaulted, originating laterally from the vein, and inserted into it by both margins; at length separating at the inner one.

The habit of this genus, says Mr. Brown, is between Nephrodium and Diplazium. (See these articles.) Polypondium umbrosum, Hort. Kew, ed. 1, affords an example of it, and there are some unpublifhed species. The cylindrical involucrum prohibits its union with Allantodia or Athyrium of various authors, and that membrane, being inserted by both margins into the same vein, and truly turling, differs from the involucrum of Asplenium, whose upper edge is not connected with the frond.

We select the examples indicated by the author, not being quite satisfied of the limits of this genus, which is reduced to Allantodia in the second edition of Hort. Kew.possibly not with Mr. Brown's concurrence, his most indubitable genus of Woodia (see that article) being likewise there rejected.

We are poffled of many, perhaps of all, the non-de-script Allantodia of which he speaks. To these some other Allantodia of Hort. Kew. may be akin; but A. anumal, placed next to umbrosum, is not one of them, any more than a few of the neighbouring species, referred by the writer of this article to Cystites in Brit. Whose involucrum surely does not answer to the above character, their fori being orbicular.

A. umbrosum. Madeira Wood Sauage-ferm. (Polypondium umbrosum; Ait. Hort. Kew, ed. 1, v. 3. 456. Allantodia umbrosum; ed. 2. v. 5. 513. Wildb. Sp. Pl. v. 5. 283. A. axillare; Schkuhr Crypt. t. 61.)—Frond tripily pinnate; ultimate segments lanceolate, decurrent, deeply lacerated; the lower frutesces cloven. Lines contiguous; finnally confluent.—Gathered in shady woods in Madeira, by the late Mr. Maffon, who sent roots to Kew, in 1779, and gave specimens to the younger Linnaeus. An elegant finely divided fern, about three feet high, with roughish stalks. Leaves or two or three inches long, and nearly one broad, pointed, pinnatifid almost to the mid-rib; the segments numerous, parallel, oblom, obtuse, decurrent, vein, sinnos, of a fine green; most lacerated at their extremity and upper margin; one or two of the lower frutesces often cloven at the point. Lines molt copiously about the lower part of each leaflet. Capsules brown. Involucrum pale, variously torn and reflexed.

A. anumal. Southern Sauage-ferm. Br. n. 1.—Frond doubly pinnate, deltoid, membranous, flaccid. Leaflets pinnatifid, tapering at the point; lobes oblong, obtuse, deeply lacerated, many-flowered. Involucrum oblong, Native of Van Diemen's island.

A. tenua. Tender Sauage-ferm. Br. n. 2.—Frond doubly pinnate, membranous, flaccid. Leaflets pinnatifid; lobes oblong, obtuse, lacerated, flowering at the base. Spots linear.—Gathered by Mr. Brown, in the neighbourhood of Port Jackson, New South Wales.

The Allantodia axillare, Wildb. Sp. Pl. v. 5. 273. Ait. ed. 2. v. 5. 512, should seem, if the specific character of Wildenow were right, to belong to the present genus. But we suppect that character to have been taken from something else. The fori are by no means rotis, or straight, but remarkably recurved, much beyond kidney-shaped, finally assuming almost the petalate form of a real Allantodia. In an early state indeed they are straight; but the inner margin is loofe, dilated, and fringed. In habit nothing can be more closely allied to Allantodia umbriform than this Allantodia axillare.


Gen. Ch. Cal. of one leaf, inferior; tube short; limb in five,
five, rather acute, hairy segments. Cor. superior, of four small, roundish, concave, very hairy petals. Stam. Filaments four, awl-shaped, thick, along the length of the calyx; anthers inserted, two-lobed, each lobe of two cells. Pfr. German roundish, between the calyx and corolla; style awl-shaped, the length of the flaments; stigma acute. Peric. Berry large, oblong, obtuse, smooth, flabby, pendulous, of one cell. Seeds numerous, ovate, tumid, somewhat compressed, imbedded in pulp.

Eff. Ch. Berry with numerous seeds. German between, the five-eleft calyx, and corolla of four petals.

1. A. payo. Black-pudding tree. Muringuinguine of the Africans. — Observed by Loureiro, at Mozambique, near the eastern coast of Africa. A large tree, with spreading branches, defitute of thorns. Leaves opposite, digitate, of five oval, entire, hairy leaflets. Stalks many-flowered, nearly terminal. Fruit reddish-brown. A cataplasm of the leaves, applied to the back, below the kidneys, is said to promote delivery. Loureiro compares his plant, as to the leaves and fruit, with the Jaraeetia, Piff. Brab. 160. It is easy to trace the natural order of this Alliaeff, and its relation to Carica. Having seen no specimens, we cannot undertake to correct some apparent inaccuracies, or to define the real character of the genus; neither is it necessary here to criticise, or to alter, the generic or specific name.

ALLEGANY, in Geography, a county of New York, containing 1942 inhabitants, of whom 21 are slaves.

ALLEGHANY, or Alleghany County, 1. 5. for 10,090 r. 25,317, and for 159 r. 24.

ALLEGHANY, in Maryland, 1. 5. for 4809 r. 6949, and for 258 r. 620. Add—Alle, a township of Pennsylvania, in Cambria county, having 610 inhabitants.—Alle, a township of Pennsylvania, in the county of Armstrong, containing 820 inhabitants.—Alle, a township of Pennsylvania, in Somerset county, having 271 inhabitants.—Alle, a township of Pennsylvania, in the county of Venango, having 299 inhabitants.—Alle, a township of Huntingdon county, in Pennsylvania, with 1195 inhabitants.

ALLEN, a township of Pennsylvania, in Cumberland county, having 1847 inhabitants.

ALLENSTOWN, 1. 2. for 257. r. 346.

ALLENTOWN, for 92 houses r. 1591 inhabitants.

ALLIGATOR, after Lacerta infect, see Lizard.

ALLIUM, in Botany, an ancient Latin name, of which many different etymologies have been proposed, but none has been thought perfectly satisfactory, is deduced by De Theis from the Celtic, all, signifying hot, pungent, or burning, than which nothing can be more suitable, whether we consider the various kinds of Garlic, Onions, &c. in common use, or the numerous wild ones. Several species require to be added to the fifty-seven enumerated by our predecessor, the late Dr. Woodville, in the first volume of this work. (See Allium.) We shall indicate their respective places in each section, intermixing, in the same order, a few remarks concerning other species.

Sect. 1. Stem leafy. Leaves flat. Umbel bearing capsules only.


3. Smaller, with sweet-smelling bright crimson flowers.—This variety is a native of the Cape of Good Hope, being the A. Ampeloprasum of Thumb. Prodr. 65. It must not be confounded with the E of Curt. Mag. 1385, Willd. and Kitab. Hung. v. 1, 84, r. 82, which Mr. Ker now thinks a variety of arenarium, deprived of its flower-bulbs. The fame botanist, do deeply skilled in the plants of this natural order and their allies, has, expressed, like Linnaeus, an

in Alle.

Between 2 and 3. A. Dioecorus. Sibth. in Prodr. Fl. Græc. n. 764. (m. 2: Dioec. book 3. chap. 4.)—Found in dense bushy shady situations, in Cape, Mytia, and Cyprus. "The stem, in a rich foil, sometimes attains the height of five or six feet. Umbel large. Flowers white, somewhat resembling those of Peganum Harmala, as Dioecorus observes in speaking of the latter plant, book 3. chap. 53." Such is all the information afforded by Dr. Sibthorp's MSS., for he has left no specimen nor drawing of this interesting plant, supposing him to be the μελο, or Meli, of Dioecorus. He had not afforded us any materials for a specific character. Can his plant be the A. orientale latifolium, flore magno lato; Tourn. Cor. 267? Of this a specimen may perhaps be found, in the collections at Paris or Oxford.

Sect. 2. Stem leafy. Leaves nearly cylindrical. Umbel bearing capsules only.

20. 21. A. margaritaceum. Pearly Garlic. Sm. Prodr. Fl. Græc. Sibth. n. 770. Fl. Græc. t. 315, unpubl.—Stem bearing round leaves and an umbel of capsules. Leaves channelled. Stamens three-pointed, prominent. Petals obvate, obtuse.—Gathered by Dr. Sibthorp, about Prusa in Bithynia, as well as on mount Athos, and in the isle of Naxos, Cyprus, and Cimolus. The bulb is about the size of a farthing, coated with brown ribbed scales. Stem solitary, a foot high, erect, round, slender, leafy in its lower half. Leaves about four, spreading, tapering, as thick as a crown's quill, rather glaucous, smooth, six inches long; channelled along the upper side; theathing at the base; the two lowermost short and soon withering. Umbel erect, oval, obtuse, denf, attended at the base by several short, reflexed, jagged, white involucral scales. Flowers on slender, ascend ing or upright, simple flatsby, an inch long at most. Petals obvate, concave, not a quarter of an inch in length, converging, streaked with green, white at the edges, purple at the keel. Stamens white; three of them simple, awl-shaped; three linear, with two long, lateral, spreading, narrow segments. German turbinate, with five prominent angles.

26. 27. A. caucasicum. Crimson Caucasian Garlic. Ker in Curt. Mag. at the end of p. 143. (A. paniculatum; ibid. t. 975, but not t. 1432. A. globulosum; Redout. Liliace. t. 179. not t. 96!)—Stem bearing thread-shaped flower-leaves, and an umbel of capsules. One valve of the sheath elongated and cylindrical. Stamens simple. Petals ovate, acute. German globulus.—Native of mount Caucasus. Raised by Mr. Loddiges, from seeds imported from Russia. The cylindrical leaves, globose umbel, shorter involucrum, ovate, not obvate petals, and round, even, not oblong and channelled, green, as well as the roe-coloured flowers, are sufficient marks of distinction between this plant and A. paniculatum, of which an imperfect figure, representing the leaves as cylindrical (contrary to nature and the description) is given in Curt. Mag. t. 1432.
ALLIUM.

A. montanum. Crinum Olympian Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 775. Fl. Græc. t. 331, unpubl. (A. montanum, radice oblongâ; Tourn. Infl. 385, according to Sibthorp.)—Stem bearing nearly cylindrical leaves, and an umbel of capfules. Sheath elongated, deflexed. Stamens fimple. Flower-flalks uniform.—Found in the grally paltures of the Bithynian Olympus, by Dr. Sibthorp. The bulb is ovate-oblong, red, with a ribbed angular coat, fibrous at the summit. Stem four or five inches high, smooth, round, bearing about two flender, smooth, fmal, green-leaves, a little channelled on their upper fade, one of them rising above the umbel, which is rather large. Petals obvate, pale rofe-coloured, with a crimmon mid-rilb. Genus ovate-oblong, with five deep furrows.


A. junceum. Rush-leaved Purple Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 772. Fl. Græc. t. 323, unpubl.—Stem bearing thread-shaped leaves, and an umbel of capfules. Three alternate flaments five-foid. Umbel capitulate.—Discovered in the ifland of Cyprus, by Dr. Sibthorp, who took it for A. Schoenoprasium, from which, however like at first fight, it differs entirely. Our plant is more allied to A. aflatunium, but fmall flinct, and the fla is truly leafy. Bulbs angular, ovate, with dark-brown, fpinated, elongated coats. Stem a foot high, flender, creft, lealy about one-third of its height. Leaves two, nearly as tall as the stem, very flender, tubular, quite round, fpoom, a little glaucous, somewhat fpreading at the top. Umbel globular, dense, its flatch of two broad, ovate, acute, conical, clole leaves, shorter than the flowers. Flower-flalks green, but half the length of the petals, which are elliptic-oblong, acute, purpliffh, with a darker mid-rilb. Stamens white; three of them fimpie, awl-shaped; the intermediate ones flat, dilated upwards, terminating in two taper vertical teeth, on each fide of a fimilar one bearing the anther. Genus elliptical, with three flight furrows.

Seft. 4. Leaves radical. Common Flower-flalk naked.

35. A. inodorum. Carolina Garlick. Ait. Hort. Kew. ed. 1. v. 1. 427. ed. 2. n. 25. Willd. n. 33. Curt. Mag. t. 1129. (A. fragrans; Venet. Hort. Celf. t. 26. Redout. Lilic. t. 68. Purih n. 2.)—Stalk naked, obturately triangular. Leaves linear, flat; keeled at the back. Umbel level-topped, capsule-bearing. Stamens fimple.*—On the mountains of Virginia and Carolina, flowering in June. Perennial. Flowers white, with red veins. Purifh, who had seen it living, It is marked in Hort. Kew, as a hardy perennial, flowering in March and April, and introduced by the late Dufcufs Dowager of Portland, in 1776. We presume Dr. Solander to be the author of the above characters, given in Hort. Kew, and that the plant of the Botanical Magazine and that of Redouté are the fame, though in the former work the petals are obvate, and remarkably elongated at the base; in the latter ovate, without any such elongation. One or other is a great, and very material, error, but not having seen the plant, we know not where the fault lies. There are errors also in the detail of its history. Redouté t. 6 for 68; Venet. Malmaijs. copied by Pursh from the Magazine, for Venet. Hort. Celf., which proving that the work was not consulted by Pursh, takes away our confidence in that author, as to synonyms. The name inodore is acknowledged to express the want of the Garlick factor in the herbage, while that of fragrans alludes to the sweet scent of the flowers. We retain the original appellation. Mr. Ker, at the end of the history of t. 1293, in Curt. Mag. declares his conviction that A. gracile, our n. 55, is the fame plant. We cannot affect the contrary, but we do not feel convinced, and there has been such a diversity of opinion on the subject, that till we can compare living specimens, we must leave the question in doubt. It is remarkable that Willdenow says A. inodore is like angulorum of Linneus, but twice as large, and differing in the specific character, which chiefly amounts to the flatak of the latter being two-edged, and the leaves channelled. He had both plants living. But angulorum is most excellently represented in Curt. Mag. t. 1149, and surely few of the genus can bear less resemblance to t. 1129! It is scarcely more like Redouté's figures, named fragrans. We proceed to notice the species most akin to inodore; for so at leat it must be presumed to be.

35, 36. A. gracile. Jamaica Garlick. (See our n. 55.) Dryandr. in Ait. Hort. Kew. v. 1. 429. ed. 2. n. 38. Wild. n. 52. Andr. Repof. t. 107. Ker in Curt. Mag. at the end of p. 1293, var. 1. (A. fruticum; Redout. Lilic. t. 50. Curt. Mag. t. 1035? and t. 1242?)—Stalk naked, round, very long. Leaves linear, channelled. Stamens awl-shaped, connected at the base.—Native of Jamaica, from whence it was fpent to Kew, by Hinton Eaft, efq., and fowered in the ifle, in February. Aiton. Leaves a foot long, reftling them of a Narcifius. Stalk three fets high, flender. Petals creft, white, with claws, which are united with the flaments below, into a green tube. Perhaps this plant may form a diftinct genus. Dryandr as above. The writer of the prefent article happened to be with Mr. Dryandr, when the original fpecimens of this Allium were brought from Kew, and on being afked for a name fuggelfed the above. He then obtained a fpecimen, which is now, along with others gathered at Kew in 1788, in his herbarium, as well as one more, undoubtedly the fame fpecies, procured from Mr. Vere's collection, in 1814, as a rare plant, by the name of A. stratum. He can therefore fpeak to the whole herb being deftitute of the Garlick odour, and to the want of fcent in the flowers, by day at leat, though they may very probably be, as reported, fragrant at night. He can also vouch for the fidelity of Mr. Andrews's figure; nor does he hesitate concerning t. 50 of Redouté; whatever fcruples a deference to Mr. Ker may fuggel, as to the two figures named stratum in Curt. Mag. Theufficion of a generic difference between this plant and Allium, arose in Mr. Dryandr's mind, from the combination of the flaments, and was strengthened by the want of the garlick flavour.
flavour. The leaves are certainly not remarkably flattened at the back, as in the real *friatum*, of which we shall next speak.

A. *friatum*. Streaked-leaved Garlic. (See our n. 37.)

Jacq. Coll. v. 5. 51. T. Rar. t. 366. Willd. n. 35.

Ait. n. 27.—Stalk naked, slightly triangular. Leaves linear, somewhat channelled; convex, with many furrows, but no keel, beneath. Umbel level-topped. Petals oblong-lanceolate. Stamens simple.—Native of the Cape of Good Hope, flowering in the garden in September and October. Whole plant smooth, without much scent. *Bulb* the size of a hazel-nut, white, coated. *Leaves* about four, all radical, six inches or more in length, linear, bluntish, oblique, but little channelled; rather convex and flattened at the back, but not triangular. A transverse section, under a magnifier, showed a single row of perpendicular tubes, each running behind one of the furrows; but the leaf is not itself hollow, or tubular. *Stalk* radical, obscurely triangular, slender, erect, as tall as the leaves, or taller. *Umbel* of seven flowers, more or less, the partial flasks an inch and a half long. *Sheath* of two erect, ovate, pointed, membranous valves. *Petals* long-lanceolate, rather acute, spreading, white with a green longitudinal line in the middle. *Filament* awl-shaped, equal, shorter than the petals. *Anthers* oblong, incumbent, yellow. *Jacquin.*

This figure and description surely do not suit our *gracile*.

But whether the *friatum* does really come from the Cape, or from Virginia and Carolina, we are quite in the dark. Pursh’s *friatum* is our *ornitbogaloides*, n. 57. Curt. Mag. t. 1524 answers better to his description than t. 1255, but we cannot prove them the same. We have endeavoured to unravel the original materials which concern these three species, but having had no means of comparing fresh specimens, nor having indeed seen any at all of Jacquin’s plant, we are unable to attempt good specific characters, and therefore leave the whole for future examination, satisfied of one thing, at least, that these species are not at present well understood. To illustrate them, great attention to the outline of the petals, shape and inflection of the *filaments*, and form of the *germen*, circumstances not yet well observed in *Allium*, will be found of primary importance.

39. *A. pedmontanum*. Red Piedmonteese Garlic. Willd. n. 37. (A. nigrum; Allion. Pedem. v. 2. 158. t. 25. f. 1. A. rosicum; Linn. Sp. Pl. ed. 2. 432, but not Sp. Pl. v. 1. 256.)—Stalk obscurely quadrangular. Bulb cylindrical. Leaves linear, obtuse, keeled at the back. Umbel rather dense, of few flowers. Petals elliptical.—Native of mountainous situations in Piedmont. Specimens from Altoni and Bellardi prove this species, as distinct from *nigrum* as from *rosicum*, to have been confounded by Millerius with the latter, which has a globule, very prolic *bulb*, a somewhat leafy *fleshy* stem, and far more numerous, brighter-coloured, *flowers*.

39, 40. *A. flaccidum*. Millouri Garlic. Ker in Curt. Mag. t. 1576. Ait. Epit. 363. (A. angulosum; Pursh n. 4, excluding the *synonyms*.)—Stalks somewhat two-edged, recurved before flowering. *Bulb* ovate-oblanceolate. Leaves linear, triangular, sharply keeled. Umbel many-flowered, lax, level-topped. Stamens combined at the base. *Germin* depermed, bluntly triangular.—Found on the banks of the Millouri, by governor Lewis and Mr. Nuttall, flowering in July, and imported by Mr. Fraser, in whose nursery it bloomed in June 1813. Pursh by mistake says the flowers are white. In the Botanical Magazine they are represented of a deep pink, and the herbage somewhat glaucous. The *flasks* are two or more. The *fleshy* is of only one valve; but Mr. Ker doubts the permanency of that character.


A. rubellum. Reddish Iberian Garlic. Marisch. Taur.-Caucas. v. 1. 264.—“Stalk nearly naked, round. Leaves semi-cylindrical, channelled. Sheath short. Umbel convex, many-flowered. *Stamens* simple, half as long as the *corolla.*”—Gathered by Mr. Steven in Georgia. *Bulb* the size of a filbert. *Stalk* with one or two leaves sheathing the base, on which account the author cited doubts whether this species and the following might not be referred to the third section; but there are many of the fourth whole foliage, when the bulb is deep, becomes in some degree caulin. *Leaves* a line broad, rather fleshy. *Flower*-stalks slender, much longer than the *flowers*, which are hardly so big as those of *A. plumprifum*, of a pale purple, with acute *petals*.

A. fuscifolium. Stone Garlic. Marisch. Taur.-Caucas. v. 1. 264. Sims and Kon. Ann. of Bot. v. 2. 436, excluding the *synonym* of Gymnol.—“Stalk almost naked, round. Leaves semi-cylindrical. *Sheath* pointed, longer than the umbel. *Stamens* simple, longer than the *corolla.*”—Frequent on the lime-stone rocks of Taurida, flowering in July and August. *Bulbs* aggregate, oblong, with dark brown coats. *Stalk* with a few sheathing leaves at the base, like the foregoing. *Petals* spreading. There is a variety with purplish *flowers*, on the eastern mountains of Caucasia. This species is very closely related to *A. flaccidum*, Willd. n. 49, see our n. 51; but differs in having a long awl-shaped *fleshy*. **Marisch.**

A. bifurcum. Jouquil-leaved Garlic. Redout. Liliac. t. 286. Curt. Mag. t. 1381. Ait. Epit. 363.—Bulb cylindrical. *Stalk* round. Leaves two-ranked, semi-cylindrical, channelled, acute. Umbel dense, convex. Petals oval. Filaments awl-shaped, the length of the corolla; three of them broader at the base.—Native country not known. The plant is said to be quite hard, and of easy culture, flowering in June and July. Mr. Ker remarks its great resemblance to *fimbriatius*, (see n. 52,) Curt. Mag. t. 1150, next to which perhaps it ought to be placed, though akin also to our last, from which the *fimbriatius* of the *fimbriatius* distinguishes the present plant. The narrow and thick *leaves* are very different from *fimbriatius*; and Redout has observed that the inner ones are channelled on both sides; which may, as Mr. Ker thinks, be occasioned by pressure in an early state.

40, 41. *A. trilobum*. Three-flowered Garlic, or Mountain Leeks. Pursh n. 5.—“Stalk naked, round, shorter than the leaves, which are lanceolate and ribbed. Umbel of few flowers.”—In shady woods, on the high mountains of Pennsylvania, flowering in May and June. **Pursh.**

Fl. Græc. Sibth. n. 781. Fl. Græc. t. 325, unpubl. (A. album; Bivona Sic. cent. i. 16. “Santi Viagg. al Montam. 352 t. 7, Bertol. Gen. 51. Savi Etrusc. v. 2. 210.)—Stalk naked, triangular. Leaves lanceolate, sessile. Petals obtuse.—Native of fields in Italy and Sicily, flowering in March. This is one of those plants, which, on account of their novelty, or rarity, Dr. Sibthorp admitted into his *Flora Graeca*, having gathered them in the course of his travels, though perhaps not in Greece itself. *A. luteum* agrees with *trigintum*, n. 44, next to which it should be placed, in having an acutely triangular *flalla*; but differs in the lanceolate *leaves*, and shorter, broader, more obtuse, petals. The *siga* moreover is simple, not three-lobed.

*A. ambiurn*. Bulbous Rose Garlic. Sm. Prod. Fl. Græc. Sibth. n. 783. Fl. Græc. t. 327, unpubl. (A. rofenum S.; Ker in Curt. Mag. t. 978. Bivona Sic. cent. i. 18. Savi Etrusc. v. 2. 210. “A. carneum; Targioni Tozzetti Ist. Bot. ed. 2. v. 2. 242. t. 6. Moly antiquifolum campanulatum, flore rofeno, nodosum; Cupani Pamph. v. 2. t. 219.” Moly serpentinitum vocatum; Lob. Ic. 160.)—Stalk naked. Leaves semi-cylindrical. Stamens ample, shorter than the corolla. Umbel bulbiferous.—Native of Italy and Sicily, flowering in May. Frequent about Pifs. Sav. On the hills of St. Martino near Palermo. *Bivona.* This *Allium*, which, with respect to the *Flora Graeca*, stands in the same predicament as the laft, is made by all authors a variety of *rofenum*; for the difference between the species with bulbiferous, and thofe with feed-bearing, *umbels*, is acknowledged to be, in many instances, not infallible. In the plant before us, however, there is a great difagreement, as to the character of *rofenum*, which is described with flat *leaves* and a leafy *siga*. But the dried specimens are very much alike, not discoverable in either the semi-cylindrical and hollow structure of the *leaves*, shewn by Dr. Sibthorp’s figure. As to the *siga* being leafy or not, many species are in this repect ambiguous, and *rofenum* is perhaps improperly considered as of the former denomination. Their *roots* are precisely alike. The *flowers of rofenum* are far more numerous, and of a finer pink hue.

We cannot conclude our survey of *Allium* without a remark that the whole genus requires to be reformed, with regard to the arrangement of the species, and the specific characters of many of them. We are also aware of several that might be added to the above lift, but of which we want sufficient specimens or information clearly to dispose of them, so as to elucidate rather than confound the subject.

**ALLOCHROITE.** See **Mineralogy, Addenda.**

**ALLOY,** in Chemicaly, a combination of two or more metals. In addition to what has been said on this subject in the Cyclopædia, we may add the following tabular views from Dr. Thomson, of the general properties of the different alloys, as far as they have been examined. The chemicaly of alloys is at present but little understood, and, as Dr. Thomson justly remarks, these compounds in general appear to be much better known to artists and manufacturers than to chemists.

The first of the following tables comprehends the alloys of the malleable metals with each other; the second, the alloys of the brittle metals; and the third, the alloys of the malleable and brittle metals. In these tables, the letter M signifies malleable; B, brittle; S, submalleable, used when the alloy is malleable in certain proportions, but brittle in others. O is used when the metals do not unite. The sign + is used when the alloy occupies a greater bulk than the separate metals; the sign — when the alloy occupies a smaller bulk. The sign indicates an expansion; the second, a condensation.

**Table I.** Malleable Metals.

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<table>
<thead>
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### Table II. Brittle Metals

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### Table III. Malleable and Brittle Metals

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ALMANAC, col. 2, l. 15, add, see STAMP.

ALMUDE, in Commerce, a liquid measure in Portugal, &c. (See Table XXXII. of Measures.) At Lisbon, wine and oil are sold by the pipe of 26 almudes; but the pipe of Lisbon wine sent to England contains about 31 almudes, and the standard gauge at the London Custom-house is 140 gallons; the Lisbon almude is therefore reckoned at 4½ English gallons. At Oporto, the pipe is divided into 21 almudes, which almude and its subdivisions are 49½ per cent. greater than those of Lisbon; so that the standard gauge of a pipe of port at the Custom-house of London is 138 gallons, so that the almude of Oporto is accordingly equal to six English gallons and five pints nearly.

ALNUS, in Botany, the Alder, an ancient Latin name, which De Theis derives from the Celtic, *al*, near, and lan., the brink of a river, the letters having become transposed for easy pronunciation. This is suitable enough to the tree in question, which always grows near water, even on the loftiest mountains, nor have we met with a better etymology.


Gen. Ch. Male, Cal. Catkin cylindrical, imbricated every way, lax, composed of wedge-shaped, three-flowered, abrupt, three-cleft fecales. *Cor.* compound, of three equal, tubular, four-cleft florets, feline on the disk of each scale; their segments deep, equal, ovate, obtuse, spreading. *Stam.* Filaments four, minute, inserted into the base of each segment, and not quite so long as the segment; anthers of two round lobes.

Female, on the same plant, Cal. Catkin elliptical, imbricated, close, containing of two-flowered, rounded, pointed, obconically three-cleft, concave scales. *Cor.* lonic. *Pil.* Germens two to each scale, ovate, minute, depresse; *stiles* two to each germen, tapering, rather longer than the scale; *filaments* simple. *Seed.* Nut naked, compressed, of two cells, with solitary kernels.

Eff. Ch. Male, Calyx the scale of a catkin, of one leaf, three-cleft, three-flowered. Corolla deeply four-cleft.

Female, Calyx the scale of a catkin, of one leaf, obconically three-cleft, two-flowered. Styles two. Nut compressed. The presence of a corolla in the male flowers, with a determinate number of *flaments* equal to that of its segments, are sufficient marks of generic distinction between this genus and *Betula*, which has no corolla in either flower, and whose *flaments* are numerous, and indefinite. The fertile catkin moreover is elliptical in *Alnus*, cylindrical in *Betula*. Gérard finds differences in the seed, which, if the germen be attended to, appear to us less decisive. By an accidental oversight, *Alnus* was neglected to be separated from *Betula*, in our Plants of Britain; see that article.


δ, quercifolia; leaves oblong, sinuate, with obtuse segments. *Willd.*

Leaves roundish-wedge-shaped, obtuse, wavy, glutinous; downy at the branching of the veins beneath.—Native of swamps and the neighbourhood of rivers and pools, in low lands, as well as on mountains, throughout Europe, the north of Asia, and of Africa, as also in Canada and on the north-west coast of America, (Pufch.) flowering in March or April. In landscape this tree often supplies the want of the rich dark foliage of the Oak, where the latter will not thrive. The leaves are not fully expanded till the end of May, but they remain late in autumn. For the uses and further history of this tree, see *Betula*, n. 6. Our γ is the only variety cultivated for ornament, or rather curiosity, in England.

2. A. oblongata. Turkey Alder. Willd. n. 2. Ait. n. 2. (A. folio oblongo virid.) Bauh. Pin. 428. Hort. Angl. 5. Betula oblongata; Ait. ed. 1. v. 3. 338.—Leaves elliptical, bluntish, glutinous; the branching of the veins naked beneath.—Native of the south of Europe. Cultivated in England ever since the year 1571, at least, but not much in request. The leaves are smaller than the foregoing, ovate, or elliptic-oblong, sharply serrated. *Catkins* of seeds nearly globular.


β, angulata; leaves green beneath, with green footstalks.

4. A. undulata. Curl-leaved Alder. Willd. n. 4. Ait. n. 4. (A. cripta; Pursh n. 2. Betula cripta; Ait. ed. 1. v. 3. 339. Michaux Boréal.-Amer. v. 2. 181.)—Leaves oblong, acute; rounded at the base; veins hairy beneath, like the footstalks, but naked at their origin. *Stipulas* ovate-oblong.—In Canada, and on the high mountains of Pennsylvania, in swamps overrun with Bog-moss, flowering in April. A *sporif* not above three or four feet high. *Leaves* doubly serrated. *Pursh.* See *Betula* n. 13. Willdenow seems to have unwarrantably changed the name of this species.

obovate, finely lated; veins and their origin hairy beneath. Stipules elliptical, obtuse. — Native of North America.

Common every where in swamps, and by river sides, flowering in March. A shrub, from six to ten feet high, growing in close thickets. Purff. See Betula n. 12. The leaves do not appear to be glutinous, or at least not so much as the Common Alder, from which also they differ in being regularly and finely lated, not notched, or jagged.

ALOEXYLUM, *aloe* wood, a name given to the tree which produces this precious wood, by Loureiro; Fl. Cochinch. 267. See Agallochum.—He refers to it the Clasfs and Order, Deccaudia Monogonia, and its Natural Order seems to be Lomendrae, Linn. —Leguminosae, Juff.

Gen. Ch. Cal. Perianth inferior, of four acute, hairy, deciduous leaves; the lowermost lated, incurved, nearly twice as long as the reft. Cor. Petals five, unequal, longer than the calyx. Stam. Filaments ten; anthers... Fls. Germen superior, elongated, curved, compressed; style thread-shaped; stigma... Peric. Legume woody, smooth, lated. Seed solitary, oblong, curved, tunicated.

Eff. Ch. Calyx of four acute deciduous leaves; the lower one longish. Petals five, unequal. Legume curved. Seed solitary, tunicated.

1. A. Agallochum. Fragrant Aloe-wood.—Native of the loftiest mountains of Cochinchina, near the great river which runs between that kingdom and Laos. A large lofty tree, with erect branches. Bark fibrous, brown, smooth, not thick. Leaves alternate, flalked, lanceolate, flat, entire, smooth, rather coriaceous, eight inches long. Flower-flats terminal, many-flowered. Loureiro. This genus is manifestly different from Aquilaria. (See that article.) Loureiro describes the wood as white and inodorous, becoming rufous and fragrant in consequence of some injury, till the tree dies. No part of this tree is milky, nor poisonous. He adds, that all the forts of genuine aloe-wood are produced by this tree, even the most precious, termed Calambaec, which is found no where but on the mountains of Cham-pave, belonging to Cochinchina, situated about the 13th degree of north latitude. The inferior species, or other varieties, are obtained in various places, sometimes in pieces weighing thirty pounds or more. "There are," says Loureiro, "other fragrant woods, called by ignornant perfons Agallochum, and Lignum Aloe, differing greatly from each other, and the produce of different plants." The common writing paper of Cochinchina is made of the bark of this tree. Yet the plant itself seems rare, Loureiro having long enquired in vain for the flowers, and having obtained them but once, in a bruised and mutilated condition.

Whether the Agallochum, or Calambaec, Rumph. Amboin. v. 2. 29, of which that author gives no figure, be the plant of Loureiro, we cannot positively determine, though it seems likely. The Agallochum secundarium, or Garo, of the same volume, 34. t. 10, is certainly the Aquilaria. We have received from Dr. Roxburgh specimens of the wood itself; as well as of the fruit, agreeing exactly with Rumphius's figure, and evidently the Gymnina Walla of Gaertner, v. 2. 276. t. 140. In Tr. of Linn. Soc. v. 11. 230, the writer of this has hinted at the probable affinity of Aquilaria to the Euphorbia.

ALONSOA, a genus established by Ruiz and Pavon, Fl. Peruv. Syll. 150, and adopted in Ait Horn. Kew. v. 4. 27, is founded on two species of Hemmeris, (see that article) nor can we discover the least possible character to distingush them from the latter; which having been much confounded in its history by Linneus, was perhaps not understood by the authors of the Flora Peruviana. These species are our *H. urticifolia* (Alonfoa incisifolia; Fl. Peruv.) and Vol. XXXIX.

H. linearis. (A. linearis of the same work.) Professor Willdenow, though he had never seen more than one Hemmeris, the monandria, and that in a dried state, could not overlook the identity of these genera, nor in what it is evident from their generic character of Allophana that they did not contrast the two genera; for these are proved the same by the character itself, which runs thus, and is equally suitable to both. Calyx in five deep segments. Corolla nearly wheel-shaped, reverse, five-leaf; the uppermost segment largest. Stamina declining: with smooth filaments; and converging uniform anthers. Capule of two cells.

Hemmeris, being a long-established Linnæan name, of appropriate and unexceptionable meaning, might, of course, be retained.


Gen. Ch. Cal. Perianth superior, of one leaf, tubular, irregularly splitting into two or three teeth. Cor. of one petal, irregular, tubular at the base: limb double, unequal; the outermost two-lipped, in three deep segments, of which the upper one is usually broadest, and concave, the two lower equal and narrower; innermost of a single lip, straight, as long or longer than the outer limb, dilated, lobed, or jagged, at the extremity, furnished at the base with a pair of awl-shaped teeth. Stam. Filament one, opposite to the lip, short and flout, quite simple; anther terminal, erect, thick, simple, without any appendage, convex at the back, marginate, divided in front into two parallel, close, oblong lobes, curving longitudinally. Pil. Germen inferior, elliptic-oblung, with three furrows; style thread-shaped, erect, smooth, the length of the ftern, embraced by the lobes of the anther; stigma peltate, umbilicated, hairy. Peric. Capsule fleshy, oval, abrupt, umbilicated, with three furrows, three valves, and three cells. Seeds numerous, tunicated, ovate, angular, abrupt, infected into a pulpy receptacle.

Eff. Ch. Anther two-lobed, terminal, embracing the style, without any appendage. Inner limb of the corolla a simple lip. Capsule fleshy.

Dr. Roxburgh, who had opportunities of studying the various species of this, and many other Scitamineae genera, in their native situations, speaks of Alpinia as a good natural genus, having, besides the proper characters in the fruitification, certain peculiarly striking ones in the habit. The roots are perennial, tubercous, strong, thick, crooked, running nearly horizontally, a little below the surface of the ground,
and strongly marked with annular scars where former leaves have been; these send down copious, long, thick, fibrous radicles. Stems either biennial or perennial, numerous, tufted, straight, erect, or more or less recurved at the summit, denely leafy, each terminating in a copious chaffier, or panicle, of large gaudy flowers, "except Cardamomum," says Dr. Roxburgh; but that plant, which has a radical panicle, is now excluded from *Alpinia*, and called by Dr. Maton Ektaria in Tr. of Linn. Soc. v. 10. 249, having insufficient marks of generic distinction in the fruits. We shall endeavour to collect under one view the numerous species of this fine genus, of which we can find any account, or have seen any figures or specimens.


—Native of rather mountainous shady woods in the Weft Indies. Notwithstanding Dr. Swartz's doubts, we have no scruple respecting Plumer's synonymy. Root branching, fleshy, with the flavour of Ginger; used in Jamaica as a poultice for cancers and other wounds, according to Sloane, with very good success. Stem herbaceous, two or three feet high, round, smooth, slender, fimple, leafy. Leaves alternate, elliptic-lanceolate, entire, smooth, pointed, a foot long, with narrow fheathing foot-falks exceeding them in length. Claffer terminal, solitary, falked, unbranched, smooth, many-flowered. Outer bratæas lanceolate, blood-red; the lowest an inch and a half long, the rest about an inch; inner bell-shaped, containing one or two flowers, shorter than the calyx, permanent. Calyx red, with broad and fallow teeth. Corolla white; tube f slender, longer than the calyx; outer limb with three nearly equal, ovate, fegment; inner somewhat heart-shaped, three-lobed, the middle lobe notched. Germen bluntly triangular, quite smooth, as well as the capfule. Seeds fhining.

2. *A. Galanga*. Galangale *Alpinia*. Reft. Tr. of Linn. Soc. v. 8. 345. Rosb. n. 1. Wild. n. 2. (Maranta Galanga; Linn. Sp. Pl. p. 3. Swartz Obs. 8. Amonum Galanga; Loureir. Cochinch. s. Galanga major; Rampf. Ambon. v. 143. t. 63. Dale Pharmac. 276. Ger. Em. 33.)—Cluster compound, erect. Bractæs all lanceolate, shorter than the flowers. Calyx bell-shaped, with three rather pointed equal fegments. Germen fightly downy.—Native of various parts of the Malay Archipelago, communicated by the late Dr. Roxburgh, from the Celefiana garden, where this plant flowered during the hot fefon, and ripened feed, though very rarely, in November. The root proved to be the real Galanga major of the fhips. The flem is faid to be feven or eight feet high. Leaves eighteen or twenty-four inches long, foft to the touch, though fcarcefibly confipuciously downy. Claffer large, with very numerous, crowded, short, racemosely branched, all downy. Bratæas uniform, lanceolate, downy; fioe at the base of each principal branch very small. Flowers white. Calyx befprinkled with minute cenous dots. Corolla elongated; lip externally downy, cloven at the extremity. "Capfule small, obotate, smooth, deep orange-red, not opening fpontaneously. Seeds only two in each cell, even in the germen, bitter and naufeous, each three-fourths covered with a white tunic." Roxburgh. See GALANGAL.

3. *A. occidentalis*. Scaly-clustered *Alpinia*. Swartz Ind. Occ. 9. Reft. Tr. of Linn. Soc. v. 8. 345. Wild. n. 4. Ait. n. 2. (Amonum minus, scapo velluto, floribus fericatis; Browne Jam. 113, excluding Sloane's synonym. Pacho-feroza minor multicaulis; Plinn. MS8. cum tono.)—Cluster compound, erect, on a fcarly leafeless stem. Partial bractæs imbricated, fheathing, dilated, abrupt, hairy. Calyx turbinated, with three broad obtufe fegments. Germen fightly downy.—Native of moift parts of the mountainous woods of Jamaica, flowering all the year, but especially in fpring. Root knotty and fleshy. Barren flem fix feet high, erect, herbaceous, fimple, leafy. Leaves elliptic-lanceolate, acute, very smooth, attached by a short contraction to their fheathing foot-falps, as in the other species. Flowering flem all turned upwards, crowded, their partial falks concealed by concave, fheathing, abrupt, partial bratæas, while each common falk, or branch of the claffer, lies at its base a very different, lanceolate, acute bratæa, half its own length. Calyx coloured, hairy at the fape; its fegments smooth, rounded and obtufe. Corolla pale yellow; tube the length of the calyx; lip veiny, cloven at the end. "Capfule rather small, conicarious and fleshy, of three valves, red when ripe, pulp within. Seeds yellow, two or three in each cell." Swartz. We are indebted to Mr. David Stean for a drawing of this plant, copied from Plumer's MS. at Oxford.

The habit of these species may, at first sight, fecm to invalidate the character of a leafy leafe, with terminal inflorescence, attributed to this genus in our introductory remarks. We think however that the difference between this and the others is more apparent than real. The f Seas may be confidered as abortive leaves, not perfected on the flowering flem, while those flem which luxuriate in foliage, do not alfo bear fructification. Perhaps the roots are more profuse than in other species.

4. *A. Alloga*. Ceylon *Alpinia*. Reft. Tr. of Linn. Soc. v. 8. 346. Rosb. n. 2. Ait. n. 3. (Hellenia Alloga; Wild. Sp. Pl. v. 1. 4. Andr. Repof. 1. 501. Heritiera Alloga; Ritzt. Obs. fcafe. 6. 1. 1.)—Cluster panicled, erect. Calyx bell-shaped, two-lobed. Germen hairily. Lip two-lobed.—Native of the Eaft Indies. Very common in Bengal, flowering throughout the rainy season, and ripening fruit in October and November. We received in 1789 a flower from Kenig's fpecimen of this plant, sent to profeffor David Van Royen by the name of Grana Paradisi Zeylandica. It appears without doubt to be the Alloga of Hermann, mentioned, but not ascertained fystematically, in Linn. Zeyl. 202. n. 449, and it is faid to be the Malo-infleci-bua, Rhede Hort. Mal. v. 11. t. 14. The illuftrions fir William Jones has defcribed it, by the Sanscrit name of Tûrûc, in the Asiatic Researcbes, v. 4. 240. The flem is two feet high, fimple, leafy. Leaves lanceolate, pointed, fnaphe, with long fheaths. Claffer, or rather panicule, variously fubdivided, lix, many-flowered, with defpily downy falks. Bratæas smooth, for the moft part very fmall, but those under the principal subdivisions of the inflorescence are sometimes elongated and lanceolate, and one or two of the lowermost occasionally become very large and leafy. Calyx downy, espefially at the fape, remarkable for having only two marginal acute fegments. Segments of the outer limb of the corolla oblong, equal, coloured green by Mr. Andrews, crimen, like the lip in Retzius's plate, but the latter is probably accidental, the author having had no living fpecimen. The lip is longer than those fegments, and, like them, externally hairy; its two lobes appear to be fometimes cloven. Stamen long, with a large anther, reddish as well as the style. Fruit globe-like, purplish-
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purplish-black, with numerous tunicated seeds. This species was raised from seed by A. B. Lambert, esq., at Boyton, in Wiltshire, where it flowered very finely; but it is said to have been previously sent by Mr. Peter Good to Kew, in 1796.

5. A. alba. White Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 346. (Hellenia alba; Willd. Sp. Pl. v. 1. 5. Heritiera alba; Retz. Obs. f.ac. 6. 18. Languas vulgaris; Koen. in Retz. Obs. f. ac. 3. 65.) — Clutter panicked. Calyx bell-shaped, three-lobed. Lip two-lobed. Leaves callous and fringed at the margin. — Native of China; cultivated in the East Indies. Kennig terms this plant Galanga alba, and speaks of it as in much use among the Malays. The roots are white, thicker than the thumb. Stems taller than a man, tuberous at the bottom, a little drooping at the top. Leaves about eighteen inches long, and hardly three broad, two-ranked, smooth on both sides; their edges callous, white, and rather rough with hairs. Five or six of the lower leaves are unaccompanied by leaves. Clutter oblong, with smooth flanks, except the partial ones, which are rather hairy. \textit{Bracteas} lanceolate, acute, rusty-coloured, deciduous. Calyx with snow-white segments. Outer limb of the corolla greenish-white; lip inversely heart-shaped, deeply two-lobed, jagged and crisped at the margin, white, with fine rose-coloured veins. \textit{Capsula} erect, membranous, rather rigid, friated. Kennig's full and correct description of the flower, leaves no doubt as to the genus of this plant, though we have seen no specimens.

6. A. chinensis. Chinese Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 346. (Hellenia chinensis; Willd. Sp. Pl. v. 1. 5. Heritiera chinensis; Retz. Obs. f. ac. 6. 18. Languas chinensis; Koen. in Retz. Obs. f. ac. 3. 65.) — Clutter panicked. Calyx bell-shaped, three-toothed, obtuse. Lip emarginate, finely-toothed. Leaves recurved at the point; membranous, and fringed with scattered hairs, at the margin. — Native of China? where at least it is cultivated, for medical use, in gardens. \textit{Root} aromatic, with an acid burning flavour, white, as thick as the middle finger. Stems two or three feet high, a little drooping at the summit. Leaves a span long, and two inches or two inches and a half broad, with a white rib and margin. \textit{Clutter} narrower, three or four inches long, its flanks more or less clothed with close-preferred hairs. Calyx green. Corolla yellowish; the lip marked with a broad orange-coloured longitudinal stripe, and transverse waves of the same colour, accompanied by four blood-red veins. Fruit a \textit{capsula}. Kennig.

7. A. aquatica. Water Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 346. (Hellenia aquatica; Willd. Sp. Pl. v. 1. 5. Heritiera aquatica; Retz. Obs. fac. 6. 18. Languas aquaticum; L. veyr. l.; Koen. in Retz. Obs. fac. 3. 67.) — Panicle somewhat drooping at the top, with forked branches. Calyx bell-shaped, three-toothed. Lip four-toothed, erect; its lateral teeth with an oblong gland at the base, on each side. — Found in marshy places, among bushes, by the sides of rivulets in the East Indies, but not very common. \textit{Roots} numerous, thread-shaped, white, sending forth runners. \textit{Stem} about four feet in height, leafy, as thick as the finger. \textit{Leaves} oblong, acute, coriaceous, of a beautiful green; rather roughly striated on the upper side; smooth at the back; the margin befit with minute callous teeth. \textit{Panicle} slender, with two deciduous \textit{bracteas} at the base; \textit{flower-flalks} forked, two-flowered, divaricated, round, smooth, white, shorter than the flowers. \textit{Bracteas} two or three, attached to the lower flower-flalks, linear-lanceolate, concave, membranous, whitish, deciduous. Calyx smooth, pure white, sometimes split at the inner side. \textit{Corolla} white. \textit{Lip} small, brown on the inner side, role-coloured near its union with the filament. \textit{Anther} reddish, crowned with a small, coloured, erect, semi-orbicular membrane. \textit{Berry} oval, smooth, black. \textit{Seeds} five or more, triangular. Kennig. The membranous crowning the anther forms a small exception to the generic character, but can hardly invalidate it, or require the establishment of a separate genus; unless the fructification, when examined according to our present advanced knowledge, should afford other distinctive marks.

8. A. malaccensis. Malaccan Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 345. Roxb. n. 3. (Maranta? malaccensis; Willd. Sp. Pl. v. 1. 14. Burm. Ind. 2. Galanga malaccensis; Rumph. Amboin. v. f. 176. t. 71. f. 1.) — Clutter simple, erect. Leaves villous beneath. Lip broader than long, toothed, concave, obliquely three-lobed; lateral lobes incurved. — Native of Chittagong, from whence it was brought to the botanic garden at Calcutta, and flowers there in April and May. "This," says Dr. Roxburgh, "is the most flatly and most beautiful of our Scitamineae plants. The flowers are particularly large; the \textit{bracteas}, and exterior limb of the corolla, pure, smooth, lucid white; the large lip variegated with crimson and yellow." \textit{Stem} from twelve to fifteen feet high, villous. \textit{Leaves} eighteen or twenty inches long, the breadth of five or six fingers, silky or downy beneath. \textit{Flowers} about twelve, alternate. \textit{Rumphius, Burmann.} This has not yet found its way to England, where it would doubtless be a great acquisition, as, by the above description, it seems to excelled the magnificence and beauty of the following.

9. A. nutans. Drooping Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 346. Sm. Exot. Bot. v. 2. 93. t. 106. Roxb. n. 4. Art. t. 4. (Globba nutans; Linn. Mant. 2. 170. Willd. Sp. Pl. v. 1. 153. Redout. Lilac. t. 60. G. sylvestris; Rumph. Amboin. v. f. 146. t. 62, 63. Renealmia nutans; Andr. Repof. t. 360. Edwards t. 1. Thornt. Illusfr. t. 13. Zerumbet speciosum; Wendl. Sert. Han- nov. t. 19. Jacq. Fragm. Bot. t. 68.) — Clutter somewhat compound, drooping. Leaves smooth on both sides. Lip inflated, crisped. Calyx irregularly toothed, tumid, furrowing at one side. — Native of the interior parts of Bengal. \textit{Roxburgh.} Albo of Amboyna, and other places. It was introduced into the English gardens, in 1752, by Mr Joseph Banks, and flowering a few years after, excited the admiration of all beholders. The number of figures of this plant which have been published, prove it a general favourite. The tuberous odorous \textit{root} is sometimes, as Dr. Roxburgh affirms, brought to England for \textit{Galanga maior}; see n. 2. \textit{Stem} from five to eight feet high in India, but with us to twelve to eighteen, perennial, erect, as thick as the finger, leafy. \textit{Leaves} a foot long or more, with long leaves, each leaf crowned with a \textit{flabula} which is externally silky. The \textit{flower-buds} before they expand are of a shining white, tinged with rose-colour, and are enveloped in large, concave, toothed \textit{bracteas} of the same porcelain-like splendited white, all together composing a dense pendulous \textit{clutter}, like a bunch of oblong grapes. When the \textit{flowers} open, they display the magnificent concave \textit{lip} yellow at the margin, internally variegated and streaked with every shade of crimson. The \textit{famen} and its \textit{anther} are short and thick. \textit{Ger- men} hairy. \textit{Capsula} spherical, opening at the sides. \textit{Seeds} aromatic, as is likewise the young germs. Linnaeus has greatly confounded the history of this plant, with which he had no acquaintance but from the work of Rumphius. Yet he subsequeutly cited the same \textit{synonym} and \textit{fig}ures under his \textit{Renealmia esculenta}, which is indeed an \textit{Alpinia}; as we shall presently shew, but a widely different species.
The real genus Globba is totally distinct from both; see that article.

A. mutica. Pointed Narrow-leaved Alpinia. Roxb. n. 5.—Cluter erect, compound. Leaves shortly flalked, linear-lanceolate, polifhed. Lip three-lobed; without a spur at the base. Capital puply. Seeds numerous, angular, with an evanfentum. —Found by Mr. W. Roxb. burg, the fon of our ever-lamented East Indian botanift, in the forests of Prince of Wales's ifland, from whence being brought to the Calcutta garden, it flowered, more or lefs, during the whole year, but chiefly in the hot leafton, March, April, and May. This is also an elegant fpecies, and holds a middle rank between nutsans and calcarata. Roxburgh.

11. A. calcarea. Spurred Narrow-leaved Alpinia. Rof. Tr. of Linn. Soc. v. 8. 347. Roxb. n. 6. Art. n. 5. (Renealmia calcarea; Andr. Repof. t. 421. Globba ereca; Redout. Lilien. t. 174.)—Cluter erect, somewhat compound. Leaves linear-lanceolate, polifhed. Lip ovate-oblong, cloven at the point. Segments of the outer limb linear-oblong. —Native of China, from whence it was introduced into the Calcutta garden in 1799, according to Dr. Roxburgh, who communicated the plant to Mr. Lambert. The numerous fpecies are from three to five feet high. Leaves narrow, acute, smooth. Cluter three or four inches long, downy, rather denfe, the fhalks, though partly compound, none of them bearing two or three flowers, being fo fhort that the whole cluter refembles a Spike. Leaves twelve or fifteen inches long and one broad, pointed. Bractes elliptical, concave, hardly equal to the calyx, which is tubular, white, fplitted half way down at one fide, and on the other very flightly and bluntly notched. Outer limb of the corolla pure white, the length of the tube, in three deep, equal, obtufe, flat, rather narrow segments. Lip nearly twice as long, concave, but not fo timid or inflated as in A. nutsans; its upper fide crimfon, beautifully flecked; the extremitv flaffil, flightly cloven, more or lefs notched or curled. The bafe of the lip being furnifhed, as in A. nutsans and fome other fpecies, with two small fpurs, or awl-ffaped appendages on the upper fide, which are wanting in the laft, feems to have occasioned the specific name, which is rather calculated to milfed. Dr. Roxburgh had once an intention of changing it to fpicata, which would not have been more correct, and the above being printed by Andrews, it was fuffered to remain. A. angulifolia would have been preferable to either.

12. A. maculata. Spotted-leaved Alpinia. Rof. Tr. of Linn. Soc. v. 8. 347.—"Leaves ovate, spotted."—Cultivated in the botanic garden at Liverpool. It is thus mentioned by Mr. Roceoe, but with a mark of doubt, nor have we met with any further information respecting this fpecies.

A. fpicata. Small Spiked Alpinia. Roxb. n. 8.—"Spike oblong, compactly imbricated, with narrow-lanceolate acute bractees."—Native of Sumatra. Brought by Mr. William Roxburgh, from Benecoolen to the Calcutta garden, in 1803. At the clofe of the rains of 1808, it bloomed for the first time, and was then only about two feet high, being the smallest of the genus ever feen by Dr. Roxburgh. This is all the account he has left us of the prefent fpecies.

13. A. Renealmia. Surinam Alpinia. (Renealmia exaltata; Linn. Suppl. 79, excluding the synonym of Rumphius, and the account of the flem and leaves taken from that author. Wildl. Sp. Pl. v. 1. 6. "Neue Bot. Ann. v. 3. 136." Myriina n. 64; Linn. Pl. Surinam. in Amoen. Acad. v. 8. 251. n. 3, excluding the synonym of Merian, t. 54.)—Cluter lateral, compound. Calyx tubular, irregularly toothed.—Native of Surinam. The history of this plant is fo confused, that we think it neceffary to lay before the reader all the original materials. The generic defcription, Linn. Suppl. 7, and the specific one, p. 79 of the fame work, beginning at the word Racemus, appear to have been made, with fufficient accuracy and fidelity, from fpecimens of a cluter of the flowers, and a quantity of the fruit, with a leaf, fent in bottles of fpirits to Linneus. The former was taken out and dried by Linneus himfelf, for his herbarium, where it now lies, marked by him Heliconia, he having taken this fpecimen for Merian's t. 54, Heliconia Bifal, which it somewhat refembles in general appearance. The flowers, however, when examined, prove these plants totally different; but this miiflake of Linneus accounts for his erroneous reference to Merian. The fpirits in the bottle of the fruit being gone, the latter is also dried; but enough remains to fhew it has been a fhefy, very fubboxy, oval, capfule, above four inches long, of three valves, strongly umbilicated, and containing numerous, roundifh-obovate feed, now of a fihing brown. Their flavour is fift. A Dutch manuscript, fent from Surinam with the collection to which the above belonged, contains the following infonnation. "No. 64 is a fort of reed, and has upon each flalk four fuch leaves as are here to be feen; two uppermoft next to each other, and then the other two a fpand under the uppermoft, and a fpain between thefe two, downwards to the fruit. The fruit is at firft red; black when ripe. The feed in the fruit taftes exactly like Cardamom. The flalk to which the fruit grows is two feet and a half long, belat with twenty-five to twenty-leven fcript." Such is a literal tranflation as we could obtain. It fems indisputably to afert the fition of the inflorefcence to be lateral, and in this point agrees with the following account given by Willdenow, we know not on whole authority. "A free twentv feet high. Leaves five or fix feet long, lanceolate, waved at the margin. The cluter originates from the trunk, above the root." Neue Bot. Ann. as above. If this laft defcription really belongs to the Linnean Renealmia, our ideas of the plant are very incomplete. The lateral inflorefcence would form a ftrong prefumptive argument againft its being an Alpinia; but we can affert, from a careful examination of one of the flowers, imdered in hot water, and compared with a living flower of A. nu- tans, that their structure agrees exactly, without the leat mark of a generic difference, especifally the effential part of the anther. This indeed appears from Linneus's remarks in the Supplementum, without which our history would be incomplete. We fhall leave the reader to compare it with the defcriptions of other fpecies, only oberving beforehand that Linneus confiders the flower as reversed, placing the nictary uppermoft.


Nat. Ch. Cal. Perianth superior, tubular, of one leaf, burfting at the top into two or three irregular teeth. Car. of one petal. Tube ftrait, cyndrical. Limb three-cleft: two upper (properly under) segments oblong, rounded, equal: lower segment fcarcely longer, channeled, oblong. Nictary united with the tube, aecending under the upper segments, ftrait, the length of the corolla, oblong, with a tooth at the base on each fide, and a hollow behind; dilated, and bluntly three-lobed, at the extremity. Stem. Filament none. Anther solitary, inferted into the mouth of the tube, in the bifom of the lower (upper) segment of the corolla, oppofite to the nictary, unconnected, frait, fliue,
Bear, emarginate, marked with a furrow on the inner side, its length and breadth equal to the segment of the corolla. *Pfii*. German inferior, oblong, obscurely triangular, smooth. Style thread-shaped, very smooth, erect; the length of the corolla. Stigma peltate, a little flat head, abrupt on the side towards the nectary, an orifice running into the style. *Peric*. Berry oblong, round, with three furrows, smooth, fleshy, with an umbilicated termination; three-celled in the centre; the cells soft and membranous. Seeds numerous, oblong, abrupt, quadrangular, very smooth.

P. 79. R. exaltata. Cluster with alternate, lanceolate, channelled, smooth, ribbed, deciduous bracts. *Flowers*-flasks in the bosomes of the bracts, solitary, incurved, depressed, downy, short, each terminating in a *sheath* of one leaf, which bursts at the top, like the calyx, into two or three segments, to allow the flowers to protrude. Within this sheath is a flower, as well as another two-flowered sheath, so that each flake bears three flowers. The calyx is exactly similar to these sheaths, inasmuch that it would be a sheath, if not seated on the top of the germin. Scarcely any other of the *Scitamineae* has an anther so unconnected, and with so much of the common appearance of that organ. The fruit forms a compound pendulous cluster, resembling the fruit of *Monardica Elatior* in size and figure; its coriaceous part thick and fleshy, hot, reddish; the triangular central cell has soft, juicy, membranous partitions. Seeds small, very smooth, black, very like those of *Amonium Cardamomum*. The preferred fruit is esteemed by the inhabitants of Surinam.

The following three species are lately added to *Alpinia* by Mr. Rofcoe, from the inspection of some Chinese drawings, in the possession of the right honourable Lord Stanley, V.P.L.S.

15. A. penicillata. Pencilled Alpinia. Rofc. Tr. of Linn. Soc. v. 11. 280.—Cluster terminal, pendulous. Segments of the outer limb short, pointed. Lip emarginate. Leaves lanceolate, smple at the margin.—Native of China. The lip or nectary is broad, simple, emarginate, bright yellow, regularly fringed with crimson. Leaves regularly nerved. The unfolded blossoms have, like some other species, the appearance of fine China ware.

16. A. diffusa. Clover Alpinia. Rofc. ibid.—Cluster inclining. Segments of the outer limb ovate. Lip flat, panduriform. Leaves lanceolate, glaucous beneath. Stamen deeply cloven to the base.—Native of China. The margin of the leaves is strongly nerved. Lip broad, bright yellow, with a central rib, from which diverge crimson fringes. The filament is deeply cloven, each portion bearing its proper anther, (or rather we should say, one lobe of the anther,) between which rife the style, perfectly free, and not inclosed in a double anther, as in the rest of the proper *Scitamineae*. This circumstance is so peculiar, that Mr. Rofcoe thinks it may possibly entitle the plant to rank as a new genus; but being in other respects truly an *Alpinia*, he prefers retaining it here.

17. A. bracteata. Bracteated Alpinia. Rofc. ibid. 281.—Panicle loose. Leaves downy. Lip in three, nearly equal, lobes; spurred at the base.—From the same country. The *stem* is jointed, rather spiral. *Footstalks* of the upper leaves uniting with the bracts. Calyx concave, oval. Nectary broad, flat, nearly circular, deeply indented at each side, yellow, with purple rays diverging from its base. Anther ovate. "Habit rather of a *Cajus* than an *Alpinia*, but the inflorescence is a loose panicle, not a bracteated *pike*, and the whole construction of the corolla feemes decive of the genus." *Rofc*.

A. Cardamomum, Roxb. n. 7, the valuable Cardamom of the shops; *Alpinia cooera* of Sonnerat and other authors, Wild. Sp. Pl. v. 1. 91; is now properly, we believe, removed from *Alpinia*, and proposed by Dr. Maton, Tr. of Linn. Soc. v. 10. 249, as a new genus, distinguished by two transverse proceedes at the top of the filament, and called by him *Elettaria*, under which name we propoe hereafter to treat of this plant.

ALQUIER. Add—The fanega, which is the 15th part of the moyo, is = 4 alquiers = 8 moyos = 16 quarters = 32 outvas = 64 mequis. The alquier measures 675 French, or 817 English cubic inches; so that 21 alquiers are nearly = 1 English quarter; or, more correctly, 50 alquiers = 19 English bushels.

ALSOPHILA, in Botany, so named, from *aloe*, a leaf, or frond, and *phila*, to love; alluding to the favourite situation of the beautiful tribe of Tree Ferns, to which this belongs.—Brown Prodr. Nov. Holl. v. 1. 158.—This genus is founded on our *Cyathia aiters*, C. extensa, of Swartz. *Polypodium Lunatum* of Forster, and some other allied species; but we scarcely think the deeper segments of the burfting involucrum, or the situation of the fori at the division, instead of the side, of a vein, can authorize a separation of these from *Cyathia*. See that article.

ALSTEAD, in Geography, a town of America, in New Hampshire, and county of Cheshire, having 1694 inhabitants.

ALSTONIA, in Botany, received that name from Mr. Brown, in memory of Dr. Charles Alston, formerly Professor of Botany at Edinburgh. (See that article.) The genus originally dedicated to this gentleman, in the Supplement of Linnæus, is now sunk in *Symlocos*. (See that article, and *ALSTONIA*.)—Brown Tr. of the Werner Soc. v. 1. 75.—Clas and order, *Pentandria Monogynia*. Nat. Ord. Contorta, Linn. Apocynae, Juss. Brown.

Gen. Ch. Cal. Porián inferior, of one leaf, small, in five deep, rather blunt, segments, permanent. Cor. of one petal, falver-shaped; tube cylindrical, many times longer than the calyx, somewhat tufted near the top, perversive, defitute of scales in the throat or mouth; limb horizontal, in five deep segments, folding over each other at the base, mostly shorter than the tube. Nectary none. Stami. Filaments five, short, inserted into the tube, and not reaching to its summit; anthers lanceolate, unconnected with the stigma, burfting longitudinally, enclosed within the tube. *Pfii*. Germans two, simple; flame foliary, central, thread-shaped, swelling at the top; stigma nearly conical. *Peric*. Follicles two, cylindrical, long, each of one cell and one valve. Seeds oblong, peltate, fringed, bearded with long hairs at each end.


This genus consists of trees, often of great height, with milky juice. *Leaves* either whorled or opposite, ribbed, smooth. *Cymes* terminal, panicked. *Flowers* for the most part white. *Follicles* generally very long. They grow in the East Indies, the Malay Archipelago, and the Society islands. *Alstonia* has little affinity to *Echites*, (see that article,) with which Linnæus would probably not have confounded it, had he examined the fruit, or attended to the figure in the Hort. Malab., of which work indeed he had not a copy. *Brown*.

1. A. filolaris. Tablet Alstonia. Br. n. 1. (Echites scholaris; Linn. Mant. 53; Wild. Sp. Pl. v. 1. 1241. Lignum scholare; Rumph. Amboin v. 2. 246. t. 82; Fols;
Pal.; Rheede Hort. Malab. 81. t. 45; not 46.)—Leaves
everal in each whorl, ovovate-oblong, obtuse, ribbed, sur-
rounded with a marginal vein. Cymes stalked. Limb of
the corolla but partially bearded. Follicles very long and
flender. —Native of Malabar and the Molucca islands, in
sandy ground, flowering in January. A very tall and
spreading tree, whose wood, Rumphius tells us, is used by
school-boys in India, as flares are with us. The leaves
are from five to seven in each whorl, stalked, with numerous,
parallel, transverse veins, or ribs. Cymes many-flowered,
compound, spreading, downy. Flowers small, about half
an inch long, whitish, sweet-scented, but oppugnile to the
head. Corolla downy on the infide and out, but not
densely bearded, or shaggy, except around the mouth.
Follicles eighteen inches long, not so thick as a wheaten
straw. Seeds furnished at each end with a tuft of very long
filky hairs.

2. A. spathulata. Handsome Allonia. Br. n. 2.—
"Leaves four in a whorl, elliptic-oblong, ribbed, somewhat
pointed, without any marginal vein. Cymes stalked,
shorter than the leaves. Limb of the corolla bearded.
Follicles very long."—Oberved by Mr. Brown, in April
1803, in the island of Timor, near Coepang, bearing
flowers and fruit. Very nearly akin to the foregoing, but
different; not ill-represented by Rumphius's plate, t. 82,
but his description agrees best with A. febularis. Brown.
We would observe, that the number of the leaves in this
figure agrees best with febularis, and that the omission of
the marginal nerve, so little conspicuous in nature, is rather
to be attributed to inaccuracy of the engraver, if not of the
draftsman.

3. A. venenata. Poisonous Allonia. Br. n. 3.—Leaves
four in a whorl, lanceolate, pointed; tapering at the base.
Cymes forked. Tube of the corolla swelling upwards.
Limb beardless, shorter than the tube. Follicles tapering
at each end, scarcely so long as the leaves.—Native of the
East Indies. Dr. Roxburgh. We received a specimen
from the Rev. Dr. Rottler, gathered at Nundyaigor, March
17, 1806. The leaves are crowded towards the ends of the
branches, stalked, very smooth, three inches or more in
length. Flowers like those of a Tabernamontana, their
limb an inch broad, with oblong, oblique, rather
blunt than acute segments; tube an inch and a half long,
inflated in the upper part, very smooth, as well as the limb.
The calyx is a little downy, or fringed. Flower-flasks
quite smooth. We have not seen the follicles.

4. A. rostrata. Ribbed Allonia. Br. n. 4. (Echites
collata; Forst. Prodr. 20, excluding the synonym, Wild.
Sp. Pl. v. 1. 1245.)—"Leaves opposite, elliptic-oblong,
pointed, ribbed. Cymes loose. Segments of the limb
lanceolate, beardless, longer than the tube. Follicles
ever long."—Native of the Society islands. Forster. Gathered
by sir Joseph Banks in Otaheite and Uaheite, between
the summits of hills (called by the natives Atahe). Brown.
We presume the plant, not the hills. A moderate-sized
tree. The seeds are fringed, but, according to Mr. Brown,
the silky hairs at each end are not so remarkably elongated
as in other species. Kanetti-Valli, Hort. Malab. v. 9.
t. 14, is a climber, having short follicles, with winged naked
seeds, and therefore, as Forster thinks, are synonym-
ously with this.

ALTAY MOUNTAINS. See ALTAL.

ALTERNANTHERA, in Botany, so called by
Forficall, from the flaments being, as he thought, alternately
furnished with anthers, and without them.—Forfic. Agg.

and order, Pentandria Monogynia. Nat. Ord. Holarcece,
Linn. Amaranthi, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, in five
deep, coloured, pointed, spreading, permanent, and finally
hardened, segments. Cor. none. Stem. Filaments five,
capsular, shorter than the calyx, inserted into a membranous
ring, surrounding the base of the germen, with more or less
remarkable intermediate teeth; anthers simple, oval, of one
cell, generally wanting on two or three of the filaments
alternately. Pip. Germen ovate, acute; style very short;
stigma capitate. Peric. Capsule membranous, inerely
kidney-shaped, compressed, of one valve and one cell,
infated, not burbling, enclosed in the cartilaginous calyx.
Seed solitary, roundish, pointed.

Eff. Ch. Calyx in five deep segments, cartilaginous.
Corolla 'none. Stamens partly imperfect, inserted into a
membranous ring, with intermediate teeth. Anthera single-
celled. Stigma capitate. Capsule kidney-shaped, of one
cell, without valves. Seed solitary.

Obf. Mr. Brown properly retains the name of Illece-
brum, (fee that article,) for I. verticillatum and its allies,
from which we can scarcely separate I. Paronychia, &C. He
would divide the present genus, which agrees very nearly
in habit with Illecebrum, into two sections. Thence we shall
here adopt, according to his suggestion, for the distribution
of the species.

Sect. 1. Two of the folaments deprived of anthers. Inter-
mEDIATE teeth very short, or obsolete.

Agg. &c. Arab. 28. (Illecebrum selfile; Linn. Sp. Pl. 300.
v. 2. 61. Vahl Symb. v. i. 22. Amaranthes humis
maderapstanum, capillus candidicantius, folio moli; Pluk.
Phyt. v. 133. f. 1. Amaranthus humilis, folis oppositis,
foeefulis in alis consglomeratis; Burm. Zeyl. 17. t. 4. f. 2.)
—Calyx smooth; segments ovate, pointed, almost twice
the length of the capsule. Leaves elliptic-lanceolate, nearly
entire, bearded at their insertion. Stem procumbent, hairy
on two opposite sides.—Native of Arabia and the East
Indies. A biennial, or perhaps annual herb, whose branch-
ing stems spread on the ground, in every direction, to the
length of a foot or more, and are leafy, bluntly quadrangular;
the opposite furrows densely hairy. Leaves opposite,
stalked, spreading or reflexed, from one to two inches long,
bluntish, nearly or quite entire, fingle-ribbed, smooth,
bright green, rather felthy. Postflorks very short, bearded,
and connected by intermediate stipulacese bristles. Heads
of flowers selfile, axillary, solitary, obtuse, half an inch,
or more, in length, white and shining, like everlasting flowers.
Calyx fingle-ribbed, strongly keeled, pellucid. Capsule
broadly heart-shaped, finely reticulated. The leaves
occasionally vary to an obovate, or spatulate figure.

2. A. denticulata. Toothed Alternanthera. Br. n. 1.—
Calyx smooth; segments ovate, pointed, almost twice the
length of the capsule. Leaves narrow-lanceolate, finely
toothed, smooth; bearded at their insertion. Stem procum-
becnt, smooth.—Gathered by Mr. Brown in the tropical
district of New Holland, as well as in New South Wales, and
Van Diemen's island. We have seen no specimen.

n. 2.—Calyx smooth; segments narrow-lanceolate, pointed,
three times the length of the capsule. Leaves linear-lanceolate,
finey toothed, smooth; bearded at their insertion. Stem
diffuse, square, smooth; its ultimate branches only downy
on two opposite sides.—Discovered by Mr. Brown, in the
tropical district of New Holland. These three species
appear to be nearly allied.

5. A. nana. Dwarf Alternanthera. Br. v. 4. — Calyx smooth; segments ovate, slightly pointed, twice the length of the capule. Leaves ovate-oblong, hairy; tapering at the base. Stem diffuse, hairy. — Found in the same country as the two last, by Mr. Brown.

Sect. 2. Five of the filaments with perfect anthers; five intermediate ones conspicuous, without any.

6. A. Achyranta. Creeping Alternanthera. (Illecebrcm Achyranta; Linn. Sp. Pl. 209. Willd. Sp. Pl. v. 1. 1208. Ait. Hort. Kew. v. 2. 61. Achyranta repens, foliis blatis pallidis; Dill. Eith. 8. t. 7. f. 7.) — Stem creeping. Leaves ovate; densely downy when young. Calyx with somewhat spinous points. — Native of Buenos Ayres, from whence it was sent to Sherard, before the year 1732. We have specimens from the Paris garden. There is reason to doubt whether Linnaeus ever saw this species. The root is perennial. Stems prostrate, from one to two feet long, repeatedly forked, leafy, most hairy at opposite sides, creeping by means of fibrous radicles, from their lower joints. Leaves toothed, from one to two inches long, entire; nearly smooth, and of a bright green, when full-grown: the young ones covered on both sides with dense, hairy, hoary hairs, such as compose the pubescence of the stem, and especially of the younger branches. Heads small, from the forks of the stem, partly toothed, round, of but few flowers. Calyx brownish-white; segments three-ribbed, unequal, strongly keeled, partly hairy, accompanied as it seems occasionally with smaller smoother sides.

7. A. polygonoides. Persicaria-leaved Alternanthera. (Illecebrcm polygonoides; Linn. Sp. Pl. 300. Willd. Sp. Pl. v. 1. 1208. Ait. Hort. Kew. v. 1. 61. Herniaria hirsuta repens, ad nodos alternos florid; Brownie Jam. 183. Alternanthera humile curassicum, foliis polygoni; Herm. Par. 17, with a figure. Sloane Jam. v. 1. 141. t. 86. f. 2. A. marina hirsuta, halimi folio; Plum. Is. 12. t. 21. f. 2.) — Stem creeping, hairy. Leaves elliptic-lanceolate, tapering at the base, flaked, all smooth. Calyx ovate, single-ribbed, unarmed; hairy at the bottom. — Native of South America. A smaller plant than the preceding, except the flowers; with longer, much narrower, leaves smooth at every period of their growth, on long stalks. Calyx of a brilliant white; its segments ovate, pointed, but not spinous, the mid-rib less prominent than in the foregoing; the base only beft with conspicuous hairs. Plumier's plant scarcely requires to be called a variety. The stem is represented more hairy than it appears in our gardens, but it is always more or less so, and the hairs are always simple, not deliñate like those of A. Achyranta.

8. A. ficoides. Ribbed Alternanthera. (Illecebrcm ficoides; Linn. Sp. Pl. 300. Willd. Sp. Pl. v. 1. 1208. Gomphrena ficoides; Linn. Sp. Pl. ed. 1. 225. Jacq. Amer. 88. t. 60. f. 4.) — Stem creeping, smooth. Leaves ovato-lanceolate, tapering at the base, flaked. Calyx lanceolate, unarmed, three-ribbed, hairy at the back. — Native of South America. Cultivated by Linnaeus at Uspal. Jaccquin's figure more resembles the leaf, closely according with Brownie's specimen, which indeed Dr. Solander, who went to Linnaeus, marked Gomphrena ficoides; but the latter found it to be his own Illecebrcm polygonoides. The plant before us, from the Uspal garden, is a truly distinct species, with broader leaves, an inch and a half or two inches long, roughish with callos points; a smooth stem; and very different flowers. The segments of the calyx are much narrower, brown at the base, with three strong ribs, and clothed at the back, more than half way up, with prominent hairs; their points are tapering, but not spinous.

Mr. Brown speaks of some American nondescript species, referable to this section. Whether the following are among them we know not, but they appear to be nondescript.

9. A. villosa. Woolly-branched Alternanthera. — Stem decumbent, hairy; shaggy at the joints. Leaves ovate, flaked, nearly smooth. Calyx ovate, single-ribbed, smooth. — Sent to Linnaeus by Thouin, from the Paris garden, without any mention of its native country. Stems above a foot long, with ascending very hairy branches, bent at each joint. Leaves an inch or more in length, bluish, dotted, rarely besprinkled with a few long hairs. Footstalks accompanied, above their insertion, with very dense filipulary tufts, of long hoary hairs, jointed, like all those on the stem and foliage. Of the flowers we have seen only one small axillary head, apparently not come to perfection, but its glumes are evidently unlike all the preceding, broadly ovate, even and smooth, acute but not spinous, with a simple mid-rib.

10. A. echinata. Prickly-headed Alternanthera. — Stem prostrate, hairy. Leaves roundish-oval, smooth. Calyx spinous-pointed; outer segments lanceolate, elongated, partly three-ribbed, smooth; two inner shorter, gibbous, hairy at the back. — Gathered by Commenon at Monte Video, and sent by Thouin to the younger Linnaeus. This remarkable species is among the largest we have seen. The leaves indeed are not above an inch long, but they are nearly as much in breadth, tapering at the base, their surface dotted with little points, not hairy. Heads sessile, axillary, somewhat aggregate, globose or oblong, pale brown, hissing, distinguishted by the length and sharp thorns of their three outer calyx-segments, one of which is strongly three-ribbed, and by the tufted hairs of the two inner ones, projecting very conspicuously between them.

ALTICKLYC, in Commerce, a Turkish silver coin = 60 paras.

ALTON, in America. Add.—The town contains 1279 inhabitants.

ALTUN-KUPRI, or the Golden Bridge, a town of Peru, in the pachicol of Bagdad, about the size of Kupri, (which see,) situated on a fine plain, on the northern bank of the Little Zab, 32 furongs from Moful.

ALUMINA, in Chemistry, an earthy substanse, described as elementary, but which Sir Humphrey Davy has rendered probable to be a compound of a metallic basis with oxygen. See ALUMINUM INFRA.

We have little to add to the description of alumina, except the curious fact observed by Sauluire, that this substance does not give out the peculiar earthy smell which has been considered as characteristic of it, except it be mixed with oxdy of iron.

ALUMINA, Salts of, the compounds formed by the different acids with alumina. By some accident, the description of most of the salts of alumina has been omitted. We shall therefore take the opportunity of introducing them here.

Nitrate of Alumina. See Nitrate of Alumina.

Carbonate of Alumina. The existence of this salt has been usually admitted by chemists. Bergman, however, could not form it artificially, though he allows its existence, because when alum is mixed with an alkaline carbonate, part of the alumina remains in solution till the carbonic acid be driven off. Sauflure has more recently shown, that water saturated with carbonic acid is capable of dissolving alumina, but that this combination is dissolved by simple exposure to the air. Carbonate of alumina, therefore, cannot exist in a dry
dry flake. What had formerly been considered as dry carbonate of alumina is a triple compound of alumina, carbonic acid, and the alkali employed in precipitating the alumina.

**Phosphite of Alumina.** This fact may be formed by saturating phosphoric acid with alumina. According to Fourcroy, who is the only chemist that has examined it, the phosphite of alumina is a tasteless powder, insoluble in water. When diffused in excess of phosphoric acid, it yields a gritty powder and a gummy solution, which by heat is converted into a transparent glas.

**Sulphate of Alumina.** See ALUM AND SULPHATE OF ALUMINA. In addition to what has been said under these articles, we may add the following analysis of alum by Vauquelin, Thénard and Roard, and Berzelius.

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<th>Vauquelin</th>
<th>Thénard and Roard</th>
<th>Berzelius</th>
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<tr>
<td>Sulphuric acid</td>
<td>36.52</td>
<td>26.04</td>
<td>34.23</td>
</tr>
<tr>
<td>Alumina</td>
<td>10.50</td>
<td>12.53</td>
<td>10.86</td>
</tr>
<tr>
<td>Potash</td>
<td>10.40</td>
<td>10.02</td>
<td>9.81</td>
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<tr>
<td>Water</td>
<td>48.58</td>
<td>51.41</td>
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<td>100.00</td>
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The analysis of Berzelius is probably most accurate, and is equivalent to

- Sulphate of alumina: 36.85%
- Sulphate of potash: 18.15%
- Water: 45.00%

Which nearly coincides, according to Dr. Thomson, with three atoms of sulphate of alumina, one atom of sulphate of potash, and twenty-three atoms of water.

According to the experiments of Thénard and Roard, alum usually contains a little sulphate of iron, and the goodness of its qualities as a mordant in dyeing, according to these chemists, depends entirely upon the proportion of that salt present. The more free it is from it the better. The purest alum examined contained about 3% of part of its weight of sulphate of iron; the impurest about 7%. When freed from sulphate of iron, every species of alum tried acts exactly in the same manner as a mordant.

**Sulphite of Alumina.** See SULPHITE OF ALUMINA.

**Borate of Alumina.** This fact may be formed by mixing together the solutions of borate of soda and sulphate of alumina. It is said to be scarcely soluble in water.

**Arsenite of Alumina.** See ARSENITE OF ALUMINA.

**Tungstate of Alumina.** A white powder insoluble in water.

**Acetate of Alumina.** See ACETATE OF ALUMINA.

**Benzoyl of Alumina.** This fact crystallizes, is soluble in water, and deliquesces on exposure to the air.

** Succinate of Alumina.** Wenzel flates, that this fact crystallizes in prisms, and is easily decomposed by heat.

**Camphorate of Alumina.** This fact may be formed by heating together newly precipitated alumina and camphoric acid. It is a white powder, of an acid bitterish taste, and slightly astringent. Water dissolves about 1/50th part of its weight of this salt; it is not soluble in boiling water, but separates as the water cools. Cold alcohol dissolves very little of it; but by the affinities of heat that fluid takes up a considerable quantity, which separates on the cooling of the alcohol. This fact undergoes but little change from the action of the air. Exposed to heat the acid volatilizes; and when the fact is thrown on burning coals it takes fire, and burns with a blue flame.

**Suberate of Alumina.** This fact does not crystallize. It has a yellowish colour, and always contains an excess of acid. On exposure to the air it attracts moisture. When heated the acid is volatilized, and the alumina left in a flake of purity.

**Oxalate of Alumina.** Oxalic acid readily dissolves alumina, and forms an uncrysalizable deliquescent fact, with excess of acid, of a yellowish colour, and sparingly soluble in alcohol. It is said to be composed of

- Oxalic acid and water: 56
- Alumina: 44
  
|                | 100 |

**Mellate of Alumina.** This fact exists in the form of a white flaky powder.

**Tartarate of Alumina.** See TARTRATES.

**Tartarate of Potash and Alumina.** This triple fact may be formed by saturating tartar with alumina. It nearly resembles the last fact. Neither the alkalies nor alkaline carbonates, according to Thénard, produce precipitates in this fact.

**Sulphate of Alumina.** A white powder, insoluble in water.

**Urate of Alumina.** A white powder, closely resembling in its appearance the uric acid.

**Malate of Alumina.** This fact is almost insoluble in water; hence Mr. Cheneviux has proposed the malic acid as a means of separating alumina from magnesia.

**Sorbate of Alumina.** From the experiments of Mr. Donovan, the discoverer of fornic acid, it appears that this fact has no existence.

**Zumate of Alumina.** A gummy mass, not altered by exposure to the air.

**Gallate of Alumina.** According to Sir Humphrey Davy, a soluition of galls, in which alumina has been diffused, deposits after some time transparent prismatic crystals, which are the super-gallate of alumina. The quantity of alumina they contain is so small as not to disguise the properties of the acid.

Dr. Thomson is disposed to consider the facts of alumina in general as composed of one atom of alumina and one atom of the respective acids, and if this be admitted their composition may be readily ascertained.

With respect to the uses of the facts of alumina, see ALUM, DYING, MORDANT, TAWING, &c.

**ALUMINITE.** See MINERALOGY, Addenda.

**ALUMINUM, in Chemistry, the metallic bafis of alumina.** Sir Humphrey Davy shewed, that when potashum is passed through alumina heated to whiteness, a considerable proportion of it is converted into potash, and grey metallic particles are perceived in the mafs, which effervesc in water and air, and are converted into alumina. When a globule of iron is fused by galvanism in contact with moist alumina, it forms an alloy with aluminum, which effervescs slowly in water, and becomes covered with a white powder. These metallic particles Davy considered as the basfs of alumina, and in conformity to this view denominated it ALUMINUM. The above, however, is all we now at present respecting this metal.

**ALYXIA, in Botany, (see GYNOPOGON,) which latter will probably give way, as in such a cafe it ought, being founded in error, to the former.** Brown Prodr. Nov. Holl. v. 1. 469.

**AMADAN.** Add—The present town contains in 10,000 meanly-built houses more than 40,000 inhabitants. It is famous
famous for its manufacture of leather; and it is also
a mart of commerce between Ipahan and Bagdad, and
between Bagdad and Tekron. N. lat. 35° 51'. E. long. 48°.

AMADIA. Add—This town does not contain above
650 houses; but the plain, at the foot of the hill, is covered
with dependent villages. It is nominally dependent upon
the pacha of Bagdad, but pays him no tribute.

AMANDA, a township of Ohio, in the county of Fair-
field, having 876 inhabitants.

AMANITA, in Botany, amanita, an old Greek name
for Fungi in general, is used by Haller, after Dillenius,
for the whole Linnæan genus of Agaricus; (see that article),
or nearly so. Peroon adopts it for such species only as are
furnished with a voiea, which, on that account, he considers
generically distinct.—Perf. Syn. Fung. 246.—Clafs and

Eff. Ch. Stalk with a wrapper at the base. Head flechy.

Gills crowded, nearly undivided.

Obi. The vead is generally warby, and the flalk elongated,
either naked, or furnished with a ring. Peroon describes
seventeen species, partly wrong numbered, all which, being
more or less remarkable, and some of them very much so,
we shall in order enumerate, with the addition of one.

Seot. 1. Stalk surrounded at the base with a diflaster
per, but ditfigute of a ring at the top.

(Agaricus plumbeus; Schaff. Fung. v. 4. 37. t. 85. 86.
With Bot. Arr. v. 4. 244. Fl. Dan. t. 1014. A. vaginans;
Bulliard t. 512. f. M., according to Peroon.)—Head
boiled, flatlith, flirated, livid lead-coloured. Gills white,
as well as the long flalk.—Not uncommon in autumn, after
rain, about the skirts of woods, and borders of fields.
The wrapper bursts irregularly. The flalk is hollow, and rather
long in proportion, about twice the diameter of the head,
which is protuberant and brownish in the middle, greyish-
lead-coloured and flirated at the margin. Some individuals
are much thicker than others. Schaffer gives a good repre-
tation of the various flates and forms of this species.
The head is sometimes fludded with angular warts, at least
when young, as represented by Battarra, Leucoconys gemma-
tus, Batt. Fung. Ärin. 28. t. 6. f. B. commended highly
in Withering; and by Micheli, t. 78. f. 2. These figures
exhibit a flat and habit of the plant, the reverse of what
appears in the Fl. Dan. and especially in Bulliard. This is
generally allowed to be a poisonous fungus. Some varieties
are indicated by Peroon, one with yellowish gills, Schaff.
t. 244; and another with a browner head, and tapering flalk.
Found in fir woods, which seems to connect the present with
the following species.

Meth. 66. (Agaricus badis; Schaff. Fung. v. 4. 63.
t. 245. With. v. 4. 227. A. fulvus; ib. t. 95. A. vagi-
natus; Bulliard t. 512. f. N ?) —Head somewhat bell-shaped,
boiled, flirated, brittle, orange-brown. Gills white. Stick
pale brown, scaly.—Found in dry woods, about August,
in various parts of England and France. Akin to the
foregoing, but much more delicate in texture. We should
scarcely think it more than a variety.

(„Agaricus incanatus; Batsch. Elench. Fung. 51.) Fun-
gus magnus eceulentus; e volâ erumpens, pilleololo
albo, lamellis carinis, pediculo cylindricali glabro, partier
albo; Mich. Gen. 182. t. 76. f. 1. nota f. 2 as Peroon has
it.) —Head hemispherical, white, hairy. Gills flesh-coloured.
Stalk white, cylindrical.—Found by Micheli, on old half-
decayed trees, in the woods of Viareggio near Florence, in
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June. No other botanist seems to have met with this fungus,
at least not in the state described by Micheli. He repre-
dents it of very large dimensions, the head full six inches broad,
while in its convex flat, and covered with fine hairs. Wraps
much divided and jagged, tadows. Stalk six inches high,
smooth, thick, and very upright.

Albertini and Schweinetz, in their very learned Conspectus
Fungorum, 142, speak of what they deem a variety of this,
whole head is smooth, scarcely bearing any minute fibres
or scales, by no means hairy or flaggery. Every other part
agrees with Micheli's account. The undisplayed gills are
white, soon assuming a rosy flesh-colour from the feminal
powder. Head never becoming quite flat; the border
neither furrowed nor flirated.

18 and 66. (Agaricus volvaceus; Bulliard t. 262. Sower-
With. v. 4. 231 ?) — Aggregate. Head conical-bell-shaped,
with a pearly ring. Gills flesh-coloured. Stalk white,
rather longer than the breadth of the head.—
Native of gardens and woods in autumn, in a southern
exposure. Bulliard. We have not heard of this species in
Britain. Its appearance is elegant and delicate. Head an
inch, or inch and a half, in diameter. Wrapper turbinata,
much divided, perennial.

Seot. 2. Stalk proceeding from a lax wrapper, and fur-
nifed at the upper part with a ring.

113. Perf. n. 6. (Agaricus bulbosus vernus; Bulliard
t. 108. Fungus tutus candidus, pilleololo amphiore, glutine
limacino infefto, pediculo tenderiori clyndrica, annulo
friccto cinetto; Mich. Gen. 171 ? at the suggestion of
Lamarrck.)—Pure white in every part. Head at length con-
ove, somewhat funnel-shaped. Ring pendulous. Stalk
elongated, solid, cylindrical.—Common in woods in France
during the spring. Bulliard says many perons have died
from eating this fungus by mistake for the white-grilled
variety of the Common Mushroon. It may be kept in
in the mouth for eight or ten minutes, before its acimony, re-
balzing pepper, becomes perceptible. If the wrapper at
the base be attended to, the plant can never be confounded
with any eatable Agaric.

7. A. porphyria. Purple Egg-Agaric. Albert. and
Schwein. Conip. 142. n. 401. t. 11. f. 1.—Head convex,
naked, smooth, of a livid purplish-brown. Ring nearly
of the same colour. Gills and stalk white.—Not rare in moor,
ts, turfy, mossy spots, in fir woods more especially, over which
it is scattered in September and October. Habit of A. virdis,
n. 9, but only half the size. Stalk three or four
inches high, too dark-coloured in the figure. Head almost
as much in breadth, never found with warts; very rarely
and slightly flirated at the margin.

Pp

Albert.
AMANITA.


—Frequent from spring to the end of autumn, in rich soil, in woods, gardens, about hot-beds, &c. Its face is considerable. Bulliard speaks of his plant as having a very agreeable flavour, and therefore we presume it to be one of the edible fungi. In the south of France it is known by the name of Agaricus orange blenche, to distinguish it from the A. orange virei; see n. 11. The bulbous base of the nearly solid stalk is a characteristic mark. The ring is broad, loosely pendulous, permanent. Head almost hemispherical, rarely with a slightly indented base. Schaffer's plate is too much coloured. The gills, if not absolutely white, are semi-pellucid, or watery, in their appearance.


This is described as not unfrequent on the continent, in beech or oak woods, where the ground is sandy. Whether it be found in England, we are doubtful. Mr. Sowerby has exhibited in his t. 286, a pale yellow variety of Agaricus mucarius, for Schaeffer's citrinus; but this is not quite conclusive to us. Perfoon cites Agaricus Mappa, Willd. Berol. 351. Battch. Elench. 57, as a variety of the present Amanita, distinguished by a darker colour of the head, and yellow gills: he speaks also of brownish warts on the head. Wildenow says the gills of his plant are whitish. Albertini and Schweinize, accurate practical observers, say, 'we find the warts upon the head not very rare. The ring, and frequently the stalk, is distinguished by a palish lemon-colour. The whole fungus is sometimes half a foot high, in which case the head is four inches broad, or more.' Perfoon notices apparently a still different variety, on rotten trunks of trees, distinguished by its elegant sulphur-colour, flatish head, and acrid flavour.

10. A. viridis. Green Egg-Agaric. Perf. n. 9, not 8. Difp. Meth. 67. Albert. and Schwein. Conp. 143. (Agaricus bulbofus; Bulliard t. 2, and t. 577. Fungus phalloides annulus, fordidere viridetca et patuus; Vail. Fafir. 74. t. 15. f. 5.)—Head convex, dull green, mostly naked. Stalk and gills white.—Found in shady moist woods, from August to October, in France and Germany. The wrapper is inflated, whitish. Head four or five inches broad, convex, not boid, of a more or less bright green, variegated occasionally with brown, and turning olive-brown in decay, when, according to Bulliard, it exaltes an intolerable cadaverous smell, being a very dangerous species, though when young delight of any bad scent or flavour. The head sometimes retains fragments of the wrapper, in the form of warts or broad patches, but this seems far from being universal or frequent.


—Head convex, naked, deep orange-coloured; frizzled at the margin. Gills yellow, convex. Wrapper dilated upwards.

—Native of Italy, France, Carniola, Bohemia, &c., but never observed in England. The wrapper is white, with a dilated entire border. Stalk hollow, nearly cylindrical, yellowish-white, or pale yellow, from four to six inches high. Head from four to six inches wide, almost hemispherical when young, of a rich deep orange, smooth and naked, scarcely ever warty, frizzled near the edge, turning brownish or purplish in fading, as in Schaeffer's figure, where it is drawn somewhat boiled, which we have never seen. The gills are usually of a delicate lemon-colour, as well as the ring. Perfoon rightly suspected his A. cesarea and aurantiaca not to be distinct species; they do not appear to us to be even varieties, Schaffer's plant being only in a more forward state than Bulliard's. We retain the oldest specific name, which is that of Scopoli. It serves to commemorate an historical fact, that the emperor Claudius was murdered by poison given with this fungus, to which the Romans applied the name of Boletus, and which Nero called "the food of the gods," because Claudius had eaten it, who was subsequently, like his sacred companions, become a god! The Amanita before us is esteemed the most delicious and delicate of all fungi. The writer of this has examined and eaten it in Italy, where it is far from rare in summer, though so much in request, as to find a place chiefly at the tables of the great. Clusius tells of his supposing some soup, at a distinguished man's table in Hungary, made of this fungus, to have been coloured with saffron. Dr. Withering has confounded Schaffer's plate with Agaricus xerampelinus of the same author, v. 4. 49. t. 214. Sowerb. Fung. t. 31. With v. 4. 214. Hence he was led into the further mistake of supposing, as his A. xerampelinus, though edible, is strong and disagreeable, that Agaricus delicatus was what Claudius feasted upon. The latter is indeed a very savoury food, but defined to the vulgar in France and Italy, being by far more abundant than our Amanita cesarea. The oversight committed by Dr. Withering, reflecting this famous fungus, and his own, as well as Schaffer's, Agaricus xerampelinus, is the more remarkable, as the latter has neither a wrapper nor a ring. Such errors are rare in this excellent writer. Mr. Sowerby has avoided the same mistake, though he has not explained it. We decline citing Ebula Ciceronii, Battar. Fung. Arim. 27. t. 4. C, because no ring is there expressed; but we do not doubt the identity of the plant.

Soft. 3. Stalk with an obliterated wrapper at the base, and a ring at the upper part. Warts on the head small, and generally equal. To this fiction Perfoon gives the name of Mopa perda, because some of the species are used for killing flies. All of them perhaps are dangerous.

12. A. muscaria. Fly Egg-Agaric. Perf. n. 12, not 11. Albert. and Schwein. Conp. 143. (Agaricus muscaria; Linn. Sp. Pl. 1640. Hudl. 612. With v. 4. 184. Schaff. Fung. v. 4. 13. t. 27. 28. Sowerb. Fung. t. 286. A. pleuro-aurantiacus; Bulliard t. 122. Fungus bulbofus, e volva erumpens, pileolo supina parte aureo, ad oras striato, inferna, et annulato pedicelo, albis, radice bulbofus; Mich. Gen. 188. t. 78. f. 2. Fungi lethales; Ger. Em. 1351, fig. on the left, at the bottom.)—Head scarlet, shining, convex, at length flatish, variously flushed with white warts. Gills, ring, and stalk pure white. Wrapper with scarcely any remaining border.—Commend in woods in autumn, especially under fir-trees. A large species, conspicuous for the splendid orange-red hue of its fattening head, contrasted with the stalk and gills, and with the prominent angular white or cream-coloured warts, freckled or more or less abundantly, over its surface. These warts are formed from the wrapper, torn off close to the edge of the stalk, which Bulliard well observed, as a specific mark between this and our last. It is highly important to discriminate them, A. muscaria being venomous in a great degree. When dried, it renders milk poisonous to flies and bugs, killing them very expeditiously; for
for which purpose it is preferred in some countries all the year round: Bulliard records, that he ate two ounces of this fungus raw, without any harm whatever, though he found it fatal when given to cats or dogs. Peronon mentions a variety by the name of A. formosa, whose warts were green and yellow, the flesh likewise being yellowish, very long, and loosely scaly. Also another, called A. paella, which is smaller, more thinly nacked, or only bordered with the warty substance, is this Scheffer's 148. Dr. Withering reduces the two following, perhaps, to the same species; but so many authors have kept them separate, especially Albertini and Schweinitz, that we shall follow Peronon in the same measure.

13. A. umbrina. Brown Warty Egg-Agaric. Perf. n. 13, not 12. Albert. and Schw. Conf. 144. (Agaricus vannos; Hudf. 613. Curt. Lond. fasc. 5. t. 72. A. maculatius; Schaff. Fung. v. 4. t. 90. Fungus muscic ~ interficiens fucceus, maculis abis; Bux. Hälleri. 121.)—Head of a footy or twisty brown, flatish, variously flushed with white warts. Gills, ring, and flesh white.—More common than the preceding, but often accompanying it, in dry sandy woods, fields and pastures, especially under beech-trees, through the autumn. Withering, Curtis, and Lightfoot consider this as a mere variety of A. mutacia, differing in the brown colour of its head, often tinged with yellow, or faintly, with red. The size of the whole plant is usually somewhat smaller. We have made no particular observations on this subject. Colour in this tribe often affords good specific characters, and we should, moreover, be careful, in all the departments of natural history, not to be led away by any one very peculiar mark, like the warts in the present instance, to consider every thing, that has such a mark, as one species. Even Linnæus often fell into this error. We know not how, the question is to be decided respecting these fungi, their artificial propagation by seed being attended with so much difficulty. It is sufficient that we here register their names and distinctions, under the correction of any person who may find good reasons for uniting them. The poisonous quality of A. umbrina, with respect to flies, is acknowledged in the above synonym of Buxbaum. Curtis however found the base of the flack to be the favourite food of a nondescript species of Tipula, smaller than the plumosa, whose larvae form devil that and every other part of the plant.

14. A. rubescens. Bluish-coloured Egg-Agaric. Perf. n. 14, not 13. Albert. and Schw. Conf. 144. (Agaricus putulatus; Schaff. Fung. v. 4. t. 91.)—Head convex, opaque, reddish. Warts crowned, white like the gills. Flesh turning red when broken.—Native of beech woods of Germany, in autumn. We know nothing of its occurrence in Britain, for Dr. Withering's fifth variety of the mutacia may probably be different from what is before us. Albertini and Schweinitz assert that the head and flesh turn red, sooner or later, after being broken, and that this is a sure specific test. The head becomes more convex than that of A. umbrina. Its hue, according to the authors just quoted, is occasionally reddish, livid, smoky, or inclining to a liver-colour. Stalk two inches high. Taste scarcely any. We conceive this to be distinct from both the foregoing, whatever may be the case between them with regard to each other, and its usual appearance is very elegant, owing to the delicate tawny flesh-colour of the head, blended with opake white, or pale flesh-coloured, warts. Peronon has a variety under the name of cinereata, for which he cites with doubt Agaricus myodes, Schaff. Fung. v. 4. t. 261. The character given by Peronon is, "Head hemispherical, somewhat umbilicated, reddish. Warts oblong, whitish, circularly disposed. Gills flattish, whitish. Stalk bulbou, fealy, the colour of the head." He adds that the flesh is two inches long, solid, always perfumed by worms (or insects) at the base. Gills obovate, sometimes decurrent in a tooth-like form. Substance reddish under the cuticle. Taste not unpleasant. It occurs, but rarely, in woods during autumn. Scheffer's figure exhibits a most elegant bluish-coloured fungus, internally red, when cut, which we can have no hesitation in considering one species with Peronon's cinereata and rubescens.

15. A. virgescens. Greenish Egg-Agaric. Perf. n. 15, not 14.—"Head flatter, flat, pale-green. Warts thick, whitish, with many angles. Stalk firmish, white, with flabby scales."—In woods, but extremely rare. Stalk three or four inches long, clothed with soft flabby scales. Wrapper nearly obliterated. Substance of the head spongy, from four to six lines in thickens, not unpleasant to the taste.

16. A. ampla. Broad Egg-Agaric. Perf. n. 16, not 15.—"Head flatter, very broad, moss-coloured; smooth at the margin. Warts thickish, paler. Stalk white, solid, very stout. Gills narrow, rather thick."—Found in fir woods in Germany, but rarely. Perhaps the largest of its genus. Stalk four or five inches long, transversely flaky at the summit. Gills thick, about three lines only in breadth. Head minutely, in some degree, fibrous, and after the warts fall off, cellular. Taste like the Common Mushroom, Agaricus campofriss. Peronon.

17. A. aspera. Rough-headed Egg-Agaric. Perf. n. 17, not 16. Obs. Mycol. v. 2. 38. ("Agaricus asper; Abbrid. der Schwämme, fasc. 3, with a plate." A. verrucosus; Bulliard t. 316. A. myodes; Bolt. Fung. v. 4. t. 139, excluding both synonyms.)—Head hemispherical, flatter, convex, dull, dusky red, rough with crowded pointed warts. Gills white, crowded. Stalk rather bulbous.—Not rare in woods, about July, August, or September, growing diffpered. It has been observed in Germany, France, and England. Peronon says the scent is powerful; Bulliard, on the contrary, describes this species as inodorous, with a faint taste, partaking but little of a mushroom flavour, and he presumes it to be poisonous. This author justly adverts to the affinity of his plant to our Amantia mutacia, observing that it is white or reddish under the skin, never, like the mutacia, yellow. Peronon in his excellent Obs. Mycol. gives the following account. "Head at first ovate, inclining to cylindrical; when expanded six inches broad, half an inch thick, compact in substance, strong in scent, often streaked with white at the margin, from cracks in the cuticle. Warts small, erect, pointed. Gills, as usual with this genus, thin, unconnected. Stalk from four to six inches high, solid, marked towards the base, with little scaly warts, like rudiments of the wrapper. Ring sometimes about obliterated, and hanging in fragments to the edge of the head."

The wrapper in all the species of this third section is, indeed, so closely united to the base of the flake, as to constitute a kind of bulb, but there is a marginal dilatation, less visible in A. asper than any other, which evinces the true nature of the part in question. This species, though generally so very convex, even hemispherical, appears by Bulliard's plate, to assume a concave cup-shaped form in advancing towards decay.

AMARANTHI, the 53d natural order in Jussieu's system, being the first of his seventh class. See Nychta- ginus for the characters of this class. The following are the characters of the Amaranthi.

Calyx divided, more often deeply, often surrounded by scales at the base. Stamina definite, sometimes distinct, sometimes monadelphous; in some genera there are scales alternate with the filaments; in others the combined fila-
ments form a tube or sheath. Germs simple; style or stigma simple, or double, or triple. Capule of one cell, with an unconnected receptacle, and either burting at the summit, or splitting all round, containing one or many seeds. The coruscum is curved round a farinaceous mass. Flowers capititate or spikel. Leaves generally undivided and pointed; in some alternate; in others opposite; in a few infissures accompanied by stipulas. Stem for the most part herbaceous. Stamens and pifils sometimes in separate flowers.

Seet. 1. Leaves alternate, without stipulas.

Under this section Juffieu enumerates Amaranthus and Celosia of Linnaeus; with Araua of Forkall, a genus formed of alternate-leaved species of Illecebrum; and Digera of the same author, to which Achyrantes murnica of Linnaeus is subjoined to belong.

Seet. 2. Leaves opposite, without stipulas.

Confits of Iris, Achyrantes, Gomphrena, and Illecebrum.

Seet. 3. Leaves opposite, with stipulas.

Under this section are ranged Paronychia of Tournefort, separated from the Linnean Illecebrum; and Hernia of all authors.

This order, as Juffieu candidly observes, is very nearly related to that of the Caryophyllaceae, which, on account of its having petals, he is obliged to place in a far distant part of his system. He remarks, on this subject, that the existence or non-existence of a corolla does not always afford an essential, or eminently natural, distinction; which is very true, but there is no character of natural orders without some exception, and hence Linnaeus was led to deny the possibility of defining really natural orders by words, or any essential characters.

Juffieu, in the Annales du Museum, v. 2. 131, has published some additions to the present order, which, according to a recent alteration, and perhaps an improvement, in the nomenclature of natural orders, he there terms Amentaceae. A translation of his paper may be seen in Sims and Koenig's Ann. of Bot. v. 2. 274. The author here makes but two sections of the order in question, one having naked, the other stipulated, leaves. To the first he adds a new genus by the barbarous name of Papal, founded on the Linnean Achyrantes Lophaea, called in Rhode's Hortus Malabaricus, v. 7. 1. 13, Papal-Valli. Of this we are surprized to find Juffieu had never seen the fruit, and we cannot but observe that its generic characters are rather weak, being chiefly taken from the inflorescence and bracteas.

To the section with stipulated leaves, this eminent botanist adds three new genera. 1. Anthia of Michaux, to which belongs Queria canadensis of Linneaus. 2. Lithophilla of Swartz. 3. Polychroa of Loureiro. The two last are already described in their proper places. See also Queria.

Juffieu proceeds to remark, that Cyathula of Loureiro, a plant of this order, is really an Achyrantes with a many-cleft stigma; but that Polia of the same author, (see that article and Hagera,) supposed to belong to the Amaranthi, is really one of the Caryophyllaceae.

Vol. II.

AMBOISE, AMBASIA, or Ambacio, in Geography, a town of France, in the department of the Indre and Loire, and chief place of a canton in the district of Tours, situate at the confluence of the Loire and Amance. The place contains 1,100, and the canton 14,415 inhabitants; the territory comprehends 322 square miles, and 16 communes.

AMDOA, in Geography. See Thibet.

AMEDNAGUR, J. 1, Soubah, now called Dowlatabad. Add—This city has generally been placed 50 miles to the S.E. of its true position.

AMELIA, l. 5, for including r. exclusive of; l. 6, r. 10,594 and 7186. Add—Nottaway contains 9278 inhabitants, of whom 6368 are slaves.

AMERITACEAE, in Botany, of which term mention has already been made in its place, as designating a Linnean natural order, is also the appellation of the 99th order in Jussieu's system, the fourth of his fifteen classes; corresponding for the most part, though not entirely, with that of Linnaeus, and so called from Amentum, a Catkin, in allusion to the nature of its fructification. See Euphorbl for the characters of this fifteen class of Jussieu, and remarks thereon. He thus defines his Amentaceae.

Flowers monoeocious or dioecious, (rarely with stamens and pifils in the same,) all dehiscent of petals. The male, or barren, flowers disposed in a catkin, confiding either of scales, into which the stamens are inserted, or each of those scales has a calyx attached to it, which bears the stamens. This order is either definite, or indefinite, with distinct filaments. (We would here observe that two or three species of Salis are remarkable for their combined, or monodelphous, filaments.)—The female, or fertile, flowers are either amecious, or falciculate, or solitary; sometimes furnished with a single-leaved calyx, sometimes with only a scale. The germs is superior, either simple, or in some rarer infissures more, than one, of a certain determinate number. Style one or more. Sigmata several. Seeds either naked, or enclosed in superior calyx, which is either of a carnosous or bony texture, as many in number as the germs, and for the most part of a single cell. Coruscum dehiscent of albumen, with a straight radicle. Stem arboreous, or shrubby, rarely of humble growth. Leaves alternate, accompanied by stipulas, mostly simple.

Seet. 1. Flowers with stamens and pifils.

Here Juffieu ranges Fothergilla, Ulmus, and Celtis; of which the two latter are placed by Linnaeus among his Scabride. Hamaenelis, which the last-named author has, in manuscript, referred to his Amentaceae, and which is purely a new, is reckoned by Jussieu among his Berberidaceae, or at least among several genera supposed related to that rather miscellaneous order.

Seet. 2. Flowers dioecious.

This contains Salix, Populus, and Myrica.

Seet. 3. Flowers monoeocious.

A larger assemblage of genera, if not of species, comprising of Betula, Carpinus, Fagus, Quercus, Corylus, Liquidambar, (under which last the genus now called Comptonia, see that article, is hinted at,) and Platanus. There is no appendix of doubtful genera, as in most other orders of Jussieu, but a fulpicion is expressed respecting Liquidambar and Platanus.

The Amentaceae of Linneaus are, Salix, Populus, Platanus, Sloanea, with a full indication of doubt, Fagus, Juglans, Quercus, Corylus, Carpinus, Betula, Myrica, Pyfacia, and Gynandrocarpum. Brabijum is, in the Linnean manucript, inserted immediately before Fagus; Hamaenelis before Betula, after which Brabijum is again written; an evident indication of great uncertainty in the mind of the writer, who knew this genus but imperfectly, and who had conceived no idea at all of the order Proteaceae, to which it clearly belongs, and which makes so striking a figure in the works of Jussieu; and especially of our countryman Mr. Brown. See Prodr. Nov. Holl. v. 1. 363, and Tr. of Linn. Soc. v. 10.

AMERCOTE, in Geography, a fortified place, which formerly belonged to the country of Scind, but is now in the possession of the rajah of Jodhpore. Situated S.E. of Hydrabad, and about 25 miles from the eastern branch of the Indus.

AMERICA,
When potassium or sodium is heated in ammoniacal gas, the metal becomes changed to an olive-green colour, and loses its metallic lustre; at the same time a portion of the gas is absorbed, and a quantity of hydrogen emitted, exactly equal to the quantity that would be evolved if the potassium or sodium were put into water. If the olive-green matter be heated, it gives out three-fifths of the ammonia absorbed, two-fifths in the state of ammoniacal gas, and one-fifth in the state of hydrogen gas and azote. Sir Humphry Davy, having heated the olive-coloured matter strongly in a platinum tube, obtained nearly the whole of the ammonia absorbed, though about three-fifths of it were in the state of azotic and hydrogen gas. If the olive-coloured matter be placed in contact with a very little water, it is converted into potash, or soda and ammoniacal gas, and the gas is just equal to what the metal had absorbed. If it be placed in contact with a metal and heated, an alloy of the metal with potash or sodium is obtained.

For these curious facts we are indebted to Gay Lussac and Thenard, and Davy. Dr. Thomson thinks they shew that potash and sodium have the property of decomposing ammonia, and combining with its azote, while the hydrogen of the ammonia is set at liberty; and the azotate formed, he thinks, combines with a portion of the remaining undecomposed ammonia. He acknowledges, however, that there are some objections to this opinion; and the facts accord better with the opinion, that an unknown compound of azote and hydrogen unite with the alkaline metal, while the compound thus formed combines with a portion of undecomposed ammonia.

A curious experiment made by Berzelius and Pontin induced Berzelius to draw the conclusion that ammonia is composed of an unknown metallic basis, which he has called ammonium, united to oxygen. This experiment has been since confirmed by sir H. Davy, Gay Lussac, and others, and is as follows:

When mercury is brought in contact with ammonia at the negative end of a galvanic battery, it gradually increases in volume, and is converted into a soft solid, having all the appearances of an amalgam. The experiment succeeds better if a solution ammonia is moistened be sulphurised for liquid ammonia. This amalgam, at the temperature of 70° or 80°, is a soft solid, of the consistency of butter; at 32° it is a firm crys tali fied mass, having a specific gravity below 3. When exposed to the air, it soon becomes covered with a crust of carbonate of ammonia. When thrown into water, hydrogen is evolved equal to half its bulk, the mercury is revived, and the water becomes a weak solution of ammonia. When confined in a given portion of air, the air increases in bulk, and pure mercury appears. Ammoniacal gas, amounting to 1/3 or 1/2 the volume of the amalgam, is evolved; and a quantity of oxygen equal to 3/44 of the ammonia disappears. When thrown into muriatic acid gas, it becomes coated with muriate of ammonia, and a little hydrogen is diffracted. In sulphuric acid it becomes coated with sulphate of ammonia and sulphur. All attempts to preserve this amalgam failed, from the impossibility of obtaining it free from water. When put into a glafs tube, or when confined under naphtha or oils, the mercury separated, ammonia was formed, and a quantity of hydrogen evolved.

Gay Lussac and Thenard considered this amalgam as a simple compound of mercury and ammonia; but no analogous compound is known to chemists, as mercury when it unites to other sub stances, except metals, always loses its metallic lustre. These reasons induced Berzelius to form the above opinion. Moft chemists at present agree with Gay Lussac and Thenard; but if their opinion be well founded, we must alter the notions entertained respecting amalgams.
AMM

The opinion at present entertained respecting the composition of ammonia is, that it is composed of three volumes of hydrogen and one volume of azote condensed into two volumes. Hence its specific gravity compared with that of common air is 0.590; 100 cubic inches at a mean temperature and pressure weigh 18 grains, and the weight of its atom is 21.25; that of oxygen being considered as 16.

Ammonia, Salts of. Those have been omitted in the usual place, namely, under Ammonia; but most of them will be found in a subsequent part of the work, under Salts. Those described elsewhere will be referred to here, and those remaining to be described will be now noticed.

Sulphate of Ammonia. See Sulphate of Ammonia.

Chromate of Ammonia. This salt may be formed by saturating chronic acid by ammonia. It usually exists in the form of deliquescent crystals of a fine yellow colour. When slightly heated, it is decomposed, even when in solution, brown flocks of chronic acid precipitating.

Arsenate of Ammonia. See Arseniate of Ammonia.

Molybdate of Ammonia. This salt dissolves readily in water. The solution does not crystallize. When heated, the ammonia is partly driven off, partly decomposed, and the acid is reduced to the state of an oxide.

Tungstate of Ammonia. This salt may be formed by dissolving tungstic acid in carbonate of ammonia. It is soluble in water, and crystallizes. Its taste is metallic, and it is entirely decomposed by heat.

Benzoate of Ammonia. This salt crystallizes with difficulty. It deliquesces, and is very soluble in water. It has been recommended by Berzelius as an excellent re-agent for precipitating iron from its solution. It throws down this metal of an orange colour, and occasional insoluble precipitates with any of the other bases, except tellurium and mercury, and perhaps copper, all of which are thrown down white.

Succinate of Ammonia. See Succinic Acid. This salt has also been much recommended for precipitating iron when in the state of peroxide.

Camphorate of Ammonia. This salt may be prepared by dissolving carbonate of ammonia in hot water, and adding camphoric acid slowly till the alkali is saturated. It crystallizes with difficulty; is sparingly soluble in cold water, but much more soluble in hot. It is completely soluble in alcohol. Most of the calcareous salts form triple compounds with this salt.

Citrate of Ammonia. See Citrate of Ammonia. The remaining salts of ammonia are so totally devoid of interest, or so little known, that we do not think it necessary to enumerate them.

AMMRSINE, in Botany, a new genus of Mr. Pursh's, more happily circumstanced in its characters, perhaps, than in its name. The latter is formed from ammos, sand, and -sine, a dwarf myrtle; but Myrsine, being an established generic name, cannot, with propriety, make a part of another. Linnean law, (see Phil. Bot. fept. 225.) and good sense, are both against it; and if some similar innovations have, from peculiar causes, crept in, they are not to be imitated, though for the present they may be tolerated. The genus in question is founded on Ledum bistifodium, (see Ledum, n. 3,) and stands in the Class and Order Petaenthria Magnifica, in Mr. Pursh's Flora 280 and 301, agreeing, of course, in Natural Order with Ledum. The following are its characters.

Calyx in five deep segments. Petals five. Stamens prominent. Capsule of five cells, bursting at the summit.

Ledum is characterized.

Calyx minute, five-toothed. Corolla flat, in five deep segments. Capsule of five cells, bursting at the base.

AMMOS, Liquor of the, Chemical Properties of. The peculiar acid principle termed by Vauquelin and Bonnec amniotic acid, does not appear to exist during all the periods of gellation in the liquor amni of the cow. Dr. Prout examined this fluid taken from an animal which had been slaughtered in an early period of her gellation, but was not able to detect any of the acid in question. See Annals of Philosophy, vol. v. p. 416.

Amomum, in Botany, amomum of the Greeks, most probably derived from its Arabic denomination bhamam, as De Theis writes it, is the ancient name of a fort of aromatic grain, or fruit, included, according to all appearance, among the species of the present Amomum of botanists. (See our former article, where this genus comprehends a much more extensive range of species than are now underfoot to belong to it.) Lamarck, and his immediate followers, included under Amomum almost every plant of the Scitamineae that they knew not how otherwise to dispose of; and Gartner, though he altered the name for the worse, to Zingiber, (see that article,) threw no light upon the characters or history of the genus, but rather, like every body else, added to their confusion. Mr. Rofco first defined this genus, like the rest of the Scitamineae, as the reader will find under that head, by a clear distinctive character; and while he greatly reduced the number of species rendered the whole perfectly clear and intelligible. We shall, as we have done with Alpinia, give a full view of this genus, as at present underfoot, and while we make considerabe retractions, shall have something new to add in their place.—Rofco's Tr. of Linn. Soc. 1851. t. 20. f. 11. Dryand in Att. Hort. Kew. v. 1. 8. Linn. Gen. 2, Schreb. 3. Willd. Sp. Pl. v. 1. 6. Mart. Mill. Dict. v. 1. Cary Hort. Beng. i. Roxb. Monand. 23. Juil. 63. Lamarck Illutr. t. 2 ft. 1. (Zingiber; Gartn. t. 12. f. 1, 2, 3, 6.)—Clafs and order, Monandria Monogynia. Nat. Ord. Scitaminea, Linn. Canes. Juli.

Gen. Ch. Cal. Perianth superior, of one leaf, tabular, theathing, membranous, coloured, fporulating at one side about half way down. Cor. of one petal; tube shorter than the calyx, cyndrical, erect; outer limb in three nearly equal, oblong-lanceolate, concave, erect segments much longer than the calyx; inner of one large, undulated lip, with a short concave claw. Stam. Filament one, rather longer than the claw, fround, oblong, defreeped, somewhat infurred, with a lanceolate, acute, ascending lobes, about half its own length on each side, at the base, and a pair of similar, erect or transverse, lobes, forming a crest at the summit, with either an intermediate prominence, or a notch; anther of two olls of different, elliptic-oblong, lobes, attached by the back, below the summit. Pill. German inferior, small, roundish, fome what furred; lily-thread shaped, lilies close to the filament, between the lobes of the anther; forma fuming shaped, fringed, erect, projecting a little beyond the filament. Peric. Capsule either oblong, or nearly globular, of three cells, and three cconions, somewhat fritted, valves; the partitions membranous. Seeds numerous, oblong, roundish, or froundly angular, each enveloped in a soft pulpul tunic, which becomes membranous, or evanecent, when dry.


One of the most natural genera that can exist, in any natural order, and the best defined in habit, as well as character.
AMOMUM.

character. The root is perennial, tuberous, jointed, and somewhat creeping, with strong and deep fibres. Stems at least biennial, erect, simple, invested with the sheaths of the two-ranked, simple, elliptic-oblong, flattened, vertical leaves. Spikes invariably radical, simple, rather lax, flaked, their flanks scaly. Bracteas large, concave, coriaceous, more or less closely imbricated, single-flowered. Flowers large and handsome, white or reddish, remarkable for the broad, rounded, undulated, generally crenate lip, often yellowish at the base. Capsules large, with very numerous, in general powerfully aromatic, or very pungent, seeds. Every part of the plant is commonly aromatic. We have improved our knowledge of the fruit, and the nature of the tunic of the seeds, from Dr. Roxburgh's observations in India. Gartnner speaks of the capsule as not bursting, because he had chiefly examined specimens gathered before they were ripe, like all the Cardamoms of the druggists' shops, some of which belong to the genus before us. The same able author has also mistaken the top for the bottom, in his figure called A. cyphostr.

We know not how it has happened that only one species of Amomum appears in Hort. Kew. A. Afruzii; with another, A. grandiflorum (published long before) in the Addenda to that work. A. Granum-Paradisi, raised from seeds brought from Sierra Leone by Dr. Auzelius, has long been cultivated in England, though we have never heard of its flowering; and there are several more in the same predicament. They are fove plants, requiring a considerable degree of heat. No collection perhaps is so rich in this genus, or in the whole natural order, as that of the Botanic Garden at Liverpool, where the plants have every advantage of skill of cultivation, and where nothing that may occur, relative to their growth or history, can escape the eye of that illustrious writer and botanist, who first reduced them to order.

All the known species appear to be natives either of equinoctial Africa, Madagascar, or the East Indies; nor have we any from America, or the West Indies.

1. A. Cardamomum. Clutter Cardamom, or True Amomum. Linn. Sp. Pl. 2. Willd. n. 7. Loureir. Cochinchi. 3. Retz. Obf. falc. 3. 59. Rofc. n. 1. Roxb. n. 1. (A. n. 2; Linn. Mat. Med. 1. A. verum; Ger. Em. 1548. f. 6. Amomum; Dale Pharm. 277. Barrel. Ic. 571. f. 1. Amomo legitimo degli antichi; Pona Baldo, 50. Cardamom minus; Rumph. Amboin. v. 5. 152. f. 65. f. 1. Bont. Hilf. Nat. 126, with a figure (the oblong capsule excepted, which belongs to Cardamomum medium of the hops). Zingiber minus; Gært. t. 12. f. 6.) — Leaves lanceolate. Spikes lax, many-flowered. Bracteas lanceolate, acute. Lip three-lobed. Crest of three, nearly equal, erect lobes. Capsule globular. — Native of the Malay islands, where the inhabitants use the seeds as a substitute for the Malabar, or lesser Cardamon. Dr. Charles Campbell sent plants from Sumatra to the Calcutta garden, where they blossom in May, just before the rains begin. Roxburgh. Rumphius speaks of this species as cultivated plentifully, but not wild, in Amboyna and the neighbouring islands. It is certainly the true original Amomum of the hops, still to be met with at Venice and in other parts of the south of Europe, though generally supplanted by the more valuable lesser Cardamon, Amomum repens of Sonnerat, which Linnaeus confounded herewith, and of which we propose to treat by the name of Elettaria hereafter. Nothing is more rare, with collectors of the Materium Medicum, than the capsules of this A. verum in their native clutters or spikes. We were fortunate enough, after unskilfully

meet with two or three such specimens, accompanied by brautis, very important as determining the identity of this plant with the Linnæan specimens of A. Cardamomum. By macerating the flowers of the leaf, we have also ascertained their structure, which agrees with Dr. Roxburgh's account, the summit, or crest, of the filament being three-lobed. The lateral lobes are short and erect, but not much elevated above the central one; neither are they transverse, awl-shaped, and elongated, as in A. Afruzii, grandis floridum, and some others. The two lobes of the anther stand near the edges of the filament, remote from each other, but meet near the base. Dr. Roxburgh speaks of the flower-spikes as even with the earth. But however this may be, they are elevated above the root, each on a simple wavy stalk, two inches long, clothed with sheathing, elliptical, ribbed, abrupt, barren scales. The spike is an inch or an inch and a half long, sometimes two inches when in seed, with many pale, smooth, imbricated, elliptic-lanceolate brautis, near an inch in length, one to each flower. The germen, calyx, and common receptacle, are hairy, or rather bristle. Capsules feline, the size of a black currant, globular, somewhat depressed, obscurely three-lobed, fruated, crowned with a blunt protuberant scar. Seeds roundish, angular, dotted, brown, aromatic and pungent, resembling in flavour the Elettaria, but less powerful, and rather less agreeable. The leaves of this species are rather narrower than in others of the genus, except perhaps the following; but our leading distinctions throughout must be taken from the brautis, flowers, and fruit.

2. A. angustifolium. Grested Cardamom, or Madagascar Amomum. Sonnerat Ind. Or. v. 2. 242. t. 137. Willd. n. 6. Rofc. n. 2. Roxb. n. 2. (A. madagascariense; Lamarek Dist. v. 1. 133. Carvamomum majus; Matth. Valgr. 25. (but not Dale Pharm. 276.) Camer. Epit. 11. f. 1. Barrel. Ic. obf. 1394. t. 971, the largest fruit. Grana Paradisi; Ger. Em. 1542, the figure, as being copied from Matthioli, but not the description. (See also Bauh. Hilf. v. 2. 204, and Lab. Ic. v. 2. 204, where the same error is committed, as well as in Chabr. Stipr. 128.) — Leaves lanceolate. Spikes capitata. Bracteas ovate. Lip obovat, undivided. Lateral lobes of the crest tapering, horizontal. Capsule ovate, pointed, frivated. Seeds globular, abrupt at the base. — Native of marly ground in Madagascar, where it was first ascertained and figured by Sonnerat. It is cultivated at the Mauritius, and from thence was carried by captain Tennent to the Calcutta garden, where it blossomed during the cold season. Dr. Roxburgh says, "the flowers possess a considerable share of spicy fragrance, and are flowy, the upper brautis, and external border of the corolla, being red, and the large lip yellow." This writer terms the leaves broad-lanceolate; which does not answer to Sonnerat's figure, name, or description, but perhaps this circumstance is variable. The flower-flaks rise above the ground, and are seven or eight inches high, clothed with tubular scales. Flowers in a short crowded spike, with a concave brautis to each, near an inch and a half long. The capulis and seeds we have already described, (see Mellicetta,) where some other species are mentioned, which we shall here attempt to arrange systematically, but need not repeat the minute remarks there given.

3. A. macroperumum. Large-seeded Guinean Amomum. (Zingiber Mellicetta; Gært. t. 12.) — Spikes capitata. Bracteas ovate, as long as the fruit. Capsule ovate, pointed, somewhat frivated. Seeds obovate, with a prominent, bordered, crenate scar. — Native of Sierra Leone, in the burying-ground of the settlement, from whence seeds were brought us by prof. Professor Auzelius; but having unskilfully
unluckily not observed the plant or its flowers, nor gathered more than one capful, he was unable to give us any further information than what these seeds afford. Their flavour is very slightly aromatic. Their lead-coloured hue is well noticed by Gärtner, though his figure represents them scarcely half large enough. The bracteas appear twice the size of the leaf, to which unquestionably this species is next akin. This is Amomum, n. t. of professor Achezuis's MSS. The natives call it Maboobo.

4. A. Clufii. Long-feded Amomum. (Fructus 14; Cluf. Exot. 37, 38, with a figure. Gravis Paradys, five Mellegeta allinis fructus; Bauh. Pin. 413.) — Spikes capitale. Bracteas ovate, much shorter than the fruit. Capulis ovate, pointed, triradiate. Seeds cylindrical, highly polished, with a bordered, truncate face. — The native country of this species is unknown, Clufius's specimen having been collected by an apothecary, who died in the course of his voyage, and left no memorandum respecting this point. (See Mellegeta for a description of a specimen, which we accidentally met with in a druggist's shop, in a chest of Great Cardamoms, A. angustifolium, if we mistake not, and which therefore probably came from Madagascar.) The cylindrical, dark-brown, highly polished seeds, appearing as if varnished, clearly distinguished it from both the two last. The short bracteas in Clufius's figure, unless the upper ones had been tipped off, afford a no less striking distinction. The seeds had only a slight pungency from the first. Thole of our Great, as well as Clufet, Cardamoms, are as highly flavoured as ever, though at least twenty-five years old.

5. A. Grana-Paradisi. Grains of Paradise Amomum, or Mellegeta Pepper. — Spikes capitale. Bracteas ovate, rather shorter than the fruit; lower ones crowded. Capulis oblong, bluntly triangular, minutely hispid. Seeds ovate. Stipula entire, fringed. (See Mellegeta for the history and synonyms of this species.) The brown seeds, distinguished by a peculiar and very hot flavour, are very different from the following, and the bracteas have a short, thick, dorso-long spine.

6. A. grandiflorum. Large-flowered Cardamom. Sm. Exot. Bot. n. 2. 103. t. 111. Ait. Epit. 524. — Spikes capitale. Bracteas elliptical, shorter than the fruit; lower ones distant. Capulis oblong, bluntly triangular, minutely hispid. Seeds ovate. Intermediate lobe of the filament entire. Stipula clavene, smooth. — Native of Sierra Leone, Seeds, brought by professor Afzeiulius, have produced flowering plants in England. The root is perennial, woody, creeping. Leafy stems about three feet high, erect, round, smooth, very slender. Leaves several, elliptic-lanceolate, long-pointed, recurved, often tinged with red, very smooth; the long, narrow, polished bracteas each crowned with a somewhat cloven, rounded stipula, whose edges are quite smooth, not fringed with bristle hairs, as in A. Grana-Paradisi. Flowers-flats erec, two inches high, frirated, downy. Lower bracteas elliptical, concave, spreading, and so far distant that the flalk is usually visible between them; upper much larger, though of a smaller proportion than those of our second or third species, and not above half so long as the flower or fruit, membranous, finely ribbed, scarcely spinous, somewhat colourned, permanent. Flowers in a short, dense, capitale cluster, large and handsome, whether fragrant or not we have no information, but when dried, and moistened again, they are highly aromatic. Calyx rose-coloured, above an inch long, with a blunt spreading point. Outer limb of the corolla of the same hue, twice as long; lip of a broad rounded kidney-shape, waved, plaited, crease, slightly notched, but not divided, nor deeply lobed, near two inches broad, white, with a yellow spot at the base. Stamen white, not half so long as the lip, furnished at the bottom with twoawl-shaped diverging lobes, and at the top with two nearly horizontal ones, of the same size and figure, having between them a central, short, rounded, quite entire lobe. The capulis is very like that of Grana-Paradisi, in size, shape, and pubescence. These seeds are also similar in size and shape to that species, but differ in being grey or lead-coloured, much less polished, and in having a totally different flavour resembling camphor, which they equal in warmth and pungency. As a stimulant, cordial, these seeds appear equal to any Cardamom whatever.

When the flowers of Grana-Paradisi become known, which is now one of our greatest botanical discoveries, there probably will be more distinctive characters discovered between that species and the present.

7. A. Achezati. Sweet-scented Amomum. Rofc. n. 8. Ait. n. 1. (A. exspicam; Sims in Ann. of Bot. n. 1. 548. t. 14.) — Spikes capitale, of few flowers. Bracteas shorter than the fruit. Capulis oblong, triangular. Stipula smooth? Intermediate lobe of the filament cloven. — For this also we are indebted to Dr. Afzeiulius, who brought the seeds from Sierra Leone. From them Mr. Loddisges at Hackney raised plants, which flowered in his flower in June 1804, and were described by Dr. Sims. The original name, esspica, not being exactly correct, has been changed for one to which no lover of science or of personal worth can object. The leaves are as broad as the leaf, nor does the herbage of these plants in general afford many distinctive marks. We precedence from the figure, that the stipulas are smooth. The flower-flats, though not wanting, is much shorter than any of the former, and there seem to be no more than two external bracteas, besides some membranous ones close to the flowers, apparently less firm and durable than usual. The outer limb of the corolla is pale flesh-coloured. Lip rather more oblong, and plaited lower down, than in the last, crease at the edges, white, with a yellow central spot. Stamen essentially different from A. grandi- fflorum, in having its middle lobe in two deep acute segments. What we have for the capulis of this species is ovate, pointed, triangular, nearly or quite smooth, rather larger than either of the two last. Seeds obvate, dark brown, highly polished, with a prominent-bordered face, as in A. macropelllum and Clufii, totally unlike the two foregoing. These seeds have scarcely any flavour, and are not at all aromatic. The flowers are fragrant only when dried, as in grandi-florum.

8. A. frotolacteum. Cone-bearing Amomum. — Spikes capitale. Outer bracteas numerous, elliptical, gradually larger upwards; floral ones scarcely longer, membranous, frirated, rough at the extremity. Stipula abrupt, nearly smooth. — Native of Sierra Leone, from whence we were favoured with a specimen by Dr. Afzeiulius. This has very slender leafy stems. The leaves are elliptic-ovate, pointed, very smooth. Stipula rounded, scarcely cloven, very lightly, if at all, fringed. Flower-flats several inches high, smooth, covered with numerous, imbricated, elliptical, very broad, concave, felling bracteas, gradually larger upwards, with broad dorso-long spine; the lowermost not quite an inch long, the upper two inches; all finely frirated, very smooth to the touch, of a bright chestnut colour when dry. Within the two uppermost are the proper bracteas, accompanying the head of flowers, much narrower, hardly at all longer, flatter, more membranous, hairy in the upper part, abrupt with a small point. Of the flowers we know nothing, nor are we certain of the fruit. The only unappropriated cap- fules of any Amomum, communicated from Sierra Leone by
AMOMUM.

by Francis Borone, (see the article Rutaceae.) are those of A. n. 2. of Aszelius, called by the natives Malu-aba, which are very likely to belong to the present plant, though we have no proof of it. These agree with the outer bracteas in colour and smoothness, and are ovate-oblong, only half the size of the leaf, with which their seeds very precisely accord, both in appearance and in want of flavour. Indeed they are so alike, and such a coincidence between the seeds of different species of Amomum is so unusual, that we could almost prelude the capful above described for A. Aszeliu, might be a very large one of this n. 2. We do not however form any such conclusion, the seeds of A. Clu, undoubtedly a dinéfis species from both these, having seeds precisely like them, only rather larger.  


Cochinch. 4. Wild. n. 8. Rocf. n. 5. (Globba cripa rubra; Rumph. Amboin. v. 6. 137. t. 61. f. 2.)—Spikes ovate, flalked. Braéctas linear-lanceolate, elongated. Capful globular, obliquely triangular, rough with ferracred bristles. — Native of Java, Amboyna, and the Molucca islands, as well as of Cochinchina, in hilly situations. The seeds are exported in great quantities to China, for medical ufe, being, according to Loureir, flamachic, and warm and strengthening. The root is woody and creeping; its fibres aromatic. Leafy bracts six feet (Rumphius lays fourteen to sixteen feet) high, weak, erect, perennial. Leaves smooth. Flower-flalk four inches long, flender, reclining. Spike nearly ovate, with linear, imbricate braéctas. Flower pale. Capful nearly globular, half an inch in diameter, rather pulpy and sweet, reddish, clothed with numerous thick protuberances. Seeds: angular, brown. The whole plant has an aromatic, but not powerful, odour. This description of Loureir’s is not unsuitable to the above fynonym of Rumphius, to which he refers, except that the latter describes the roughness of the fruit as consisting of short, scattered spines, or bristles.  


Rocf. n. 6.—Clutter flalked. Braéctas ovate-oblong. Capful globular, obliquely triangular, faggy. Intermediate lobe of the filament in two rounded segments. — Found by Kæng at Raput-Nok, in Tranquebar, in fhady wet fitions, flowering about the middle of May. Leafy bracts, a yard or more in height. Leaves smooth on both fides, with hairy fifulas. Flower-flalks somewhat curved, clothed with ovate-oblong, smooth, red fcales. Flowers white, variegated with red and yellow. Stamens crowned with four lobes, the two lateral ones narrowest and smallest, the two middle ones broad and rounded. Capful clothed, before it is dried, with blood-coloured cirihi, or thread. 

Kæng.  


Rocf. n. 7. (Globba cripa viridis; Rumph. Amboin. v. 6. 137. t. 61. f. 1.)—Spikes capitate, nearly fellite. Braéctas membranous. Capful globofe, all over fpinous. — Native of Amboyna, the Molucca islands, &c. Rumphius. Leafy bracts, according to Rumphius, ten or twelve feet high. Leaves twenty inches long, of the breadth of four or five fingers. Fruit larger than that of A. villosum, always of a deep green, and armed with fipes like a Thorn-apple, growing in dense fellite clusters or tufts at the root. We know nothing of this species but from Rumphius, for after much perplexity and confideration, we are decidedly of opinion that Amomum n. 2. of Kæng, Retz. Obs. falc. 3. 59, cannot belong to it. See A. maximum hereafter.  

13. A. acetabulum. Prickly Oval Amomum. Roxb. n. 3.—Spikes obovate, on short flalks. Braéctas lanceolate. Crefl of the filament abruptly three-lobed. Capfuls oval, prickly. Leaves nearly fellite, lanceolate; heart-shaped at the bafe.—Native of the Malay Archipelago, from whence it was brought to the Calcutta garden, and flowers freely there in April and May, ripening feed in October. The capful is perfectly diftinct of grooves, and its coat of a foft flothy texture. Roxburgh.  

14. A. maximum. Great Winged Amomum. Roxb. n. 4. (A. n. 2; Kæng in Retz. Obs. falc. 3. 59.)—Spikes oval, on short flalks. Braéctas lanceolate. Crefl of one semi-lunar lobe. Capfuls globofe, with nine wings. Leaves flalked, lanceolate, villous beneath. — Native of the Malay Archipelago. Long cultivated in the Calcutta garden, where it blooms in April and May, ripening feed in September and October. The flowers are nearly white, with a small tinge of yellow on the middle of the fp. The feeds have a warm pungent aromatic taste, not unlike the real Malabar Cardamon, (see Elettaria,) but by no means fo grateful. Roxburgh. The author appears to have confufed himself between Globba cripa rubra of Rumphius, and t. 60, of that writer, but we readily agree with him, though not exactly for the reasons he gives, that neither of thefe fynonyms belong to his A. maximum.  

15. A. Rumphii. Angular-winged Amomum. (Globba longa; Rumph. Amboin. v. 6. 134. t. 60.)—Spikes ovate, on flalks three their own length. Braéctas ovate. Capful globofe, with many angular-notched wings. Leaves flalked, smooth.—Native of valleys, and at the foot of mountains, in a cold, wet, clay, or fowy foil, throughout the Malay Archipelago, and all the eastern parts of India. The barren flells are a yard high before they expand into leaves, after which they attain the height of twelve or fifteen feet. Leaves thin and smooth, two feet or two feet and a half in length, two palms broad. Flower-flalks a foot high, fealy, each bearing a denfe, ovate, many-flowered spike, three or four inches long. Braéctas ovate, acute, reddih, fpotted. Calys with a very long three-cleft tube. Corolla reddih externally, with a white fp, fpot fading. Capful nearly globofe, with many unequal, yellowish, irregularly and sharply toothed wings. Seeds black, enveloped in a flivery pulp, of a gratefuiely acid favour, very fragrant, but not acrid or aromatic to the tafe. Rumphius.  

We cannot reduce this plant to any of the species of Roccoe, Roxburgh, or Kæng. We feel indeed great fcruples in referring the Amomum n. 2. of the latter to A. maximum, and thal therefore venture to propofe it here as a dinéfis, with that diftinction which must always attend the definition of a species taken up from description.  

16. A. Kængii. Single-fruited Amomum. (A. n. 2; Kæng in Retz. Obs. v. 3. 50.)—Spikes fellite. Braéctas ovate, membranous. Capful solitary, globofe, deeply furrowed, with intermediate wings, and somewhere tuberculated. Crefl of three lobes; the middle one rounded, finely toothed. Leaves downy beneath. — Native of denfe woods in the Eaft Indies. Leafy bracts two feet high. — Spikes or tufts of flowers fellite at the root, each perfecfing but one capful, the bafe of a large cherry, containing rarely more than nine feeds.  

Although we have made out a far more ample hit of species, of genuine Amomum, than has ever been attempted before, we are aware that several may yet exifh, of which imperfect traces are to be found in various authors, so that it is more likely our number should be augmented than diminifhed by future enquiry. This genus ought perhaps to be divided into two families, the firl with fplked or racemoe flowers, globofe fruits, and angular feeds; the fcond with capitata flowers, ovate pointed feeds, and ovate or oblong, even feeds. To the firl belong A. Cardamomum and many

Q q
of our latter species; to the latter the Cardamom tribe, comprising the second and all after it to the eighth inclusive.

**AMPHIBOLE, or HORNBLINDE.** See Mineralogy, Addenda.

**AMPHIGENE.** See LECITE.

**AMPHIPOGON, in Botany, op. cit., and eglha, as having a ballot, or acorn, upon both valves of the corolla.**—Brown Prod. Nov. Holl. v. 1. 1775.—Clas and order, *Triandra Diggia.* Nat. Ord. Gramina.

Eff. Ch. Calyx of two nearly equal valves, single-flowered. Corolla of two valvs: outer valve with three segments; inner with two; all the segments setaceous, awned, uniform.

A genus of graminea, growing in patches, with creeping roots, fasciculated flowers, and setaceous leaves. The flowers compose an equal spike, which sometimes affumes the form of a roundish head.


1. *A. lagunoides*. Harze's-tall Amphipogon.—Head globifer. Calyx-glumes lupid, with hairs dilated at the base; outer valve twice the length of its point. —Gathered by M. Brown, on the south coast of New Holland.

2. *A. turbinatus*. Turbine Amphipogon.—Head obovate. Calyx-glumes clothed with hairy hairs, timple at the base; outer valve scarcely longer than its point. —From the same country.

Sect. 2. *Spike oblonga*. Calyx smooth.


5. *A. avanuensis*. Oat Amphipogon. —Calyx-glumes pointed, undivided, longer than the silky corolla. Awns spreading. —Native of the same country as the last.

We have seen no specimens, and therefore are indebted to Mr. Brown for all the above information. We would observe that this genus affords an exemplification of what specific characters ought to be, under the plan of a milder, with nothing ambiguous or superfluous, but such a contrast of definitions between all the species, as can leave no doubt in the mind of a student.

**AMPHORA.** Add.—As a wine measure at Venice, contains 4 bigoncia, and 2 bigoncia contains 4 quantari, 116 fecchie, or 25 lbs. pezo grofo; but a bigoncia of brandy is only 14 fecchie, or 56 lbs.

**AMSTERDAM, in Geography,** an island in the Indian sea, lying in S. lat. 38° 42', E. long. 56° 54'. This island is of volcanic origin, and still in a state of inflammation. The great crater on the eastern side, now full of water, is by far the largest here, or, perhaps, elsewhere, and is of an astonishing size, considerably exceeding in diameter those of Etna or Vefuvius. Its length from N. to S. is upwards of four miles; its breadth from E. to W. about 2½ miles; and its circumference 11 miles, comprehending a surface of about eight square miles, or 5120 acres, almost the whole of which is covered with a fertile soil. The island is inaccessible, except on the west side, where the great crater forms a harbour, the entrance into which is deepening annually, and might, by the aid of art, be made fit for the passage of large ships. The tides run in and out at the rate of three miles an hour, and rise perpendicularly eight or nine feet on the full and change of the moon. Their direction is S.E. by S., and N.E. by N. A northerly wind makes the highest tide. The water is eight or ten fathoms deep almost close to the edge of the crater. The sea furnishes this island with excellent fish, particularly a kind of cod, and crayfish in abundance. Nevertheless, sharks and dogfish, of uncommon size, were very numerous in the same place. The penguin, distinguished in the Linnean system by the name of *Chrysaora*, having large yellow feathers, forming two semi-circles over the eyes, like eyebrows, is found here in great abundance. Of the larger birds, there are also several species of the albatross, and also the large black petrel, or *procellaria equinocolia* of Linnaeus; the blue petrel, or *procellaria Forsteri*; and the stormy petrel. The smallest of the feathered tribe, inhabiting or visiting this island, was the silver kind, or *Ilerna hirundo*, about the size of a large swallow or swift, with a forked tail. The island St. Paul's, lying to the northward of Amsterdam, presented no very high land, or any rising in a conic form. In Sir George Staunton's Embassy to China, we have a view and plan of the island of Amsterdam, and of the great crater on its eastern side.

**AMUL,** an ancient city of the Persian empire, in the province of Mazendaran, situated in an agreeable plain at the foot of a mountain, on the banks of a river, and celebrated for a handom bridge of twelve arches, an old fortress, and a palace of Shah Abbas the Great.

**AMURATH (or Morad) III.,** in *Biography,* succeeded his father Sultan Selim II. in 1575, commencing his reign with casting his five brothers to be strangled in his presence. His reign was eventful in military transactions; but as he took no part in them, he is not much noticed by the Turkish historians. Amurath contributed to the election of Stephen Battiari, as king of Poland; and this circumstance favoured his own designs against Persia. The invasion of this empire by the Turks began in 1578, and after much slaughter, terminated in Amurath's possession of Tauris, and three contiguous provinces of Persia. The Krim Tartars, who revolted from the Turkish dominion, were reduced. In 1596, Amurath being at peace with the other powers declared war against the emperor of Germany, which was the caufe of much devastation and bloodshed; and the Turks triumphed in the capture of the important town of Rth, in Upper Hungary. During this war, Amurath died, in January 1596, at the age of 52. Chriflian authors represent him as of a mild disposition, a lover of justice, zealous in his religion; and a friend to temperance and order. Mod. Univ. Hift.

**AMURATH (or Morad) IV.,** surnamed Ghazi, or the Valiant, was fon of Achmet I., and succeeded his depofed uncle Muffapha in 1622, in his 13th year. He lof Bagdad at the beginning of his reign, and after many unsuccessful attempts to retake it, he marched, in 1647, at the head of a numerous army, and after thirty days continual assault, and an immense lofs of lives, stormed the place. On this occasion he shewed the brutal ferocity of his temper, not only by driving on his men with a fcinatar to the attack, but by slaughterimg 30,000 Persians who had surrendered at discretion after the capture of the town. It is said, that the only person who escaped was a famous harp-player, who rfekeft the executioners to permit him to fpeak to the sultan before bis death. When introduced into his presence, and ordered to give a fpecimen of his powers, he touched his instrument so sweetly, accompanying the strings with pathetic lamentations on the tragedy of Bagdad, and artful praises of Amurath, that the tyrant was fostered
softened to tears, and not only saved him but the rest of the survivors. Habits of debauchery broke down the sultan's constitution in the prime of life, and he sacrificed his life in a revel at the feast of Bairam, in February 1642, at the age of 31. — Mod. Univ. Hist.

**ANUSKAG FALLS,** l. io, for across r. a little below.

**ANWELL.** Add—Alfo, a township of Hunterdon, in New Jersey, containing 5727 inhabitants. —Alfo, a township of Pennsylvania, in Washington county, having 1673 inhabitants.

**ANADENIA,** in Botany, fo named by Mr. Brown, from s. without, and 320, a gland, because the nectariferous glands, ufual in some neighbouring genera, are wanting. —Brown Tr. of Linn. Soc. v. 10. 155. Prodr. Nov. Holl. v. 1. 374.—Clafs and order, **Tetradura Monogynia.** Nat. Ord. Proteaceae. Juff. Brown.

Gen. Ch. Cal. none. Core Petals four, equal, regular, cohering by their lower part into a tube, linear, or length round their summits dilated, concave, bearing the flanmens. Stam. Filaments four, very short, inserted into the hollow near the tip of each petal; anthers roundish, fink in the faid hollow. Pfl. German with rudiments of two fuperior, inferior, half-ovate, erect, without any gland at the base; flyle cylindrical, incurved; stigma vertical, conical. Peric. Follicle oflaked, of one cell, crowned with the flyle. Seed foliary, compounded, without a wing. Eff. Ch. Petals four, regular. Stamens fink in the cavities of the limb. Nectariferous glands none. Stigma conical. Follicle of one cell. Seed foliary, without a wing.

A shrubby genus, akin to Grevillea. (See that article.) Leaves either pinnatifid or lobed, their outline wedge-shaped. Spikes terminal or lateral; flowers in pairs, each pair accompanied by a single bracteae, the uppermost fometimes earlier than the reif.

1. *A. pulchella.* Elegant Anademia.—Leaves pinnatifid, slightly hairy; lobes wedge-shaped, three-cleft or pinnatifid at the extremity. Spikes flowering from the top downwards. Follicles gluttonous. —Native of molly hills in Lewin's land, on the south coast of New Holland, where this, as well as the two following species, were gathered by Mr. Brown.

2. *A. trifida.* Three-cleft Anademia.—Leaves wedge-shaped, triple-ribbed, without veins, three-cleft; flivery beneath; lobes entire, or the lateral ones with two or three teeth.—Found in woods, on a sandy foil, in Lewin's land. Leaves only the length of the finger-nail. —"Perhaps a distinct genus, the corolla being irregular, fligma a little, different from the reif, and the follicle woody, splitting into two parts." —Br. in Tr. of Linn. Soc.

3. *A. liebifata.* Holly-leaved Anademia.—Leaves wedge-shaped, very; flivery beneath; tapering at the base; pinnatifid half way down.—Found on the sandy sea-coaft of Flinder's land, on the south coast of New Holland, with unexpanded flowers, and no fruit. Leaves an inch long.

**BROWN.**

**ANAGNORISIS.** See Catafrophe.

**ANALCIME.** See Zeolite.

**ANALYSIS,** in Chemiftry. The analysis of minerals, including earths, fones, and the ores of metals, and the analysis of organized bodies, or vegetable and animal fubstances, have been omitted; we shall, therefore, introduce a fummmary account of thefie fubjects here, and at the fame time endeavour to supply what has been omitted under other analogous heads.

**Analysis of Minerals.** —The particular methods of analyzing different minerals and ores are given under their respective heads: our object here is to give a summary view of chemical analysis in general, a subject often referred to in the Cyclopædia, but which has been unaccountably omitted.

"The progress," says Dr. Thomson, "which the art of analysing minerals has made within these last thirty years is truly astonishing. To separate five or six substances intimately combined together, to exhibit each of them separately, to ascertain the precise quantity of each, and even to detect the presence of the weight of substances which do not approach the five-hundredth part of the compound, would, at no very remote period, have been considered as a hopeless, if not an impossible task; yet this can now be done with considerable accuracy."

Margraff of Berlin was the first who undertook the analysis of minerals. He was followed by Bergman and Scheele, who very much improved this department of chemistry. The indefatigable and ingenious Klaproth succeeded, to whom the present improved state of the analysis of minerals is more indebted than to any other individual. To Vauquelin and Berzelius likewise we are much indebted, as well as to many other eminent living chemists. In short, this interesting branch of chemistry is still daily making rapid progress, and will doubtless be long become much more perfect than it is even at present.

Minerals of a saline nature, and soluble in water, may be analyzed by the methods pointed out in the article Water, Mineral Analysis of.

Hard fanny minerals are firt to be reduced to a flate of powder. When they are extremely hard, they may be heated to redness, and then thrown into cold water, which will cause them to crack and fly to pieces; and this process may be repeated, if necessary. The mineral is then to be reduced to a coarfe powder, in a fheel or agate mortar (see Laboratory); and when thus reduced, a given weight of it, 100 grains for example, is to be reduced in a similar mortar (one of agate is preferable) to an impalpable powder. The powder, after this operation, will be generally found heavier than before, owing to the abrasion of the mortar; and this addition in weight is to be carefully noticed, and allowed for. If the mortar employed was agate, the addition in weight may be considered as flies.

Cruccibles of platinum and silver, evaporating dishes of glafs or porcelain, and other apparatus and requisites, will be necessary for the subfequent procedures, all which are described under the article Laboratory above referred to. In the clafs of minerals commonly denominated fones and earths, the ingredients usually met with are, files, alumina, zirconia, glaucia, lime, and magnesia; and the oxys of iron, manganese, nickel, chrome, and copper. Seldom more than four or five of these, however, enter the composition of a mineral at the same time; though, to avoid repetition, we shall suppose them all to exist at once.

When a mineral of the above description is to be analyzed, 100 grains of it in fine powder are to be mixed with three times their weight of pure potash and a little water, and then introduced into a silver crucible, and exposed to a red heat for upwards of half an hour. Care must be taken to stir the mixture well till all the water be driven off, left, by the ebullition, any of the compound should be forced out of the crucible.

From the appearances presented during this step of the operation, some conjectures may be usefully formed respecting the nature of the fome, fo as to afford some allifance in the future steps of the analysis. If the matter melts completely, it may be concluded that the mineral is chiefly ficateous.
When To dissolved at this, red is the
be
orange-red
The and boiled solution will be
a
lime,
be
aluminous
raped.
When a
be
aluminous and very hard, potash acts very feebly upon it; and in this case, borax was used with great advantage by Mr. Chevex.

The crucible being now removed from the fire, and cleaned externally, is to be placed in a porcelain capsule, and filled with water; and this is to be repeated till the whole of the matter is separated. A portion of the compound of potash, with the flex and alumina of the mineral, is taken up by the water, which would indeed disolve the whole if added in sufficient quantity.

The detached matter is then to be dissolved in muriatic acid; at the commencement of the solution, an abundant precipitation takes place of a flocculent matter, which had been held in solution by the alkali, with which the acid combines. Then an effervescence takes place from the decomposition of the alkaline carbonate formed after and during the fusion, and at the same time the precipitate is redissolved. The portion of matter also not dissolved by the water, and which had remained at the bottom in the form of a powder, is dissolved; this not being attended with any effervescence, if it be alumina or flex; but if it contains lime, an effervescence takes place. If the muriatic solution be colourless, we may conclude that it contains very little or no metallic oxyd. If its colour be purplish-red, it is a further proof that manganese is present; orange-red indicates iron; and golden-yellow, chrome.

This solution is now to be evaporated to dryness upon a sand-bath, in a flat porcelain vessel loosely covered with paper. Towards the end of the operation, the fluid becomes gelatinous, and requires to be constantly flinned with a filer or porcelain rod, to facilitate the difgagement of the water and acid, and to render the exccusion uniform throughout the whole. If this precaution be not observed, there is a risk of a portion of the alumina, from which the acid has been expelled, remaining with the flex; and with the alumina of a portion of flex being retained in solution; by the acid on account of its not being sufficiently disfipated.

When the matter is almost reduced to the form of a dry powder, a large quantity of distilled water is to be poured upon it; the whole is then to be gently heated, and thrown upon a filter. The powder remaining on the filter is to be washed with water, until the last portions added give no precipitate with solution of filter. This powder is flex. It is to be carefully dried between folds of blotting paper, exposed afterwards to a red heat, and weighed while warm. It ought to be a fine white powder, insoluble in acids. If it be coloured, the presence of a metallic oxyd is indicated, which is a proof that the heat towards the end of the evaporation had been raised too high. To remove this oxyd, the powder is to be boiled with an acid, and afterwards washed and dried, and the liquor must be added to the filtered fluid above-mentioned.

The solution is then to be evaporated till its quantity does not exceed an English pint. A solution of carbonate of potash is to be poured in, till no farther precipitation takes place; and in order to render the separation more complete, the whole should be boiled for a few minutes. When all the precipitate has collected at the bottom, the supernatant liquor is to be decanted off; and water being substituted in its place, the precipitate and water are to be thrown upon a filter. When the water has paffed through, the filtr with the precipitate upon it is to be placed upon some folds of bibulous paper; and when the precipitate has acquired a little confluence, it is to be carefully collected with an ivory knife, and mixed with a solution of pure potash, and boiled in a porcelain crucible. If any alumina or gluten be present, they will be dissolved in the potash, while the other substances remain untouched in the form of a powder.

The solution of alumina in the potash is to be super-fatted with an acid, that is, so much acid is to be added as is sufficient to redissolve any precipitate that may be formed. Carbonate of ammonia is then to be added in excess, so as to be susceptible to the smell. This will precipitate completely the alumina, if any be present, while the gluten will remain in solution. The alumina is to be collected on a filter, washed with distilled water, and then dried at a red heat, and weighed. To determine if it be really alumina, disolve it in fulphuric acid, and add a sufficient quantity of sulphate or acetate of potash; if it be alumina, the whole of it will be converted into crystals of alum. If gluten be present in the remaining liquor, it will fall down on boiling it for some time, so as to dilate the excess of ammonia. After being washed and dried as before, it is to be accurately weighed.

The matter remaining undissolved by the solution of potash above-mentioned may confit of lime, magnesia, yttria, and the metallic oxyds. If yttria be unfiected, add carbonate of ammonia, which will dissolve the yttria, and leave the other bodies. Then let the whole be dissolved in dilute sulphuric acid, and the solution be afterwards evaporated to dryness, so as to dilate any excess of acid. A little water is to be added to the solid residuum, which will take up the metallic sulphates and the sulphate of magnesium, but leave the sulphate of lime, which is to be dried at a red heat, and weighed; and from its weight the quantity of lime present may be readily estimated. The substances retained in solution by the sulphuric acid may be magnesia and the oxyds of iron, magnesium, chrome, and nickel. To separate these, the solution is to be diluted with a large quantity of water, a slight excess of acid added to it; and then a solution of carbonate of potash faturated with carbonic acid is to be poured in. The oxyds of iron, chrome, and nickel, will be precipitated, while the magnesia and manganee will remain in solution with the carbonic acid. To separate these, hydro-sulphuret of potash well faturated with sulphuretted hydrogen is to be added to the solution, which will precipitate the manganee in the state of hydro-sulphuret, while the magnesia will still remain in solution. The magnesia may then be separated by a solution of pure potash, and its weight estimated after it is washed and dried at a red heat. To obtain the weight of the oxyd of magnesia, its precipitate must be calcined with the admission of air to expel the sulphuretted hydrogen.

There still remain to be separated the oxyds of chrome, iron, and nickel. To do this, the precipitate is boiled in successive portions of nitric acid, to bring the oxyd of chrome to the state of acid. It is then heated for a few seconds with potash, and after being heated the liquid is poured off. The undissolved matters are to be washed with water, which washings are to be added to the other liquid. The chromic acid remains in solution combined with the potash; muriatic acid is added to it, so as to be in excess; it is then evaporated until it assumes a green colour. If pure potash be then added, the oxyd will be precipitated, and it may thus be collected, and its quantity ascertained.

The undissolved matter of the preceding experiment may confit of the oxyds of iron and nickel. To separate them,
they are dissolved in muriatic acid, and ammonia is added in excess. The *oxid* of iron will be thus precipitated, and its weight may be ascertained. The excess of ammonia will retain the *oxid* of nickel in solution, which may be readily obtained separately by driving off the ammonia by heat.

When the different constituent principles of a fossil have been thus obtained separately, their united weight ought of course to be equal to the original weight of the fossil itself. If they correspond, or differ only by .23 or .24 of a part, we may conclude that the analysis has been properly performed. But if the loss of weight be considerable, the analysis must be repeated; and if the result be still the same, it may be concluded that the flone has contained some principle either volatile or soluble in water, which, until, therefore, be sought for. A proportion of the flone being broken to pieces, is first to be exposed to a strong heat in a retort of porcelain, to which a receiver is adapted. If it contains water, or any other volatile substance, this will be collected in the receiver, and its nature and quantity may be ascertained. But if it sustain no loss by this operation, or a loss not equivalent to the loss indicated by the analysis, it is probable that it contains some substance soluble in water.

To ascerten the quantity of *potal* present in a mineral, Vaquelin (from whom the above account of the analysis of flony bodies has been chiefly extracted) recommends that the flone reduced to an impalpable powder should be cautiously heated with sulphuric acid, andthe mass digested with water. The solution properly concentrated is set aside for some days. If crystals of alum make their appearance, the flone contains *potal*. If no crystals appear, the solution is to be evaporated to dryness, and the residue exposed to a moderate red heat. It is then to be digested in water, and the solution mixed with carbonate of ammonia, and filtered. It must be then again evaporated to dryness, the residue exposed to a heat of 700°, and redissolved. The solution by proper concentration will yield crystals, either of sulphate of soda or of potal, which may be readily distinguished. The preference or absence of potal may be also ascertained by means of the muriate of platin.

The following method has been recommended by Rofe for detecting and distinguishing the fixed alkalies in minerals, and is easier than the above. He fused one part of the mineral with four parts of nitrate of barytes in a porcelain crucible. A spongy mass of a light blue colour, and completely soluble in muriatic acid, was obtained. The yellow-coloured solution formed was mixed with a sufficient quantity of sulphuric acid, not only to precipitate the barytes, but to expel the muriatic acid; and the liquid was evaporated to dryness. The mass was digested in water, and thrown upon a filter. The sulphate of barytes and silica remained behind. The solution was now saturated with carbonate of ammonia, which separated all the earthy and metallic bodies, leaving in the solution only the sulphates of fixed alkali and ammonia, the latter of which was then expelled by heat. The fixed alkaline sulphate thus obtained was redissolved in water, and decomposed by means of the acetate of barytes. The sulphate of barytes formed was then separated by the filter, and the liquid evaporated to dryness. The other salt was acetate of a fixed alkali, which was exposed to a red heat in a crucible, the charred residue dissolved in water, filtered, and crystallized; and thus a fixed alkaline carbonate was obtained, easily distinguished by its properties.

Sir H. Davy adopted still a different method. He fused one part of the mineral with two parts of boracic acid, dissolved the fused mass in diluted nitric acid, and concentrated the solution to separate the silica. The liquid was then mixed with carbonate of ammonia in excess, and boiled and filtered; by which means all the earthy and metallic ingredients were separated. The liquid was then mixed with a sufficient quantity of nitric acid, and evaporated till the whole of the boracic acid separated. Nothing now remained but the nitric acid, combined with the alkaline constituents of the mineral, and with ammonia. The nitrate of ammonia was distilled by heat, and the nature of the alkaline nitrate left was easily distinguished by its properties.

When the mineral contains *fluoric* acid, Klaproth ascertained its presence by heating the mineral with sulphuric acid in a glass retort. The corrosion of the retort, and the siliceous deposit in the water of the receiver, sufficiently demonstrate the presence of that principle. To determine its quantity, the mineral was fused with potash, and the silica separated as usual. The remaining liquid was precipitated by means of the carbonate of potash; and the liquid being neutralized was mixed with lime-water. The precipitate of fluote of lime thus obtained was heated to redness, and from its weight the quantity of fluoric acid present in the mineral was estimated.

Those fossils in which earths are combined with acids, forming compounds not soluble in water, require different modes of analysis. The earthy carbonates are analysed by calcination by heat, with or without charcoal, or by solution in dilute nitric or muriatic acid; estimating the quantity of carbonic acid diffused, by collecting it, and discovering the base by the nature of the salt obtained by evaporation; or by precipitation by re-agents, and estimating by the same modes their quantities. Earthy sulphates may be decomposed by boiling with carbonate of potash for a considerable time; the sulphuric acid unites with the potash, and its quantity may be estimated by precipitating with barytes: the carbonic acid is attracted by the earthy base, and the carbonate thus obtained may be decomposed in the same manner as a native carbonate, or the quantity of earth which it contains may be estimated by its weight. Phosphate of lime, which is the only earthy phosphate that has been discovered, may be diffused in dilute nitric acid by the afflattance of heat; the lime may be then precipitated by sulphuric or oxalate acid; the phosiphoric acid remaining in solution may be obtained concrete by evaporation; or its quantity may be estimated by combining it with lead, a solution of acetate of lead being added for the purpose.

*Analysis of Orses.*—Metallic minerals, in general, admit more easily of analysis in the humid way than the earthy fossils, from their being less hard. In the dry way also, their composition may be sometimes ascertained by expelling the mineralizing substance by heat, and reducing the metal to its metallic state.

Proper specimens of the ore, free from all foreign matters, should be chosen; and if the object be to ascertain the quantity of metal it may contain, different specimens taken from different parts of the metallic vein should be examined, as it often happens that different parts of the same vein vary much in richness. The ore being powdered, the general process, in the dry way, consists in calcining it at a low red heat in an earthen vessel loosely covered, to expel the sulphur or other volatile matter. Or this operation may be performed in an earthen retort and receiver, when the object is to ascerten the nature and quantity of the fulmination expelled. The residual matter in either case being weighed, to ascertain the loss of weight it has suffered, is mixed with three times its weight of black flux, and exposed in a crucible, to a heat sufficiently intense for its reduction and fusion. Sometimes borax, pounded glass, or lime, are used
as fluxes. The metallic matter, when the operation is well conducted, is collected in a button at the bottom of the crucible, and its nature and composition may be ascertained in the humid way in the usual manner by means of the proper reagents, &c.

In submitting an ore to analysis in the humid way, the general process is to digest it previously reduced to powder in different acids. Sulphur, if present, is precipitated, or is sometimes partially converted into sulphuric acid. If the quantity of sulphur be large, it is best previously separated as much as possible by roasting the ore as above. The residual matter is then submitted to the action of the different acids, these being often applied successively; so that different metals, if present, are separated by their proper solvents. The solutions afford by evaporation the metallic salts they contain, or each metal is detected in the solution by its proper test: it is also precipitated by the alkalis and other reagents, and the precipitate is reduced to the metallic state, as before, by the aid of fluxes and heat; or sometimes it may be thrown down at once in the metallic state, by another metal having a stronger attraction for oxygen.

There are almost all the general rules that the analyses of ores will admit of, as the processes required for different ores differ extremely from one another, and are often very complicated. We refer our readers, therefore, for the analysis of particular earthly fossils and ores, to the different articles in the Cyclopædia, where they are described.

Analysis of organized Bodies, including vegetable and animal Substances.—The older chemists attempted the analysis of organic compounds by distillation, and thus obtained a variety of refining substances equally or perhaps more complicated in their nature than the original substance to be analyzed. When the theory of chemistry was changed by Lavoisier, that illusory chemist began to consider the composition of organic substances in a proper point of view, and he endeavored to discover the elements of these bodies, and to determine their proportions. He discovered the nature of their elements, though he was not so successful in determining their properties. Lavoisier's principle of analysis was to oxidize organic bodies till he converted them into binary oxides, the composition of which was known, and to perform the experiment in such a manner, that the quantity of these binary compounds with oxygen could be correctly determined. His mode of operating was to burn organic substances in oxygen gas; but this method, though jütt in principle, did not enable him to determine by the balance with much accuracy, either the quantity of water or of carbonic acid formed by the combustion; so that his results could be only considered as approximations.

Some chemists, after Lavoisier, endeavored to determine the exact quantity of the products of dry distillation, and to calculate from them the composition of the body. Such was the attempt of Fourcroy and Vaquelin on the composition of urea, and of Dr. Higgins on the acetic acid. But the composition, and probably also the quantity of the products of distillation, being only imperfectly known, it is obvious that such experiments, however exact, can only afford data for calculations hereafter, when the products of the distillation become to be better examined and more accurately known. Theodore de Saussure has analyzed alcohol and ether in Lavoisier's manner, and the results he obtained probably approach nearer the truth than any preceding analysis of a ternary compound. Thenard has also analyzed different species of ether in the same manner.

The first grand step, however, towards proportion in the analysis of organic substances, was made by Gay Lussac and Thenard. These celebrated chemists, in an interesting memoir on the subject, after pointing out the difficulties and sources of inaccuracy of the methods then generally employed, gave a description of a new method of proceeding, by which they considered they were able to combine the hydrogen and carbon with the utmost quantity of oxygen with which they can unite; and thus, by proper data, to eliminate the proportion of their constituent parts, and of oxygen existing in the compound analyzed. The substance selected to furnish oxygen was the oxymuriate of potash, and the matter to be analyzed was mixed with this salt, and deflagrated in an apparatus contrived for the purpose, consisting of a thick glass tube, A, (Plate XXI. fig. 3; Chemistry,) set vertically in a fire, with a lateral tube, B, to conduct the gases produced to a mercurial apparatus; and a cock, C, above, the flopper of which was not perforated, but contained a depression, D, into which a portion of the material to be analyzed was introduced; and by turning the cock downwards, this portion fell into the tube, and was there deflagrated. E is a vessel containing ice, to keep the upper part of the tube cool. The proportion of the oxymuriate requisite to burn completely the substance analyzed was ascertained by previous trials in an open crucible; so much of the salt being required, that the residue after deflagration should be white, or at least not carbonaceous; and in the actual experiment a considerable excess of the oxymuriate was employed. The materials were then completely dried, by submitting them for a considerable time to a temperature of 213°, and afterwards accurately weighed and mixed in a mortar, with a little water, so as to form an adhesive mass, which was divided by being thrust into a brass mould, and the pieces shaped by the fingers into little balls, that they might drop clean from the flopper of the cock down into the deflagrating tube. These balls were dried again at the same temperature before they were thus burnt.

The oxymuriate of potash was itself analyzed before it was used; and in order to insure uniformity in its composition, a considerable quantity of it was fused and pulverized, and kept for use. If the substance to be analyzed was a vegetable acid, it was combined with lime or barytes before it was mixed with the salt; and this calceous or barytic salt was separately analyzed, and the carbonic acid remaining united with the earth after deflagration was properly estimated. The earthy or other incombustible matter belonging to the substance to be examined was also separately estimated, by calcining this substance by itself in a platinum vessel, and lixiviating the residue.

The authors, in their memoir, have given at length all the precautions required in the management of the apparatus, both in preparing for the deflagration, and in the estimation of the gases obtained; and after the operation the results of the analysis were made out in the following manner: "The proportion of combustible matter in the substance examined was previously found by calcination of another portion of the same; the actual quantity of oxygen employed in the deflagration was known by that of the oxymuriate used; the carbonic acid was absorbed by potash, and its carbon estimated; the excess of oxygen was found by subsequent detonation with hydrogen; the hydrogen of the sub stance was preheated to form water with all the oxygen unaccounted for; and the azote existed in the residual azotic gas."
AN ARTIFICIAL principle of Berzelius’s method is the same as that of Gay Lussac and Thenard, viz., the complete combustion of the substance to be analyzed with the oxymuriate of potash; but the apparatus he employed was very different, and certainly much better adapted for the purpose. It consisted of a glass tube, between one-half and five-eighths of an inch in diameter, and of a length sufficient to contain the mixture of the salt and substance to be analyzed. This tube was hermetically sealed at one end, and at the other of the shape represented at A 1, (Plate XXI. fig. 4. Chemical,) in order to facilitate the introduction of the mixture. When the mixture was introduced, this end was drawn into the shape A 2, in order to adapt its introduction into the small receiver B. C is a tube about twenty inches long, and a quarter of an inch in diameter, filled with dry muriate of lime in a rate of coarse powder; from one extremity of this, a bent tube D was connected with a small mercurial gasometer E; in this was introduced a small globular glass vessel, F, containing caustic potash, with the view of absorbing the carbonic acid. All the joints in this apparatus were made by small caoutchouc tubes, prepared by cutting thin pieces of that substance into the requisite shape, and prepping the newly cut edges together, which unite readily. The tube exposed to the fire was surrounded by a thin piece of tin plate, secured by wire to prevent its bursting. The apparatus was so managed, that by shifting the piece C the whole length of the tube could be heated in succession by the fire H, and thus the flow and uniform combustion of the whole substance be ensured. The other parts of the apparatus will be readily understood from inspection of the figures. At the end of the operation, the greater part of the water formed was found collected in the small receiver B; the remainder of course was found in the tube C, absorbed by the muriate of lime; and by subtracting the known weights previously ascertained of these portions of the apparatus, from their weights after the experiment was concluded, the quantity of water was accurately determined. The greater portion of the carbonic acid was attached to the potash in the vessel F, and its quantity ascertained by weight. The minute portion adhering to the foda derived from the oxymuriate of soda was ascertained as nearly as possible by estimation. The substances analyzed were all carefully dried at 212° in a vacuum with sulphuric acid, and were generally combined with oxalate of lead. The quantity burnt was from five to eight grains of the substance with thirty or forty grains of the oxymuriate of potash. For further particulars we refer our readers to Thomson’s Annals of Philosophy, vols. iv. and v.

Berzelius was induced to adopt the use of the oxymuriate of potash from the recommendation of Gay Lussac and Thenard. Before that time he had employed the brown oxalate of lead.

In the analysis of animal substances, and all compounds into which azote enters, the use of the oxymuriate of potash is very troublesome, and liable to great objections from the uncertain rate of oxidation of the azote. It became, therefore, an object of the first importance to replies a substance that would oxidize hydrogen and carbon, but not azote; such a substance has been happily lately pointed out by Gay Lussac. This is the black oxalate of copper, which, at a low heat, freely amounting to reds, parts readily with its oxygen to hydrogen and carbon, but not to azote. Berard, Dr. Prout, and others, have taken advantage of this in their recent analyses of several animal substances, as will be mentioned under their proper heads. The apparatus employed by Dr. Prout closely resembles that of Berzelius described above, but is more simple.

Dr. Prout in general prefers making separate experiments for ascertaining the gaseous and aqueous products, for the former of which he uses a simple tube only; for the latter, a tube with a small ball, analogous to the receiver of Berzelius, connected with a tube filled with dry muriate of lime. See for further particulars Medico-Chirurgical Transactions, vol. viii.

ANALYSIS OF SOILS. See Soils.

ANALYSIS OF MINERAL WATERS. See Water.

ANAMENIA, in Botany, a name corrupted by Ventenat, Jard. de la Malmaison, t. 22, from the Arabian appellation of some flowers of the family of Adonis and Anemone, Anabanan, to which the present genus is related. See Knolltona.

ANARHICHAS. 1. 6. The species of this genus enumerated by Gmelin are, Lupus, Minor, Pantherinus, and Strigosus.

LUPUS; shark, or wolf-fish. (See Lupus Marinus.)

This fish commonly frequents the deep parts of the sea, but in spring-time approaches the coasts, in order to deposit its spawn among the marine plants, &c. It is taken both in nets and by the line; and though the flesh is tolerable, its disgusting appearance prevents its being much used as food, except by the fishermen. The Greenlanders, however, eat it, both fresh and dried, and make convenient patches of the skin, in which they keep various kinds of utensils.

Minor. Cinerous, black, with sharper cartilaginous teeth; found near Greenland.

STRIGOSUS, with transverse dusky bands, racemose and somewhat less regular than usual; supposed by Dr. Shaw to be merely a variety; found in the British ocean.

PANTHERINUS; Panther wolf-fish, marked over the whole body with round brown spots. This is allied to the first species, but differs much in colour, being of a deep yellow, variegated with numerous, round, deep-brown or blackish spots of different sizes, the largest being on the back, upper part of the sides, and dorsal fin; its length is about three feet or more. A native of the Northern seas.


The root is perennial. Stems compressed, simple, sometimes branched in a proliferous manner; when simple they are without joints, and without sheaths, having at the base vertical, equitant, two-ranked leaves. Spike terminal, composed, each branch subtended by a sheathing deciduous bract; sometimes they are simple, or the flowers are solitary. The calyxes in some species form a kind of catkin, scarcely buding. The structure of the flowers and fruct comes nearest to Elginia, but the want of sheaths upon the flower, and the equitant vertical leaves, make a wide difference. This genus agrees with Lynisia, (see that article,) in having twin anthers, but differs altogether in habit.

1. A. fiabra. Rough-edged Anarthria.—Stems perfectly simple, flat, rough-edged as well as the leaves. Petals of the male flower: of the female the three innermost are smallest. Found by Mr. Brown on the north coast of New Holland.

2. A. levii. Smooth-edged Anarthria.—Stems perfectly simple, flatish, smooth-edged as well as the leaves. Petals of
of the male elliptic-lanceolate; of the female all nearly equal.—From the same country.


4. A. parvifolia. Slender-clustered Anarthria.—Stems simple, thread-shaped, comprefed, nearly resembling the folitary leaf, and likewise smooth. Clutter look, of few flowers. Flower-talks in pairs, unequal, shorter than the flowering bractea.—The male plant only was gathered by Mr. Brown, on the southern coast of New Holland.

5. A. prolifera. Proliferous Anarthria.—Stems branched in a proliferous manner, two-edged, leafy. Flowers either folitary or somewhat spiked.—Found in the same part of New Holland as all the preceding. Brown.

ANATOMY. For Ann. r. Anna.

ANATOMY, Plantsfig., col. 4, l. 15, for head r. face.

ANCHOR, in Architecture, &c. l. 1.3, for Tuscan r. Doric.

ANDALUSITE, 1. 2, dele or granifio; l. 5, r. or rather granifio.

ANDERSONIA, in Botany, received that denomination from the pen of Mr. Brown, in honour of three different botanists of the name of Anderson. First, Mr. William Anderson, surgeon in the navy, the companion of captain Cook in two separate voyages, during the latter of which he died. Although most devoted to the study of man, and of the animal kingdom, in those new and remote regions which was his lot to visit, he did not overlook the vegetable world. Several of his manuscript descriptions exist in the Bankfian library, where characters of some new genera, since published under other names, are to be found. The genus in question also serves to commemorate Mr. Alexander Anderson, curator of the botanic garden at St. Vincent's, so important, in a national point of view, as a nursery for tropical plants, and for their interchange between our several colonies. Thirdly, this genus is well merited by a most affiduous and observing cultivator and botanist, Mr. William Anderson, F.L.S., now superintendent of the Apothecaries' celebrated garden at Chelsea. Let the writer of this be allowed to subjoin to Mr. Brown's list of these botanical worthies, the name of his lamented friend Mr. George Anderson, F.L.S., whose early death, owing to a melancholy accident, January 10th, 1817, is a real loss to science. No one had paid more attention to the cultivation and distinction of the different kinds of British Salices, or the beautiful exotic tribe of Pannia; on which last subject a paper in the Linnean Society's Transt. v. 12. 283, published under the care of his able friend Mr. Sabine, will always evince Mr. George Anderson's just claim to botanical commemoration.—Brown Procr. Nov. Holl. v. 1. 553. Dryand. in Ait. Hort. Kew. v. 1. 321.—Clas. and order, Pentandria Monogyonia. Nat. Ord. Erics. Jull. Epacridaceae, Brown.

Gen. Ch. Cal. Perianth inferior, of one leaf, chaffy, coloured, in five deep-equal, lanceolate segments, erect after flowering, permanent, accompanied at the base by two, or more, imbricated. scales. Cor. of one petal, wheel-shaped, in five very deep, linear-lanceolate, equal segments, nearly as long as the calyx, each of them bearded at the base. Nectary of five scales, below the germen, sometimes combined. Stam. Filaments five, inserted into the receptacle, linear, hairy, shorter than the corolla; anthers vertical, oblong, dirty. Fig. Germen superior, roundish; style simple, cylindrical, about as long as the ramus; stigma obtuse, crenate. Peric. Capule oblong, with five furrows, five valves, and five cells, the partitions longitudinal, from the centre of each valve. Seeds several, small, erect, inserted into the angles of the short central column.

Eff. Calyx in five deep segments, permanent, coloured, with two or more imbricated scales at the base. Corolla wheel-shaped, the length of the calyx; segments bearded at the base. Stamens inserted into the receptacle. Anthers unconnected. Nectary of five scales at the base of the germen. Capule of five valves and five cells, the partitions from the middle of each valve.

This genus consists of small shrubs, with squarrose, half-heathing leaves, no annular scars remaining on the demurred branches. Flowers terminal, either spiked or folitary, erect. Receptacles from the bottom of the capsule, short. Seeds but few brought to maturity. Brown.

In habit, as well as in the general structure of the fructification, nothing can be more absolutely like our Sprengelia (see that article); insomuch that no perfon could, at first sight, form any idea of a difference between the two genera. (See also Ponceletia.). The presence of scales at the base of the calyx, so unlike it as to be more properly termed, with Mr. Brown, bractea; but in that cafe not entitled to enter into the generic character; the five nectarioferous scales, wanting in Sprengelia; and the bearded base of the segments of the corolla; these are the distinctive marks of Andersonia. Similar differences serve to subdivide the original genera of Epacris and Styrphelia (see those articles); but, as it seems to us, the genera thence derived are better defined, and accompanied with some distinctions in habit. In the present infirnace, with the greatest deference to the acute and learned author of Andersonia, we should be inclined to reduce to one genus, under one effential character, plants so strikingly alike, and so different from all others. Genus dabht charaterem. One thing is certain, that we are in no danger of being suspected of wishing, by this means, to get rid of the name Andersonia, though Sprengelia, having been long previously established, must be preferred to it. Its character indeed must be reform'd, because we were originally acquainted with but one species, the only one, it seems, whose authors are connected. Such is the case with some species of Gentiana, but not with all. The following are Mr. Brown's fix species of Andersonia, ranged in two fections.

Sect. 1. Flowers with two scales, fringed.

1. A. sprengeloides. Spreading-leaved Andersonia. Br. n. 1. Ait. n. 1.—Leaves spreading; with a flat point. Flowers fringed.—Found by Mr. Menzies, at King George's found, on the south-west coast of New Holland. Sent to Kew, by Mr. Good, in 1803. It is said to flower most part of the year, being treated as a green-house plant. We received specimens from Meffrs. Lee and Kennedy's greenhouse in 1814, but this little shrub is far from being generally cultivated, nor has it yet been figured. The flm is a foot or more in height, determinately branched, round, rigid, smooth, all the branches covered with numerous, rigid, glaucous, fleshy, smooth, ovate, fipinous-pointed, entire leaves; roughish at the edges; clasping the stem at their base; each about a quarter of an inch long, permanent. Flowers pale rose-coloured, scileftes, in dense, short, leafy, terminal, upright spikes, not separately scalped, or racemofe, as in Sprengelia incarnata, but otherwise very remarkably resembling, in fize and colour, the elegant blossoms of that plant.

2. A. parvifolia. Small-leaved Andersonia. Br. n. 2.—"Leaves close-preffed; with a triangular point."—Discovered by Mr. Brown, on the southern coast of New Holland. We have not seen this species. The fipinous point of each
each leaf is somewhat triangular in the former, though with an obtuse keel.

Sec. 2. Flowers with many scales, solitary at the ends of small branches.

3. A. cerulea. Blue Anderonia. Br. n. 3.—“Leaves moderately spreading; the young ones, as well as the calyx, externally downy.”—Found by Mr. Brown, in the same part of New Holland as the last.

4. A. squarrosa. Squarrose Anderonia. Br. n. 4.—“Leaves prominent, divaricated and recurved, smooth; naked at the edges. Calyx and style smooth. Stem erect.” —Native of the same country, where it was gathered by Mr. Brown. We have not seen this, nor either of the two preceding.

5. A. depressa. Procumbent Anderonia. Br. n. 5.—“Leaves prominent, divaricated, twirled and recurved, downy; fringed at the edges. Calyx smooth. Style hairy in the middle. Stem depressed.”—Gathered at King George’s found, on the south-west coast of New Holland, by Mr. Archibald Menzies, to whom we are obliged for specimens. Mr. Brown also met with this species in the same country. The root is long and tapering. Stem hardly a fife long, much branched, for the most part in an alternate manner, thickly covered with imbricated, spreading, rigid, minutely pungent, lanceolate, variously twisted and projecting leaves; smooth and somewhat glaucous on both sides; dilated at the lower part, where especially the edges are fringed. Flowers larger than in the first species, sessile at the ends of the little lateral leafy branches, solitary, apparently flesh-coloured. Corolla densely clothed internally with long white hairs. Style just perceptibly hairy about the middle.

6. A. microntha. Small-flowered Anderonia. Br. n. 6.—“Leaves close-preffed. Style downy below the middle.” —Found in the same part of New Holland as the last, by Mr. Brown. We have seen no specimen.

ANDERTON, in Geography, a township of Ohio, in the county of Hamilton, having 1358 inhabitants.—Also, a township of East Tennessee, having 3959 inhabitants, of whom 200 are slaves.

ANDOVER, 2d article, l. 3, r. 3164; 3d article, l. 2, r. 1259; 4th article, l. 3, r. 977.

ANDOVER, East, a township of Maine, in the county of Oxford, having 264 inhabitants.

ANDRÆA, in Botany, a very curious and distinct genus of Mosses, is thus named by Ehrhart, in honour of his friend John Gerhard Reinhard Andræe. (See that article.) This genus was intended to have been entered by its author into the Supplementum of Linæus, with the printing of which he was entrusted. (See LINÆUS, or VON LINNE, CHARLES.) Such was the cafe with many others, belonging to the same natural order, and now well-established, though the younger Linneus then forbad their admission into his book. Ehrhart called it Andræa, but the above orthography is justified by many familiar examples among learned botanists.—Ehrh. Hann. Mag. for 1778, 1601: Biebrage v. i. 15 and 180. Hedew. Sp. Mufc. 47. Turn. Mufc. Hib. 13. Sm. Fl. Brit. 117. Comp. ed. 3. 153. Hooker Tr. of Linn. Soc. v. 10. 381. Mufc. Brit. 1. t. 11. —Clas and order, Cryptogamia Mufci. Nat. Ord. Mufci.

Gen. Ch. Male, terminal, bud-like. Anh. three to seven, nearly cylindrical, somewhat flattened, interspersed with numerous, jointed, fuscous threads, swelling upwards, taller than themselves.

Female, terminal, sessile. Sheep of several imbricated concave scales, shorter than the fruit-flask, which is cylindrical, scarcely longer than the capfule, tumid at its base. Peric.

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Capsule on a turbinate fleshy base, ovate or cylindrical, somewhat quadrangular, of four equal oblong valves, separating longitudinally, cohering at their points, under the permanent lid: column cylindrical, about as long as the valves: lid minute, conical, permanent, confining the points of the valves. Veli membranous, pellucid, bell-shaped, torn irregularly from its base, and finally turned to one side, crowned with the flithly prominent style. Seeds minute, spherical, brown.

Eff. Ch. Capsule of four valves, cohering at the summit, crowned by the permanent lid. Veil irregularly torn.

Ehrhart first removed this genus from Jungermannia, with which it had been confounded, and properly referred it to the order of Mufci. But he mislooked, as he well might, the valves of the capsule for its fringes or teeth; an error first corrected by Mr. W. Hooker, who, in the Trans. of the Linn. Soc., has first given a just and clear view of the subject. In his Mucologia Britannica the famous author remarks, that the supposed fruit-flask, as he himself had heretofore called it, is merely an elongated receptacle, bearing some abortive petals. This is certainly true, but we conceive it neverthelefs to be analogous to the more extended fruit-flask of the generality of Mosses, truly wanting in Sphagnum. All the known species of Andræa are British, and amount to four.


2. A. rupestris. Dusky Rock Anderonia. Hedew. Sp. Mufc. 47. t. 7. f. 2. Engbl. Bot. t. 1277. Hook. Tr. of Linn. Soc. v. 10. 391. t. 31. f. 2. Mufc. Brit. n. 2. t. 8. (Jungermannia rupestris; Linn. Sp. Pl. 1601, excluding the synonym of Dillenius.)—Stems branched. Leaves ovate, taper-pointed, rilhefs; upper ones falcate. —On rocky mountains throughout Great Britain. Hooker. Smaller and greener than the former, with which it agrees in the want of a mid-rib; but differs from it in the tapering, more or less curved, leaves. All botanists confounded this species with the following, till Dr. Roth distinguished them chiefly by the presence of the mid-rib in that species.


—This, according to Mr. Hooker, is common on alpine rocks. We have often gathered it in dry exposed situations, in Weftmoreland, as well as Scotland, where it composes little dense tufts, of a very dark or blackfih hue. The fame
is also found in Germany, and doubtless in other mountainous parts of Europe. Like both the foregoing, it bears cap-
flues in the spring and summer. The presence of a strong rib in the leaves clearly distinguishes it from those species, though the paler, blunt, and more oblong, scales of the leaf have no rib. The stem, generally almost simple, are occasionally much branched, as in Eng. Bot.

4. A. niveulus. Tall Slender Andrea. Hook. Tr. of Linn. Soc. v. 10. 395. t. 31. f. 4. Mucf. Brit. n. 4. t. 8. Eng. Bot. t. 2334. (not 2507.)—Stems branched. Leaves loosely imbricated, lanceolate, single-ribbed, curved towards one side. Scales of the leafh, similar.—Gathered by Mr. Hooker and Mr. Borrer, on rocks upon the highest summit of the Scottish mountain Ben Nevis, at the eastern end. It is, like all the reil, perennial, bearing capflues in summer.

This is by far the tallest Andrea known, being three inches high, or more, forming rather lax olive-brown tufts, tinged with a chocolate-colour, of which leaf hue are the capflues, whose subflance is strongly reticulated. The scales of the leaf, being of the same lanceolate figure, furnished with a mid-rib, as the leaves, clearly defines the species. Mr. Hooker has observed this moss on the granite rocks of the most elevated of the Swiss alps, retaining all the characters of the Scottish specimens.

ANDREW, Knights of, &c. l. 12. r. Favm; col. 2, l. 28, r. comm. Willow; l. 29, r. little for litter.

ANDROMACHA, l. 1. r. Zygena.

ANDRORNICUS II, PALEOLOGUS, in Biography, son of Michael Paleologus, succeeded to the Greek empire in 1283. He is characterized as learned and virtuous, but feeble in his conduct, and abjectly superstitious. His old age was embittered by blindness and neglect; and having assumed the name of Father Antony, he closed his unquiet life four years after his abdication, A.D. 1332, aged 74.

ANDRONICUS III, Paleologus, the younger, was the son of Michael, eldest son and colleague of the elder Andronicus. With his grandfather he was a favourite, on account of his wit and beauty; and he was thus led into habits of intemperance and debauchery, which involved him in difficulties and disgrace. Having compelled his grandfather to abdicate in 1328, he reigned alone, and contended against the Bulgarians and Turks, with the latter of whom he signed an ignominious treaty, relinquishing to them all the places which they had taken in Asia. At length, exhausted by his vices, he died in his 45th year, A.D. 1341. Gibbon.

ANDROPHYLAX, in Botany. See WENDLANDIA.

ANEILEMA, from am, without, and iene, an involu-

crum, this genus being separated by Mr. Brown, Prodr. Nov. Holl. v. 1. 270, from COMMLA, (see that article,) on account of the want of the large folded involu-
crum, or rather bractea, which in Commlina contains a considerable number of flowers; whereas in Anilema the inflorescence is scattered, somewhat panicked. The difference between the two resides therefore in this part of the plant, and not strictly in the fructification.

The known species of Commlina referred by Mr. Brown to Anilema are, vaginata, nudiflora, and spinata of Linnaeus, medica of Loureiro, Vahl Enum. v. 2. 175. n. 28; and gigantea of Vahl, n. 34, found by Mr. Brown, in the tropical part of New Holland. To these the author adds nine new species, found by himself, either in New South Wales, or the warmer parts of New Holland, one of them only being described from the collection made in the latter country by Sir Joseph Banks. Some have smooth filaments, others bearded ones. It is suspected that Pollia of Thunberg may not be genericly distinct from these; but the fruit in our specimen is evidently a berry, according to Thunberg's de-

scription, and remarkable, even after having been dried more than thirty years, for its bright blue colour. (See Pollia.) The habit and inflorescence are indeed, as Mr. Brown ob-

erves, similar to his Anilema. Whether Cartonema of this author be distinct, we do not presume to judge, having seen no specimen. In the regularity of its flowers, and the equality of their stamens, it differs from Commlina and Anilema, and agrees withTradescantia, but differs from the latter in several particulars pointed out by Mr. Brown, besides its spiky inflorescence.

ANEMIA, a genus of ferns, separated from Os-

munda, (see that article,) by Dr. Swartz, and thus named from anemos, naked, or not covered; because its capflues are distinet of all covering or involucrum whatever. — Swartz Syn. Fil. 155. Wild. Sp. Pl. v. 5. 89. — Art. Hort. Kew. v. 5. 498.—Clads and order, Cryptogamia Filices. Nat. Ord. Filices, lect. 2, spicr. gyrata.

Eff. Ch. Capflues somewhat turbinated, concentrically fruited at the top, burfting laterally, seflile on one side of a compound linear receptacle. Involucrum none.

The habit of this genus is different from Osmunda, and extremely remarkable, on account of its compound spikes, always perfectly distinct from the leafy part of the frond, and generally situated in pairs, on long flanks, on the common flalk at the base of that leafy part. Such at least is the case with the whole of the first section; in the second, the fruit-bearing flanks are radical and foliary. It is closely related to Botrychium, to be described hereafter; but that has globular capflues of two distinct valves, neither fruited nor annulated. Their receptacles, indeed, exactly agree; and the flax are so obscure in Anemia, that we are much inclined to unite it with Botrychium.

Secl. 1. Panicles of spikes in pairs, flaked, at the base of the leaf.


O. lanceolata et subtilissima ferrata; Plum. Fil. 133. t. 156.

O. racemifera, phyllitidis fohio vix crenata; Petiv. Fil. n. 163. t. 8. f. 15.)—Frond pinnate; leaflets ovato-lance-

olate, pointed, finely ferrated, smooth as well as the common flalk. — Native of South America and the West Indies. Brought from Brazil, by the late Sir George Leonard Staunton, in 1793. A very handsome fern, eighteen inches or two feet high, its tufted root producing several upright fronds. Each of these consists of a smooth, rather slender, straight common flalk, bearing at the top an upright simply pinnate leaf, of from four to eight pair of smooth, veiny, bluntly ferrated, somewhat flaked, leaflets, besides an odd one; their length from two to four inches. Close to the base of this pinnate leaf, on the upper side, or front, are stationed a pair of equal, long-flaked, triply pinnate spikes, of minute, pale, very numerous, capflues, ranged in double rows along one side of the linear compound flalk, or recepta-

cle, the common flalk of the whole being somewhat hairy. These compound spikes always rise a little above the point of the terminal leaflet.


O. hirifuta, lonchitidis folio; Plum. Fil. 134. t. 157.

O. specis geminisi; Petiv. Fil. n. 164. t. 14. f. 5. Lonchitis hirifuta florida; Plum. Amer. 18. t. 26.)—Frond pinnate; leaflets oblong-lanceolate, hairy, finely ferrated, and somewhat cut; very unequal at the base. Stalks all hairy.—Native of the West Indies. Smaller in every part than the last, being scarcely above a foot high; and distinguished also by the great dilatation of the upper side of each leaflet, at its base. The upper ones run into a sort of pinnatifid elongated point.
point. Both sides of the leaflets are hairy in our specimen, as Plummer describes them; though Willdenow and Swartz call them smooth. The denfe, twin, hairy, twice-compound spikes usually rise a little above the leaf.

3. A. edelnoed. Many-leaved Anemia. — Frond pinnate, longer than the spikes; leaflets numerous, parallel, oblong, obtuse, serrated, smooth; rectangular on their upper side at the base. — Brought from Brazil, by the late Sir George Leonard Staunton, from whom we received specimens in 1793. We cannot find any figure or description of this species, though a very remarkable one. The common stalk, in its naked part, is smooth. The leaflets are about forty pair, parallel and crowded; the lowestmost an inch and a quarter long, and opposite; upper ones gradually smaller and alternate; all together forming a linear-oblong frond, eighteen inches in length, with a slightly hairy common rib, which, by a hairy bud at the summit, seems as if it would take root there. Spikes lax, twice compound, measuring with their thirty hairy stalks, about two-thirds of the length of the leafy part. Their subdivisions are extremely narrow.

4. A. oblongifolia. Oblong-leaved Anemia. Swartz n. 3. Willd. n. 3. (Ofmunda oblongifolia; Cav. Ic. v. 6. 69. t. 592. f. 2.) — Frond pinnate; leaflets ovate, obtuse, dilated at the upper angle of their base, fringed. Stalks smooth. — Gathered by Louis Née at Panama. Several flalked fronds, hardly six inches high, sprin from the hairy crown of the tufted root; some of them barren. The leaflets of each are about ten pair, rather alternate than opposite, half an inch long, rounded at their extremity, as well as at the dilated angle. Both spikes rise much higher than the leafy part, on slender stalks, and appear to be rather denfe. We know this and the following from the work of Cavanilles only.

5. A. humilis. Dwarf Anemia. Swartz n. 4. Willd. n. 4. (Ofmunda humilis; Cav. Ic. v. 6. 69. t. 592. f. 3.) — Frond pinnate; leaflets ovate-wedge-shaped, abrupt; create at the extremity; hairy beneath. Common frond hairy. — Native of Tabago, an island on the Mexican coast, near Panama. Of more humble stature than the last, and further distinguished by the wedge-like shape of its leaflets, which are fewer, rather larger, create, and not fringed. The spikes are much smaller than in the foregoing, raised high upon slender smooth stalks.

6. A. filiformis. Slender Hoary Anemia. Swartz n. 5. Willd. n. 5. (Ofmunda filiformis; Lamarck Dict. v. 4. 652.) — Frond pinnate, downy and hoary; leaflets oblong-wedge-shaped, obtuse; jagged at the extremity. Common frond hairy. — Gathered in South America by Mr. John Frazer, who is reported to have communicated a specimen to Lamarck. We have never seen this plant. It is described as eight or nine inches high, beprinkled in every part with white or hoary hairs. Leaflets fiiriated very copiously and conspicuously beneath. Spikes slender, compound, on capillary stalks, rising high above the leaf. 

7. A. tenella. Delicate Anemia. Swartz n. 6. Willd. n. 6. (Ofmunda tenella; Cav. Ic. v. 6. 69. t. 592. f. 1.) — Frond pinnate; leaflets lanceolate, deeply pinnatifid, with linear-awn-shaped fringed segments. Common frond smooth. — Found by Louis Née, on the trunks of trees in Quito, especially on mount St. Antonio. A slender delicate fern, about five inches high, whose leaflets have many fine, acute, partly opposite, segments. The spikes are somewhat taller than the leaf.

8. A. hirtuta. Hairy Anemia. Swartz n. 7. Willd. n. 7. Ait. n. 1. (Ofmunda hirtuta; Linn. Sp. Pl. 1520. O. mollitirt hirtula, et profundè lacinata; Plum. Fil. 139. t. 162. O. spicis geminis villosa; Petiv. Fil. n. 165. t. 8. f. 16. Lunaria eliator, matricaria floio, spicæ duplici; Sloane Jam. v. 1. 71. t. 25. f. 6.) — Frond pinnate, hairy; leaflets deeply pinnatifid; segments tapering downwards; obtuse and jagged at the extremity. — Native of the West Indies, growing on rocks. About a foot high, hairy all over, except the spikes and their stalks. Several of the fronds are barren, which we presume is the case with most of the neighboring species. Each leaflet is about an inch and a half long, with many narrow-wedge-shaped, deep, frilled segments, hairy on both sides, and sharply notched. Each spike, near three inches long, is doubly pinnate, with flat close segments, broader than in most of the genus, and the capsule are represented by Plummer as marginal, and blackish, with much more intermediate space than usual on each segment. Willdenow adverts to this circumstance, and the hairiness of the common stalk, as indicating a specific difference from that figure. He is, however, the original authority for Anemia, or Ofmunda, hirtuta, and Petiver copies him; but Sloane's synonym must be referred to the new species, if such be established.

9. A. deltoidea. Triangular Anemia. Swartz n. 8. Willd. n. 8. (Ofmunda deltoidea; Cav. Ic. v. 6. 70. t. 593. f. 1.) — Frond triangular, pinnate; leaflets deeply pinnatifid, with rounded, create, crowded segments; glaucous above; hairy beneath. Common frond hairy at the upper part. — Found on rocks in the plain of Buenos Ayres, by Louis Née. A plant high, with broader and rounder segments of the leaflets than any of the foregoing. The divisions of the common receptacle of the spike also are broader, and more rounded, than usual, approaching to those in Plummer's plate of the last.

10. A. villosa. Shaggy Anemia. Willd. n. 9. — "Frond doubly pinnatifid, oblong, shaggy on both sides; segments roundish-ovate, obtuse, entire; the lower ones obliquely three-lobed. Common frond hairy." — Gathered by Humboldt and Bonpland in South America. Common frond fixes inches high, or more, roundish, clothed with short rusty wool. Frond three or four inches long, covered with rusty hairs; the upper segments roundish-ovate, very blunt, and entire; lower with two or threeflight lobes; common rib densely shaggy. Spikes triply compound, denfe, taller than the leaf, with hairy ribs and stalks. Apparently akin to the commonly, but the outline of the frond is oblong, not triangular, and the rib slait, not zigzag. Willdenow.

11. A. flexuosa. Zigzag Anemia. Swartz n. 9. Willd. n. 10. (Ofmunda flexuosa; Lamarck Dict. v. 4. 652.) — "Frond doubly pinnatifid, triangular, downy; segments oblong, obtuse, nearly entire; common rib zigzag. Common frond downy." — Supposed to be a native of Peru, but for this there is no direct authority. We have seen no specimen. Savigny in Lamarck describes this species as related, in many respects, to A. hirtuta, n. 8, but the principal leaflets are simply pinnatifid. The fronds are about a foot high, semi-cylindrical, channelled, besprinkled with rather rigid, tawny hairs. Fronds from five to seven inches long, with narrow, deeply pinnatifid, leaflets; their segments oval, or somewhat oblong, nearly opposite, very blunt, decurrent, ribbed, entire, or slightly notched; paler beneath.
The summit of each frond is obtuse, and sharply pinnatifid. Spikes triply and minutely compound, with linear short segments; their flanks hispid.

12. A. obtusifolia. Downy Anemia. Swartz n. 10. Willd. n. 11. (Osmunda obtusifolia; Lamarck Dict. v. 4. 652.)—Frond doubly pinnate, oblong, clothed with tawny down; leaflets crescent-shaped, entire; the lower ones bluntly pinnatifid. Common flake downy. —Found by Commerson at Buenos Ayres. A pretty species, seven or eight inches high, exalining the smell of myrrh, and covered all over with fine, long, cottony, tawny down. The common flake is rather stout, twice the length of the leafy part, which is about two inches broad. Spikes compound, on slender decurrent flanks. Savigny.

13. A. falcata. Tawny Branching Anemia. Swartz n. 11. Willd. n. 12. (Osmunda falcata; Cavan. Ic. v. 6. 70. t. 593. f. 2.)—Frond doubly pinnate, triangular, somewhat downy; leaflets elliptic-oblong, bluntly pinnatifid, or serrated. Spikelets partly whorled. All the flanks hairy. —Gathered by Louis Née, on the hill called Pan de Azucar, or the Sugar-loaf, thirty-two miles from Montef Video. Above a foot high, with very hairy flanks, and a broad frond, doubly pinnate throughout, except at the very top. Leaflets three-quarters of an inch long, and one-third as broad, uniform, somewhat decurrent. The spikelets seem to be simply compound, their branches horizontal, linear, deeply notched, many of them in whorls of three or four together; their common flanks and ribs hairy, leaving off one or three lateral branches, which we have seen in no other species.


B. Willd. (A. aplecnifolia; Swartz n. 10. Osmunda aplecnifolia; Savigny in Lamarck Dict. v. 4. 652.)—Frond doubly or triplo pinnate, triangular; leaflets obovate, sharply toothed at the end, partly notched, hairy, as well as their common rib. Common flake nearly smooth. Spikelets digitate.—Native of the West Indies, particularly of Hispaniola, in dry rocky or rocky places. Its large handsome frond, inflating, fracted, fronds bears considerable resemblance to our common Aplecnium Adiantum-nigrum, to which, and not to the real genus Adiantum, the specific name alludes. The naked flake is often a foot high; the length of the leafy part almost as much. The copious leaflets measure about half an inch, and are strongly fracted; convex above; paler, and rather mottled hairy, beneath; all their flanks hairy. Spikes somewhat panicled; their ultimate divisions radiating, or finger-like, linear, flat. Capsules of a light shining brown.

Sir Joseph Banks has favoured us with several specimens of a variety of this fern, gathered at Campechy by Houfünn, which differs chiefly in being not above a span high, with a leaf compound frond, and having sometimes, from the fame root, much narrower, almost linear, leaflets. The common flake are also rather more hairy, and the spikes more compact. It is nevertheless of evident variety, and probably the E of Willdenow, to the characters of which it answers.

Sec. 2. Panicles of spikes on radical flanks.

15. A. bipinnata. Great Radical Anemia. Swartz n. 14. Willd. n. 14. (Osmunda bipinnata; Linn. Sp. Pl. 1521. O. latis crenis incisa; Plum. Fil. 133. t. 155.)—Frond oblong, doubly pinnate; leaflets elliptical-oblong, acute, entire. Spikes on radical flanks, doubly pinnate; their ultimate segments densly crowded. —Gathered by Plumier in a dry rocky tract of land in Hispaniola. We find no good authority for its having ever been found elsewhere, nor by any other botanist. Linnaeus adopted this species entirely from Plumier, between whose figure and description there is a strange contrariety. The plate, drawn and engraved by himself, evidently exhibits the barren fronds as doubly pinnate, each of the numerous primary divisions being composed of a rather smaller number, (about thirty,) of oval or ovate, somewhat decurrent leaflets, except a few of the uppermost, which run into a terminal serrated point. His description says, "the tufted root bears seven or eight ribs, about a foot and a half long, garnished nearly throughout their whole length, with longish, narrow, pointed, yellowish-green leaves, but slightly frayed, and all cut into rather broad, and somewhat pointed notches." As the author is known to have lost many of his specimens, we can only suppose this description was made from too flight a view of his own drawing, without a re-examination of the plant, which he seems to have gathered but once. A few taller and more slender flanks, springing also from the root, and doubly pinnate in the first instance, bear innumerable cappules crowded into dense mafles, which we presume to be composed of narrow compound segments, like other species. At least the analogy of A. filiculofolia hereafter described justifies this supposition.

16. A. aurita. Auricled Radical Anemia. Swartz n. 15. Willd. n. 15. (Osmunda aurita; Swartz Ind. Occ. 1578.)—"Frond pinnate; upper leaflets simple, ovate, obtuse, finely toothed, unequally wedge-shaped at the base; lower ternate. Spikes compound, on radical flanks; spikelets digitate." —Found by Dr. Swartz, on the sides of lime-stone rocks, in the interior part of Jamaica. Roots creeping, slender. Common flake several, crowded, about a span high, slender, molt hairy and feaky at the base; downy and roughish upwards. Each bears an erect frond, six inches in length; doubly pinnate in its lower part, the leaflets small, roundish, the terminal ones larger and rhomboidal: the upper part is simply pinnate; leaflets oblong, oblique at the back, dilated on the upper edge, at the base, into an obtuse angle: all the leaflets are coriaceous, smooth and shining, slightly convex, stiwicked with radiating veins; finely crenate at the margin; more opaque beneath. Clusters, (or rather spikes,) compound, on radical flanks, close to, and resembling, those of the barren fronds; their branches compound, nearly opposite, spreading; their ultimate segments digitate, lanceolate, acute, bearing on the upper side roundish-ovate bivalve cappules, with concentric stinks on their apex, and interferred with minute scales or hairs. Swartz. By this description, the genus is put out of all doubt.

17. A. verticillata. Whorled Radical Anemia. Swartz n. 16. Willd. n. 16. (Osmunda verticillata; Linn. Sp. Pl. 1520. Plum. Fil. 137. t. 160. Petiv. Fil. n. 171. t. 12. f. 4.)—Frond three-branched, triplo pinnate; leaflets elliptic-oblong, acute, serrated; terminal ones lanceolate, pointed. Spikes in whorled branches, on radical flanks.—Gathered once only, in the forests of Hispaniola, by Plumier, nor does it appear that any other botanist has even seen this species, his work having been Linnaeus's sole authority. The genus, therefore, can only be presumed from analogy, but we think this analogy as fair as in any similar instance. The tufted root feeds up many barren fronds, which are supported by long rough flanks, and three-eleft in the first instance, then doubly pinnate; their common outline pentagonal, a foot in diameter; their leaflets usually
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near an inch long. The height of each frond, with its flalk, is about two feet. A few rather more slender flalks, from the root, bear each a long interrupted, winged, flake, with fix or eight drooping, obtuse, dense, blackish branches, in every whorl, above an inch long, or capillary flalks, but how they are subdivided we have no information. Plummer compares them to little black caterpillars.

18. A. filicifolia. Hemlock-leaved Radical Anemia. Swartz. n. 17, Willd. n. 17. (Osmunda filicifolia; Linn. Sp. Pl. 1521. O. filicule folio altera; Plum. Fil. t. 138. t. 161. O. cinete folio; Petiv. Fil. n. 170. t. 9. f. 3.)—Frond three-branched, pinnate, pinnatifid; segments wedge-shaped, decurrent; notched at the extremity. Spikes panicked, on radical flalks.—Found but rarely by Plummer, in the forests of Hilipaniola. A specimen, without any indication from whence it came, is preferred in the Lin- nanean herbarium, and referred to Osmunda (Anemis) bipin- nata, (see n. 15.) Lennins appears to have had it when he wrote the first edition of Sp. Pl., and all he says of either of these species is entirely taken from Plummer, who is the primary authority for both. A. filicifolia varies from five inches to a foot in height. The barren fronds have slender, roughish, rather long, flalks, and are nearly penta- gonal in their outline; having three principal branches, which are first pinnate, then more or less deeply pinnatifid and cut, always in a wedge-like manner; they are hairy on both sides. The common mid-rib is winged. From the same tufted root grow one or more rather taller flalks, each bearing a tripod-composed, slightly hairy, panicle, or com- pound flake, whose linear ultimate segments are lamen, on one side, with rather large, and not very numerous, capules, each having a very distinct, brown, shining, radiated top, below which is a lateral furrow. The engraving of Plummer gives no idea of the size or nature of these capules, nor of their arrangement, so that we may suppose him equally incorrect with regard to our fifteen or seventeenth species.

Dr. Swartz, Syn. Fil. 158, points out, as a probable species of this genus, Fildaxrum americantium minus, folius ranames hirsutus, Ammann in Comment. Petrop. v. 10. 235. t. 19. This was found by Dr. Houltoun at Vera Cruz, and however unlike the figure may seem to Plummer's t. 161, our specimen mentioned, and partly described, under the last species, serves to prove them, at least in our opinion, one and the same plant; for it explains the inaccuracies of both figures, and is intermediate between the two in the structure of the barren frond. We cannot doubt its being one of Houltoun's specimens. The panicked inflorescence agrees with Ammann's figure, but the detail of that figure is no less incorrect than Plummer's, so that nothing precise can be gathered from either.

ANEMOMETER, col. 2, for IX. infert VIII. No. 3.


This genus comfits of perennial herbs. Roots (or per- haps subterraneous stems?) either tuberous, or horizontally creeping, or simply fibrous. Leaves radical, flaked, simple (or compound), lobed or cut. Flower-flalk radical, bearing at the summit an involucrum of three, rarely but two, leaves, variously cut, but conformable in general to the proper foliage. From this involucrum proceeds usually one or many simple, naked, single-flowered flalks; some apparently caulent species have one such leaflefs flalk, and, besides, a fort of branch, bearing another flower-flalk, accompanied by a two-leaved involucrum. The flowers are in- dorous, very variable, and readily become double.

The recent plants are acrid, and raise blisters in the skin, if applied externally; internally they are poisonous in some degree, though several have been prepared in chronic ophthalmia, and venereal caries of the bones.

The forty-five species, with which we are at present acquainted, inhabit pastures, lands, woods or thickets, of temperate climates, principally in the northern hemisphere; the Pulsatilla are found on rough exposed hilly fields; Preo- nanthus on the loftiest mountains; Pulsatiloides at the Cape of Good Hope; Anemonebea in meadows, pastures, or woods; Anemoneformes in North and South America and in Asia; Omalocarpus in mountainous situations. There are two species from the Cape of Good Hope, four from South America, eleven from North America, eighteen are natives of Europe, three of the Levant, five of Siberia, two of Nepal, and one of Japan. Four appear to be common to North America and Europe.

Anemone is a very natural genus, and De Candolle declares his opinion against dividing it; first, because the section Prenanthus has the head and flower of the Anemonebea, with the feather-tailed fruit of Pulsatilla; secondly, because the fruit being furnished with such an appendage, or deli- tute of it, is not to be considered essential in the present cafe, the same circumstance proving of no avail in the genus Clematis, so nearly related to the present.

The following divisions, founded on the whole habit as well as the fruit, prove extremely natural.


3. Pulsatiloides. Seeds very hairy. Petals fifteen to twenty. Involucral leaves two or three, feffile, cut at the summit. Species 9 and 10.


5. Anemoformes. Seeds without tails, rather collapsed. Partial flower-flalks several; one of them leaflets and single-flowered; two or three others bearing a two- leaved partial involucrum. Species 33—40.

† Species not sufficiently known: 44 and 45.

We have corrected some accidental numerical errors, and we take the liberty of using the Linnaean terminology, as to calyx or corolla, here as in Aconitum, &c. Carpella, a word used by our learned friend for partial fruits, several of which belong to one flower, as in Uvaria, Unona, &c., seems to us well expressed, in English at least, by the plural, fruits; the singular, fruit, being always used when the pericarp is simple, or solitary. Carpophyls is used by Richard and De Candolle for the naked feed of Graffes, as well as of Ramunculaceae, of which we do not see the utility. A multiplication of terms, without absolute necessity, is burthenome to science, and we rather with the learned would labour to comprefs, instead of extending, the terminology of natural history.


Seeds terminating in long bearded tails. Involucral leaves serife, dilated at the base, divided upwards, in a palmate manner, into linear segments. Petals five or six. Glands, (abortive stamens,) in several species, on short filaments, between the perfect stamens and petals. The radical leaves are mostly divided in a pinnate manner, their segments many-cleft, with linear or wedge-shaped lobes. Flowers in general purple or crimson.

1. A. vernalis. Parsley-leaved Spring Anemone. Linn. Sp. Pl. 759. Fl. Lapp. ed. 2. 189. 'De Cand. n. 1. Willd. n. 4. Att. n. 3. Fl. Dan. t. 29. (A. n. 1147; Hall. Hift. v. 2. 61. t. 21. Pulsatilla altera alpina; Dalech. Hift. 851. P. apii folio vernalis, fl. majore, et fl. minore; Bauh. Pin. 177. Prodr. 94. 'Helv. Pul. 63. t. 91:')—Leaves pinnate; leaflets elliptic-wedge-shaped, notched or three-cleft, nearly smooth. Flower erect. Involucrum very hairy. Petals fix, straight, elliptic-oblong.—Native of rocky pastures on the loftiest mountains of Switzerland, the Pyrenees, Germany, Sweden, and Norway, flowering among the melting snow in spring. The broad leaflets, with the beautifully flaky involucrum and petals, distinguish this species. The flower-flalk is three or four inches high, hairy, much elongated above the involucrum after flowering, as in all the Pulsatilla tribe. Flower white, variegated with purple, extremely elegant; we have some doubt whether the report of its being ever yellow be well founded, and whether the term "golden" in Dalechamp, copied by J. Bauhin, may not apply to the brilliant yellow pubescence of the living as well as dried flowers, noticed by Haller.

2. A. Hollar. Silvery Swifts Anemone. All.t. Pedem. v. 2. 170. t. 80. f. 2. De Cand. n. 2. Willd. n. 5. Villars Daubh. v. 3. 725. (A. n. 1148; Hall. Hift. v. 2. 62.)—Leaves pinnate, deeply cut, with linear-lanceolate, pointed segments; very hairy beneath. Flower erect. Petals fix, straight, elliptic-lanceolate.—Native of the Alps, flowering in summer. Haller gathered it in the valley of St. Nicholas, in the Upper Vallais; Villars in Dauphiny; Molineri on the Piedmonte mountains; De Candolle in the eastern Pyrenees. The leaflets and their segments are much longer and narrower than in the foregoing; pubescence of the flower and involucrum flinny, not yellow. Petals dull purple, converging, not spreading.

3. A. cernua. Drooping Japanese Anemone. Thunb. Jap. 238. De Cand. n. 3. Willd. n. 3.—"Leaves pinnate; hairy and somewhat downy beneath; leaflets pinnatifid, with notched oblong segments. Flower rather drooping. Petals fix, elliptic-oblong, spreading."—Native of Japan, about Jedo and Nagakafu, (Thunberg,) flowering in spring. All the flalks are very hairy, as are the leaves beneath, especially when young. The segments of the latter are intermediate between vernalis and Pulsatilla. Stalk fix inches high. Flower dark purple, hairy externally, smaller than in A. Pulsatilla. De Candolle.

4. A. patens. Naked-flowering Anemone. Linn. Sp. Pl. 759. De Cand. n. 4. Willd. n. 2. Att. n. 2. (Pulsatilla polyanthos vilosea, anemone folio; Breyn. Cent. t. 61. "Helv. Pul. 52. t. 2. 32")—Leaves later than the flower; leaflets ternate, wedge-shaped, deeply and acutely pinnatifid and cut. Flower erect, spreading.—Native of Siberia, Poland, Sileia, &c.; recently found by Mr. Schleicher in Switzerland. The flowers are as large as any of this species, and more spreading, either pale yellow, white, or purplish, on a very short partial flalk; the involucrum in very narrow, linear, hairy segments. The leaves expand after the flower is past, and are ternate, not pinnate, with radiating, very acute, variably notched, segments. The partial flalk is greatly elongated, from six to nine inches, as the fruit ripens. De Cand.


6. A. pratensis. Dark Meadow Anemone. Linn. Sp. Pl. 760. De Cand. n. 6. Willd. n. 7. Alt. n. 5. Fl. Dan. t. 611. Woodv. Med. Bot. t. 148. (Herba venti; Trag. Hift. 413. Pulsatilla; Camer. Epit. 392. P. flore chulo; Lob. Lc. 283. P. flore minore; Ger. Em. 386. P. altera; Dalech. Hift. 870.)—Leaves doubly or triply pinnate, with lanceolate, elongated segments. Flower pendulous. Petals fix, erect; reflected at the summit.—Native of meadows, as well as of dry open fields, in Sweden, Denmark, Russia, Germany, France, and, according to the abbé Sefflin, near Conflantinople with the preceding. This species is distinguished from A. Pulsatilla, by the larger coarser segments of its leaves, and smaller, darker-coloured flower, whose petals are recurved at the top. Dr. Strock recommended an extract or infusion of the herb, in chronic diseases of the eyes, and even confirmed lues. Hence it has attracted the notice of physicians, who have been commendably anxious to procure the true plant, which is not found wild in Britain. Probably its virtues, whatever they may be, exist likewise in the A. Pulsatilla. Both are easily cultivated.

7. A. alba. Pale Caucasan Anemone. "Steven Mem. Soc. Nat. Mofc. v. 3." De Cand. n. 6.* addend. 545.—Leaves doubly pinnate, with numerous oblong-linear segments. Flower drooping. Partial flalk scarcely longer than the involucrum. Petals fix, erect, slightly reflexed at the summit.—Gathered by Mr. Stevenson, on the lofty mountains of the eastern part of Caucasus. Allied to A. pratensis, but differing in the flanks of the leaves, and their subdivisions being shorter as well as more obtuse, rather oblong than truly linear: secondly, in the partial flalk, even throughout the whole duration of the flower, riling scarcely above the...
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the involucrum, instead of being four times longer: thirdly, in the flower being whitish, or sulphur-coloured, not purple; fourthly, in the total want of glands, or abortive flaments, at least in the specimen seen by prof. De Candolle; which are very abundant in the preceding species.


- Seeds terminating in long bearded tails. Involution leaves ternate, flaked, pinnate, with deeply ferrated, notched lobes. Petals five or six. No glands, or abortive flaments. Radical leaves ternate; their divisions pinnate, doubly compound, cut and ferrated. Flowers white or yellowish.


- Fl. large, yellow. (A. api folia; Jacq. Milc. v. 2. 47. t. 4. Wildl. n. 9. A. sulphurea; Linn. Mant. 78. A. myrrhidifolia 2; Villars Dauph. v. 3. 727, from the author. A. n. 1149, 2; Hall. Hilt. v. 2. 53. *Pulsatilla lutea*; Camer. Epit. 393. P. tertia; Dalech. Hilt. 851, bad.)

- Leaves ternate, pinnate, with pinnatifid, decurrent, ferrated lobes. Involution ones similar. Petals fix, spreading. -Native of 
day and rocky deftrictes in mott alpine parts of the middle of Europe, Switzerland, the Pyrenees, the south of France, Austria, Carinthia, &c.; flowering in summer. The conformity of structure of the involucrum and the radical foliage, clearly aertains this species. We readily concur with Haller and De Candolle, that the difference of colour between the yellow, lemon-coloured, or white flowers, or of size between the large-white and the small, indicate mere varieties. But we scarcely see any reason to mark the more or less hairy leaves as permanent varieties; the former being caused by more dry and exposed situations of the same plant. The petals are always more or less pale, purplish, and hairy, at the back. The flowering plant is from two to twelve inches high. When in seed its dimensions are very way doubled. A singular monstrility of variety 5, sent us by the late Mr. Davall, has one of its petals flipped down, if we may so express it, into the involucrum, and greatly enlarged. This, as M. De Candolle justly observes, proves an analogy between the petals, (his calys), and the involucrum; but it will not prove them to have more affinity than the petals and actual leaves of a Tulip, which we have several times seen running into each other, or half and half of the perfect nature of each.

Sect. 3. *Pulsatilloides*. De Candolle.

- Seeds very hairy. Petals from seven to twenty, oblong. *Involucrum* of two or three leaves, somewhat sheathing at their base; cut and toothed upwards. Leaves twice ternate, cut.

10. A. capensis. Broad-leaved Cape Anemone. Lamark Dict. v. 1. 164. De Cand. n. 9. (Atragene capensis; Linn. Pl. 764. Wildl. Sp. Pl. v. 2. 1286. Ait. Hort. Kew. v. 3. 342. Andr. Repof. t. 9. Curt. Mag. t. 716. *Pulsatilla folis tridentis*, dentatis, flore incarnata, pleno; Burm. Afric. 148. t. 52.) - Leaves twice-ternate, rigid, smooth; segments wedge-shaped, sharply toothed. -Native of light activities of mountains, at the Cape of Good Hope, flowering from October to March. It is said to have been first cultivated in England, by Meffrs. Lee and Kennedy, in 1795. This plant is somewhat cauleent, but the leaves are crowded over the lower part, almost close to the woody root. Their texture is extremely firm; they are segments varying greatly in size, breadth, and shape; the young ones villous. Flowers one or two from each involucrum. *Petals* thirteen to eighteen, linear-oblong, above an inch in length, pink, or pale bluish-coloured, spreading, very handfome. *Germens* extremely hairy, ovate, each with a recurved style.

11. A. tenusfolia. Fine-leaved Cape Anemone. De Cand. n. 10. (Atragene tenusfolia; Linn. Suppl. 270. Wildl. Sp. Pl. v. 2. 1286. Thunb. Prodr. 94. A. tenuis; Thunb. Jap. 239, note.) - Leaves thrice-ternate, rigid, smooth; leaflets pinnatifid, with linear-threadshaped, acute, entire lobes. - Found by Thunberg at the Cape of Good Hope. The leaves are more compound, and more finely divided than those of the preceding species; the plant is described as more cauleent, and the flowers but half as large, with only from seven to nine petals. We have seen no authentic specimens, but are not without a suspicion that Linnaeus confounded this with the last.

Sect. 4. *Anemonanthus*. De Cand.

- Seeds nearly ovate, hooked with the permanent style, either very hairy or flabby, or in some instances nearly smooth. Partial flower-flasks solitary in each involucrum, or very rarely two together, always single-flowered and naked. Petals from five to fifteen.

*Involutural leaves fijiile. Root-stocks tuberous, somewhat ovate.

12. A. coronaria. Poppy Garden Anemone. Linn. Sp. Pl. 760. De Cand. n. 11. Wildl. n. 10. Ait. n. 7. Curt. Mag. t. 841. Sm. Fl. Grce. Sibth. t. 514, unpubl. Lamark f. 1. (Anemone; Camer. Epit. 386. A. horitines tenuifolia, simplici flore, n. 2-36; Chaff. Hilt. v. 2. 255-256; albo pleno flore; ibid. 263. A. tuberosa radice, et eocineica multiplex; Lobb. Ic. 277. Ger. Em. 374; fea also several in his Tuberous pages.) - Leaves twice ternate, pinnatifid; segments linear-wedge-shaped, smooth-edged, sharply cut. Involution fijiile, many-crested. Petals fix, oval, concave, converging. - Native of dry, as well as rather moist, pastures, in the south of France, Italy, and the Levant, flowering in the early spring. Very common on dry hillocks in Greece, according to Dr. Sibthorp, who concurred with former botanists in thinking it the *Anemone impa* of Dioscorides; and the learned Sprengel takes the *Anemone* of Hippocrates to be the same plant. This species, however, bears the same name in modern Greek, *εγκαρια*, as the Field Poppy, *Papaver Rhaes*; nor is the history of these two flowers, however different, free from ambiguity. A. coronaria has been the delight of florists ever since the time of Gerarde, and its numerous double varieties, displaying every beauty and splendour of colour, are among the most rare and admired decorations of a parterre. We confefs
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con벰a a predilection for the fingle kinds, equally beautiful and various in colour, which may be raised abundantly from seed in any airy and funny spot, and require but little trouble in transplantation every fourth or fifth year. They flower most in the winter or spring. The leaves vary in breadth. The natural colour of the flower, which is cup-shaped, and full two inches broad, is a light purplish-blue, as represented in Dr. Sibthorp's drawing, and as we have gathered it in the groves and grassplots of the Roman villas. The seeds are covered with long, soft, tenacious down, concerning the effect of which an amusing story is told by Tournefort and Miller. A lawyer in the south of France stole these seeds from a covetous amateur, by ordering his page to drop, as if by accident, the flax train of his robe, when they paffed over the bed of feeding Anemones, and thus obtained a plentiful supply.

13. A. pufilla. Dwarf Anemone. De Cand. n. 12. Leaves three tertiary, pinnatifid, many-cleft, with linear pointed segments. Involucrum felfile; cut at the fummit. Petals fex, oblong, dilaffant. —Gathered in Cyprus by Labillardiere. Nearly akin to the last, and perhaps a variety. Root tuberous, the size of a filberd. Leaves smooth, falked, with narrow linear segments. Flower-ffalk a finger's length, slender, downy, erect. Involucrum of three leaves, acutely cut and toothed at the apex. Partial ffalk either the length of the involucrum, or twice or thrice as long. Flower erect, pale purple. Petals fex, rarely but four or five, oblong, blunt, fidal and spreading, about four times the length of the flamens. Seeds woolly, collected into an oval-oblong head. De Cand. 14. A. pavanina. Peackock Garden Anemoe. Lamarck Dict. v. i. 166. De Cand. n. 13. "Fl. Franc. v. 5. 634." Brot. Lufit. v. 2. 363, not 263. (A. hortensis latifolia, pleno flore, et flore coccineo; Cluf. Hift. v. 1. 261, 262, with three figures. A. maxima chalcedonica polyanthos; Ger. Em. 375. Lob. Ic. 278. A. ftellata, geranii aucti folio, duplicato flore purpureo; Cupan. Panph. v. 1. t. 121, ed. 2. t. 22.)—Leaves ternate or deeply three-lobed; leaflets or fegments wedge-shaped, cut and toothed. Involucrum felfile, its leaves oblong, entire or slightly cut. Petals ten or twelve, lanceolate, very acute. —Found in vineyards in Navarre, also in the south of France, and probably in the Levant. De Candolle. Differs from A. coronaria in its hels divided leaves, and especially those of the involucrum, which are five or fix, elliptic-lanceolate, rough-edged, most of them quite entire, one or two only partially notched. The narrow and acute petals are also peculiar. We feel con- vince with Lamarck and De Candolle that this must be a distinct species, though confounded by Linnaeus and others with the more frequent A. coronaria. We have not fought out its varieties among the double Anemones, but there is a feareat one not uncommon. The French know fome of these varieties by the names of Oeit de poon, Candide, &c. If this be not distinct, it should feem to belong to the following rather than to any other.

15. A. hortensis. Starr Garden Anemone. Linn. Sp. Pl. 761. Willd. n. 11. Ait. n. 8. Curt. Mag. t. 123. Sm. Fl. Græc. Sibth. t. 515, unpubl. (A. hortensis latifolia filipimic flore, n. 3—18; Cluf. Hift. v. 1. 249—254. A. prima; Dod. Pemp. 434. A. fecula; Camer. Epit. 387. A. tuberofa, bulbocallani radice; Lob. Ic. 279. Ger. Em. 375. f. 5. A. n. 1152; Hall. Hift. v. 2. 64. A. ftellata; Lamarck Dict. v. 1. 166. Brot. Lufit. v. 2. 363. Savi Etr. v. 2. 122. De Cand. n. 14. "Fl. Franc. v. 5. 634." —Leaves ternate; leaflets wedge-shaped, rough-edge, three-cleft, cut. Involucrum felfile; its leaves lanceolate, undivided or partly cut. Petals ten or twelve, elliptic-lanceolate, obtuse. —Found on banks, ruins, or bushy waste ground, in the south of Europe; very commonly in Italy and Greece, flowering in the early spring; lefs abundantly in the south of France, and Switzerland. Clusius observed this species near Mentz. It has been known in gardens as long as the coronaria, but being inferior in beauty and variety, has given place to that popular species. We cannot follow Lamarck in its specific appellation, because there is no end of changing names for the better; unless all leading botanists would coor in a general reform; and even in that cafe, positively erroneous names only should be altered. This pretty species has an oblong tuberous root, producing many leaves and flares. The latter are ternate, on long falks; their leaflets coriaceous, strongly veined, either cut half way down into three broad lobes, or divided nearly to the base, into three subdivided narrow ones; their segments all acute; their edges remarkably rough, though both surfaces are usually, if not always, smooth and naked. Involucral leaves three, an inch long, fiky, rough-edged; one of them in general slightly notched at the end. Partial flalk long, fiky, especially near the top. Flower feecently above an inch wide, of a delicate rofe-colour, or full carnation; the petals fiky at the back, veiny, often emarginate. The rough-edged leaves and involucrum are characteristic of this species, but the involucrum of pavanina, (we have not examined its leaves,) has the fame character, which coronaria has not. We are strongly persuaded of pavanina being a variety of hortensis, and that the acutenef or bluntnefs of the petals is variable.

16. A. palmata. Cyclamen-leaved Anemone. Linn. Sp. Pl. 758. De Cand. n. 15. Willd. n. 12. Ait. n. 9. Andr. Repos. t. 172. Vahl Symb. v. 3. 73. Desfont. Atlant. v. t. 432. (A. hortensis latifolia, fimplici flavo flore; Cluf. Hift. v. 1. 248. Morif. sect. 4. t. 25. f. 3. A. latifolia Chlii; Lob. Ic. 279. Ger. Em. 376. A. latifolia flavo; Barrel. Ic. t. 792.)—Leaves fimple, heart-shaped, rounded, with three or five blunt, sharply-toothed lobes. Involucrum felfile; its leaves in three linear, acute, hairy lobes. Petals ten or twelve, oblong, obtufe. —Native of rather moif waste ground, in Portugal, Spain, the south of France, and the north of Barbary, flowering early in spring. Rarely cultivated with us, except in curious gardens, though the brilliant golden flowers are very hand- some. The leaves, notwithstanding Mr. Andrews's doubts, are truly palmate, differing from the laft in being fimple, and, though more or less hairy, not rough at the edges as in that species. They are coriaceous, strongly veined; often purple beneath. The involucral ones are three, almof uniform, hairy or fiky, an inch long, narrow, each divided about half way into three nearly equal, sometimes notched, linear lobes; the edges apparently fringed, but not rough. Stalk above the involucrum rather long, fiky. Flowers an inch and a half or two inches broad. Petals linear-obovate; the fix outer ones remarkably hairy externally, and so dif- pofed in Linnaeus's only fecimen, that he took them for the fame kind of close calyx as occurs in Hepatica, only with a double number of segments. Thus he was led to place A. pmata in his firft fection, Hepaticae, and this will solve Vahl's difficulty, recorded in his Symbols above cited. But it will not account for this author's extraordinary quo- tation of Linnaeus's words, which are "calys fexpartitus, integerrimus, villosus, coloratus, nec a flore remotus." Vahl cites this palage, "calys hexapbyllus, coloratus, a flore remotus." The fuppofed double variety of the present spe-
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249. much dclcription much on the 254. the numerous ("Petals Willd. Jufl."
280. leaflets Fl. inlucral t. flowering proved Seeds 8.) tinge ferrated. Germms, very Flolutn PetaL Levant. Carol.

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filed, which De Candolle marks with doubt, and has never, is represented with the many-knobbed root of a Ranunculus, to which genus we should not be surprised if it proved to belong.

17. A. decapetala. Little Three-leaved Anemone. Arduin. Spec. 2. 27. t. 12. Linn. Mant. 79. De Cand. n. 16. Willd. n. 17. Lamarec Dict. v. 1. 167. ("A. trilobata; Juff. Ann. du Mus. v. 3. 247. t. 21. f. 3.")—Leaves ternate; leaflets rounded, unequally three-toothed and toothed. Involucral leaves sessile, twice three-cleft, with linear segments. Petals ten or twelve, elliptic-lanceolate, obtuse. — Sent by Father Panegai to professor Ardouin, from Brazil, where Commeron also met with this curious little plant; as did Dombe and Nee in Peru and Chili. The root is ovate and tuberous, about the size of a filbered. Leaves smaller than the leaf, and perfectly ternate, obscurely dotted, besprinkled with short hairs, but not rough-edged; their teeth unequal, blunting, often callyous-callous. Stalk two or three inches high, finely at the top, with an involucrum about the middle, totally unlike the leaves, being doubly, but imperfectly, three-cleft, with linear segments, callous at the tips. Flower scarcely half the size of A. hortensis, which it resembles in form. The petals appear to be white; filmy and purplish at the back.


19. A. caroliniana. Little Carolina Anemone. Walt. Carol. 157. De Cand. n. 18. (A. tenella; Pursh n. 4.)—"Leaves ternate; leaflets deeply three-cleft, cut, sharply toothed. Involucral leaves three-cleft, notched. Petals ten or twelve, linear."—Gathered in Carolina, by the late Mr. Walter; on the banks of the Millfouri, by governor Lewis; flowering in May. Root small, tuberous. Herb tender and delicate. Leaflets form with only toothed, and others with deeply three-cleft, jagged, and sharply toothed, lobes. Stalk single-flowered. Involucrum of three leaves, with jagged segments. Partial flak long. Petals small, purplish, externally downy. Seeds pointed, woolly. The fourth Ranunculus, Pluk. Alm. 310, cited doubly by De Candolle, who has omitted the word procus in the transcription, feems to us at best very uncertain, and particularly so on account of that very word.

20. A. triternata. Fine-leaved Brazil Anemone. Vahl Symb. v. 3. 74. t. 65. De Cand. n. 19. Willd. n. 18. Lamarec f. 3. ("A. fumaricefolia; Juff. Ann. du Mus. v. 3. 247. t. 20. f. 2.")—Leaves thrice ternate; leaflets cut; segments lanceolate, acute. Involucral leaves in many fetaceous divisions. Petals ten or twelve, oblong, obtuse. Fruit cylindrical.—Gathered by Connerfon at Monte Video. It is said to have been also found in Peru, by Lucbaz; flowering in November. The root and flowers bear a great resemblance to A. decapetala; but the leaves are totally different, being cut into innumerable, fine, divaricated segments, quite smooth, entire at the edges, and not at all toothed or serrated. The involucrum too is somewhat different, each of its three leaves being first divided half way down, into three parts, and those subdivided into many slender, tapering segments. The roots are numerous, tapering, beaked, very hairy, closely imbricated in a cylindrical, somewhat elliptical, head, an inch long.

21. A. biflora. Two-flowered Oriental Anemone. De Cand. n. 20.—"Leaves ternate; leaflets deeply divided into linear, obtuse, partly cut, lobes. Involucral leaves sessile, in many deep segments. Partial flower-stalks in pairs, one of them with a partial involucrum."—Gathered by Michaux in the Levant. Of this De Candolle describes two varieties.

a, with two leaves in the general, and two in the partial, involucrum. Root an oblong tube, tapering upwards, fibrous below. Leaves smooth, on long stalks, ternate; their leaflets in deep, linear, somewhat notched, obtuse, thickish lobes. Common flower-flask round, the length of the footstalks, about four inches. Involucrum of two lobe leaves, in numerous deep divisions, resembling the radical foliage. Partial flaks two, single-flowered, closely downy; one naked; the other furnished, near the base, with a two-leaved partial involucrum, like the general one. Flowers rather drooping, yellow, with five petals, which are oval-oblong, obtuse, externally downy, rather larger than in A. ranunculoides. Stamens few in the flower, with a two-fold involucrum; numerous in the other. Germs, on the contrary, many in the former, few in the latter.

b, with three leaves in the only involucrum.


** Involucral leaves flattened. Root-stock tuberos, somewhat ovate.

22. A. apennina. Blue Mountain Anemone. Linn. Sp. Pl. 762. De Cand. n. 21. Willd. n. 24. Fl. Brit. n. 3. Engl. Bot. t. 1662. Prodr. Fl. Græc. Sibth. n. 1250. Curt. Lond. falc. 6. t. 35. (A. geraniolilia; Bauh. Hift. v. 3. 407. Ger. Em. 377. Lob. i. 28C. A. hortenfis tenuifolia, simplici flore; Cluf. Hift. v. 1. 254. Ranunculus nemorosus, foare caruleo, duplex apennini montis; Mentz. Pugiil. t. 8.)—Leaves twice ternate, pinnatifid, sharply notched. Involucral ones stalked, ternate, pinnatifid and cut. Petals twelve to fourteen, oblong, obtuse.—Native of groves and thickets in some parts of England, but rare, as near as Wimbledon, Luton-hoe, and Berkhamsted. Fl. Brit. In Italy it occupies the place of A. nemorosa in the more northern parts of Europe, and is equally plentiful, flowering in March and April. Dr. Sibbthorp noticed it in the Morea; Dr. Clarke on the banks of the Sismon; and the baron Marshall von Bieherstein in the Iberian Caucusus. The root is smaller than a filbered, bearing one or two leaves, each on a zigzag footstalk, very slender at the base. The leaves much resemble Geranium robertianum; those of the involucrum are smaller, but less divided, with narrower segments. Stalk solitary, from four to nine inches high, filiky above the involucrum. Flower of a fine blue, with pale flamen and pifflis, very beautiful, said to be occasionally white.

23. A. carules. Small Blue Anemone. De Cand. n. 22.—"Leaves... Involucral ones on short stalks, tripily pinnate, cut and toothed. Petals four or five, oval."—Gathered by Mr. Patrin, near Zmeof in Siberia, flowering in the early spring. The root and radical leaves are wasting in the specimens seen by De Candolle. This species agrees in description with the last, but the partial flaks is much
much shorter than the *involucrum*, and the small blue flower has only four or five roundish, very obtuse petals, more like *A. nemorosa*, except in colour.

**Involucral leaves flattened. Root-flock cylindrical, slender, elongated.**


—Common in groves and thickets throughout Europe, where *A. aequina* scarcely occurs, flowering in spring. About the size of that species, with one remembrance of foliage; but there is less difference between the leaflets of the radical leaves and those of the involucrum. The root also is long and slender, not ovate. The flowers are white, often tinged with purple externally, formed of fix broad petals, totally unlike *aequina*. The double variety is very elegant. That with five deep lobes in each leaflet, occurs occasionally in England as well as North America, and is evidently a most trifling variety, though Linnæus, led perhaps by Plukens's bad figure, made it a species.


De Candolle states the leaves scarcely differ from *A. trifolia*, by which we are led to suspect that Plukens's t. 106. f. 3, cited by Linnæus and others for *quinquefolia*, with which it does not well accord, may belong to the species before us.

28. *A. trifolia*. Three-levored Anemone. Linn. Sp. Pl. 762. De Cand. n. 27. Willd. n. 21. Diet. Pempt. 436. Ger. Em. 377. Morif. fect. 4. t. 25. f. 1. (A. trifolia, flore albo; Bauh. Hist. v. 3. 412. Alabatis, five Dentaria alba; Lob. Ic. 281.) —Leaves and involucrum flatked, ternate; leaflets of all ovate, acute, flatked. Petals five or fix, elliptical, obtuse. —Native of rather mountainous groves and thickets, in France, Piedmont, Tuscan, Carniola, Carinthia, and Siberia, flowering in summer. Gerard appears to have cultivated this species, but we have never seen or heard of it in modern times. The root is oblong, horizontal, somewhat toothed. Leaves two or three inches high, each of three leaflets, about an inch long, with hairy ribs and edges. *Stalk about a span high, or more, angular, smooth, bearing an involucrum of three uniform flatked leaves, like the radical ones, but rather larger; the lateral leaflets very unequal at their base; the central one tapering into the floreal stalk.* *Partial flower-fallk* about the length of the flaks of the involucrum, solitary, simple, slender, hairy. *Flower scarcely an inch broad. Petals from five to seven, white; purplish underneath.*

29. *A. minima*. Leaf Anemone. De Cand. n. 28. — *Leaves...* Involucral ones flatked, deeply three-lobed; lobes ovate, pointed, flattened externally and at the extremity. Petals five, oval-oblong, obtuse. —Native of the Allegheny mountains in Virginia; *Pulte de Beauroy*. Remarkably tender and delicate, resembling *A. trifolia*, but only one-third its size. *Root long, slender, horizontal, fending out a few fibres. Radical leaves wanting the pecu-

the leaflets are more elongated and cut, and the flanks of the involucrum much shorter. The petals are broader, and of a full yellow. Flowers often two together, one of which, according to De Candolle, is sometimes deficient in petals. The partial flank appears to droop as the fruit ripens. The germen are nearly orbicular, compressed, downy, the style of each forming a strong incurved beak. There is said to be a violet-coloured variety found on the Pyrenees.


Native of Siberia. Stalk closely downy at the top, slender, a palm in height. Involucral leaves smooth, on downy flanks; their leaflets acute, tapering at each end. Partial flank solitary, shorter than the involucrum while in flower, erect, slightly hairy. Flower yellow, one-third the size of the leaf. Siamens very numerous, shorter than the petals.


33. **A. multifida.** Magellanic Anemone. "Poir in Lamerack Suppl. v. 1. 364." De Cand. n. 34. Radical leaves ternate; leaflets in many deep linear segments. General and partial involucrum similar, many-cleft, somewhat flaked. Petals five to ten, elliptical, obtuse. Gathered by Commerson at the straits of Magellan. The root is woody. Radical leaves on long, loosely hairy, stalks. Common flowerstalk stout, erect, taller than the leaves, about six inches high. General involucrum of three leaves, about two inches long, including their broad hairy stalks, being rather larger than the radical leaves, but all similarly divided into linear, or narrow-ridged, partly three-cleft, loosely hairy, lobes. Partial flowerstalks three; the middle one earlike, four or five inches long, hairy, leaflets; the others much shorter, spreading, each bearing two or more, but otherwise similar, involucral leaves; all single-flowered. Flowers about the size of A. pinnata, pale yellow, or buff-coloured, according to Commerson; externally hairy. Seeds hairy, collected into a globular head.


35. **A. multifida.** Magellanic Anemone. "Poir in Lamerack Suppl. v. 1. 364." De Cand. n. 34. Radical leaves ternate; leaflets in many deep linear segments. General and partial involucrum similar, many-cleft, somewhat flaked. Petals five to ten, elliptical, obtuse. Gathered by Commerson at the straits of Magellan. The root is woody. Radical leaves on long, loosely hairy, stalks. Common flowerstalk stout, erect, taller than the leaves, about six inches high. General involucrum of three leaves, about two inches long, including their broad hairy stalks, being rather larger than the radical leaves, but all similarly divided into linear, or narrow-ridged, partly three-cleft, loosely hairy, lobes. Partial flowerstalks three; the middle one earlike, four or five inches long, hairy, leaflets; the others much shorter, spreading, each bearing two or more, but otherwise similar, involucral leaves; all single-flowered. Flowers about the size of A. pinnata, pale yellow, or buff-coloured, according to Commerson; externally hairy. Seeds hairy, collected into a globular head.

36. **A. pennsylvanica.** Pennsylvanian Anemone. Linn. Mant. 247. De Cand. n. 35. Willd. n. 19. Ait. n. 14. Pursh n. 8. (A. irregularis; Lamarack Dict. v. 1 t. 167. De Cand. A. conifolia; Michaux Boreal-Americ. v. 1. 323.) —Leaves deeply three-cleft; segments three-lobed, notched, acute. Involucral ones similar, fimbriate. Petals five, elliptical. Seeds villous. In meadows, and on the borders of woods, from Canada to Pennsylvania, flowering in June and July. Flowers large, white, with yellow anthers. Purbl. Sir Joseph Banks has specimens from Fort Albany and Hudson's bay. De Cand. We have one from the late Peter Collinson's garden at Millhill, probably of an earlier date than 1766; see Hort. Kew. This is a tall, apparently cauliflorous, species, whole flowerstalk is angular, a foot and a half or two feet high, twice forked, and variously compound. The radical leaves we have not seen; De Candolle describes them with long foottalks, as tall as the flowering flak, and deeply divided into three or five parts. The three principal lobes, which are oblong-lanceolate, wedge-shaped at the base, pointed, cut and toothed, at the extremity. Such, nearly, are the general, as well as partial, involucral leaves, but fimbriate, the former three, the latter two, at each division of the flak; all strongly ribbed, two or three inches long, slightly downy with small, close, scattered hairs.

**Sect. 5. Anemonofermos of De Candolle; not of former authors.**

Seeds rather compressed, villous, hooked with the persistent style. Petals five, very rarely ten. Umbel sparsely composed, there being several flaks in one involucrum; one of them naked and single-flowered: two or three others bearing each a two-leaved partial involucrum, from whence springs a single-flowered flak.

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**ANEMONE.**

Partial flaths long, straight and slender, single-flowered, rarely somewhat leafy. "Petals three-quarters of an inch long, obtuse. Seeds compressed, pointed, sparingly downy. A variety, or perhaps a distinct species, found by Laxmann in Siberia, is mentioned by De Candolle, which approaches A. nartciflora in the first appearance of its inflorescence, but is really more akin to *pennayaevica*, differing, as it seems, chiefly in the situation of each small *partial involucrem*, near the bottom of their respective flaths. We have not seen any specimen.

37. A. diebetiana. Forked Anemone. Linn. Sp. Pl. 762. De Cand. n. 36. Wild. n. 25. Alt. n. 15. Pursh n. 9, excluding the syn. of Lomax. Linn. Fl. Dec. 22. 29. t. 15. (A. n. 37; Gmel. Sib. v. 4, 197, excluding the synonyms. Ranunculus brahiliarum; Linn. Am. Acad. v. 1, 155. n. 102.)—Leaves deeply three-cleft, segments oblong, cut and toothed at the end. Involucral ones fimbriate, fcelle, all two-leaved. Petals five, elliptical. Seeds smooth.—Frequent throughout Siberia. Gmelin. In wet woods, and natural meadows, of Canada, and the western parts of New York, flowering in May and June. Pursh. Root flender. Herb smaller than the preceding, and smoother, with only two leaves to the *general involucrum*, and the *leaflets* or segments have larger, but much fewer, teeth or ferratures. The flower more narrow is smaller, tinged with red on the outside, and the *leaves* are smooth.


39. A. helloboreiflora. Hellebore-leaved Anemone. De Cand. n. 38.—"Leaves pedate; leaflets smooth, rather coriaceous, three-cleft; wedge-shaped at the base, and somewhat stalked; lobes ferrated, acute. Involucral ones all three-leaved, nearly fcelle. Germs smooth."—Gathered by Dombev, near Huaza-Huaza, in South America. A handfolme very distinct species. *Root* round, rather thick, with numerous fibres. *Radical leaves* numerous, on hairy flaths three or four inches long. *Flower-flame* round, hollow, twelve or eighteen inches high; its first branches three or four, long and smooth; secondaries one rather hairy, mostly three-flowered. *Involucral leaflets* rather hairy at their base, three-cleft; their lobes three-cleft, ferrated, acute. *Flowers* white. Petals five, oval. Stigmas short. Seeds fifteen to twenty, oval, smooth, each with a hooked style, crowded upon a hairy receptacle. Sometimes a third *partial involucrem* is found under the flower. De Cand.

40. A. rusciflora. Vine-leaved Anemone. Buch. MSS. De Cand. n. 39.—Leaves palmate, acutely seven-lobed, ferrated; downy and hoary beneath. Involucral ones similar, three or five-lobed, stalked, heart-shaped, two or three together. Petals five, obovate. Germs smooth.—Gathered by Dr. Francis Buchanan, near Semou (not Lamba), and Narainhett, in Nepal, flowering in August and September. The radical leaves, in his own specimens, are from fix to ten inches wide, smooth above, strongly and copiously veined, cut more than half way down, into three principal, pointed lobes, with or two or three more shallow, rounded, and imperfect ones at each side. *Flower-flashes* a foot long, angular, hairy. *Involucral leaves* much smaller, and less lobed; their *flapses* of various proportions; three at the frist subdivision of the tall downy *flower-flame*; two at the upper ones. *Flowers* the size of *A. sirviiflora*, white; externally silky, reddish, and strongly ribbed. *Seeds* numerous, covering a globular *receptacle*, interpersed with long, white, woolly down. This species is remarkable for the great size, and white downy backs, of its *leaves*, some of which rival those of *Rhabd osoratus* in dimensions.

41. A. rusciflora. Water Anemone. Buch. MSS. De Cand. n. 40.—Leaves ternate, hairy on both sides; leaflets wedge-shaped, three-cleft, notched, and sharply toothed; involucral ones fcelle, deeply three-lobed, pinnatifid, cut. Petals five, ovate.—Native of the moist banks of rivulets in Upper Nepal; gathered by Dr. Buchanan, near Chitlang, April 1802. Root rather woody, as thick as the thumb. *Radical leaves* numerous, three inches broad, on hairy flaths from four to eight inches long. *General involucrem* one three, larger, more elongated and pinnatifid; *partial two*, with still narrower lobes. *Flowers* half the size of the last, white; purplish and hairy beneath.


43. Wild. et De Cand. (A. junce covidulata; Linn. Sp. Pl. 763. Ranunculus orientalis, aconiti lycoctoni folio, flore magno albo, vel purpuraceante; Tourn. Cor. v. 2. 106, with a plate.)

44. monantha. De Cand. (A. dubia; Bellard. App. Pl. Pedem. 26. t. 5; (not 232. t. 7.)

Radical leaves slightly hairy, in three or five, very deep, wedge-shaped segments, with many, unequal, linear-lanceolate lobes. Flowers umbellate.—Found in mountainous pastures, especially on a calcareous soil, almost throughout the northern hemisphere; in the Pyrenees and all the alpine countries, in Siberia, Caucasus, Cappadocia, as well as in Canada, and on the north-west coast of America; but not in Britain, Greece, nor the Archipelago, as far as we have any information. It flowers early in Summer, and is of an elegant appearance, though seldom seen in gardens. The *umbel* of pure white flowers, with obovate petals, occasionally tinged, especially underneath, with purple, readily distinguishes this species. The *involucrem* is fcelle, divided like the *leaves*, and like them hairy on both sides, but not particularly so at the edges. The *germs* and broad *seeds* are quite smooth. Tournefort’s plant, our *s*, is a very flight variety, with a more dense *umbel*. We know Dr. Bellardi’s *A. dubia* merely from his figure, for he himself never saw more than one specimen; but we concur with professor De Candolle, who appears to have occasionally seen a two-flowered specimen, in making it a variety. Concerning the two Siberian plants, to which De Candolle alludes, as possible varieties of *nartciflora*, we have not materials to form any opinion; nor were those with which he was furnished quite satisfactory.
A. umbellata. Fringed Umbellate Anemone. Willd. n. 28. De Cand. n. 42. (A. falciculata; Vahl. Symb. v. 3. 74, excluding the synonym. Ranunculus orientalis, napelli folio langinifo, flore albo; Tourn. Cor. 20.) — "Radical leaves in three or five, very deep, three-cleft, entire, densely fringed segments. Flowers umbellate. Gathered by Tournier, on the mountains of Cappadocia. De Candolle, who examined his original specimen, describes the radical leaves as consisting of numerous deep segments, which are three-cleft, acute, with entire lobes, whole margins are densely fringed, with very long, white, clove-preffed hairs, such as occur on the footstalks, scarcely two inches in length. Flower-stalk a palm in height, with similar, but more scattered, hairs. Involutural leaves deeply three-cleft; their lobes entire, chiefly hairy at the edges. Partial footstalks two or three, simple, longer than the involucrum, Petals five, white, oval, obtuse, externally hairy. We have Siberian specimens, probably such as M. Patrin communicated to De Candolle. Thee answer to his description of the hairy-edged leaves, but seem to us not specifically distinct from nemorofus, with which they agree in size, and in certain pale glands, between the segments of the leaves, peculiarly visible in these Siberian specimens, though not noticed by authors in any. We suspect that these specimens may prove the identity of A. umbellata and nemorofus.

A. sibirica. Siberian Tawny Anemone. Linn. Sp. Pl. 763. De Cand. n. 43. Willd. n. 13. (A. n. 41; Gmel. Sib. v. 4. 199.) — Leaves deeply three-lobed; lobes wedge-shaped, in many deep, linear-oblong, blunt-tipped, fringed segments. Involutural ones similar, on short footstalks, partly notched. Flower solitary. Petals fix. orbicular. Germs smooth. — Native of Siberia, from the river Yenifyley to the country beyond the lake Baikal. Gmelin. That author says not a word more concerning the plant in question. One of his specimens is in the Linnean herbarium, and appears evidently allied, in the general nature of its foliage, as well as the smooth germen, to the two last-described. The footstalks and the flower-stalk, which is only four inches high, bear many, long, scatted, spreading, tawny hairs. The flower is an inch and a quarter broad, with orbicular spreading petals, longer than the involucrum, and, as far as can be judged from a plant so long dried, they appear to have been yellow, or orange-coloured, resembling a Trollius.

† Species not sufficiently known.

A. Walteri. Walterian Anemone. Pursh n. 5. De Cand. n. 44. (Thalictrum carolinianum; Walt. Carol. 157.) — "Radical leaves palmate, on long footstalks. Footstalk radical, erect, long, single-flowered. Petals five. Root tuberous and fibrous." Walter — Native of Carolina. Mr. Pursh neither found this plant, nor could he meet with a specimen in Mr. Walter’s herbarium; but he considered it as more probably belonging to Anemone than to Thalictrum. Professors De Candolle suspects it may prove akin to A. parvifolia, n. 18.


†† The following synonyms could not be reduced by De Candolle to any known species.

Anemone n. 1, 2, 45, 5, 6, and 9 of Matthiolius; see the Valgrifian edition, v. 1. 563—567, where are figures of the first five, copied in Bauhin’s edition of 1598, p. 460, 461; Dalech. Hist. 442—444; and criticized in Bauh. Hist. v. 3. 409. There are very obscure, and perhaps, as De Candolle observes, fictitious; some of the cuts representing species of Adonis, we should say Papaver, rather than any Anemone.

A. quinta; Camer. Epit. 399, copied in Bauh. Hist. v. 3. 408, 409, by the name of A. ranunculifolius. This seems a confusion of Erinathii, (Helleborus) byemalli, and Ranunculus montanus.

Ranunculus nemorofus, Anemones flore minor; Bauh. Prodr. 95. — Found at Montpellier; but not known to Magnol.

A. folio aconiti, radice papucale, flore ex purpura albicate; Bauh. Hist. v. 3. 407, no figure. — Found on funny hills near Warfaw.


A. folio multiplicitato bifurto, flore quadrifido, rubro, albo, carulo; Bauh. Hist. ibid. — Native of Italy, Scholla, and the Morea.

A. Anguillare lutea quadrifoliis, folis multifidis; Bauh. Hist. v. 3. 408. — Native of Apulia.

A. lutea Ranulphi; Bauh. Hist. ibid. — Found about Aleppo.

Pulifilla flore obsiolo, caule nudlo; Breyn. Cent. 1. 135; Rauv Hist. v. 1. 636. Plak. Almag. 308 (not 39). — Found in the Caucasus mountains, flowering in May. Ray suspects this to be a monter.

P. orientalis tenuifilme divisi et villoso, flore rubro; Tourn. Cor. 20.

A. stemmenis; Scop. Ann. Hist. Nat. 2. 54. — Native of mount Feudo, in the Tyrol. This seems, by the author’s description, to belong to A. alpina, as M. De Candolle suspects. We do not understand the reference of the latter to Fl. Aurif. v. 1. 241. There is nothing to the purpose in that vol. and page of Jaen. Fl. Aurif. nor in Scopoli’s own Flora Carniola.


For A. Hepatica, Linn. Sp. Pl. 758; see Hepatica hereafter.

ANEURISM. Subsequently to the period when the article Aneurism was inserted in the early part of this Cyclopaedia, many new and valuable observations have been made upon the subject; and the success of operations for the cure of the disease have been proved in a manner which has surpassed the expectations of the most sanguine. The first great improvement in this branch of operative surgery was unquestionably that of not opening the tumour itself, but cutting down to the vessel at a certain distance from the disease, and there applying the ligature fo as to impede the flow of blood into the aneurismatic sac. The removal of the swelling was then left to the gentle and gradual action of the lymphatics; a process infinitely safer than the violent and painful proceeding of laying open the large tumour with a knife, extracting the coagulated blood, and leaving an ample cavity to suppurate. But these were not the only objections to the old method of operating; for the sac was opened, and the artery tied in a situation where its coats were actually in a diseased state. Hence the ligatures mostly failed in their effect; the vessel did not undergo favourably the
the adhesive inflammation by which it was to be closed; and the patient frequently either lost his life by hemorrhage, or was rescued by the performance of amputation under the worst and most disadvantageous circumstances. The genius of a Hunter was soon struck with the defects of the former plan of operating, and instead of meddling with the tumour itself, and tying the artery in a place where it was in a morbid condition, this distinguished surgeon conceived that it would be far better practice to tie the vessel where it was more likely to be found, viz. at a point some way from the diseacae towards the heart. Thus in the palpital aneurism, he avoided the painful operation of laying open the swelling in the ham, and more skilfully and scientifically took up the femoral artery itself in the middle of the thigh. From this important innovation, all the successes which has characterized this department of modern surgery has unquestionably been derived. By extending the same principles to other cases of aneurism, and putting due confidence in the competency of the collateral and anastomosing vessels to carry on the circulation, some of our present surgeons have devised and practised operations for the cure of such aneurisms, as a few years ago would have been abandoned as hopeless and inevitably fatal. Not only have the carotid, the external iliac, and the subclavian arteries been repeatedly tied with the most successful result, the internal iliac itself, whose situation seems to render it almost inaccessible to the instruments of the most skilful operator, has now had a ligature put round it in two memorable examples, one of which we have already noticed in the article SURGERY. The other operation was performed by Mr. Atkinson, of York; the case being a gluteal aneurism, the same kind of diseaee for which Mr. Stevens operated at Santa Cruz. The patient, whose name was Thomas Cuff, aged twenty-nine, presented himself at the York county hospital, April 29, 1817. He was a tall, strong, active hargeman, not corpulent, but very muscular. He was enduring great pain from a large, rentent, pulsating tumour, situated under the gluteus of the right side, an obvious aneurism. It had existed about nine months, and was the confluence of a blow from a stone. In a consultation with Dr. Lanfon and Dr. Wake, the necessity of the operation was determined upon, and it was performed on the 12th of May, without any material difficulty or interruption, except what depended on the aneurism-needle not being pliable enough, and what was the consequence of the division of, and bleeding from, the small muscular arteries. Having got command of the internal iliac artery within the pelvis, which, says Mr. Atkinson, required the complete length of the fingers to accomplish, the vessel was tied. Sufficient proof of its being the identical artery was repeatedly obtained, by the pressure upon it, dropping the pulsation in the tumour. Dr. Wake, Mr. Ward, and all the pupils, were quite assured of the circumstance. The artery being then tied, the pulsation of the swelling entirely ceased. The patient went on tolerably well for some time after the operation; the pulse never exceeded 130, and, after a time, sunk to 85 or 90. He became exhaunted, however, partly by the discharge, and partly by hemorrhage, and died on the 31st of May, about nineteen days after the operation. It is to be regretted, that some essential particulars are omitted in the narrative of the case, especially those respecting the exact parts divided in the operation, and the place of the external incision; yet, on the whole, whoever reads the account can, we think, entertain no doubt about the important fact, viz. that the internal iliac was actually tied. See the Med. and Phyf. Journ. vol. xxxviii. p. 267.

Although this operation did not succeed like that executed by Mr. Stevens, the record of it is highly interesting, as tending to dispel the doubts which have been entertained about the practicable nature of the proceeding. Even the aorta itself has now been tied in the human subject. Of course, the circumstances which justified such a bold proceeding were desperate in the extreme, nor could much hope of the patient's life be indulged; yet, as it was the only thing from which a possibility of preservation could be derived, we think, notwithstanding its failure, much credit is due to the enterprising surgeon who performed it. We shall introduce a few particulars of the case in another place. See AORTA.

In the article ANEURISM, in the early part of this Cyclopædia, will be found some observations tending to make the reader imagine, that this disease arises from such a kind of weaknees as may be supposded to arise from the division of the outer coat or coats of an artery. We therefore take this opportunity of correcting the statement, since it has been fully proved by the experiments of Hunter, Home, Scarpa, &c. that aneurism never originates from this cause; and that even stripping off the external coat of the vessel will not give rise to such an effect.

With respect to tying the subclavian artery for the cure of auxiliary aneurisms, we ought to have remarked, that the operation, as performed by making an incision above the clavicle, has never had a successful result in this country; but, from a communication lately made to the Medical and Chirurgical Society of London, such an operation appears to have been recently executed with complete successes by Dr. Poll, of New York. We believe this to be the only influence in which this mode of operating has cured the diseaee, and saved the patient's life. The artery, however, has been several times taken up in this way in London; but the operation was practised by the late Mr. Radcliff, and again by Mr. Thomas Blizard; but their patients did not recover. The particulars of Dr. Poll's case are inserted in the Medico-Chirurgical Transf. vol. ix. p. 185, &c.

ANGAR ISLAND, in Geography, an island of the Persian gulf, somewhat larger than Ormuz, and equally barren. It is now uninhabited, but presents traces of former population in the ruins of a considerable town, and many reservoirs for water. It has two wells and a stream of good water, is covered with fields of salt and metallic ores, and also a soft, rocky sublunance resembling lava: its hills, which are overgrown with thistles of foylers and other fish, abound in wild goats, rabbits, and partridges. It forms an excellent harbour, which has been recommended for a settlement.

ANGELO AMERIGI, &c. 1. 7. 1. Domenicing; 1. 17. after life, add—The master-piece of all his works, viz. the Entombing of Christ, is now in the Louvre at Paris.


This is one of those curious genera of ferns, which like Danaea, Gleichenia, and Marattia, (see those articles) bear their capsules on the back of the leaf, or frond, without either a ring or involucrum. In the present instance, indeed, those capsules are not of many cells, like those of Danaea and Marattia, but as perfectly simple as in Osmunda already described, or Botrychium hereafter to be
be mentioned. They are, however, not dispersed, or irregularly placed, but compose oval maffes, of twelve or more capsules, which maffes are ranged side by side, in a dense uninterrupted line, near the margins of each leaflet of the frond, a vein from the mid-rib running along the base, or insertion, of each maffe, between its two rows of capsules. That these maffes are determinate afflemblages of capsules of an appropriate figure, is evinced by their having at each end a solitary transverse capsule, completing the oval outline, which is not perfectly expressed in Dr. Swartz's figure. The genus is, doublets, very distinct; and as its present name is not only faulty, but unmeaning, it would be well if Clementea, in honour of an able cryptogamic Spanish botanist, Don Simon de Roxas Clemente, had been retained. We should certainly now, without erasure, have restored it, were there not several other names of ferns, composed of tierea, which must stand or fall with Angiopteris.

1. A. sexta. Tall Angiopteris. Hoffm. Comm. Gott. v. 12. 29. t. 5, excluding the synonyms, except Forster's. Swartz Syn. Fil. 166. 395. Wil. n. 1. (Polypodium erectum; Forst. Prodr. 81. Clemente palmiformis; Cav. Lec. 55.)—Native of the Society Isles, and of Maria's islands. We have an Ohiotea specimen from Mr. Menzies. The main ftem is said to be arborecent, five feet high, and a span in diameter. Fronds fix feet long, doubly pinnae; leaflets from two to four inches long, opposite, fiddle, linear-lanceolate, taper-pointed, smooth, as well as their common falk; their margins finely crenate, the point terraced. Capsules brown, smooth, very numerous, scarcely larger than grains of sea-feed.

**ANG, ANG**

**ANGLE, RECTILINE, l. 2, for l. r.**

**ANGLE at the Periphery, for l. r. II.**

**ANGOY, See Goy and Loango.**

**ANGRA, l. t. r. Terceira.**

**ANGUILLA, For MITTS r. MYRUS.**

**ANGUILLARIA, in Botany, a genus dedicated by Mr. Brown, to the memory of LUIGI ANGUILLARA, (see that article,) apothecary, in the university of Padua, to the Venetian republic, who left an Italian work on the Materia Medica, which has been published at various times, and translated into Latin. Haller speaks of his author as deeply learned in this subject, and perhaps the best Italian botanist of the earlier part of the sixteenth century, having travelled in Europe and the Levant, and studied critically the writings of those who had gone before him. Gartner has called a genus *Anguillaria*, from the singular appearance of its embryo, resembling an anguilla; but this is the ARDIA of all authors at present. (See that article.)—Brown Prodr. Nov. Holl. v. 1. 373.—Clafs and order, Hexandra Trigynia. Nat. Ord. Trifolitidae. Linn. Junei, Juff. Melantherce, Brown.**

**Gen. Ch. Cal. none, unles the corolla be so called.**

**Cor. Petals fix, lanceolate, inferior, spreading, equal, deciduous, each furnished with a claw. Stame. Filaments fix, inserted into the base of each petal, awl-shaped, shorter than the corolla; anthers oblong, peltate, reverted. Pijf. German superior, oblong, furrowed; styles three, spreading, shorter than the stamens; filaments acute. Peric. Capsule ovate-oblong, naked, of three cells and three valves, the partitions from the middle of each valve. Seeds numerous, nearly oblongular.**

**Eff. Ch. Calyx none. Petals fix, equal, falked, deciduous. Stamens inserted into the claws. Stigmas acute. Capsule of three cells, with many seeds.**

**Obf. Anguillaria is nearly akin to ORNITHOGLOSSUM. (See that article.) It consists of herbs, exactly resembling the Cape species of Melanthium, especially in their leaves and roots. The flowers are sometimes dioecious, or polygamous. The claw of each petal is, in some instances, marked with a double gland. A. indica, in habit, colour of the flowers, the perfectly deciduous corolla, and perhaps the situation of the embryo, differs from the rest; can it be a distinct genus? Brown.**

1. A. dioica. Dioecious Anguillaria. Br. n. 1.—

"Flowers spikèd, dioecious. Claws of the petals somewhat fribled at the upper part."—Observed by Mr. Brown, at Port Jackson, New South Wales, as well as in Van Diemen's island.

2. A. biglandulosa. Glandular Anguillaria. Br. n. 2.—

Flowers united. Spikes few-flowered. Claws of the petals with two glands at the upper part. — Sent from Port Jackson, by Dr. John White, where also it was gathered by Mr. Brown. The ftem is solitary, from four to six inches high, simple, round, bearing two dilatant, linear, smooth, recurved leaves; sheathing inflated, and broad at their base. Spike solitary, terminal, zigzag, of from three to five pale, perhaps yellowish, flowers, half an inch broad, each claw bearing a semi-lunar, glandular, prominent, dark-coloured glandular spot.

3. A. uniflora. Single-flowered Anguillaria. Br. n. 3.—

Stam. single-flowered. Leaves lax, with hooded sheaths.**

4. A. indica. Indian Anguillaria. Br. n. 4. (Melanthium indicum; Linn. Mant. 1. 226. Wil. Sp. Pl. v. 2. 268.)—Stam with few flowers. Partial falks longer than the petals; the side-ones having a collateral leafy bract. Leaves straight, with tight sheaths. — Native of Tranquebar and Pondicherry, as well as of the tropical part of New Holland. Root bulbous. Stem from fix to ten inches high, simple, erect, smooth and slender. Leaves two or three, linear, taller than the stem. Flowers terminal, usually two or three, one much earlier than the others, on angular falks, with lanceolate bractees various in size and number. Petals narrow, of a dark dull purple, as well as the fyles, which are dilated and revolute. Capsule elliptical, crowned with the permanent fyles.**

**ANGUIS, l. 9, dele which fie respectively, and add—See SERPENTES.**

**ANGULO, in Botany, named in honour of Francis de Angulo, a Spanish naturalist, of whom or his works we have no information. — "Ruiu et Pavon Prodr. Fl. Peruv. et Chil. 118. t. 26." Swartz Orchid. in Schrad. Neues Journal, v. 1. 89.—Clafs and order, Gynandra Monogynia. Nat. Ord. Orchideae.**

**Gen. Ch. Cal. Perianth superius, revered, antheridia Monogynia, or ovato-lanceolate, concave, converging leaves. Cor. Petals two, resembing the calyx, but rather narrower. Nectary a lip shorter than the calyx, falked, pitcher-shaped, somewhat bell-shaped, split longitudinally at the inner side, two-lobed; lobes rounded, reflexed at the margin; having in the notch in front a small, lanceolate, reflexed segment; in the posterior part another, tongue-shaped, concave, erect appendage. Stame. Anther a vertical, lance, hemispherical, incumbent lid, pointed in front, of two cells, deciduous; maffes of pollen two, globular. Pijf. German inferior, cylindrical; style erect, gibbous, three-toothed at the top, the middle tooth with three points; stigma transverse, in front. Peric. Capsule with fix angles, three of them larger than the rest, of one cell, and three valves. Seeds numerous.**

**Eff. Ch. Calyx reversed, converging. Petals rather narrower than the calyx-leaves. Lip falked, pitcher-shaped, two-lobed, shorter than the calyx. Anther a deciduous lid.**

1. A.
ANHEDRITAE.—See Mineralogy, Addenda.

ANJENGO, l. ult. N. lat. 8° 30'. E. long. 76° 49'.


Gen. Ch. Cal. none, unless we take the corolla for such. Cor. of one petal, superior, tubular, externally clothed with compound hairs; tube curved, rather swelling upwards; limb in fix deep, irregular, lanceolate, acute, unequal segments, much shorter than the tube, directed upwards; the two lowermost largest and most spreading. Stam. Filaments fix, awl-shaped, inserted into the mouth of the tube, shorter than the limb, opposite to its segments, and having a similar direction; anthers linear-oblong, erect, burfting lengthwise in front. Pij. Germen inferior, oval; style thread-shaped, ascending, on a level with the flaments, deciduous; stigma undivided, tumid. Peric. Capsule nearly spherical, of three cells and three valves, crowned with the permanent corolla, burfting at the fummit. Seeds numerous, angular, inserted into the inner angle of each cell.


1. A. rufoa. Reddish Anigozanthus. Labill. Voy. as above 441. t. 22. Nov. Holl. v. 2. 119. Brown n. 1.—“Stem permanently downy. Anthers pointless.”—Native of New Zealand, in dry fandy deserts, where it flowers in December. The stem is two feet or more in height, round, moist downy in the upper part; somewhat leafy below. Leaves linear, acute, narrow, entire, finely fbrbrous. Panicle corymbose, downy. Flowers externally covered, like the whole of the panicle, with reddish, branched and tufted hairs. Their partial flanks are short. Labillardiere’s figure represents the anthers with a point, but not an incised one. Nothing is recorded concerning the colour of the inflow of the flower. The flaments appear to be dilated at the base. Brown.

2. A. flavida. Ruffet-green Anigozanthus. Br. n. 2. Ait. n. 1. Redout. Lilac. t. 176. Curt. Mag. t. 1151. (A. grandiflora; Salt. Parad. t. 97.)—“Stem and leaves very smooth. Down of the panicle deciduous. Anthers with a little reflexed point.”—Observed by Mr. Brown on the south-west coast of New Holland. We rely on that gentleman for the above specific characters; otherwise we should, like Mr. Ker, have scarcely considered these two plants as distinct. The present is said to have been sent to Kew by Mr. Good, in 1803. It was raised from seed, in Mr. Vere’s garden, by Mr. Aderon, now of Chelsea, who found it required merely to be protected from frost, and flowered during most part of the summer. The leaves are sword-shaped, much broader than the foregoing. Flowers, according to Mr. Brown, smaller than in that species. They seem to be two inches long, externally green, covered with red, tufted, branched hairs, as well as their footstalks; inside of the limb smooth, dull purple. Anthers red on one side, yellow on the other, not repreffed with so much of a point in the Botanical Magazine, as those of the fift species in Labillardiere’s figure. We have seen no specimens of either. M. Redouté has detected the fame specific marks as Mr. Brown, and is the author of the above name. He had specimens of both from his friend Labillardiere, and on minute examination determined them to be most probably distinct. The flowers of A. flavida are smaller than in his figure than in the Botanical Magazine.

ANIMAL FLOWER, l. ult. See Calendula.


Eff. Ch. Calyx tubular, five-cleft, with ten furrows. Upper lip of the corolla smallest, undivided; lower three-cleft, middle segment two-lobed. Stamens prominent, ascending. Anthers of the shorter ones with two adjoining cells; often the longer ones halved, or difflaminate. Seeds smooth.

Downy herbaceous plants, growing within the tropick. Leaves crenate. Flowers whorled, with minute bractes. Calyx glandular. Corolla purple. The genus is akin to Ajuga and Teuerum, but sufficiently distinct from both one and the other. The upper lip of Ajuga is extremely short, and has a small central notch. Its anthers are observed by Mr. Brown to be uniform, kidney-shaped, of only one cell; and the seeds reticulated.

1. A. mokohata. Mukly Anisomeles.—Leaves ellipticall, downy and hoary like the stem. Flowers few in each whorl. Calyx greyish, with conspicuous glands.—Gathered by Mr. Brown, as well as the two following species, in the tropical part of New Holland.

2. A. inodora. Scentleaves Anisomeles.—Leaves ellipticall, nearly smooth; dotted beneath. Whorls remote. Calyx green, with conspicuous glands.


4. A. ovata. Broad-leaved Anisomeles. Brown in Ait. n. 1. (Nepea indica; Linn. Sp. Pl. 799, excluding the synonyms. Willd. Sp. Pl. v. 3. 57. Ballota diofita; Linn. Mant. 83. Ait. ed. 1. v. 2. 304. Willd. Sp. Pl. v. 3. 108. Marrubium odoratifolium, betonica folio; Burm. Zeyl. 153. t. 71. f. 1.)—Leaves ovate, or somewhat heart-shaped, strongly crenate or serrated. Whorls many-flowered. Bracteas linear. Calyx hairy; with scarcely visible glands. Native of the East Indies, from whence it is said to have been imported by the first earl of Bute, in 1753. The plant has hardly perhaps been preferred in the flowers, being an annual, of no great beauty, however interesting to the curious botanist. The whole herb has a velvet-like softness, owing to its fine, short, soft, deprefed hairs; its habit and fize very like our Ballota nigra. The leaves sometimes very much refeeme the foliage of the common Urtica diofita, in fize, fhape, and ferratures, but are often rather crenate than ferrated. Whorls for the most part crowded into thick, partly leafy, spikes. Calyx very curiously reticulated with copious transverse veins; its teeth large, broad, pungent. The short upper lip of the corolla did not escape Linnaeus, who found thereon his specific character of this plant, as a Nepeta. His herbarium
herbarium proves Mr. Brown's suspicion to be correct, of *Balboa diffusa* being the same plant. The seeds well answer to the generic character of *Anisomeles*, being beautifully polished, elliptical, of a shining black.

These plants, at least the three New Holland species, seem most allied to *Teucrium Iva* and *falsioflorum* of Linnaeus, now removed to *Ajuga*. The mushy odour of the first species is found in *Ajuga Iva*, whence a singular variety of that plant, with regular flowers, being taken by Forskall for a new genus, received the name of *Moscharia*. (See that article.) The elliptical form of the leaves in *Anisomeles majhope*, rare in this natural order, agrees nearly with the *Linnaean Teucrium Laxmanni*, which is likewise an *Ajuga*. See *Teucrium*.


Eff. Ch. Calyx of two lax, membranous, ribbed, equal valves, fingle-flowered. Corolla flaked, of two valves; outer cylindrically involute, three-awned at the top, the middle awn twined, the lateral ones bristle-shaped; inner longer, unawned.

1. *A. avenacea*. Oat-like *Anisopogon.—*Native of the neighbourhood of Port Jackson, New South Wales. A grass three feet high, resembling an *Avena*. (See that article.) Stems unbranched. *Leaves* involute, with a fringed *filipula*. Panicle loose. *Calyx-glumes* large. The outer valve of the corolla is filky, connected with the stem by an obcolete joint. A small bristle, at the base of the inner valve, indicates this genus to be more strictly allied to *Dantionia*, (see that supplemental article,) than to *Aristera*, which latter the reader will find in its proper place.

**ANKER, As—*An anker of brandy contains 10 gallons.* It is also a liquid measure not only at Amsterdam, but at Copenhagen, Hamburg, and other places. (See Vat.) At Copenhagen, a fuder of wine contains 2 pipes = 4 ox-hoats = 6 shns; the ahm or tierce being = 4 ankers = 40 flubgens = 778 kannes = 155 pots = 620 poees. A fuckle or is = 7/8 ahm = 30 ankers: 32 pots hold the weight of a Danish cubic foot of water, each being 64 Danish inches high, 34 ditto wide, and containing 65 cubic inches; 55 Danish pots, or 27¼ Danish kannes = 14 English gallons, and an ahm = 30¾ gallons nearly. The ahm at Hamburg is the sixth part of the fuder, and is 4 ankers = 5 emers = 20 viertels = 40 flubgens = 160 quarters = 320 ocelli. See Measure.

**ANN, Queen, in Geography, a county of Maryland, containing 16,048 inhabitants, of whom 6381 are slaves.

**ANN, a money of account in India. See Rupee.

**ANNAPOLIS ROYAL, l. 13, for fem r. item.

**ANNARUNDEL, l. 4, r. 26,668; l. 5, r. 12,693.

**ANNONA, in Botany, (see our former article,) is a name of barbarous origin, made into Latin by Linnæus, in allusion, as he tells us in Hort. Cliff. 222, to the value of the fruit, as yielding a grateful harvest or crop, *annona*, to the people where it grows. *Anona* is generally supposed to have been the original word, and is accordingly retained by the French school. But by Baulin’s Pinax, *Annona* appears to have full as authentic claims, on the score of priority, as *Anona*. The latter is moreover a Portugeze corruption of the original *Anon*, which Clusius taking from Oviedo, makes *Anon, Anonas*. *Anon, e*, is very incorrect. We trust our learned friends in France will not infilt on such an inaccuracy, any more than on their great countryman Plumer’s name, *Guanaeus*, which they have commendably rejected, though of older authority than Linnaeus or Jussieu.—*Linn. Vol. XXXIX.*


Eff. Ch. Calyx in three, more or less deep, concave, somewhat heart-shaped, papilhous lobes. Petals fix, thickish, the three innermost smaller or wanting. Anthers numerous, nearly fefile, covering the receptacle; angular and dilated at the summit. Gernons numerous, coalescing into a single fefile berry, whose coat is either tubercular, ficaly, or reticulated, the internal fufbance pulpy, furrounded with numerous, fingle-feended cells. *De Candolle.*

N.B. In our former article, line 12, read (or a compound berry, as in *Rubus*.)

The species are trees or shrubs, whose bark is often rctlicated, glandular, and aromatic. *Leaves* undivided, sometimes besprinkled with pellicuid dots. *Flower-starks* either axillary, or opposite to the leaves, often solitary, bearing one or more flowers, sometimes accompanied by small bractes.

Obi. Very rarely the calyx has four lobes. The inner petals are occasionally imperfect.

Twenty-four species are defined by *De Candolle*, but of these five are marked as imperfectly known. They are disfigured in five sections, by the shape and consistence of their petals.

**Sect. 1. Petals concave, thick, rather coriaceous, either heart-shaped or ovate.** Eleven species, subdivided as follows: *a* Outer petals acute; inner ones obtuse, and rather smaller. Sp. 1—4. *b* Outer petals obtuse. Sp. 5. **c** Petals all acute; inner ones rather the smaller. Sp. 5—11.

A concise view of the species will be sufficient, following the numbers of *De Candolle*.

1. *A. muricata.* (See *Annona* n. 1.) Linn. Sp. Pl. 756. Jauc. Obs. t. 160, t. 5. (Zuurfaack; Merian Surin. t. 14.)—Leaves ovato-lanceolate, smooth, somewhat sinning. Stalks solitary, single-flowered. Outer petals heart-shaped, pointed; inner obtuse. Fruit armed with feedy pointed tubeicles.—Native of South America and the West Indies. The flowers are large, yellow. *Fruit* as big as a large pear, green, or yellow, much esteemed.

2. *A. purpurea.* “*Dunal Monogr. 64. t. 2.*”—Leaves nearly fefile, lanceolate; rather rubly beneath. Flowers axillary, almost fefile. Outer petals heart-shaped, acute; inner roundish.—Found in Mexico. *Fruit* unknown. Outer petals yellowish-brown; inner purple.

3. *A. Humboldtii.* “*Ibid. 64. t. 5.*”—Leaves oblong, pointed, smooth, slightly dotted. Stalks axillary, solitary, short, fingle-flowered. Outer petals ovate, somewhat heart-shaped, acute; inner bluntish.—Found by Humboldt and Bonpland, in the South American province of Cumara. A shrub. *Flowers* yellowish, dotted with purple and red.


—Native of South America, and some parts of the West Indies. *Outer petals* large, green; inner white. *Fruit* green, shaped like an inverted pear.

flowered. Outer petals obtuse.—Cultivated in Hifpiola. Fruit roundish, tuberculated.

6. A. palustris. (See ANNONA n. 6.) Linn. Sp. Pl. 757. (A. aquatica, &c.; Sloane Jam. v. 2. 169. t. 228. f. 1.)—Leaves ovate-oblong, coriaceous, very smooth. Flowers solitary, flaked. All the petals acute. Fruit reticulated.—Native of the banks of rivers in South America and Jamaica.


9. A. peruviana. Dunal Monogr. 67. Leaves elliptic-oblong, acute, rather coriaceous, slightly decurrent. Stalks axillary, bracteate. Petals all acute. Fruit globose, reticulated.—Found by Humboldt and Bonpland, in bogs about Guyauil in Peru. Flowers yellow; three outer petals marked with a red spot, near the base of the flower.

10. A. Ambotay. Aubl. Guian. 616. t. 249. Willd. n. 13.—Leaves elliptic-oblong, acute; clothed with rusty down beneath. Flowers axillary, solitary, nearly fleshy. Petals acute.—Native of woods in Cayenne. A fruh, eight feet high. Flowers greenish, minute. Fruit not observed by Aublet, who alone seems to have seen this species, flowering in November.


Sect. 2. Outer petals ovate, concave, acute, coriaceous; inner wanting. Fruit not well known, so that the plants of this section are referred to the present genus by their habit only. Two species.


13. A. ficus. "Ibid. 69. t. 5."—Leaves ovate-oblong, pointed; smooth above: silky with rusty down, like the young branches, beneath. Flowers solitary, axillary, flaked; externally rusty. Petals three.—Found likewise in Cayenne, by M. Patris.

Sect. 3. Outer petals linear-oblong, narrow; triangular at the point; concave at the base only; often converging, so as to conceal the organs of impregnation; the inner ones extremely minute. Six species.

14. A. squamosa. (See ANNONA n. 3.) Linn. Sp. Pl. 757. Jacq. Obs. falc. 1. 13. t. 6. f. 1. (Atamaram; Rheede Hort. Malab. v. 3. 21. t. 29.)—Leaves lanceolate, smooth, with pellucid dots. Outer petals somewhat converging. Fruit ovate, scaly.—Native perhaps of South America. De Candolle. Cultivated in both Indies, within the tropics. A tree, twenty feet high, with a pithy bark. Flowers green externally, white within, dotted. Fruit edible, of a pungent taste, and fragrant scent, as big as a large apple; externally green, with tuberculated, scale-like protuberances.

15. A. Forfkalii. De Cand. n. 15. (A. glabra; Forrk. Egypt.-Arab. 102. t. 15. A. africana; Vahl Symb. v. 3. 153. "var. B." Dunal Monogr. 71. A. squamosa; Delile Egypt. 17.)—Leaves elliptic-oblong, smooth, dotted; glaucous beneath. Outer petals oblong, somewhat converging.—Gathered by Forrkahl and by Coquebert in Egypt. Scarcely, in De Candolle’s opinion, different from A. squamosa, but the leaves are thinner and less pointed, more distinctly dotted.

16. A. cinerea. "Dunal Monogr. 71. t. 8."—Leaves elliptic-oblong, almost lancelate, dotted; downy beneath. Outer petals somewhat converging. Fruit ovate, nearly globular, scaly.—Gathered by Ledru in the island of St. Thomas, but perhaps not really wild. The young branches, leaves, stalks, and flowers, are clothed with greyish pubescence. Flowers flaked, two or three together. Fruit not unlike A. squamosa.

17. A. Cherimolia. Mill. Dict. ed. 8. n. 5. Lamarck Dict. v. 2. 124. (A. tripetala; Ait. n. 2. See ANNONA n. 2. Guanabanus Pericée folio, flore intus albo, &c.; Feuill. Peruv. v. 3. 24. t. 17. Trev Ehret. 16. t. 49.)—Leaves ovato-lanceolate, without dots; very finely downy and pious beneath. Outer petals slightly converging; externally downy. Fruit nearly globular, somewhat fleshy.—Native of Peru, or rather perhaps of some warmer country; for Feuille’s speaks of this tree as cultivated there with great care, for the sake of its fruit, which is very wholesome, and much esteemed, though, he adds, one of our pears or plums is certainly worth all the Cherimolias of Peru. The tree is twenty to twenty-four feet high, with pendulous branches. Flowers pale green, with a crimson circle in the middle. Fruit heart-shaped, fleshy and rough, the size of a small apple, being drawn too small in Ehret’s figure. De Candolle says there are three inner petals, though very minute.

18. A. reticulata. (See ANNONA n. 4.) Linn. Sp. Pl. 757. Willd. n. 5; excluding the syn. of Rumphius and Plummer. Jacq. Obs. falc. 1. 14. t. 6. 2. (Anonamaram; Rheede Hort. Malab. v. 3. 23. t. 30. 31. Guanabanus fructu purpureo; Plum. 1c. 134. t. 134. f. 1. not 43. f. 2.)—Leaves oblong-lanceolate, acute, smooth, slightly dotted. Outer petals oblong, rather converging. Fruit ovate, nearly globular, tessellated like net-work.—Native of the West Indies, according to Brunne and Sloane. Rheede speaks of it as only cultivated, not wild, in Malabar. A larger tree than A. squamosa, and with a more disagreeable scent. Petals brown underneath; yellowish-white above, dotted with purple at the base. Fruit the size of a large orange, but more ovate, of a shining yellowish or reddish brown, eatable. Professor De Candolle supposes that several species may be here confounded; and Dunal distinguishes the plant of Jaucquin, from that of Rheede, by the reticulations of the fruit being somewhat pentagonal in the former, more rounded in the latter. Plummer’s seems still more different from both, in having the interstices very convex, each armed with a spine. Dombey appears to have gathered and preserved under this name, in Peru, a species distinguished by broader leaves, not marked with pellucid dots, but with more regular and prominent pinnate ribs. All these points may be cleared up by the acquisition of authentic specimens only, or by observations made on the spot. The history of the whole genus is as yet but a sketch, nor have European botanists materials to fill up the outline.

fasc. 1. 16. Aubl. Guian. 618. (Manoa; Rumph. Amboin. v. 1. 135. t. 45.)—Leaves oblong-lanceolate, smooth. Outer petals spreading at the extremity. Fruit tessellated, with gibbous interlakes.—Native of South America and some parts of the West Indies. Cultivated in the Molucca islands. This is said to differ from the last, in having the interlakes of the fruit tumid, (what then becomes of Plumer's t. 143. f. 1?) its pulp more sciny, and not agreeably flavoured. The leaves also are somewhat narrower.

Seet. 4. Outer petals elliptic-oblong, obtuse; inner smaller, lanceolate, blanched. Calyx large, coriaceous, three-lobed, somewhat bell-shaped. Fruit conical, smooth. Three species.

20. A. glabra. (See Annona n. 8.) Linn. Sp. Pl. 758. Willd. n. 10. (" A. maxima, folius latis, fruticu maximos, luteo, confide, cortice glabro; Cateb. Car. v. 2. t. 64.")—Leaves ovato-lanceolate, smooth. Stalks two-flowered, opposite to the leaves. Fruit conical, obtuse, even. Native of Carolina, according to Cateby. Cultivated perhaps in the West Indies. A tree sixteen feet high, with smooth leaves, much resembling those of a lemon-tree. Calyx reddish externally, of three broad, very short, often abrupt lobes. Petals six, nearly obovate, twice the length of the calyx.


22. A. amplcascuclus. Lamarck Dict. v. 2. 127. Willd. n. 18. (" Dunal Monogr. 76. t. 3.")—Leaves oblong-heart-shaped, clasping the stem, acute, smooth. Stalks axillary, solitary, single-flowered. Found by Commerson in the isles of Mauritius and Madagascar. The leaves are feble; glaucous or purplish beneath, at leaf when dry. Three inner petals rather the smalllet.

Seet. 5. Annona not sufficiently known. Five species.

23. A. aficata. (See Annona n. 9.)—Linn. Sp. Pl. 758. Willd. n. 12.—Leaves oblong, pointed, without dots; downy when young. Native of Ceylon. Linnaeus. A specimene under this name is found in his herbarium, but there is no evidence of its being what he intended in his Fl. Zeyl. nor even in the first edition of Sp. Pl. There are neither flowers nor fruits, nor can we satisfy ofselfs of this specimene being the fame species as the botanists of Tranquebar fend us for A. aficata, which latter agrees best with figuenaofa, n. 14.


25. A. ? uniflora. (" Dunal Monogr. 76.—Leaves oblong, pointed, smooth; glaucous beneath. Flower-stalks downy, hoary, opposite to the leaves. Native of Para, in Brazil. Young branches downy and hoary. Leaves nearly seflies. Flowers opposite to the uppermost leaf on each branch, with one or two orbicular leafy bractes. Calyx in three large, deep, ovate, coriaceous segments, externally hoary. The unexpanded petals appear similar thereto. A beautiful species, but the genus is doubtful. De Cand.

26. A. ? oxyacca. (" Dunal Monogr. 77.—Leaves ovate-oblong, coriaceous, smooth, like the branches, on both sides; polished above. Flower-stalks simple or divided, nearly opposite to the leaves. Gathered in the woods of Guiana, by Mr. Alexander Anderson, whose specimens were examined by preceptor De Candolle in Mr. Lambert's herbarium. A handsome tree, with a small, entirely dry, fruit. Branches smooth from the firt. Leaves two and a half to four inches long. Petals three-lobed! This surely may well be deemed a doubtful Annona.

27. A. africana. (See Annona n. 10.) Linn. Sp. Pl. 758. Willd. n. 14; excluding the synonyms. (A. folius lanceolata pubescentibus; Linn. Hort. Cliff. 222.)—"Leaves lanceolate, downy."—This is recorded in the Hortus Cliffortianus to have sprung up from African seeds. The "habitat in America" is therefore a gross and palpable slip of the pen, in the second edition of Sp. Pl., (it is Attiopia in the first,) which the editors of Linnaeus's writings should have corrected; for such a contradiction of the specific name, might have induced some inquiry. Nothing appears for this species in the Linnaean herbarium. In Hort. Cliff. the branches are said to be rough with minute dots. Leaves ovate, but rather elongated; downy, and in a manner hoary, on both sides, by no means polished.

For other plants which have been referred to Annona, see Orchidocarum, Asmina, and Monodora.

ANOMALY, col. 4. l. 15; for 122,441 r. 122,441.

ANOMATHECA, in Botany, from anomalus, out of rule, and no, a cafe; because the capsule is distinguished by its papillary roughness, from all the rest of the plants of the fame natural order, that have hitherto been examined.—Ker in Sims and Kun. Ann. of Bot. v. 1. 227. Deyandr. in Ait. Hort. Kew. v. 1. 99. Clafs and orders, Triandria Monogynia. Nat. Ord. Enfifae. Linn. 1rides, Julif.

Gen. Ch. Cal. Sheath inferior, of two very small, elliptical, concave, leafy, nearly equal valves. Cor. of one petal, superior, valer-flapped; tube many times longer than the fheet, fraftly, nearly cylindrical, a little dilated at the mouth; limb not quite regular, in fix, nearly equal, obovate, deep fegments. Stam. Filaments three, inserted into the tube, thread-flapped, erect, much shorter than the limb; anthers vertical, oblong, converging. Pifl. German roundifh; style thread-flapped, about the length of the fhamens; fligmas three, deeply divided, with linear, spreading fegments. Peric. Capsule roundifh-ovate, of three cells and three valves, its surface covered with small, papillary tubercles. Seeds numerous, round.


1. A. junca. Cut-leaved Anomatheca. Ker n. 1. Ait. n. 1. (Lapeyrroufia junca; Curt. Mag. t. 66. Gladiolus junca; Linn. Suppl. 94. Thunb. Glad. n. 18. Cap. v. 1. 201, excluding the synonym of Jacquin! Rev. Dourn. Linn. 141. G. polyfachium; Andr. Repof. t. 66.)—Found by Thunberg, in Lange Kloof, at the Cape of Good Hope, flowering from October to December. It flowers in May in our green-houses, where it is not uncommon, being eaily propagated by offsets and by seed. The bulb is ovate. Leaves radical, equitant, fward-shaped, acute, dark-green, marbled, with a deep splitting notch at their inner edge, from the base half way up. Stalk a foot high, being twice as tall as the leaves, round, rather fender, branched, smooth, bearing many foliary, unlimited, slightly ruffg, fids, of elegant, rofe-coloured, fentilefs flowers; the irregularity of whole corolla is evinced by the three lower segments being each marked with a deep red spot, and the middle one being morter-
white at the base. *Capulis* rough, with crowded, glandular, or papillary, protuberances. Mr. Ker conceives *Ixia exigua*, Linn. Suppl. 92, or at least one of its varieties, to be the same plant; but the specimens in the Linnaean herbarium are purely different. They may indeed prove another species of *Anomatheca*, but this can only be ascertained by their *capulis*, which is wanting in all of them. *A. juncea* is certainly *Gladiolus amabilis* of Mr. Salisbury's Prod. 41 (not 4) as appears by a specimen from himself. He was the first author who noticed the peculiar roughness of the *capulis*, which he compares to the *fruit of a Caucoctis*. Few of the more familiar orders can be much more distinct than Jacquin's *G. floribundus*, l. c. Rap. 1. 254, cited by Thunberg, with a faulty reference, in his Fl. Caprilas.

**ANONACEA.** The fourth natural order of the Dicotyledoneae, or Eoxenes, of De Candolle; separated by him from the Compositae of Linnaeus, and answering to the *Anone* of Jussieu, being thus named after *Anona*, one of the chief genera. De Candolle thus defines the order.

**Calyx** of three lobes, very rarely of four. *Petals* five, in two rows, alternate with each other; the inner row sometimes wanting. *Stamens* indeterminate, unconnected. *Germens* indeterminate; very rarely solitary. *Fruit* compound, either separable or combined. *Seed* with internal procels, separating the portions of the albumen.

**Fructification.** *Calyx* inferior, short, permanent, more or less deeply three-cleft, very rarely with four lobes. *Petals* five, inferior, in a double row, alternate with each other, mostly coriaceous, and somewhat resembling an inner calyx, imbricated in the bud, though each row is valvarul in that state; the inner one sometimes larger, sometimes smaller, rarely wanting. *Stamens* numerous, close-prepped, generally covering the hemispherical disk (or receptacle of the flower); filaments very short; anthers nearly sessile, with glandular, quadrangular, occasionally nectareous points; their cells bursting longitudinally, externally, and downwards. *Germens* mostly numerous, crowded closely together, in some instances aggregate or combined, in others, though very rarely, and possibly from abortion, solitary. *Styles* one to each germen, short. *Fruits* as many as the germens, sessile or stalked, sometimes combined, either pulpy or capsular, with one or many seeds, which are ovate, or ovate-oblong, in one or two rows, inserted into the inner corner of each fruit. Their skin is brittle, membranous or crumaceous, having internal, sometimes plaited, procels, either flat or awl-shaped, infusing themselves into the chinks or perforations of the albumen. The latter is flisfy, hard, shaped like the seed, very often bordered with a depremed furrow, accompanied by tranverse pliats, or contiguous perforations. *Embryo* minute, situated in the umbilical region of the albumen. *Cotyledons* short. *Radicle* nearly cylindrical.

**Habit.** Trees or shrubs, with round, often slightly two-ranked, branches, whose *bark* is mostly either reticulated, or warty; the young ones generally downy. *Leaves* alternate, connected with the stem by a joint, either sessile or with short footstalks, simple, almost always entire, or scarcely toothed, with pinnate veins; folded, and often downy, when young. *Stipulas* none. *Flower-flats* mostly axillary, sometimes lateral, or opposite to the leaves, solitary, generally furnished with small *bracts*; they are shorter than the leaves, bearing one or many flowers, and not uncommonly twinned into a hook, some of the flowers being abortive.

**Qualities.** The roots, bark, leaves, and fruits, especially such as are capsular, are acid, pungent, aromatic, and stimulants, often used for feathing. Those fruits which are of a fleshy nature are eatable, and esteemed in tropical climates.

**History.** The *Anonaceae*, being all strangers to Europe, were unknown to the ancient botanists. Calpurn Balthin has scarcely indicated two species, Linnaeus thirteen, Wildenow thirty-six, Persoon forty-four; but Dunal in a most excellent treatise, almost literally followed by De Candolle, defines one hundred and five. Of these, five are natives of the temperate zone in America; forty-leaf of the tropical regions of the same quarter of the globe; eight of equinoctial Africa; three of the Mauritian islands; twenty-six of India or its islands; fix of China and Japan; two of New Holland; and there are fix whole native country is uncertain.

**Affinities.** This order agrees with the Magnoliaceae of the same learned author, in having the parts of the flower disposed in a ternary order, anthers united to the filaments, numerous filaments and piliils; but differs very essentially (according to him) in having no stipeis, and differently shaped anthers as well as seeds. Some few climbing species make an advance towards the Menisperme; but the indefinite filaments, and the structure of the fruit, afford a distinction. The *Anonaceae* differs from all other polypeetal orders, with a superior germen, in the ternary structure of their flowers, as well as in the very peculiar infection of the internal procels of the seed into its albumen. Such a structure was indeed found by Mr. Brown, in his *Eupomatia* (hereafter to be described in its proper place); a genus otherwise very different from the order before us.

The genera enumerated by De Candolle are, *Kadupola* of Jussieu; *Anona* of Linnaeus; *Monodora* of Dunal; *Affina* of Adanson; Porcelia of Ruiz and Pavon; *Usoria*, *Xylopia*, and *Unona* of Linnaeus; and *Guatteria* of Ruiz and Pavon.

**ANOPLOTHÉRIUM, in Natural History, an animal of an extinct genus, whose remains are found in a fossil state in the vicinity of Paris. It is so called by Cuvier, to denote that it was without weapons, having no canine teeth. In the natural system, this animal should be placed between the horse on one side, and the hippopotamus, the pig, and the camel on the other. The remains of five species of the anoplotherium have been discovered. The largest was the size of a small horse; the smallest not larger than a small rabbit. See *Strata* in the vicinity of Paris.


Gen. Ch. Cal. Perianth inferior, of one leaf, in fix deep, acute, equal, spreading segments, permanent. Cor. of one petal, bell-shaped; tube very short; limb in fix deep, equal, concave, obtuse, imbricated segments, much longer than the calyx. *Stamens* fix, awl-shaped, smooth, equal, inserted into the tube of the corolla, opposite to each segment, and about half as long; anthers incumbent, heart-shaped, obtuse, two-lobed. *Pistil* Germen superior, ovate; style short, cylindrical, erect; stigma in two acute lobes. *Pericarp* capsular oblong, of one cell and two valves. *Seeds* numerous, inserted into the margin of each valve, pendulous, imbricated, each crowned with an obovate, obtuse, membranous wing, thrice its own length.

cloven. Capsule of one cell and two valves. Seeds imbricated, pendulous, winged.

1. A. glandulosa. Glandular Anoptherus. Labill. Nov. Holl. v. i. 86. t. 112.—Native of Cape Van Diemen. An elegant slender tree, about thirty feet high, very smooth in every part. Leaves scattered, occasionally opposite, obovate-oblong, serrated, single-ribbed, coriaceous, about four inches long, rather bitter to the taste; tapering at the base; a black prominent gland on the inner edge of each serrature. Clusters terminal, simple, half the length of the leaves, either solitary, or as many as four together. Corolla about the size and shape of Pyrolo rotundifolia; of its colour nothing is recorded. Labillardiere's descriptions having been drawn up from his dried specimens after his return to Europe. Mr. Brown remarks, that the embryo is minute, nearly globose, enclosed in a fleshy albumen; the radicle superior.


Eff. Ch. Calyx in two deep segments; keeled at the back. Corolla none. Style divided. Stigmas two. Seed clothed with the compressed, membranous, two-winged calyx, emarginate at the top and bottom.

1. A. flaccens. Climbing Anédera. (Fegoprynum flaccens, feu Volubilis nigra major, flore et fructu membranaceae, subrotundis, complefis; Sloane. Jam. v. i. 138. t. 92. f. i.)—Native of Jamaica, growing among trees near the ruins of a monastery by the town. Sloane. The stems are twining, round, red, succulent, climbing to the height of seven or eight feet. Leaves alternate, heart-shaped, or somewhat deltoid, succulent, smooth, entire, two inches and a quarter long, on footstalks half an inch in length. Clusters numerous, alternate, many-flowered, axillary and terminal. Flowers orbicular, compressed, green, bordered with a thin white membrane formed of the keel of each calyx-leaf. As the seed ripens, they turn brown. Sloane compares them to parsnip-seed. Swartz feems not to have noticed this plant. Its habit is nearly that of Bafella.

ANTELOPE, vol. 3, 1, 7 from bottom, r. BURBIS or CERVINE Antelope.

ANTHERYLLIUM, in Botany, so named, either by Vahl or Von Rohr, apparently from abscis, an anther, and νος, wood, or materials of any kind, in allusion to its numerous and conspicuous anthers.—Vahl in Mem. of the Nat. Hist. Soc. of Copenhagen, v. 2. 211. Wildi. Sp. Pl. v. 2. 960.—Clas and order, Isocandria Monogynia. Nat. Ord. Hesperides, Linn. Myrti, Juf.

Gen. Ch. Cal. Perianth of one leaf, inferior, in four deep, lanceolate, spreading, permanent segments. Cor. Petals four, inserted into the calyx between its segments, large, obovate, plaited and undulated, with short linear claws. Stem. Filaments numerous, from about thirteen to sixteen, capillary, inserted into the calyx, longer than the corolla, permanent; anthers incumbent, convoluted, furrowed. Pif. German superior, globose; style thread-shaped, very long; stigma capitate. Peris. Capsule globose, obliquely triangular, of one cell, and three, occasionally four, valves, burling at the top and decussate. Recept. globose, somewhat triangular, spongy, dotted with little hollows to receive the Seeds, which are numerous and minute.


1. A. Robbi. Flowery Antheryllium. Vahl as above, 212. t. 8. Symb. v. 3. 66. Willd. n. 1.—Native of the West Indian island of St. Thomas. Van Rohr, and Wli. A tree, with round, grey, scattered, scarred branches; lofty, and somewhat quadrangular, in their upper part. Leaves nearly opposite, flaked, ovate, acute, entire, two inches long, thin, very smooth, with one rib, and many transverse veins. There is a pair of stipulaceous prickles at the base of each footstalk, which disappear from the older branches. Footstalks axillary from the inception of the last year's leaves, from five to eight, fewer on one side of the branch than the other, hardly an inch long, simple, single-flowered, naked, thread-shaped. Capsule downy, the five to seven furrowed. Nothing is recorded of the colour of the flowers, nor of the qualities or use of any part. The habit of the tree is compared by Vahl to the Leguminosae, to which genus he supposes this to be allied. He supposes also some affinity to Aublet's Crennea. See that article.

ANTHOBOLOUS, we presume from abscis, a flower, and βολος, a cast, or lump, the flowers forming little dense tufts.


Akin to Exocarpus and Osyris. (See those articles.) The genus consists of smooth fleshy shrubs, copiously branched, in habit resembling Opysis, the principal as well as the ultimate branches jointed at their inception. Leaves scattered, sessile, articulated with the branch, narrow, nearly thread-shaped, defluente of fipulas. Fower-flanks axillary; the male ones bearing each an umbel of three or four flowers; the female from one to three, jointed in the middle when simple, at the division when branched, and furnished at the joint with two deciduous bractae. Flowers small, yellowish.

1. A. filifolius. Slender-leaved Anthobolus. Leaves thread-shaped, lax, as well as the young branches. —Gathered by Mr. Brown, in the tropical part of New Holland.


Gen. Ch. Cal. Perianth inferior, of one leaf, cut half way down into five equal, erect, acute segments, permanent. Cor. of one petal, wheel-shaped; tube bell-shaped, constricted at the base, twice as long as the calyx; limb about as long as the tube, in five, sometimes seven or eight, very deep, equal, linear-lanceolate, spreading segments. Stam. Filaments four, with the rudiment of a fifth, inserted into the base of the tube, and not above half so long,awl-shaped, simple, smooth; anthers roundish, incumbent. Pif. German superior, oblong; style cylindrical, the length of the tube; stigma capitate, notchlike. Peris. Capsule ovate-oblong, of two cells and two valves, with incurved edges, meeting the parallel partition. Seeds numerous, small, roundish, reticulated.

two cells and two valves, with inflexed edges, and a parallel partition.

A shrubby smooth genus, whose habit announces an affinity to the Solanaceae, but whose regular, deep-cut, radiating corolla, is altogether strange in the Linnaean class Didynamia. The leaves are alternate, tapering at the base, or somewhat flapped, articulated with the branch, thick, sometimes dotted with glands. Flowers axillary, nearly solitary, their filaments minutely bearded, and moiety separating easily at the joint. Corolla white or yellow, handsome; its tube internally striated; limb in from five to eight segments.

1. A. littorea. Yellow Anthocercis. Labill. Nov. Holl. v. 2, t. 19, t. 158. Br. n. 1. — Leaves obovate, without dots, smooth at the edges, as well as on both sides. Young branches smooth. Segments of the corolla longer than the tube. Capsule oblong, twice the length of the calyx. — Discovered by Labillardiere in Lewin's land; and observed in the fame neighbourhood by Mr. Brown, and Mr. Good. The latter sent feeds to Kew in 1803. This is a greenhouse plant, flowering during most part of the summer.

Mr. Aiton favoured us with a specimen in May 1817, when it first began to produce flowers. These are an inch in diameter, inodorous, pale lemon-coloured; the radiant segments of the limb narrow, taper-pointed; the tube fringed internally with deep violet. Leaves about an inch long, abrupt or emarginate; nearly entire in our specimens. Labillardiere says they are sometimes toothed, or ferrated.

2. A. viseosa. Glutinous Anthocercis. Br. n. 2.—Leaves obovate, marked with glandular spots; roughish at the edges; when young finely downy, as well as the young branches. Capsule ovate, about the length of the calyx.

—Native of the southern coast of New Holland. Brown. We have seen no specimen of this species, but from the above account, furnished by Mr. Brown, we presume its flowers to be white, and their limb not longer than the tube.

ANTHODON, a name which seems to allude to the toothed calyx and petals, is applied in the Flora Peruviana, v. 1, t. 45, t. 74, f. 10 to a plant referred by professor Vahl to his Tonsella; see that article, f. 4th.

ANTHOLORA. Labill. Voy. Engl. ed. v. 2, t. 245, t. 41. Nov. Holl. v. 2, t. 121, is certainly the same genus as Bassia. (See that article.) Whether Labillardiere's plant may be the obovata of Forster, or a new species, we have no certain means of knowing.


Gen. Ch. Cal. Perianth superior, in five deep equal segments, permanent. Cor. of one petal, longer than the calyx, irregular; tube slit at the back from top to bottom, and easily separable into five parts, with inflexed edges; limb two-lipped; upper lip in two, lower in three, deep segments, those of the upper lip having an ear-like appendance at their inner margin. Stam. Filaments five, shorter than the tube; anthers closely united into a tubular form. Pistil. Germen inferior, oblong; style capillary, the length of the stamens; stigma large, oblong, enveloped in a bivalve beard, cover, contrary to the lips of the corolla. Pericarp. Capsule of two cells. Seeds several.

Eff. Ch. Corolla of one petal, slit longitudinally at the back; limb two-lipped, its upper segments auricled at their inner margin. Anthers combined. Stigma with a bivalve beard integument. Capsule inferior, of two cells.

1. A. humile. Dwarf Anthotium. Br. n. 1.—Native of the south coast of New Holland. A little smooth, fleshy herb. Leaves radical, almost cylindrical, scarcely dilated at the base. Stalks several, spreading, undivided. Flowers collected in tufts, subtended by leafy bracts. Corolla approaching to a violet colour. Pollen of simple grains. There are two varieties, one almost twice the size of the other, the parts of the flower somewhat differing also in their relative proportion. Brown.

ANTHRACITE. See Mineralogy, Addenda.

ANTIARIS, in Botany, altered by Lefchenault from the name of the famous Poaon-tree of Java, Usps Anisar, which that botanist calls Antiaris tosicaaria, and which Mr. Brown considers as of the same genus with what we are about to describe from his excellent General Remarks, Geographical and Sylleomatic, on the Botany of Terra Australis, p. 70; published at the end of the account of captain Flinders's Voyage, 1814.—Clasf and order, Monococia Tetradria. Nat. Ord. Scabridio, Linn. Uruchs, or Uruchs, Jull. Brown.


Female. Cal. Involucrum single-flowered, ovate, small, smooth, many-cleft at the summit, with lanceolate, fringed, converging, deciduous segments, some of them flatteret over the body of the involucrum: perianth none. Cor. none. Stam. none. Pifi. Germen in the body of the involucrum, oblong, single-fed; style divided, almost to the bottom, its segments thread-shaped, parallel, smooth, divaricated at the upper part; stigmas simple, acute. Pericarp. Drupa formed of the enlarged involucrum, oval, smooth, the size of a small plum, dark purple, internally fleshy and yellowish, containing a white milk. Seed. Nut pendulous, ovate, with a smooth, brown, tenacious crust; kernel without a skin; albumen none; embryo white, of two large, ovate, fleshy, almond-like cotyledons, flat on the inside, rather convex externally; radicle superior, very short.


1. A. macrophylla. Brown as above, t. 5.—Found by Mr. Brown, in barren stony places, on the shores of the Company's islands, adjacent to Arnhem's land, on the north coast of New Holland, in about 12° south latitude, bearing flowers and ripe fruit in February, 1803. A fern, or very small tree, about six feet high, much branched, smooth, milky. Branches round. Leaves alternate, falcate, elliptic-oblong with a sharp point, entire, coriaceous, six inches long and three wide; unequal and slightly heart-shaped at the base; dark-green and shining above; more verdant beneath; with one rib, and many transverse parallel veins. Footstalks roundish, grey, half an inch long. Stipulas intrafolious, lanceolate, pointed, folded, leafy. Flowers flasks axillary, solitary, racemose, scarcely longer than the footstalks, each bearing one or eight alternate flowers, of which one or two of the lowest are female, and earlier than the rest, which are all male.

We presume the A. tosciaaria of Lefchenault, Annales du Mus. v. 16, t. 12, is another species of the same genus; but
but we are not informed of the specific characters of either. Of that celebrated Poison-tree the first satisfactory account, according to Mr. Brown, is there given, which differs from his description above, merely in some particulars relative to the male flowers. He adds that Antirrhis should stand in the Urticace, between Bresinnum of Swartz, and Olmeda of the Flora Peruviana, agreeing with the latter in the structure of its male flowers, and more nearly resembling the former in its female flowers and fruit.

ANTIMONY, in Chemistry. Several important additions have been lately made to our knowledge respecting this metal and its compounds, which we shall briefly notice here.

In describing this metal, we stated that Haiy had been unable to ascertain its primitive crystalline form. This indescribable observer has at length, however, determined that the primitive form of its Crystals is an octahedron, and that its integral particles have the figure of tetrahedrons. The specific gravity of antimony, according to Hatchett, is 6.712. It melts at a low red heat, or about 810° of Fahrenheit; and after this, if the heat be raised, the metal evaporates.

The oxides of antimony have been lately investigated with great care by thenard, prout, Bucholz, and Berzelius. According to Thenard, this metal forms no less than five oxides; according to prout and Bucholz, it forms only two; while according to Berzelius, it forms four. These discrepancies arise from the great difficulty of the investigation. The protoxyd of Berzelius is obtained by exposing antimony to the air, or to the action of a galvanic battery. It is a grey powder. When acted upon by muriatic acid, it is separated into the protoxyd of prout and metallic antimony. Hence Dr. Thomson remarks it is only a mixture of the two. The two oxides of prout are easily obtained, and possess specific characters. Berzelius has shown that the second of them possesses the properties of an acid. The protoxyd of Berzelius is also readily obtained, though it is difficult to free it from water. This likewise possesses the properties of an acid. Hence, says Dr. Thomson, we know three oxides of antimony. The grey protoxyd, the white antimonial acid, and the straw-yellow antimonial acid.

The following is the composition of the protoxyd of antimony according to prout, Berzelius, and Thomson.

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<thead>
<tr>
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<th>Prout.</th>
<th>Berzelius</th>
<th>Thomson</th>
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<tr>
<td>Antimony</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Oxygen</td>
<td>22.7</td>
<td>18.6</td>
<td>17.775</td>
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Antimonial acid is composed, according to the same chemists, of:

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<th>Oxygen</th>
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<tbody>
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<td>29.87</td>
</tr>
<tr>
<td>Oxygen</td>
<td>18.6</td>
<td>24.8</td>
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And antimonial acid of:

<table>
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<th>Antimony</th>
<th>Oxygen</th>
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<tbody>
<tr>
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<td>37.1</td>
</tr>
<tr>
<td>Oxygen</td>
<td>100</td>
<td>35.55</td>
</tr>
</tbody>
</table>

The above results of Berzelius and Thomson are rather obtained by calculation than actual experiment, being founded on the supposed composition of sulphuret of antimony, which, according to Berzelius, is composed of 100 antimony and 37 sulphur, and according to Thomson, of 100 antimony and only 35-572 sulphur.

While such discrepancies exist respecting the composition of the oxides of antimony, it is impossible to fix with certainty the weight of its atom. Dr. Thomson, however, it may be proper to state, considers it as 56.25.

The two oxides of antimony, denominated above the antimonial and antimonial acids, are capable, according to Berzelius, of combining with different bases and forming two fets of salts, the first of which may be termed antimony salts, the second antimonates.

The following is the method of preparing the antimonium tartratisatum, or tartrate of antimony and potash, according to the last edition of the London Pharmacopoeia.

Take sulphur of antimony pounded, two ounces; nitrate of potash, one ounce; supertartrate of potash, two ounces; sulphuric acid by weight, two ounces; distilled water, a pint and a half. Mix the acid with half a pint of water in a proper flask vessel, and place it in a sand-bath. When moderately heated add by degrees the sulphuret and nitre previously well mixed together; and then apply heat till the whole of the water is driven off. Wash the remainder with distilled water until it comes off table-faces, and while the mass is yet moist mix it with the supertartrate of potash. To this mixture add a pint of distilled water. Boil the mixture, and when filtered put it aside to crystallize.

ANTONIUS LIBERALIS, in Biography, a Greek writer of an uncertain age, known as the author of Minacoevemae, or a Collection of Metamorphoses, published at Basl, in 8vo., by Xylander, in 1568; at Leyden, in 12mo., by Berckelius, in 1674; by Munckers, at Amsterdam, in 1676; and by Gale, at Paris, 1675, 8vo. This writer is not the same with a Latin rhetorician, mentioned by Jerom. Fab. Bib. Grac.

ANYCHIA, in Botany, so called by Michaus, on account of its affinity to Paronychia. (See that article.) This plant therefore has as little concern with the finger nail, soz, as the other has with a whitlow.—Michaus Boreal.- Amer. v. 1. 112. Pursh 176. St. Hilaire Paron. 98. (Queria; Gærtn. t. 128.)—Clafs and order, Pentadecag Calonia. Nat. Ord. Holeraez, Linn. Amaranth, Jaff. Paronychiz, Julf. Ann. du Muf. St. Hilaire.

Gen. Ch. Col. Perianth inferior, of one leaf, oblong, in five deep, oblong segments, slightly hooded at the extremity, with a posterior point. Cor. none. Stam. Filaments five, sometimes fewer, shorter than the calyx, opposite to each segment and adherent to its base, bristle-shaped, erect, dilated, without any intermediate processes; anthers nearly heart-shaped. Peric. Germin superior, roundish; style one, very short; stigma two, oblong, recurved. Pericapsule roundish, membranous, of one cell and one valve, covered by the calyx, with an orbicular depression at the summit, pointed, separating at length irregularly at the lower part. Seed one, nearly kidney-shaped, smooth, attached by a lateral thread to the base of the pericarp.


This is a genus of diminutive herbs, with opposite leaves, attended by filipulas. Flowers minute, in leafy tufts, each of them felled, like the filipula, Michaus.

1. A. dichotoma. Forked Anychia. Michaus n. 1. Pursh n. 1. (Queria canadensis: see that article, n. 2.)—Stem forked, much branched, spreading. Leaves elliptic-lanceolate, smooth, erect. Bracteas about as long as the smooth calyx.—On dry lime-dome hills, from New York to Kentucky, flowering from June to August. Perennial. Flowers exceedingly small, very variable; generally of five filaments, generally from two to five. Pursh; who quotes Ortega's Des. t. 19; f. 2. a work not in our possession. The root has all the appearance of being annual, as professor Schrader found it in the garden of Gott's gen.

points."—Found by Michaux, on the dry sands of North Carolina. Perennial. Pursh did not meet with this species.


AORTA. In Surgery. As professor Scarpa observes, the whole body may be regarded as an analogous of vessels,—a vascular circle,—and the remark is so true, that even an obliteration of the aorta itself may happen, immediately below its arch, without the general circulation of the blood in the body being stopped. Meckel met with two cases in which the aorta was thickened and considerably contracted, just below its arch; yet in both subjects there was every reason to believe, that the abdominal vasaer and lower extremities had been duly supplied with blood. This fluid, which could only pafs from the heart with great difficulty, and in small quantities, had, by regurgitating, lacerated the semi-lunar valves. (Mém. de l'Acad. Royale de Berlin, 1756, obs. 17 and 18.) A like example is recorded by Storck. Ann. Med., vol. xi. p. 171.

We have a very interesting case of obstrutted aorta related by Monfieur Paris, formerly diffeotor for the Amphitheatre of the Hôtel-Dieu. He injected the body of a very lean old woman, about fifty years of age, whose arterial systen was found to be flightly deranged, and the circle of the blood altogether changed by a complete contraction of the aorta a little beyond the arch. The attention of M. Paris was particularly excited to the condition of this subject by the unaccountable enlargement of the small arteries upon the forepart of the chest. The injection which was employed entered the mouth of the aorta fo readily, that, so far was he from fupplanting any obliteration of this vessel, he could have thrown in more injection than is usually required for filling an adult body. The subject was fo meagre, that, without diffeoting, M. Paris felt the thoracic arteries running down the fides of the chest tortuous and remarkably enlarged. On dilfection, he found the aorta immediately beyond its arch contracted to the fize of a writing quill; the coats of the artery were of their usual thickness, and its cavity of course extremely small; the arch of the aorta above this contraction was but very slightly dilated; the part below had loft nothing of its natural fize.

The carotids were in the natural flate; the artery innominate and the left subclavian were enlarged to twice their natural diameter; all their smaller branches were increafed in the fame proportion, and had affummed a curled and zigzag course. The internal mammary and phrenic arteries were greatly enlarged, and very tortuous. The tranfvers arteries of the neck were of twice their natural fize; their posterior branches were tortuous, extending to a great distance over the back, with long infufcations, which were met from below by the branches of the upper intercoftal arteries, which were also remarkably enlarged. The thoracic and fcapular arteries which run along the fide of the chest were twice their natural fize.

Below the contricted part of the aorta the lower intercoftals were much enlarged, even to three or four times their natural fize. Each of them was dilated; but those were most affected which were given off nearest the contracted part; and the posterior branch of each, which penetrates to the mufcles of the back, was more dilated than that which runs between the ribs. Indeed those posterior branches were so remarkably dilated with contortions so closely successing each other, that they resembled a necklace of beads; and their infufcations with the branches of the tranfversalis arteries were very remarkable. The lower phrenic artery was enlarged, forming considerable infufcations with the superior phrenic. The epigastric artery was dilated to the fize of the enlarged mammary, and was joined with it by very numerous and conspicuous infufcations. Default's Pafific Chir. Journ. tom. ii. p. 197, &c.

In the body of a male subject, two fchromatous tumours were found by Stenzel, situated in the subfultne of the membranes of the aorta immediately below its arch. Notwithstanding these swellings rendered the vessel nearly impervious, the man had the appearance of strength, and of having been well nourished. "Hac corpora facete or magnum a qnatum un rum propemodum extanti editum cordis thalama fguinini spatium praecluderunt." Diff. de Steatomatis Aortae.

Dr. Graham, of Glasgow, has very recently published a still more remarkable case, in which the circulation was carried on for a considerable time through the anaftomoses, notwithstanding a complete obstruction of a part of the aorta. The patient was a lad fourteen years old, who, in consequence of exposure to cold, was affected at first with a dry cough, followed by copious expecoration, pain, and difficulty of respiration. The diifeafe was supposed to be pneumonia in an advanced stage. Dyspnea, palpitations, and pain of the left side, were also the most remarkable symptoms at a later period. The pulse became weak, but was always regular to the very last. The boy at length died, after remaining in the Glasgow Infirmary about five months. On dilfection, together with other morbid changes, the walls of the left ventricle of the heart were found about an inch in thickness; but no other derangement in the structure of the heart, or its valves, was obferved. The aorta was unufually expanded near its origin, so as to form a kind of pouch; but, after having given off the branches to the head and superior extremities, its diameter was preternaturally contracted. It continued of this diminished fize till after its union with the canalis arteriosus, when it became completely imperious. The coats were not thickened, nor in any way diseased, except that about half an inch below the fritirfure there was a smooth elevation on the inner surface, fels raised, but having nearly the diameter of a fplit-pea. In other respects, the appearance was exactly fuch as would refult from tiring a ligature round the a ftery.

The artery then received three trunks, about as large as crow-quals, and near them three smaller ones, when it refumed its natural fize along the vertebra. The three trunks were evidently the uppermost of the inferior intercoftals, the coats of which were remarkably thin, like those of veins. A probe passed from the pulmonary artery along the canalis arterius to the obftracted portion of the aorta; but from the thickenep appearance of that canal, and the flord confluence of the boy during life, probably there had been little communication allowed by means of it between the aorta and pulmonary artery. Dr. Graham, if it appears, did not inject the subject, fo as to demonftrate all the exact channels by which the circulation had been carried on; but he tells us, that the artery innominate, the left subclavian, the superior intercoftals, and the mammary arteries, were much enlarged. The epigastric was reported to be of its natural fize. "These facts, and the aorta acquiring at leasf very nearly its natural fize immediately below the friture, shew that the blood did not pafs to the inferior extremities in any material quantity, as might perhaps have been expected by the infufcations of the
the mammary and epigastric arteries; but chiefly by the communications of the superior intercostals and the mammary arteries with the three large branches entering the aorta below the bifurcition; and of the mammary and thoracic arteries with the diaphragmatic and other intercostals. See Medico-Chir. Trans. vol. v.

If the aorta were obliterated, or obstructed in the abdomen, the blood would find adequate channels for its transfusion in the mammary and epigastric, the superior and inferior meferteric, and the lumbar arteries. Mr. A. Cooper informs us, that he has never met with any instance of the latter description in the human subject. (Surgical Essays, part i. p. 113.) But he has several times applied ligatures to the aorta in dogs, and found that the blood was readily carried by anastomosing vessels to the posterior extremities of the animal. (See Medico-Chir. Trans. vol. ii. p. 249, &c.) The incision was in each experiment made on the left side of the spine; the aorta was drawn to the surface of the skin by an aneurism needle, and being quite separated from other parts was tied. The animals were then kept for a few weeks, and then killed. They were afterwards injected and dissected, when it appeared that the lumbar arteries were considerably enlargeé, so as to be the chief agents of the new circulation.

In those diseases causing obstruction of the thoracic aorta a little beyond its arch, to which we have requested the reader’s attention, no doubt was the cause of a very gradual process, and consequently, the altered course of the blood through the collateral channels would also be established, not all at once, but by degrees. The anastomosing arteries would only enlarge, in proportion as the obstruction in the great artery increased. But in the experiment of tying the aorta in animals things were very different; for the stoppage of the passage of the blood through the tied portion of that vessel was not only effected instantaneously, but also completely, so that the whole office of transmitting the blood to parts beyond the obstruction suddenly devolved altogether to the anastomoses, which had had no time for any gradual and preparatory dilatation. Yet notwithstanding this seeming disadvantage, we find that the blood did pass into the posterior extremities.

The aorta of the human subject, however, has now been tied in the human subject by Mr. A. Cooper, and the following are a few of the particulars of the case. The patient, who was thirty-eight years of age, had on the left side an inguinal aneurism, which had actually burst, and discharged a quantity of blood sufficient to reduce the man to a state of considerable weakness. Another hemorrhage would have carried him off. It was apprehended, that the tumour extended too high up to admit of a ligature being applied to the external iliac artery itself; yet in the hope of being able to dispense with such measures as would be necessary to tie the aorta near its bifurcation, Mr. A. Cooper resolved to try whether it were possible to tie the aneurism artery itself. He made, therefore, a small incision into the aneurism, about two inches above Poupart’s ligament; but he found only a chaos of broken coagula, and that the artery entered the fac above and quitted it below without there being any intervening portion of vessel. The operation was consequently abandoned. “When I was about to withdraw my finger,” says Mr. A. Cooper, “I directed two of the students to compress with their hands the aorta upon the spine, and they succeeded in stopping the pulsation in the artery of the right groin. As I withdrew my finger, I put a dossel of lint by its side, and closed the opening which I had made into the fac.” Surgical Essays, part i. p. 118.

The only other chance of preserving was what might result from tying the aorta itself; and it was determined to adopt the proceeding, bold and unprecedented, as it was in respect to the human subject. A doubtful remedy is always better than none. This ancient maxim in surgery seems to gather strength in proportion to its duration, and is a short but an effectual answer to every attempt which has been made by the ignorant and malicious to throw blame on the distingushed surgeon, whose ardent desire to save the life of an individual was the main-spring of his conduct. Mr. A. Cooper, after enjoining the prudence of emptying the bowels previously to any other similar operation, inflated, that he made an incision three inches long into the linea alba, giving it a flight curve to the left side to avoid the umbilicus. One inch and a half of the cut was above and the remainder below the navel. Through this he made a small aperture into the peritoneum, and introduced his finger into the abdomen. This opening was enlarged with a probe-pointed bistoury to nearly the fame extent as that of the external wound. During the progress of the operation, only one small convolution of intestine projected beyond the wound. The operator next passed his finger between the intestines down to the spine, where he felt the aorta beating with excessive force. By means of his finger-nail, he scratched through the peritoneum on the left side of the aorta; and next gently and gradually passing the finger between that vessel and the spine, again penetrated the peritoneum on the right side of the aorta. Guided by the same finger, he now conveyed a blunt aneurism needle, armed with a single ligature, behind the vessel. After the ligature had been placed, much care was requisite to exclude the intestine from it in drawing it into a noose. The operation being finished, the wound was closed with a quill-future and adhesive plaster.

During the operation the facæ passed off involuntarily, and the pulse, both immediately and for an hour after the operation, was 144 in a minute. An opiate was given, and the involuntary discharge of faeces soon ceased. When the right thigh was touched, the patient thought it was the foot, so that the senibility of that extremity was very imperfect.

The operation had been performed about nine in the evening. At one o’clock the following morning, the lower extremities, which had become cold soon after the operation, were beginning to get warm again, but their senibility continued yet indistinct. At eight o’clock, the right leg was warmer than the left, and the senibility was returning. At noon, the temperature of the right limb was 94; that of the left, or aneurismal limb, 87.7. At six o’clock in the evening, the temperature of the right was 96; that of the left 87. At nine the same evening, the pulse was 104 and feeble, with vomiting, retchings, and an involuntary discharge of facæ. At eleven, the pulse was 100 and feeble, and the vomiting still continued. At eight the next morning, the aneurismal limb appeared livid and felt cold, more particularly around the aneurism; but the right leg remained warm. At eleven the pulse was 120, and the patient seemed to be sinking. In fact, he died eighteen minutes after one in the afternoon, having survived the operation forty hours. On dilacation, no appearance of peritoneal inflammation was found, except at the edges of the wound. The stomac and intestines were free from any unnatural colour. The ligature which had not included any portion of bowels was placed round the aorta about three-quarters of an inch above its bifurcation, and about an inch below the part where the duodenum lies across it. In the aorta a coagulum more than an inch in extent was found to have sealed the vessel above the ligature. Below the bifurcation, other similar coagula were found in the right and left iliac arteries. By the fall to which the patient had ascribed the
A P H

A O T
tumour, the neck of the thigh-bone had been broken within
Mr. A.
the capfule, and it was ftill in a difiinited ftate.
Cooper imputes the man's death not to inflammation, but to
the want of circulation in the aneurifmal limb, occafioned in
a great meafure by the immenfe fize of the tumour, and the
He condifturbed ftate of the coagula which it contained.
ceives, therefore, that, in any future cafe of this kind, the
ligature (hould be applied before the fwelling has become

—Native of New Holl.ind, and Van Diemen's idand. Sent
by fir J. Banks, in 1790, to Kew garden, where it flowers

Surgical EITays, part i.
very large.
One thing feems proved by this memorable cafe, viz. that
the circulation in the lower extremities may continue not-

lary,

Here it did
withftanding a fudden ligature on the aorta.
fo in the ricrht leg, and probably would have done fo in the
left, had it not been for the obllruttion arifing on that fide
from tlie magnitude of the tumour.
in Botany, fo named by the writer of this
article, from a, nvithoiit, and &?, wlo;, an ear ; becaufe it is

AOTUS,

from PuLTENiEA, (fee that article,)
by the want of the two ear -like appendages to its calyx, not
Sm. in Sims
to mention other marks hereafter indicated.
Legumhwfis, JufF.
Nat. Ord. PapUionaceic, Linn.
Gen. Ch. Cal. Perianth inferior, of one leaf, bell-lhaped,
upper lip of two divaritwo-lipped, without appeiid.iges
lower of three rather longer, more
cated, acute fegments
elfentially diftinguiflied

—

—

;

;

Cor. papilionaceous, of five petals ; ftandard
inverfely-heartfhaped, afcending, with a linear claw -of its
own length ; wings obovate-oblong, fliorter than the ftandard, each with an abrupt angle at the upper edge where it
joins the claw ; keel as long as the wings, obtufe, of two
obovate-oblong, afcending petals, each with a fimilar tooth.
^tam. Filaments ten, feparate, awl-(haped, afcending, nearly
/"//?.
equal, fmooth, deciduous ; anthers oval, of two cells.
Germen roundidi, with the rudiments of two feeds ; ftyle
direft ones.

from Aprl^ to June. The Jlem is three
with numerous, round, filky, leafy branches.
Leaves fcattered, or imperfeftly whorled, on fiiort hairy

in the green-houie,

feet

high,

fpreading, linear, revolute, entire, a half or threequarters of an inch long ; channelled, and rough with minute
Flowers bright-yellow, axilpoints, above; filky beneath.
ftalks,

on fhort, filky, ruily ftalks, two or
numeroufly crowded about the tops of the
Legume very hairy,
to form leafy clufters.
The Jlundard of each flower is marked with
fon lines, as

.

APERTO,

clofed.

APHELANDRA,

Seeds two, elliptical, inferted into the middle
of the upper margin of each valve, without any creft or
appendage.
Efl". Ch.
Calyx fimple, five-cleft, two-lipped.
papihonaceous ; wings fliorter than the ftandard.

Corolla

Stamens

deciduous. Style thread-fhaped. Stigma obtufe. Legume
of one cell, and two valves.
Seeds two, without a creft.
Aotus is very nearly allied to PultetKea, and had previoufly
been confounded therewith, but befides the want of appendages to the calyx, and of 3.Jlroph'wlurft, or creft, to tha feeds,

which

laft

difference

was

firft

noted by Mr. Brown, the Jly/e

not awl-ftiaped, but almoft capillary, varioufly twifted as
foon as the flower falls, rather fwelling upwards, and the

is

Jfigma is obtufe. The habit of the plant is alfo very diftindt,
having nothing hke the chaffy afpeft of a Pu/len<ea ; there
are neither bradeas nor Jlipulas ; the leaves are partly oppofite, and almoft whorled.
Mr. Brown, by giving a fpecific
charafter to this Ihrub in Hort. Kew. leads us to prefume
that he has found other fpecies of the fame genus ; for he
is not one of thofe botanifts who make a diJl'mSion without
a difference.
are however acquainted with the following

We

only.
I. A. vtlloja.
Hairy Aotus. Sm. n. i. Tr. of Linn.
Ait. n. I.
See. V. 9. 249.
Curt. Mag. t. 949.
(A. ferruginea; Labill. Nov. HoU. v. i. 104. t. 132.
Pulten^a
villofa ; Andr. Repof. t. 309, but not of Willd. Sp. PL
V. 3. 507.
P. ericoides ; Venten. Malmaif. t. 35.)
Calyx
filky, with clofe hairs.
Legume ftalked. Seeds rough

—

8t

in

a genus

Botany,

firft

propofed

by Mr. Brown, in a note to his Prodromus, to be feparated
from JusTiciA. ( See that article. ) The name he has given
it is compofed of ai'E\)),-, ^rn^/f, and anij, a male, expreffing
the fimple ftrufture, or fingle cell, of the anthers, one of
the moft diftinguilhing charafters of this genus.
Brown
Clafs and order, Didynamia Angwfpermia.
Nat. Ord.
55.
Acanthi, JulT.
Acanthacea, Brown.
Perfonata, Linn.
Gen. Ch. Cal. Perianth inferior, of one leaf, in five

—

—

deep, oblong, unequal, ereft fegments.
Cor. of one petal,
ringent ; tube much longer than the calyx, incurved, angular, gradually fwelling upwards ; limb in two unequal
acute lips ; the upper ereft, cloven
lower revolute, undivided.
Stam. Filaments four, awl-fhaped, fimple, ereft,
inferted into the tube of the corolla, and rather fhorter than
;

upper

its

lip,

Germen

firm valves.

the Ddlwynite.

See TiiRlNCiA, at the end of which is given the
hiftory of this genus.
Ital., in Mufic, open, oppofed to chiufo,

Legume

two concave

lines long.

radiating crim-

1547.

the longeft

nearly orbicular, acute, of one cell and

two

APARGIA,

ftamens, but rather longer,
twilled after impregnation, ftigma fimple, bluntifh.
Per'ic.

thread-fliaped, parallel to the

in

three together,
branches, fo as

;

parallel, flightly curved, two of them a little
anthers incumbent, attached by the back, ob-

long, acute at each end, hairy behind, of one
fuperior, ovate

cell.

Pifl.

ftyle thread-fhaped, the

length of
the ftamens ; ftigma fimple.
Peric. Capfule oblong, tapering at the bafe, of two cells and two elaftic compreffed
valves, the partition contrary to, and fixed in the middle of,
each.
Seeds two in each cell, roundifh, each fubtended by
a fpinous procefs.
Calyx in five deep unequal fegments. Corolla
Eff. Ch.
ringent ; lower lip undivided. Anthers fingle-celled. Capfule of two elaftic valves and two cells ; with contrary partiSeeds fubtended by fpines.
tions.
1.

Ait.

A.

crijlata.

n. I.

;

Denfc-fpiked Aphelandra.
Brown
;

(Jufticia criftata

in

3.

J. tetragona ; Vahl Symb. v. 3. 5.
En).im,
Willd. Sp. PI. V. I. 85.
Ruellia criftata;
Andr. Repof. t. 506.) Leaves eUiptic-oblong, pointed,
fmooth on both fides, with hairy veins beneath,
Brafteas
Corolla fmooth.
ovate, entire.
Native of Cayenne and the
Caraccas, flov/ering in the ftove throughout Auguft and
September.
It appears to have been firft brought to England by the late earl of Seaforth, and flowered at Mr. Lambert's in Wiltfliire.
The Jlem is fhrubby, three feet high,
or more, with oppofite, round, fmooth branches.
Leaves
oppofite, ftalked, broadly elliptical, acute at each end,

38.

V. I.

t.

320.
118.

—

—

fomewhat wavy, dark green, pliant, five or fix inches long,
and three broad fmooth above, with a reddifh mid-rib, and
many fine veins ; the rib and veins only, according to
;

Jacquin,

downy

beneath.

Eloiuers fcarlet, large, fplendid,

and extremely numerous, forming denfe quadrangular /pikes,
about a fpan long, branched at the bafe, with clofe, ovate,
green, or brownilh, fringed, fingle-flowered bradeas.

The
cm-olla


corolla is full two inches in length. This plant is so very nearly allied in habit, foliage, colour of the flowers, and their general appearance, to the magnificent *Julietta coccinea*, Sm. 1c. Pict. t. 8, that one would think they must belong to one and the same genus. But on examination, the three-lobed lower lip, two-lobed anthers, and leafy *bracteas* of the latter, indicate a technical, as well as natural, distinction.

2. *A. pulcherrima*. Downy-leaved Aphelandra. (Julietta pulcherrima; Jacq. Amer. 6. t. 2. f. 4. Coll. v. 3. (not v. 5.) 252. Ic. Rar. t. 204. Linn. Suppl. 84. Herb. Linn. Willd. Sp. Pl. v. 1. 86. Vahl Symb. v. 2. 14. Enum. v. i. 119. J. arboreae; Mill. Dict. ed. 8. n. 7. J. putata; Loeff. t. 244.)—Leaves elliptic-oblong, pointed; smooth above; finely downy beneath. *Bracteas* ovate, entire. Corolla smooth.—Native of South America, flowering in February. *Losing*. Houltoun appears to have sent seeds to Miller, who cultivated this species before the year 1733. Mutis communicated a specimen to Linnaeus, which we see no reason to distinguish from Jacquin's plant, notwithstanding what is recorded in the *Supplementum* of the *flora* being two only; for we find four in the flower we have examined, bearing the proper *sphinct* anthers of an Aphelandra. How far the complete hoary downy leaves of the back of the leaves, and the smaller *spikes*, with less conspicuous flowers, may prove the present species distinct from the foregoing, we greatly doubt. Mr. Brown in Hert. Kew. unites them, without marking this as even a variety of *cirrata*.

3. *A. scabra*. Rough-leaved Aphelandra. (Julietta scabra; Vahl Enum. v. i. 120.)—"Leaves elliptic-oblong, acute; rough on the upper side. *Bracteas* oblong, acute, hairy."—Native of South America. Leaves three inches long, acute at each end; rough above with prominent points; veins somewhat downy beneath. Vahl speaks of this as very nearly related to the last; but as Mr. Brown, who had doubtless examined specimens, enumerates it in his *Prodrumus* as distinct, and does not subsequentially unite more than the two first together, we presume it must be different, and that the *corolla* is not smooth, nor the *bracteas* entire, both which characters he makes discriminative of the *cirrata*, and they certainly exist likewise in the *pulcherrima*.


Gen. Ch. Cal. Sheath of several imbricated, two-ranked, single-flowered, pointed, hispid scales; the lower ones sometimes barren, and longer than the rest. Cor. of one membranaceous valve, at the inner side of each flower. Stem. Filament one, capillary; anther simple. *Pistil* of several superior, single-seeded; style one, thread-shaped; stigma solitary, undivided. *Pericarp* membranaceous, one valve, and one cell, birthing longitudinally at one side. *Seed* solitary.


Obf. This genus is closely allied to *Devauxia* of Mr. Brown, which will be described in its proper place hereafter, and from which *Apheila* differs in having a simple *spike*, two-ranked *spike*, and only one valve to the *corolla*, situated at the inner side of the flower. The only known species is


**APHRISE**. See *Schaum Earth*.

**APPARITION**. Subjoin at the close of the article,

In the year 1805, Dr. Alderfon of Hull read to the literary society of that place, and published in 1811, "An Essay on Apparitions," designed to prove, that the immediate cause of these spectral visits lies not in the perturbed spirits of the departed, but in the diseased organization of the living. In 1813 Dr. Ferrier of Manchester published, on a more extended scale, "An Essay towards a Theory of Apparitions," similar in refult to the anterior production of Dr. Alderfon. Both admit the reality and universality of spectral impressions, and both attribute them to partial affections of the brain, independent of any sensible and external agency. These and other such writers, who consider the appearances of ghosts, &c. as the immediate effect of certain partial or mixed affections of the brain, confine themselves to physical phenomena, professing to discrediting the consideration of any higher efficiency in the series of causation, than what appears to be the result of diseased organization; so that their discovery, though completely overturning the common superstitious notion as to the return of the departed Spirit, or the invisible interference of angelic agency, is yet, says Dr. Drake, in the learned volume of his "Shakspere and his Times," very reconcileable with the pneumatolgy of bishop Horley, who conceives that the Deity often acts immediately through his agents on the human fenfory, as a part of the material universe, thereby producing diseased or mixed impressions. (See Horley's Nine Sermons on the Nature of the Evidence by which the Fact of our Lord's Resurrection is establisht.) Our Lord, according to the bishop, after his resurrection, was no longer in a state to be naturally visible to any man. His body indeed was riven, but it was become that body which St. Paul describes in the 15th chapter of his 1st Epifile to the Corinthians; which, having no sympathy with the gross bodies of this earthly sphere, nor any place among them, must be indifcribable to human organs, till they shall have undergone the fimilar refinement. Accordingly it is alleged, that we are told by St. John, that the body of our Saviour, after his resurrection, could only be seen through the operation of a miracle. "Him God raised up the third day," and "gave him to be visible." "Et dedit eum manufum fieri." Vulgate.

**APPRECIATION**, l. 2. from bottom, *à l'abé Peytour* for Feyer.

**APRILE GIUSEPPE**, in Biography. See *Tenducci*.


Eff. Ch. Calyx none. Pericarp five, deciduous. Nectaries five, gaping and two-hinged at the summit ; outer lip large and flat; inner minute; each extended downwards into a hollow spur, callous at the point, projecting between the petals. Stamens numerous, dissepoped in five or ten parts, cleft into two or three parcels, the inner ones abortive, their filaments blooded, membranous, and oblong, deliuite of anthers. Germens five. Capsules as many, erect, many-seeded, beaked with the styles. *De Candolle*.

We here, of course, alter the phrafology of our author, with respect to the parts of the flower, as in *Aconitum*.
These are perennial herbs, with fibrous roots. **Radical**, or lower **stem-leaves**, on long three-cleft **footstalks**, divided in a twice-ternate manner; their **leaflets** three-cleft, toothed, mostly obtuse; **upper leaves** cut, or deeply divided, into linear lobes. **Flowers** terminal, blue, white, rose-coloured, or purple, very rarely of a dirty yellow. To which we may add that the **flowers** are pendulous, **fruit** erect.

The **herbage** is slightly bitter, tonic or somewhat astringent, fearfully acid. **Seeds** acid, recommended in eruptive disorders.

The various species inhabit mountainous thickets and pastures of the northern hemisphere; one is found in America, four in different parts of Europe, five in Siberia. Obis. The **scales**, originating in the dilatation of the innermost **filaments**, and the abortion of their **anthers**, often surround the **germs** like *bracteas*, after the **flower** is past. They are delineated in several of Barrelier’s plates. Mr. Brown has remarked something analogous in the petal-like scales of his *Eupomatia*; see that article hereafter. The **flowers** in *Aquilegia* become double in four different ways.

1. Those termed *corniculati* have **accessory nectaries**, originating from changed **filaments**, all spurred and pointing downwards.

2. Involve have their **spurs** turned upwards, in consequence of a twist in the claws of those parts.

3. *Stel- lata* have **accessory nectaries** proceeding from enlarged **filaments** deprived of **anthers**; such being all flat, and without **spurs**.

4. *Degenerae* have all their **filaments**, **fijillae**, and **nectaries** obliterated, nothing remaining but multiplied **petals** (*Sepala* of De Candolle) of a greenish hue.

We shall follow our author, in a comprehensive review of the species, with some necessary alterations. They are not separated into sections.

1. **A. vulgaris**. (See *Aquilegia*, n. 2.) Common **Columbine**. Linn. Sp. Pl. 752. **Wildl.** n. 2. Fl. Britann. n. 1. Eng. Bot. t. 397. Fl. Dan. t. 656. (Aquilegia; Trag. Hift. 157. Fuchs. Hift. 102. A. cerulea; Ger. Hift. 1093, with figures likewise of the several varieties above-mentioned. Aquilina; Math. Valgr. v. I. 577. Caremer. Epit. 401. varieties. 405. Huprum Dioicoridis; Column.Phytob. t. t. t. 1.)—**Nectaries** incurved. **Capsules** hairy. Stem leafy, many-flowered. Leaves nearly smooth. Styles not overtopping the **flamens**.—Native of rather moist meadows, woods and thickets, throughout Europe, from Sweden to Greece, flowering in July. Thunberg also found this plant in Japan. Baron Marshall of Bieberlein mentions it as occurring, though rarely, in the Iberian tract of Caucasus. Nothing is more common, or more hardy, in gardens; its fanciful varieties being tolerably constant from seed, as far as they produce any. *The root* is rather tuberous. **Herb** smooth, two or three feet high. **Leaves** glaucous beneath. **Flowers** somewhat panicked, pale violet in a natural flat, occasionally pink or white, larger and hand- fomer than in any of their garden deformities. The *alpina* of Hudson, different from the real one, is rather a smaller, more slender, mountain variety, with tapering, less incurved, **nectaries**. We have gathered it at Matlock, Derbyshire.

2. **A. viofla**. (See *Aquilegia*, n. 1.) Linn. Mant. 77. *Wildl*. n. 1. Ait. n. 1. Gourn. Illust. 33. t. 19. *De Cand. Fr.* ed. 3. v. 4. 912. v. 5. 630. (A. hirifuta, flore viofla; Magn. Monpt. 26. Hort. 21. A. montana, flore parvo, thalidri folio; Bauh. Pin. 144. Prodr. 75. Lachenal Aë. Helvet. v. 8. 146. t. 5. Bauh. Hift. v. 3. 484. Morif. Æc. 12. t. 1. f. 5. bad.)—**Nectaries** incurved. **Capsules** hairy. Stem with very few flowers, almost naked, **downy** and vifcid as well as the leaves and flowers. Styles not overtopping the **flamens**.—Native of Switzerland, the south of France, and all along the rocky hills of the Mediterranean. De Candolle concurs with Villars in opinion, that this plant is only a variety of the foregoing. We have never compared them in a living flat, but the singular viscid moisture which covers the whole herb, especially the **flowers**, and is visible even in dried specimens, seems to indicate an essential difference. The **flowers** are greater, while the plant is smaller, sometimes single-flowered, and the **leaflets**, with their segments, are more wedge-shaped. Linnaeus however declares, Syft. Veg. ed. 13. 420, that seeds of the *viflola*, from Goun himself, produced the **vulgaris**.

3. **A. speciosa.** Handsome-flowered **Columbine**. *De Cand*. n. 3. excluding the synonyms. (A. *vulgaris*, daurica; Wildl. n. 2, §) — **Nectaries** incurved; **spur** the length of the border. **Capsules** hairy. **Stem** leafy, many-flowered. **Flower-stalks**, footstalks, and backs of the leaves, downy. **Styles** taller than the **flamens**.—Native.—**Nectaries** incurved; **Germens** and **capsules** perfectly smooth. **Styles** taller than the **flamens**.—Native of Siberia. Linnaeus cultivated this plant, and found it did not alter. We received it in 1796, from the garden of Meffrs. Lee and Kennedy, at Hammermith, who had the feeds from that country. Specimens of the same, in the Linnaean herbarium, are marked as having been gathered near Irkutsk. M. De Candolle justly describes "the radical leaves on long **footstalks**, smooth, except perhaps some downinches on the **footstalks**; their segments obtuse, broadly notched. **Stem** hardly a foot high, mildly flowered, and entirely naked; sometimes bearing two or three flowers, with one or two leaflets **bracteas**. *Sepala* (!petals) blue, oval, obtuse. **Nectaries** white, half as long, very blunt. **Capsules** quite smooth, by which character this species is readily distinguished from all the foregoing, and perhaps from all the rest." *De Cand*. Our wild specimens have three or four flowers on each stem, and the garden ones are still more luxuriant. The **flowers** in both are purplish-blue, the lips of the **nectaries** cream-coloured, as expressed in Ehrhart’s name, and Dr. Sims’s figure. We have no hesitation about his **synonym**, were it not for the flight downinches which he attributes to the herbage. The proportion of his **styles** is right, but he does not say any thing of the **germs**. We cannot but suppose the gardeners mixed feeds of the Siberian species with the Canada one, or possibly that pollen of the latter might have had some effect on the flowers of the former, of which the rather leafs curved **nectaries** of the offspring seem an indication; the pale hue of their limb is exactly that of our *fbrica*. The downy leaves do not accord with either. If we are right, De Candolle’s *hybridra*, n. 11, must be expunged. Respecting Gmelin’s *A.* n. 16, Fl. Sib. v. 4. 185, we suppose by its last **synonym**, alluding to the party-coloured **nectaries**,
AQU

neBaries, it must have been what we have just described, taken by him for the Linneas alpina, though not without some doubt.

5. A. alpina. (See Aquilegia, n. 3.) Alpine Columbine. Linn. Sp. Pl. 752. Willd. n. 3. Ait. n. 3. Ehrh. Beitr. v. 7. 146. Sm. Tour. ed. 2. v. 1. 137. Allion. Pedem. v. 2. 64. t. 66. (A. n. 1196; Hall. Hist. v. 2. 89.) A. montana, magno flore; Bauh. Pin. 44. Prod. 75. Bauh. Hist. v. 3. 484.)—Lips of the nectaries half as long as the elliptic-lanceolate pointed petals; spurs curved at the extremity. Stem two or three-flowered, leafy. Leaflets with many deep, linear-wedge-shaped, segments. Capsules downy, still, matured.—Native of that alpine situation in Switzerland, Savoy, Mount Cenis &c. flowering in July or August; but not, we believe, of Siberia, the variety B. De Candolle appearing to belong to the last species. The real A. alpina is the most magnificent of its genus, distinguished by fine blue flowers, spreading two and a half or three inches, and well represented in Allioni's plate. The herbaceous is smooth. Stem often above two feet high, bearing several flowers. The petals are densely downy. Leaflets near an inch long, finely hairy, transversely wrinkled, the apices prominent, parallel, confluent veins. Seeds black and shining, numerous. Miller might have cultivated this noble plant at Chelsea, but it had long been lost, and was restored by seeds from Mount Cenis, in 1787, being now probably again extinct in England.

6. A. pyrenaica. Pyrenean Columbine. "De Cand. Fr. ed. 3. v. 5. 640." (A. alpina; Lamarek n. 3.)—"Petals of the nectaries quite straight, scarcely shorter than the stem. Stem nearly naked, mostly single-flowered. Leaflets with numerous, deep, linear lobes."—Found in elevated rocky pastures, among the Pyrenees and Alpines. Akin to the last, but in all its parts but half as large. Leaves on longer flanks, their outline nearly circular. Flowers one or two, middle-sized, blue. Petals (sepals, De C.) oval, tapering at each end. Spurs slender, perfectly straight to the very point. Stem and leafstalks either quite smooth, or slightly hairy. Some synonyms of A. wilcoxia are repeated under this species by De Candolle, at least those of the Bauhins and their followers. We have seen no specimen, and cannot form an opinion. There seems some confusion in our able friend De Candolle's specific characters of this and the last. The spur in A. alpina is half the length of its real petals, as Linnaeus says; De Candolle says half the length of the limb of his petals, our nectaries, which is not the case, those parts being of equal length, as is nearly the case with A. pyrenaica. But in this latter perhaps the petals, its sepals, are no longer. This point is material.


8. A. viridiflora. (See Aquilegia, n. 5.) Green-flowered Columbine. "Pallas Ait. Petrop. for 1779. 260. t. 11." Willd. n. 5. Ait. n. 5. Jacq. Ic. Rar. t. 102.—Petals straight, longer than the limb of each nectary. Stamen the length of the nectaries. Styles much longer. Petals elliptical-oblong, shorter than the nectaries.—Found in Siberia by Pallas, who sent seeds to Kew in 1780. The green flowers, and long spurs, mark this species. Germen downy, ensiform, composed of membranous abortive stamens, after the perfect ones are gone.

9. A. daurica. Daurian Columbine. De Cand. n. 9. De Cand. n. 10. (A. viridiflora; Willd. n. 5.)—Spurs straight, the length of the limb. Styles and nectaries scarcely equal to the petals, which are nearly the length of the nectaries.—Native of Siberia, according to Willdenow, from whom this species is entirely adopted. The flowers are described as dark purple, or blue-flushed; the limb of each nectary greenish-blue; spur blue-flushed. Professor De Candolle flespe this may be the same plant as Dr. Sims's hybrid, (see floribunda, n. 4.) which is notplant out all improbable, and if so, we lose another of his thirteen species. The only difficulty is to conceive, that Willdenow could, at any time, reckon this hybrid a variety of viridiflora, to which his atro-purpurea was reduced in his Sp. Pl. 11. A. parviflora. Small-flowered Columbine. De Cand. n. 12. (A. fylarum humilia; Gmel. Siber. v. 4. 186.)—Petals straight, short, nearly as long as the obtuse limb of each nectary. Stamens and petals recurved, the length of the petals. Stem smooth, as well as the leaves.—Very frequent in woods about the river Lena. Gmelin. Herb entirely smooth, except the bristle germens. Stem a foot, or rather more, in height, bearing from two to seven flowers. Leaflets ovate-wedge-shaped, with three broad obtuse teeth at the end. Bracteas in linear segments. Flowers blue or violet, much smaller than those of A. canadenensis; their spurs, (according to De Candolle, who had examined dried specimens,) straight, very short; Gmelin terms them "spiral." Petals ovate, acute, tapering at the base, longer than the blunt limb of the nectaries. Stamens, as well as styles, curved downward; barren stamens oblong-linear, much crisped at the edges.

12. A. anomoneoides. Anemone Columbine. "Willd. Geff. Natur. Bed. Mag. for 1811. 401. t. 9. f. 6." De Cand. n. 12.—Spurs straight, very short, as long as the limb, which is one-third the length of the petals. Stalks one-third, single-flowered, nearly naked.—Native of the Altai region of Siberia. Root herbaceous. Herb three inches high, smooth, resembling Anemone trilobata. Leaves divided, in a thrice-ternate manner, with oblong segments, either entire, or two or three-lobed. Stalk nearly longer than the leaves, accompanied by two linear-lanceolate bracteas. Petals ovate, obtuse. Nectaries five, hooded; their spurs gibbous at the base. Wild.

ARACÉI, l. 10. r. Baniash.

ARACICA, l. 5. r. Erach.

ARALIE, in Botany, so named from its principal genus, a natural order of plants, the 59th in Jussieu's series, the 11 of his 12th clas. We have given the character of that clas under the article Umbellate. The Aralie are thus defined.

Calyx either entire or toothed at the margin. Petals and stamens the length of the nectaries. Styles much longer. Petals elliptical-oblong, shorter than the nectaries.—Found in Siberia by Pallas, who sent seeds to Kew in 1780. The green flowers, and long spurs, mark this species. Germen downy, ensiform, composed of membranous abortive stamens, after the perfect ones are gone.
ARA

flanens definite. Styles and figmas several. Fruit pulpy, or rarely capular, of as many cells as there are fyles, with a solitary seed in each. Stems either arbaceous, or shrubby, or herbaceous. Leaves alternate, often compound, their footstalk sheathing in its lower part. Flowers umbellate, either with or without involucrem, or, more rarely, naked.

The genera are: Galtonia of Commerson; Polyscia of Forster nearly related thereto; Aralia of all authors; Calomnus of Linneas in his Supplementum; and Panax.

The Aris are naturally allied to the Umbellate, but differ in having their seeds in a pericarp, instead of being naked. They are akin to Cornus and Hedera, but distinguished by having more than one stye. Juff.

ARANEA, col. 2. l. 10. ded which see respectively, and refer. See Spider.

ARACUI, in Geography, a river of Georgia, next in importance to the Cyrus, or Kur, which, rising near the gates of Caucasus, flows to the south, and after dividing into two equal parts, the southern range of mount Caucasus, falls into the Kur, at the town of Tifgette, 25 miles above Tefis.

ARASCHA, a rapid river of Mingrelia, which has its source near the village of Kemen, and unites, on the borders of the Iberian lordship of Sa Schilo, with the Hippus, which rises in the highest mountains of the Soani, not far from the source of the Phaís, flows through Letigiphuni, divides Mingrelia from Iberis, and enters the Phaís, near the Tredia.

ARATUM, r. Aratrum.

ARACARIA, in Botany, a barbarous name, given by Juffieu to the Chili Pine, which Lamarck, Schreber, and Lambert, have called Dombeya. (See that article.) Wildenden has unfortunately retained the above name, because he had already ignorantly followed Cavanilles in calling a genus Dombeya, which is not generically distinct from Pentapetes. Hence Aracaria has found its way into Mr. Aiton's Hortus Kewensis, where Wildenden is taken as the leading authority, and Dombeys ill fortune still pursues him. (See our biographical account of that eminent man, which we trust will be our sufficent justification in always maintaining the genus which he introduced, and which properly belongs to him: or have we any doubt that our learned countrymen will concur in supporting his well-earned fame, when they properly consider the subject.) We have further to observe, that the Dombeya of Lamarck, or that of Cavanilles, has, neither of them, any preference as to date, both having, we believe, been first announced in Juffieu's Gen. Pl. in 1789, a year before the date of publication of each of those authors' works. We are also ready to allow that our illustrious friend Jussieu, in the choice he made, was far from concurring in the base perfection of Dombeys, originally raised by the Spaniards. He was however evidently aware that the Dombeya he adopted could hardly be maintained, or at least that it was not distinct from Pentapetes phanita, now received as Pentapetes. (See that article.) Aracaria is not, as has been reported, the denomination of the Chili Pine, in any part of the world, but a perversion of that of its native country, the Araucanian mountains, and to such generic names there are many objections.


Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, ovate, permanent segments. Cor. of one petal, bell-shaped; tube rather longer than the calyx, inflated at the base, with five protuberances; limb in five deep, ovate, acute segments, shorter than the tube, slightly spreading, their points somewhat recurved and twisted. Nectaries five cells in the base of the tube, opposite to the segments of the limb. Stam. Filaments five, inserted in the base of the tube, between the nectaries, short, thick, flattened; anthers arrow-shaped, each surmounted by a small auricle, converging towards the pithil; pollen of two obovate masses, projected upon five angles of the stigma. Pifi. Germs two, superior, ova-olong, stylos two, very short; stigma common to both, large, thick, roundish-ovate, smooth, with two acute points at the top, and five glandular lateral tubercles to receive the pollen. Peric. Follicles two, divariclated, large, obov-oval, coriaceous, smooth, abrupt, with a small point, one of them often abortive; partition longitudinal, unconnected when ripe, except at top and bottom, the disk covered on both sides with numerous elevated, parallel, shapely toothed ridges. Seeds very numerous, inserted into the teeth of the receptacle, imbricated downwards, ovate, clothed with papillary pubescence, and each crowned with a tuft of long silky hairs.


1. A. fruticosa. Silky Araujo. — Native of Peru. Cultivated in the green-house at Lisbon, where it flowers in autumn, and ripens seed in spring. The whole plant abounds with acid milk, but every part is inodorous. The root is creeping. Stem shrubby, weak, twining, three or four feet high, round, smooth, branched, leafy; the young branches rather downy. Leaves opposite, flaked, lanceolate, acute, entire, nearly smooth, an inch and a half to three inches long; heart-shaped at the base, and marked with two glands on the upper side, a little above the insertion of each foot-stalk. Flowers three or four, or more, together, in short, lateral, drooping, smooth, somewhat corymbose clusters, about half the length of the leaves, and inserted between the bases of the foot-stalks. Corolla yellowish-white, marked with purple lines; downy about the mouth. Follicles three or four inches long.

ARBELA, l. 13, after Arbdtis, add — This place, once the capital of the province of Adiabene, has wholly declined from its former importance, and dwindled into a wretched mud town, with a population not exceeding 3000 souls. Part of this town is built on a hill of a conical form, on which probably stood the old castle, and the remainder of the town encircles the base of the hill. The country surrounding Erbile, its present name, lying in lat. 36° 11', and between that place and Mosul, is fruitful but hilly, and very deficient in wood, there being hardly a tree or even shrub to be seen.


ARCH, l. 4. fig. 41. l. 23. fig. 42. Arc of a Circle, l. 11. fig. 43.

ARCHER, in Geography, a township of Ohio, in the county of Jefferson, containing 60 inhabitants.

ARCHIPELAGO, col. 2. l. 2. r. 2100.

ARCTOMYS, in Zoology. See MARMOT.

ARCTOTHECA, in Botany, a name revived from Vaillant, and originally synonymous with Arctottis, (see that article,) from which the genus we are about to describe has recently been separated, chiefly by the want of a sep- cmm; for in habit there is no distinction. "Wendland Hort. Herrenhuf. 8." Willd. Sp. Pl. v. 3. 2365. Brown in Ait. Hort. Kew. v. 5. 141. — Clasas and order, Syngenees Polygynia-fragranaeae. Nat. Ord. Composite, Linn. Corymbi- formes, Juff.
Gen. Ch. Common Calyx roundish, imbricated; its scales elliptic-oblong, woolly; the innermost with a dilated, membranous termination. Cor. compound, radiated; florets of the disk numerous, funnel-shaped, five-ovate, equal, all perfect; those of the radius about twelve, ligulate, elliptic-lanceolate, longer than the diameter of the disk, with four ribs, and about three unequal teeth, neuter. Stam. in the florets of the disk only, filaments five, capillary, short; anthers united into a tube, nearly as long as the corolla. Pjyl. Germin in all the florets, oblong; style in tho the of the disk only, thread-shaped; stigma prominent, cylindrical, erect. Peric. none, except the perpetual, dry, curled calyx. Seeds in the disk only, obovate, without wing or down. Recept. flatish, cellular.


1. A. repens. Creeping Arcotelia. Wild. n. 1. Ait. n. 1. (Arctotis repens; Jacq. Hort. Schoenbr. v. 3. 31. t. 356. A. Icapigera; Thunb. Prodr. 165.)—This, the only known species, is a native of the Cape of Good Hope. Seeds were sent by the celebrated Scopoli to the writer of this article, and the plants raised from thence flowered in the open ground in Chelsea garden, in the summer of 1790, but it was found necessary to shelter them in winter. The roots are perennial, creeping extensively. Stems herbaceous, prostrate, branched, clothed like the backs of the lyrate pinnatifid leaves, with fine white cottony down. Flower-flalks radical, several together, simple, erect, naked, about six inches high, being rather longer than the leaves. Flowers solitary, an inch and a half broad, lemon-coloured, with purple ribs beneath.


Eff. Ch. Upper half of the head deciduous. Filaments composing a dense denudated net-work, relling on the cup-like receptacle.

1. A. ? leucopephala. White-headed Arcyria. Perf. n. 1. Hoffm. Germ. v. 2. 6. f. 1. Trichia cinerea; Trentepohli in Roth Catal. v. 1. 227.)— Aggregate. Head funnel-shaped below, reddish-brown. Net-work globose, mealy, snow-white. — Found on dead leaves or stumps in autumn. Also on mosses, or fragments of leaves, in rainy weather, very copiously, in June and July, according to Albertini and Schnelle, Fung. Nifhien, 100. who, like Perfohns himself hesitate whether to refer this elegant little species to this genus or to Physarum. See that article.


3. A. cinerea. Ash-coloured Arcyria. Perf. n. 1. Albert. and Schwy. Nifh. n. 280. (A. albida; Perf. Dipp. Meth. 10. t. 1. f. 2. Trichia cinerea; Bulliard Fung. v. 1. 120. t. 577. f. 3. Stomnitis glauca; Trentep. in Roth Catal. v. 1. 221.)— Aggregate, greyish-white. Net-work cylindric-ovate, erect. Receptacle crenate. — Found in summer, in woods, on dead branches, flanks, &c. Smaller and shorter, as well as more obtuse, but with a longer stalk, in proportion, than the lat, from which also it is distinguished by its dirty-white colour. We are puzzled, as well as the learned authors of the Fungii Nifhienes, by Perfohns allusion of the receptacle of this species to the fifth, hereafter described.

4. A. incarnata. Flesh-coloured Arcyria. Perf. n. 4. Obl. Mycol. t. 58. (not 38.) t. 5. f. 4. 5. Albert. and Schwy. Nifh. n. 281. (Stomnitis globosa, et S. garnes; Trentep. in Roth Catal. v. 1. 222.)—Somewhat scattered, dull flesh-coloured. Net-work pyramidal, obtuse, curved, foon deciduous. Empty receptacle faver-shaped. — Said to be very common in Germany, on oak or fir wood in decay, at all feasons. The empty receptacles resemble little reddish Pinez, and are marked with radiating streaks. The net-work appears to abound in farinaceous feel of the same hue.

5. A. punicea. Scarlet Arcyria. Perf. n. 5. Dipp. Meth. 16. Albert. and Schwy. n. 282. (Clathrus denufatus, linn. Sp. Pl. 1649. Jacq. Mifc. Aultr. v. 1. 136. t. 6. Trichia cinnabarinans; Bulliard Fung. v. 1. 121. t. 502. f. 1. T. denufatus; Sowerb. Fung. t. 40. T. n. 2164. Hall. Hist. v. 3. 115. t. 48. f. 6. as Jacquin has it, rather than t. 4, as cited by Haller himself. Stomnitis crocata; Trentep. in Roth Catal. v. 1. 222.)—Crowded, ovate, orange-coloured. — Frequent throughout Europe on rotten wood, in fummer and autumn. When young it is white and soft, but advancing in fize, it assumes a confpicous orange-colour, with the dry rather firm texture of its genus. This fine colour chiefly refides in the copious feminal powder, for the net-work itself is brownish. The edge of the remaining bafe of the receptacle is often irregularly torn, and various in breadth. Bolton's v. 3. t. 93. f. 2, if really taken from this species, is not a happy represention.

ARDELAN, in Geography, a province of the Persian empire, forming the eastern division of Kurdisthan, is in length 200 miles, from the little river Sharook to the Turkish district of Zohab, and nearly 160 in breadth. It is separated from the plain of Hamadan by a small range of hills, and its western boundary is 100 miles beyond Senna, the capital, situated in N. lat. 35° 2', and L. long. 46°. The territories of Ardelen extend as far as Kella Shah Khanese, and are peopled by a tribe denominated Gheshkhee, who are recorded by the Kurchs as the most expert and daring robers of their nation; nor will torture induce them to betray their accomplies, being habituated to pain and severe chafisment from their earliest infancy. They are, however, slaves to the most abject superflition.

ARGOLASIA, in Botany, Juif. Gen. 60, a good name, conftructed by Julliac, from <em>argos</em>, white, and <em>hos</em>, hairy, or <em>hoasp</em>, alluding to the white woolly clothing of the herb. But this name is superfed by one of similar meaning, LANARIA, (see that article,) given to the same plant by Dr. Solander, and pubhished in Ait. Hort. Kew. v. 1. 462, in 1789. This latter has been adopted by Schreber, and is now eellablished.

ARGUNNA, in Geography, a town of Armenia, in the pachalic of Diarbekir, distant 45° miles from Diarbekir; situated on the side of a lofty mountain, from which torrents of water are discharged in courants through the streams so as to render them impassable. The town is populous, but wretchedly built, and is remarkable for the quantity of wine and brandy made in its vicinity.

ARJONA, in Botany, so named by the late abbe Caru-
niles, in honour of Mr. Francis Arjuna, a celebrated lecturer on botany at Cadiz.—Cavan. t. v. 4. 57.—Clafs and order, Pentandria Monogynia. Nat. Ord. Lythraceae, Jull. affine.

Gen. Ch. Cal. Perianth inferior, of two small, concave, permanent leaves, each with three terminal teeth. Car. of one petal, funnel-shaped; tube thrice the length of the calyx, slightly dilated upward; limb in five deep, ovate, acute, equal segments. Stam. Filaments five, capillary, very short, inserted into the throat of the tube; anthers oblong, within the tube. Pist. Germen superior, ovate, crowned with five minute permanent scales; style simple, thread-shaped, the length of the tube; stigmas two, flat. Peric. Berry globose, crowned with the scales, of two cells. Seeds...}

Eff. Ch. Corolla funnel-shaped, equal. Berry superior, of two cells, crowned with five scales.

1. A. tuberosa. Tuberous Arjuna. Cavan. t. 383.—Native of South America, in dry barren ground, near Port Defere, flowering in December. We have a specimen from the lamented author, gathered by Louis Née. The long fibres of the root are furnished, here and there, with oval knobs, well suited to its arid situation. Stem foliary, a span high, with numerous branches from the bottom; nearly simple above; leafy throughout. Leaves very numerous, imbricated, sheathing, awl-shaped, spinous-pointed, channelled, entire, rather spreading, clothed with soft woolly hairs. Flowers in a solitary, terminal, dense, corymbose head. Corolla about an inch long; externally yellowish and very downy; internally smooth, yellowish-white. Style reddish, with sometimes three stigmas, Berry small, smooth. Seeds not observed.

There is something in the characters and hue of this plant, that approaches the natural order of Vaporeula, or Thymelae, especially in the form and aspect of its corolla. Possibly the fruit may not really be of two cells. The two cotyledons of a single drupa might, in an early state, mislead the author, who says he did not see the seeds. The bark, however, does not appear to have those fibrous scales, which are the strong indication of the Daphne family.

ARISTEIA, (see our former article,) a name left unexplained by professor Martyn, is rightly derived by De Theis from arista, an awn, but does not apply as he says to the point of the leaf. Solander, the author of this name, appears rather to have alluded to the copious bearded fringe of the sheaths, so remarkable in the original species.—Ker in Ann. of Bot. v. 1. 236. Dryand. in Apt. Hort. Kew. ed. 2. v. 1. 108. Vahl Enum. v. 2. 123.

Eff. Ch. Corolla superior, in five deep regular segments, spirally twisted together after flowering, permanent. Capsule of three cells, with many seeds.

Four species having been added to this genus by Mr. Ker, it is necessary to review the whole.

1. A. cyanes, Grafs-leaved Aristlea. Ait. n. 1. Andr. Repof. t. 10.—Flowers in terminal heads. Sheaths and bracteas in many fine capillary marginal segments.—Native of the Cape of Good Hope, as well as all the following. See ARISTEIA, n. 1.

2. A. caputis. Talleaf Aristlea. Ait. n. 2. Ker in Curt. Mag. t. 605. (A. major; Andr. Repof. t. 160. A. caerulea; Vahl n. 3. Gladiolus caputis; Link. Sp. Pl. 53. Moraea caerulea; Thumb. Mor. n. 15. t. 2. f. 2. Prodr. 11. Fl. Cap. v. 1. 277. Willd. Sp. Pl. v. 1. 243.)—Tufts of flowers alternate, racemose. Sheaths ovate, entire.—Native of mountains in the road to Haatninquis and Lange Kloof, as well as of hills about Cape Town, flowering in October and November, or in the latter situation, two months earlier. This species is two feet high, with broad rich sword-shaped leaves, and large handsome flowers, of a fine blue, compose a long falcatefulated cluyter.


4. A. melaleuca. Mourning Aristlea. Ait. n. 4. Ker in Curt. Mag. t. 1277. (Moraea melaleuca; Thunb. Mor. n. t. t. f. 3. Prodr. 10. Fl. Cap. v. 1. 261. Willd. Sp. Pl. v. 1. 240. Vahl Enum. v. 2. 153. M. lugens; Link. Sp. Pl. 99.)—Flowers alternate, foliary or in pairs. Three segments of the corolla not half the size of the reflex. Leaves linear.—Found in several sandy bushy places, at the Cape of Good Hope, flowering in September and October. The root is fibrous. Leaves numerous, two-ranked, four to six inches long, and not a quarter of an inch broad. Flowers few, somewhat racemose, larger than the leaf, and very handsome, having three concave, almost orbicular, segments, of a sky-blue, an inch and a half long, with three alternate, obovate, black ones, about half as long, and much narrower.


ARISTOLOCHIÆ, fo named from the leading genus, is the twenty-third natural order in Jussifius’s system, being the only one in his fifth clas. That clas is defined as follows. Cotyledons two. Petals none. Stamens inserted into the pilil. The Calyx is superior, of one leaf. Stamens definite. Germen inferior; style either wanting, or single, or definitely multiplied; stigma simple or divided. Fruit of one or many cells.

The order is thus characterized. Calyx superior, of one leaf, entire or divided. Stamens definite. Germen inferior; style one, or nearly wanting; stigma divided. Fruit of many cells, with numerous seeds.

The only genera are, Ariflochobia, Ariforum, and Cylaus. Linnaeus arranged them with his Sarmantaceæ, but was subsequently inclined to refer them to his Rhoadeæ. (See those articles.) We have already observed that they do not belong to the latter, nor have they any relationship to the Sarmentaceæ, except something in the habit and foliage of Ariflochobia.

ARKANSAS, in Geography, a river of Louisiana, which, next to the Missouri, is the most considerable tributary of the Mississippi. Its length is nearly 2500 miles, and at proper season it is navigable nearly through, the whole distance. In many places, however, its channel is broad and shallow, at least above the rapids, so as to render navigation almost impracticable. Until 800 or 900 miles from its mouth it receives no considerable streams, on account of the vicinity of
of the waters of the Mifouri, of the Kanfas, &c. on the one side, and those of Red river on the other. The chief rivers which fall into it are, the Verdigris, the Negracka, Canadian river, Grand river, &c. Several are remarkable for being strongly impregnated with salt; the Arkanfas itself, at certain feasons, is said to be brackish. The lands on this river for 600 or 800 miles upwards are described as very fine, and capable of affording settlements, though principally unimbered. The Arkanfas is a place situated 60 miles up the river, and contains 450 inhabitants. It has a few stores, and seems to be improving. There is a considerable trade with the Ofages up the Arkanfas, and with the Indians, who live in the White river country. This is also a French establishment, and has the same proportion of Americans as the other towns. The territory of the Mifouri contains about 874 Arkanfas, whose settlements are principally in the neighbourhood of the Arkanfas post, or extend up the river; and they are the least considerable of the territory. Brackenridge's Views of Louisiana.

ARMENIA, col. 3, l. 49, add.—And the southern, which are poifomed by numerous independent chiefs. At the clofe of the article Armenia add—The Turkish pachalics of Armenia are, Erzeroum, Akifta, Khans, Bayazid, Mofh, and Diarbekr. These pachalics are subdivided into districts, governed by Vairodes.

ARMENIA, a province of Georgia, which has the Kur to the N.E., the Moifain or Sifian hills to the S., and those of the Karagatch to the W. This province has been long celebrated for its mines of gold, silver, lead, iron, and copper, as well as for its quarries of marble and jasper; the principal of which are those of Quehoe and Tamblitt. It is the best peopled and most flourishing of the provinces of Georgia, and contains many towns. Kinnaur's Peria.

ARNOPOGON, in Botany. See TRAGOPOGON at the end.

AROIDEÆ, a very natural order of plants, the feventh in Jullien's method; being the firit of his second elaf, of which we have detailed the characters under TYPHE.

The Aroideæ are thus described. Spadix fimple, manyflowered, either naked, or involved in a Spatha, or Sheath.

The Aroideæ are thus described. Spadix fimple, manyflowered, either naked, or involved in a Spatha, or Sheath. 

Calyx none, or fimple. Stamens either definite or indefinite, inferted into the fpadix. Génerus originating from the fame fpadix, either naked, or encompassed with a calyx, in fome infertes mixed with the flamen, in others feparated from them; filyles one to each germin, or none at all; figmas as many. Fruits as many, of one cell, with one or many feeds. Corculum in the centre of a flethy albumen. Leaves lieathing, alternate, for the moft part all radical. Spadix often solitary, feated either on the top of the item, or more frequently on a radical falk. The plants are rarely caufed; fome of them are regularly irregular in the difpofition of their organs of fecundation.

Sect. 1. Spadix enfolded in a fpatha. 

Arum, Calla, Dracoumum, and Pothas, all Linnaean genera, with Houttuynia of Thumberg.

Sect. 2. Spadix naked, deftitute of a fpatha. 

Orontium and Acorus.

It muft be observed, on the authority of Jullien himself, that the plants of this order are only prefixed to be monoecydeous, their germination not having been properly examined. The conjecture however is supported by Gartner's figures, the habit of the plants, and the ternary dispoftion of the parts of fructification in fome of the genera.

This order is nearly analogous to the Pipériz of Linnaeus, except that Pipér and Saururus are included in the latter; a meafure to which Jullien himfelf feems inclined.

AROSIS. Add.—See Tab.

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ARROBA, in Commerce, a weight in Portugal and Spain. At Oporto 1 arroba, or arrove, = 32 arrates, and 4 arras, or 128 lbs. = 1 quintal. The quintal at the India-houfe is 112 arrates. (See QUINTAL.) In Spain the arroba is also a liquid measure. A measure of wine contains 16 arras, an arroba = 8 azumbres = 2 quartillos. The arroba of wine, or great arroba, is the same all over Spain, regulated by the standard measure of Toledo, which contains 34 lbs. of river water (Caftilian weight), and measures 1237½ Spanish or 981 English cubic inches; fo that 4 such arras are = 17 English wine gallons. The arroba of oil, or peer arroba, regulated by the same standard measure, which weighs 25 lbs. of oil, or 26 lbs. 9 oz. of river water (Caftilian weight), and measures 1965½ Spanish or 771 English cubic inches. Hence 3 such arras answer to 10 English gallons. The arroba is divided into 4 quartillos, or 100 quarterones or panillas. A Spanish botta contains 30 arras of wine, or 38½ of oil; a pipe is 27 arrobas of wine, or 34½ of oil; fo that the botta is = 127½ English gallons, and the pipe 114½. Kelly's Cambist.

ARSEKEN, or AREKIN, a long meafure in Russia. See VERSHOCK.

VOL. III.

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ARTERIES, Diseafes of. Arteries being composed of blood-vessels, nerves, and absorbers, are liable to the fame morbid alterations, and endowed with the fame powers of reparation, as foft parts in general; their coats inflame, and pafs through the different ifages of adhesion, suppuration, or gangrene, in the fame manner as the skin, a gland, or a mucele.

The internal coat of an artery, MR. Hodgfon obferves, bears a striking analogy to feros membranes in its tendency to the adhesive inflammation; and this property is in the blood-vessels, as in all organs, the firft agent of reparation in injuries from accident or difeafe. The inflammation which is excited by the wound or division of an artery produces an effuflion of lymph, which fells the extremity of the vefsel, and affecting also the external coat becomes the fubs of adhesion and final obliteration. A punctured artery is united by the fame adhesive procefs which repairs wounds in general; and if irritation be excited in the coats of an artery by preflure, adhesive inflammation is the confequence, lymph is effuflod into the cavity, and into the cellular fubfance, connecting the coats of the vefvel; its fides codefine; and it is rendered impervious. The fame adhesive procefs frequently prevents hemorrhage, where abbeffes, or extensive ulcerations, eflit in the neighbourhood of large vefvles, the inflammation which precedes the suppuration having produced an effuflion of lymph between the coats, and into the cavity of the arteries, whereby it is obliterated. But the moft perfect demonstration of the effects of acute inflammation upon the internal coat of an artery, MR. Hodgfon thinks, is to be met with in the cafes where the difeafe appears to have extended to the vefvel from the contiguous parts. Thus, in a fatal infiance of violent pneumonia, besides the usual appearances on deficerion, the inflammation was found to have extended to the aorta, the internal coat of which was of a deep red colour, and a confiderable effuflion of lymph had taken place into its cavity. The effuflod lymph was very intimately connected with the internal coat of the vefvel, and a plug of it had extended into the left subclavian artery, and nearly obliterated the cavity of that vefvel. (Treatife on the Diseafes of Arteries and Veins, p. 5.) MR. Hodgfon has obferved a fimilar ifate of the great blood-vessels in a lefs degree from carditis, pneumonia, and bronchitis.
ARTERIES.

The granulations, or fungous growths, which are not unfrequently met with at the origin of the aorta upon the semi-lunar valves, or in the cavities of the heart, are said sometimes to originate in the lymph thus diffused upon the internal membrane. Mr. Hodgson also affirms us, that the inflammation excited in an artery of the extremities by the application of a ligature has been known to extend along the internal coat of the vessel to the heart itself, as we know is often the case with respect to the veins.

According to the same well-informed writer, chronic inflammation may generally be remarked in thickened and calcareous arteries, particularly in aneurismal subjects. The internal coat of the vessel is soft, thickened, of a deep red colour, which is not uniform, but irregularly dispersed in the vicinity of ulcerations, thickenings, or calcareous depositions. P. 9.

Ulceration of an artery may commence in the vessel itself, or extend to it from the surrounding parts. In the first circumstance, it is always found first on the internal coat, and is generally preceded by some other morbid change of the vessel. Thus, it is not unfrequently met with around the circumference of calcareous depositions, or upon the surface of atheromatous thickenings; and aneurism is, without doubt, occasionally a consequence of such ulceration, the coats of the vessels being completely destroyed by it, and the blood escaping into the surrounding cellular substance, which becomes gradually expanded into a sac. Hemorrhage is often caused by ulceration extending from surrounding parts to the coats of arteries, as in cancerous and phagedenic ulcers; and Mr. Hodgson even thinks that many passive hemorrhages are produced by ulceration beginning on the inner surface of these vessels.

Sphacelation of arteries in consequence of inflammation of their internal coat has not hitherto been observed. Arteries, however, are often included in extensive sloughing of parts, in which case the blood generally coagulates in the vessels to a considerable extent above the line of sphacelation; an occurrence which seems designed to prevent hemorrhage on the separation of the slough. The coagulum is afterwards absorbed, and the vessel obliterated.

From considering the inflammation of arteries and its effects, our author proceeds to speak of various morbid appearances to which the coats of arteries are liable, in consequence of their peculiar structure and functions.

1. The internal coat of arteries is sometimes thickened and converted into a substance resembling cartilage, or the thickened peritoneum of an old hernial sac. This diseaе is confined to the internal coat, which having lost its elasticity sometimes cracks, and forms scales that hang into the cavity of the vessel. Calcareous depositions often accompany this alteration of structure, and the surrounding parts of the membrane generally exhibit signs of chronic inflammation. The semi-lunar valves of the aorta are not unfrequently changed into a dense fibrous structure, resembling ligament, or tendon; sometimes they are converted into cartilage, and are manifestly incompetent to their office as valves. In several instances, Mr. Hodgson has found them ruptured, forming cartilaginous eminences on the sides of the vessel.

2. The internal surface of arteries exhibits frequently a thickened and pulpy structure, sometimes with the appearance of small flattened tubercles, and, in other examples, with an irregular and somewhat fleshly appearance over the whole surface. This diseaе is confined to the internal coat, and is often found in aneurismal subjects.

3. A deposition of atheromatous or purulent matter in the cellular membrane, which connects the internal and middle coats of the vessel. The diseased part is of an opaque yellow colour, sometimes extensive, and considerably elevated above the surrounding surface, and on other occasions circumferibed, and having a pustular or tuberculized appearance. If punctured, matter may be pressed from underneath the internal coat, varying in consistence from that of cheese to that of common pus. Mr. Hodgson has seen the emulent and femoral arteries in the same subject quite obstructed by the accumulation of this curdy matter.

4. Certain fungous or wart-like excrescences have been observed upon the semi-lunar valves of the aorta and pulmonary artery, and also upon the mitral and bicuspid valves. They are of rare occurrence. Corvisart's opinion respecting the syphilitic nature of their cause is not intitled to any degree of credit; and Mr. Hodgson relates a case, where the absence of that disease throughout the whole of life made it impossible that they could have had such an origin. The femoral artery and commencement of the profunda were in this instance completely obstructed by a fungous growth, similar to what was found upon the semi-lunar valves of the aorta.

5. The next disease to be noticed is a deposition or calcarceous matter in the coats of arteries. In old age this happens so frequently, that Bichat was induced to regard it as a natural phenomenon rather than a disease. The incrustation seems to commence in the substance of the internal coat, a delicate pellicle covering the calcareous matter, and separating it from the blood passing through the cavity of the vessel. Sometimes this pellicle is deficient, or hangs into the cavity of the vessel, and the blood is in contact with the incrustation itself. Sometimes all the coats of the vessel are involved in the disease, and are converted into a long cylinder, in which no remnants of the original structure can be traced. (Hodgson, p. 21.) The formation of these depessions bears no resemblance to that of bone; they are seldom, if ever, preceded by the existence of cartilage; and no regular arrangement is discernible in them, corresponding to the fibrous structure of bone. According to Mr. Brande's analysis of them, they contain 65.5 phospate of lime, and 31.5 animal matter, without any carbonate of lime.

Calcareous matter is frequently deposited in the substance of the semi-lunar valves of the aorta, and produces more serious consequences, than when it takes place in any other part of the arterial system. The valves becoming rigid and fixed diminish the size of the opening into the aorta. Whilst the pulse at the wrist is feeble, the heart is acting violently to compensate for the diminution in the quantity of blood which should pass through the aorta; and this comparative difference between the pulse at the wrist and that at the heart will, Mr. Hodgson conceives, in advanced age; be sufficient to enable us to ascertain the existence of this incurable disease. A similar disprortion between the pulse at the heart and at the wrist exists also when the opening between the left auricle and ventricle is contracted; but a double pulsation of the heart has been observed in this case, and is said to distinguish it from contraction of the orifice of the aorta by oblitercation of its valves.

Mr. Hodgson has given some interesting cases of oblitercation of the coronary arteries. In one, the heart was unusually small; its parietes soft and flaccid, and upon the ventricles not the eighth of an inch thick; whilst the coronary arteries and many of their ramifications were converted into
ART

into calcareous tubes, and some of them nearly rendered impervious. This morbid appearance does not exist in every cæsium which is attended with the train of symptoms, to which we apply the term angina pectoris. Violent pain in the situation of the heart, extending down the anus, and terminating in a fenation of numbness, palpitation, and irregularity in its action, with frequent syncope and difficult respiration, accompany almost all the organic diseasés of that organ. (Hodgson, p. 56.) The deposition of calcareous matter is seldom found in the upper extremities; and although so frequent in the aorta, it has rarely or never been met with in the pulmonary artery, or its valves. See Hodgson on the Diseases of Arteries and Veins, Svo. London, 1815.

Anserina, which constitutes the most important disease of arteries, has been treated of in a separate article, to which we have already annexed some additional particulars under the head of Surgery. A few other observations, relative to the same subject, will be found at the words Anserina and Aorta in this Addenda.


Eff. Ch. Receptacles in an uninterrupted crust, shapeless, without a border, smooth, in which the seeds are imbedded.

In habit, the generality of the species which constitute this genus are akin to Spiroma and Opegrapha. (See those articles.) But Acharias originally included herein the Lichen cæsium, and L. fasciculatus of Linneaus, which are now separated on account of their totally different habit, and leafy fronds, by the name of Solorina, Lichenogr. Univ. 27. t. 1. f. 5, 6; so that Arthonia is rendered much more natural. In the Synopsis of this writer, his late publication, twelve species are defined.


A. astroideae, n. 7. (Opegrapha astroidea; Ach. Meth. 25. Engl. Bot. t. 1847.)—Crust limited, membranous, smooth, greenish-white, somewhat shining. Receptacles depressed, flat, angular, irregularly flat, black. Frequent on young trees. We cannot consider this otherwise than as an Opegrapha.

A. obscura, n. 8. Engl. Bot. t. 1752.—Crust membranous, olive-brown. Receptacles minute, flatish, thin, elliptical or kidney-shaped, fink, slightly uneven, black. On the barks of trees, not common, nor very easily to be observed. The crust rises into irregular swellings, and the copious receptacles are fink very deep into its substance. The genus of this plant is indeed obscure, nor can we offer any better determination respecting it than that of Acharias.

A. lycnea, n. 11. (Lichen lycnea; Engl. Bot. t. 809.)—Crust white, thin, even, somewhat tartaceous. Receptacles numerous but distinct, flat, rather fink, oblong, blunt, often curved, black, with a glaucous tinge. Found by Mr. Sowerby, nearly covering the rugged barks of old oaks. The receptacles resemble a leopard's or lynx's skin, and are not crowded nor confluent, though curved and approaching each other in every direction, the margin of each black. We should rather refer this species to Opegrapha.

A. praunis, n. 12. (Lichen impolitus; Ehrh. Crypt. Achar. Prodr. 56. Effgl. Bot. t. 981.)—Crust whitish, thin, somewhat tartaceous, unequal, smooth. Receptacles flat, fink, roundish or angular, confluent, dull orange-brown, with a glaucous tinge. On the trunks of trees, especially oaks. We cannot but think the original specific name peculiarly happy, and for that reason, if no other, it ought not to have been changed, especially as praunis is equally suitable to the last species. The perfect looks of an uniform dirty white, till touched by some hardish body, when the brown receptacles, tinged with yellow, become strikingly apparent, and are contrasted with the unaltered crust. The figure in Engl. Bot. printed in red, is altogether erroneous.


Gen. Ch. Cal. none. Cor. of one petal, inferior, in six deep, regular, spreading, deciduous segments; the three innermost waved or fringed at the margin. Stam. Filaments fix, tapering, densely bearded; anthers roundish, attached by the notch at their base. Pist. German superior, roundish, with three stigmas; style solitary, erect, cylindrical, stigma capitulate, hairy. Peric. Capsule nearly globular, with three stigmas, three cells, and three valves; the partitions from the centre of each valve. Seeds few in each cell, somwhat angular, with a naked scar.

Eff. Ch. Corolla in fix deep equal segments; three innermost waved or fringed at the margin. Filaments bearded. Capsule nearly globular.

This genus is allowed by its author to come very near Anthericum, to which some of the species have been referred by other writers. Indeed we can discover no difference, (three of the filaments in Anthericum, if not all of them, being bearded,) except the wavy or fringed inner segments of the corolla. Anthericum being a very extensive genus, whose limits are not well defined, it is highly desirable to lessen the number of species, by establishing new genera from among them, by any certain, however apparently flight, criterion; and it must always be recollected that, in the natural order to which these plants belong, very natural genera are discriminated by apparently rather trivial marks.

Arthropodium is observed by Mr. Brown to consist of smooth herbaceous plants, with falcipulatæ roots, composed either of bulbs, occasionally stalked, or of thick flaky fibres. Leaves linear, flaccid. Flowers lax. Flower-flakes either aggregate or solitary, each with a joint in the middle. Flowers pedulous, either purplish or white. Corolla closing after flowering, and long before the fruit ripens, falling off, leaving its permanent cup-like withered base behind. The anthers are purple, or whitish. Thysonotus of our learned friend, already described in our thirty-fifth volume, comes nearer to Arthropodium and Anthericum than to the Alparagus tribe, to which it has been referred; the beautifully fringed inner segments of the corolla especially referring the present genus. But Thysonotus has smooth filaments, unequal anthers, and a declining style, with a smaller stigma. The seeds moreover differ very essentially.


X x 2
ARU

Addresed to Dr. John White.


3. A. igneus. Sunk Aecospora. Ibid. 35. t. 4. f. 7, d, e. —Scattered, immersed, irregular, somewhat conical, rather furry externally. —In the same situations, almost entirely sunk in the dung, so that the solid caps only are prominent, containing black seeds, floating in an evident fluid. Perfoon.


Eff. Ch. Thread-shaped, terminating in an empty, slightly inflated, head.


In Sweden the smallest denomination of weight is the as, which is the same as the as of Amsterdam. The mark for weighing gold and silver, called "gilvere-mark," is 4384 ares, or 3252 grains English troy weight. Hence 40 such marks are = 271 ounces troy. In apothecaries' weight, the pound is 7416 ares, or 5400 grains troy; and hence 16 such pounds = 15 pounds English troy, or apothecaries' weight.

As, l. 16. 23, 27, for Tullius r. Tullius.

ASCAM, l. 2, after Bengal, infert—bordering on the country of the Grand Lama, or Bootan;—after Hindostan, or separated from Decca, the N.E. quarter of Bengal, by a range of hills, intersected by the Ganges;—after Meckley, or Ava and Arracan.

L. 16, after journey, add—It is understood to be about 700 miles in length, and its mean breadth above 70, though in some places, where the mountains recede, it greatly exceeds that proportion. Dr. Wade thinks 60,000 square miles a very moderate calculation of its superficial extent, so that it considerably exceeds England and Wales. The whole country is a valley of great fertility, not only divided by the great stream of Barmel-tooter, but every where intersected by numerous rivers.

ASAPH, Str. l. 12, for Shipley r. Bagot.

ASCRHAF—This place is leated on the shore of a bay, which is the only good harbour on the southern side of the Cape of Good Hope.

ASCUBOLUS, in Botany, from *A. ovata*, *a skin*, or *cafe*, and *sene*, a *cafe*, or *theta*, because the seeds are thrown out with elasticity, several together, in oblong cafes. —Perf. Syn. Fung. 676. Obs. Mycol. facs. 1. 33.—Clafs and order, Cryptogamia Fungi. Nat. Ord. Fungi.


2. A. aphylla. Leafless Arthrostylis. Br. n. 1. —Found by Sir Joseph Banks, in that part of New Holland which lies within the Tropic of Capricorn. The *flora* is slender, unbranched, without joints or knots; thepached at the base; naked in the upper part. Head terminal, simple, turbinate, longer than its three or four-leaved, awl-shaped involucrem. This genus differs from Arthrostylis in its habit, and single-flowered spikelet; from Rhynchospora in having a deciduous *floral*, and so bristles surrounding the base of the germ; see thefe articles. Brown.

ARTUSI, l. 4, infect. he.

ARVE, for Rhine r. Rhone.

ARUNDINARIA, in Botany, inadmissible as a generic name, being formed by an alteration of Arundo, already received, is applied by Michaux, Fl. Boreal-Amér. v. 1. 73, to a genus now called *Migia*, in Perf. Encr. v. 1. 102, according to Pursh, 59. This cannot, we presume, answer to Schreber's *Migia*, (see that article,) as the flowers in Michaux's plant are numerous; so that here is some confusion which we must leave the writers in question to settle.

AS, in Commerce, a small Dutch weight, used also at Hamburgh, and in Sweden. At Amsterdam, 640 ares are = an ounce, and 8 ounces = a mark troy. (See Mark.)
Tode in Schrift. — Found in autumn, either at the extremities of the branches, or on the trunks, of trees, such as Willows, &c. It may be preferred a long time without decaying, or even shrinking. Tode describes the head as at first like a drop of water, but soon assuming an oval figure, shining like silver, and subsequefly besprinkled with snow-white powder, probably the seeds. This betrays some affinity to Stellium; see that article.

ASCIDIA, l. ult., dele which see respectively, and ifert, See Verrmes.

ASCIONIS, l. 1, r. Pedianus; l. 3, 4, dele Quinillian and.

ASH, in Geography, a county of North Carolina, containing 6394 inhabitants, 147 being slaves.

ASHARIANS. See Ascharians.

ASHBURNHAM, l. 4, r. 1036.

ASHBY, l. 3, r. 1103.

ASHFIELD, l. 4, r. 1869.

ASHFORD, a township of America, &c. add.—The number of inhabitants by the census in 1810 is 2532.

ASHFORD, New, &c. for 4600 r. 411.

ASHTABELU, a township of the county of Georgia, in the district of Ohio, having 921 inhabitants.

ASHTON, a township of Pennsylvania, in the county of Delaware, having 9765 inhabitants.

ASIA, col. 24, l. 31, after height, infert.—but by late discoveries and measurements, their altitude has been found to be much more considerable than geographers formerly apprehended and flatted. See MOUNTAINS.

ASILUS, l. 16, dele which see respectively.

ASIMA, in Botany, a barbarous name, employed by Adanson, and, according to him, of Canadian origin. De Candolle, by his adoption, Syll. v. t. 478, might possibly render it classical, there being no objection on the score of euphony, nor any meaning contrary to reason or sense, as in many other cases of a similar kind. As far as we know, the word is distinct from all meaning whatever; in which respect Michaux's synonym, Orchidocarpus, would be preferable, were the idea it conveys unexceptionable, and the word not compounded of another generic name. All things considered, we prefer Porcella (see that article hereafter) as entirely free from objection; for we cannot follow our distinguished friend, De Candolle, in separating this hali-named genus from his Aflamina. Our preceding articles Orchidocarpus and Porcella are now superceded, in consequence of more accurate information, chiefly furnished by De Candolle.

ASCARAGI, the 12th natural order in Jussieu's system, the second of his third class; for the full characters of which class, see PALME.

Jussieu thus defines the Asparagi, which are nearly equivalent, as we have already observed, to the Linnaean Samencataceae. See that article.

Calyx in six divisions, regular, usually deeply divided and inferior, rarely superior. Stamens six, inserted into the lower part, rarely into the middle, of the calyx. Germen simple, mostly superior; styles either three, with as many stigmas, or the style is simple, with a stipe or three-keft stigma. Fructi pulpy, rarely capsular, superior, rarely inferior, of three cells, with one, two, or not many more seeds in each. Corculum at the scar of the horny albumen.

The stem is frequently herbaceous, in some cases shrubby. Leaves mostly alternate, seldom opposite or whorled, for the most part not sheathing, but merely clasping the stem. Flowers each with a separate sheath; in some inflorescences, perhaps from abortion, dioecious. A third part of the fructification is sometimes, in a few inflorescences, suppressed, or a fourth is added.

Seet. 1. Flowers perfect. German superior.

Dracaen of Linnaeus; Dissellia of Lamarck; Ripogonus of Forster; Flagellaria and Aparagus of Linnaeus; Callitene and Philagia of Commeron; Medeola, Trillium, Paris, and Convallaria of Linnaeus and others, constitute this section.

Seet. 2. Flowers dioecious. German superior.

Rufcalis, Smilax, and Diofora.

Seet. 3. Flowers dioecious. German inferior.

Tamus of Linnaeus, (which Jussieu, following Tournefort, calls Tamus,) and Rejoania.

Mr. Brown, Prodr. Nov. Holl. v. 1, has greatly curtailed this order, referring some of its genera to the Aphpodi or Aphpode, and elating out of it a new order, termed Smilaces, composed of Trillium, Paris, Medeola, (except its Cape species,) Convallaria, and Streptopus, with his own Drynopilus, Ripogonus of Forster, and Smilax. The same author has also founded on the genera of Diofora and Reojania another order called Diofora; but hardly Tamus, by his own account, connects this with the Smilaces.

ASPE, for Berne r. Bear; and for Switzerland r. France.

ASPER, in Commerce. Subjoin—See Piastre.

ASPERGILLUS, in Botany, a name first applied by Micheli, Nov. Gen. 1712. t. 91, to a tribe of minute Fungi, and expressive of their resemblance to the form of a sprinkling-brush, used for holy water in Catholic countries. This tribe is now become a section of Persoon's Monilia. See that article.

ASPERFOLIAE, the forty-first of the natural orders of Linnaeus, is one of the most natural of these affinements. It was first pointed out by Casalpinus, but obtained the above name from Ray, in allusion to the roughness of the foliage. To this character one or two species of Cynoglottum and of Pulmonaria alone afford exceptions; which indeed are but partial, for even in these some bristly roughness is almost always to be discovered, either on the surface or margin. This order is analogous to Jussieu's Borraginaceae, and is so well defined that Linnaeus has, contrary to his usual practice, given its characters at some length, as follows.

Root fibrous. Cotyledons two. Stem with alternate round branches. Leaves alternate, simple, for the most part nearly entire, rough with scented bristly hairs, or callous warts; convolute before they expand. Stipits wanting, as well as all other appendages in general. Flowers unilateral; their common stalks, generally in pairs, revolute in a spiral manner, and gradually unrolled as the flowers are ready to open. Calyx in five more or less deep divinlons. Corolla monopetalous, inferior, five-keft, regular except in Echium; its mouth either closed with vauted valves, or crowned with teeth, or naked and pervious. Stamens five, equal, except in Echium. Fruit superior. Germens four, except in some species of Cynoglottum, Tournefortia, and Nolana, to which Germinthe should be added; but Nolana was properly removed by Linnaeus afterwards to his Liride; these are inserted into the receptacle by their bafe; hence the lower part of each fcd becomes tapering, as if finished artificially. Pithil one; stipe not an elongation of the germen, but fink between them in the centre, often divided into two equal parts. Seeds four, rarely combined into two.

The genera stand thus:

Seet. 1. Symphytum, Ononis, Cerinthe, Borage, Echium, Scrophularia.
ASP

Lycophis, Asperugo, Pulmonaria, Lithospermum, Cynoglossum, Anchusa, Myosotis, and Heliotropium.

Seet. 2. Tournefortia, Varronias, Eretia, Cordia, and Patagonia.

Seet. 3. Nolana; here placed by itself, is now removed.

In the Linnaean manuscript, Mefiromchus is introduced between Eichium and Lycophis; Caledonia after Heliotropium; Hydrophyllum and Elphis after Tournefortia; and Eretia is removed to the end of all.

In the generic distinctions of this order, the valves or teeth of the corolla, and the more or less deep divisions of the calyx, take the lead. Linnaeus has been thought by some to have multiplied the genera beyond necessity; yet it is hard to say how they could naturally be abridged. The plants love a dry hilly situation, and become smoother as they approach nearer to water.

The numerical anomaly in the fruitification of the Asperifolia, of the four-cleft fruit, with a five-cleft flower, is one of their striking characters, in which they indeed agree with the Linnaean Verticillata, Jussiefi's Labiatze; but the irregular corolla, unequally-divided style, opposite leaves, and square stems, of the latter, and especially their four flamen, two longer and two shorter, clearly distinguish them. Their qualities also greatly differ, being aromatic, not mucilaginous and fessile. Their flowers are generally red or purple; those of the Asperifolia of a beautiful blue, though mostly of as beautiful a red before expansion.

ASPHODEL, the sixteenth natural order in Jussieu's method, the sixth of his third class, thus denominated after Asphodelus, one of its well-known genera. Mr. Brown, who has greatly enriched this order with new genera, as well as with removals from the Asparagi (see that article), gives it the appellation of Asphodelae, Prodr. Nov. Holl. v. 1. 274. The characters of Jussief's third class are detailed under Palmar. He thus defines the Asphodelae.

Calyx inferior, coloured, often in five deep equal segments; rarely tubular, with five less deep divisions. Stamina fix, inserted into the bottom or the middle of the calyx. Gynaeceum superior, simple; style fiddle; stigma either simple or three-cleft. Capsule of three cells and three valves, with many seeds.

The root in a great portion of these plants is bulbous, sending up a leafless stalk, and producing capillary fibres from its base downwards; in the rest it is fibrous, bearing a stem, for the most part herbaceous. Leaves sheathing, alternate, all generally radical. Spike often simple, terminating the stalk; sometimes branched, with fealy sheaths under each branch. Flowers each accompanied by a sheath, or spathe, spiked, (in Allium umbellate,) terminal, or rarely axillary.


Seet. 2. Flowers spiked. Root fibrous. Calyx in five deep segments, bearing the flamen at its base. Anthestherium of Linnaeus, comprehended under Asphodelus by Tournefort; Pholiumium of Tournefort, partly comprehended by Linnaeus under Anthestherium (and very improperly named, as Pholiumium is an established genus of inflates); with Asphodelus, of Tournefort and Linnaeus, constitute this section.

Seet. 3. Flowers spiked. Root bulbous. Calyx tubular at the base. Botrydes of Jussieu, now universally called Eucomis; Hypocotis of Tournefort and Linnaeus, including Muscarv of the former; Phormium of Forster; and Maffonia of Thunberg. Lachenalia of Jacquin ought also, as Jussieu supposes, to be placed here, being very distinct from Phormium, though once confounded with it.

Seet. 4. Flowers spiked. Root bulbous. Calyx in five deep segments, bearing the flamen at their base. Cymularia, Albica, Scilla, and Ornithogalum.

Seet. 5. Flowers umbellate. Root bulbous. Calyx in five deep equal segments. Allium is here the only genus.

Mr. Brown declares, that he has in vain sought to establish a clear definition of this order, though a truly natural assemblage, whether considered as an order by itself, or as a section of the Liliaceae. (See Lilia.) He has not been able to detect any character common to all the plants, which is not found in several of their near allies, except the black, crustaceous, brittle skin of the seed, easily separable from its very thin proper membranous integument. Hence Mr. Brown has been led to place at the end of this family Hyposis and Curculigo, as having a similar skin, though their germen is inferior: and for the same reason he removes Blinda from hence, not only on account of the hairy integument of its seed, but also because there is a difference in the burbling of its capsule, to say nothing of other particulars. The same author notices a joint at the middle or summit of the flower-flalks, frequent in this family, and scarcely observable in the neighbouring orders, except in Santosevea, and some of the Commelina tribe. He is decided against separating the pulp-fruiting genera from the rest, either in this order, or the true Liliaceae. It is needful to point out, that what Jussieu and Brown term calyx in all these plants, is with Linnaeus and his school a corolla, and bears the latter appellation in Hort. Kew. The New Holland Alphodelae are thus arranged by Mr. Brown. Anthestherium; Anthrophorum, Br.; Chlorophyllum, Ker in Curt. Mag.; Caphia, Tricoryne, and Stephandra, of Brown; Dianella, Lamarck; Cordylina, Connerion; Asphodelus; Erythroxylum, Br.; Luzuriaga, Ruiz et Pavon Fl. Peruv.; Thysanotus, Br.; Sowerlea, Sm.; Laxmanni, Br.; Borja, Labill. Nov. Holl.; Johnfonia, Br.; and Xanthorrhiza, Sm. To which are subjoined genera intermediate between the Alphodelae and Anaphylides; Hyposis; Curculigo, Gardn.; and Campylium, Labill. With Asphila, intermediate between Alphodelae and Juncea.

ASPIDIUM, a genus of Filices (see that article), separated from the Linnaean Polypodium, on account of its being furnished with an involucrum, to each round dot, or mass, of capsules, representing a small shield, which is very descriptive of the shape of this involucrum. The propriety of subdividing the original Polypodium was doubtfully hinted by the writer of this article, in his Essay on the Genera of Doriiferous Ferns, and Dr. Swartz adopted this measure. Mr. Brown has carried it still further, by founding his genus Nephrodium; see that article and Polypodium. We need not here repeat our observations, already made in those places. We shall give a general view of Aspidium, according to our ideas of this genus.—Swartz in Schrad. Journ. for 1800. v. 2. 29. Syn. Fil. 42. Sm. Fl. Brit. 1118. Willd. Sp. Pl. v. 5. 211. Ait. Hort. Kew. v. 5. 507. Brown Prodr. Nov. Holl. v. 1. 147. Pursh 660. (Nephrodium; Michaux Borel.-Amer. v. 2. 266. Brown Prodr. Nov. Holl. v. 1. 148.)—Clafs and order, Cryptogamia Filices. Nat. Ord. Filices.

Gen. Ch. Capsules annulated, numerous assembled in roundish masses, scattered over the back of the frond. Involutum roundish or kidney-shaped, with a lateral sinus, by which it is attached to the frond, at length becoming umbilicated, and more or less orbicular.
Fruktification in roundish, scattered, not marginal, dots. Involucrum umbilicated, separating almost all round.

Sect. 1. Frond simple. Two species in Swartz; three in Willdenow.

A. nodatum. Knotty Shield-fern. Willd. n. 1. (A. articulatum; "Schkuhr Crypt. 28. t. 27, copied from Plummer." Lingua cervina luida, pediculus articulatus; Plum. Fil. 118. t. 136. Petiv. Fil. t. 10. f. 3.)—Fronds simple, oblong, wavy, bordered; acute at each end. Dots in interrupted lines. Stalks jointed, smooth. Root creeping, chaffy and hairy.—Found by Plummer on trees in the forests of Martinico; no other botanist having, as far as we know, ever met with this species. Willdenow separates it from the following, which he had examined, chiefly on account of the fori being disposed in chain-like rows, and the frond having a thickened margin. Petiver’s figure is copied from Plummer, as usual with the Ferns of that author.

A. articulatum. Jointed Shield-fern. Swartz n. 1. Willd. n. 2. (Polypodium articulatum; Lamarc Dict. v. 5. 514.)—Fronds simple, oblong-lanceolate, finely crenate and wavy, pointed. Dots scattered, solitary. Stalks jointed, scaly. Root creeping, chaffy and hairy.—Native of the Mauritius; on trunks of trees. We have one of Commerson’s specimens. The fronds are a foot long, not thickened at the edges, but very unequally and minutely wavy, as if crenate; the flalk of each not one inch in length, instead of two, or more, as in the foregoing. Sori in a simple, slightly undulating row, on each side the mid-rib, not half way between it and the margin, rather small.

Involucrum perfectly peltate, but more or less notched at one side, dark brown; pale and undulated at the circumference. Capfules light brown, minute.

Sect. 2. Frond ternate. One species in Swartz; four in Willdenow.

A. trifoliatum. Three-leaved Variable Shield-fern. Sw. n. 3. Willd. n. 5. Ait. n. 1. "Schkuhr Crypt. t. 28." (Polypodium trifoliatum; Linn. Sp. Pl. 1547. Jacq. Coll. v. 3. 185.)—Fronds simple, oblong-lanceolate, coarsely crenate and wavy, point¬ed. Dots scattered, solitary. Stalks jointed, scaly. Root creeping, chaffy and hairy.—Native of the Mauritius, on trunks of trees. We have one of Commerson's specimens. The fronds are two feet long, not thickened at the edges, but very unequally and minutely wavy, as if crenate; the flalk of each not one inch in length, instead of two, or more, as in the foregoing. Sori in a simple, slightly undulating row, on each side the mid-rib, not half way between it and the margin, rather small.

Involucrum perfectly peltate, but more or less notched at one side, dark brown; pale and undulated at the circumference. Capfules light brown, minute.

A. punctatum. Dotted-bordered Shield-fern. Swartz n. 21. Willd. n. 17. (Lingua cervina dentata, punctulis nigris notata; Plum. Fil. 98. t. 112.)—Frond pinnate; leaflets uniform, linear-lanceolate, pointed, serrated; with a marginal row of minute imprefions on the upper side; downy beneath.—Gathered by Plummer in Martinico. We have it from Jamaica. Willdenow moreover mentions Guinea, as the native country of this species. Each frond is five or six feet high. Common stalk round at the back, furrowed in front, light brown, not smooth, but clothed with fine, soft, narrow, silky scales. Leaflets very numerous, alternate, four or five inches long and nearly one broad, slightly flaked, bright green, rather thin and plant, unequally, and sometimes doubly, serrated; finely downy at the back; broadly wedge-shaped, and occasionally slightly araucated at the base; their upper side smooth, each vein terminating near the margin in a blueish, withered, minute spot, the se, as it appears, of the flowers; for a similar mark is found over every mufs of capfules; but these being situated in a fimple row, at some distance from the margin, the spots which mark their infection are much further from the edge than the abortive spots. Plummer repre¬sents a row of fuch spots on the under side, at every ferrature. He is so supremely accurate, that we have sometimes doubted our plant being the fame as his, of which there is otherwise no appearance. Every thing which may lead to the dis¬covery of the flowers of ferns is so interesting, that we are here tempted to be more particular than usual. The mufs of capfules are large, prominent, of a bright tawny-brown, each with an almof perfectly circular and umbilicated involu¬crum. It seems to us a cuious quefion, how the spots above-mentioned which are attended by fertile capfules, in large convex fori, come to be arrefted at a considera¬ble distance from the edge of the leaf, while, without any difference in their size or appearance, the abortive ones are advanced almost to the base, or even the dikk of each ferrature.

A. Loo-
A. Lonicchis. Rough Alpine Shield-fern. Swartz n. 5. Willd. n. 25. Fl. Brit. n. 1. Engl. Bot. t. 797. (Polypodium Lonicchis; Linn. Sp. Pl. 1548. Fl. Dan. t. 497. Lonicchis afera major; Ger. Em. 1140. Matth. Valgr. v. 2. 273. Camer. Epit. 664.)—Frond pinnate, chaffy: leaflets fickle-shaped, decumbent, acute, with fringe-like furrations; auricled at the upper angle of their base; wedge-like at the lower.—Native of the crevices of dry rocks in alpine or subalpine situations, throughout Europe. It has been found in Scotland and Wales, but scarcely we believe in England, though Harv. plants of A. acutatum are occasionally taken for this species. The fronds are a span high, more or less, growing in tufts, erect, lanceolate, rather narrow, or linear. Leaflets numerous, crowded, dark greyish-green, about an inch long, the upper ones, about one-third of the whole, copiously fructifying; the rest barren; several of the lowermost gradually shortened, but not contrasted in breadth. Sori in a simple row on each fide of the rib, rather nearer to it than to the margin; pale; the involucrum of each peltate and umbilicated, without any notch, completely orbicular.

A. acrolochoides. Crowded Shield-fern. Swartz n. 11. Willd. n. 26. Pursh n. 2. (“A. auriculatum; Schkuhr Crypt. 31. t. 39. excluding the synonyms.” Willd. Neophyllum acrolochoides; Michaux Borcaral. Amer. v. 2. 207. Polypodium frondes pinnatae lanceatae, foliosis Inflammatis, &c.; Gron. Vetr. ed. 2. 167, excluding all the synonyms, except Claxton’s.—Frond pinnate, chaffy: leaflets fickle-shaped, acute, with fringe-like furrations; auricled at the upper angle of their base; uppermost diminished, covered with confluent mafles of capsules.—Native of rocks, in floky low places, from New England to Carolina, bearing capsules in the summer. Pursh. This fern has long been cultivated in the more curious gardens of England, having been introduced, if we recollect right, by Robert Barclay, etc., at Clapham. A taller plant than the last, and of a lighter green. The auricle of the lowermost leaflets sometimes becomes quite distinct and separate. The fori are found upon half, or one-third, of the upper leaflets, in a single or double row, at each fide of the mid-rib, and are particularly crowded on the auricles. They become tund to the capsules ripen, and run into one mass, fludded, as it were, with the pale-brown involucrum, which are circular and peltate, though cloven at one fide, the edges of the fimus folding over each other. Linneus confounded this with Asplenium herschii, as well as with his own Polypodium auriculatum, an East Indian species, hereafter described.

A. auriculatum. Auricled Shield-fern. Swartz n. 10. Willd. n. 32. Ait. n. 3? (Polypodium auriculatum; Linn. Sp. Pl. ed. 1. 1088. ed. 2. 1548. Felix zeylanica, lonchitides facie; Barm. Zeyl. 98. t. 44. f. 2.—Frond pinnate: leaflets lanceolate, falcate, ferrated, frigrated; auricled at the upper angle of their base. Mafles of capsules diffinet in simple rows.—Native of the rocky fummings of mountains in Ceylon. König. Brought to Kew garden, in 1793, by admiral Bligh. Aston. This species has no affinity or refeemblance to the last, with which Linneus, and after him Swartz, confounded its synonyms and character. Even Willd., who corrected these errors, is miffaken in faying the falk is fmoother. The frond is from fix to twelve inches high. Stalk fcaly in front; rough with minute points behind. Leaflets numerous, narrow, an inch and a quarter or an inch and a half long, tapering but not pointed, coriaceous, fmoother, with fine, blunt, notched, or fringed, furrations; even above, frigrated with tranferve veins beneath; dilated at the base; the auricle broad, short, and bluntish. Sori small, flinef, in an even row on each fide of the mid-ribs of the leaflet and its auricle. We have not feeen the involucrum. The ripe caffe le are inferted by fine capillary fals into a convex knob. Linneus fays in Fl. Zeyl. n. 283, where he originally defined his Polypodium auriculatum, that the plant is entirely fmoother. The thiggnets and flight roughnefs of the falk may therefore be variable. He there cites Plukenet, t. 30. f. 4. which is in no refpect confondant with König’s fpecimens. Mr. Menzies gathered on the west coft of North America a fern very like this, except that the furrations are brafly, and the leaflets less frigated. Its falk is very fcaly all the way up.

A. exaltatum. Lofty Shield-fern. Swartz n. 14. Willd. n. 34; excluding the synonym of Linneus. Ait. n. 4.—“Schkuhr Crypt. 33. t. 32. b.” (Lonicchis ghabra minor; Plum. Amer. 19. t. 28. Fil. 48. t. 63. L. altissima, pinnis utroque lateroe, auriculatis; Sloane Jam. v. 1. 77. t. 31.)—Frond pinnate: leaflets lanceolate, ferrated; with a row of minute white impreffions on the upper fide, towards the margin; unequally haftate at the base. Mafles of capsules in a fimple row, towards the margin. Stalk even, slightly fcaly.—Native of Jamaica, and other parts of the Weft Indies. Brought to the frows at Kew, by admiral Bligh, in 1793. The fronds are usually three or four feet high, erect, ftraight, narrow, with a polihed, pale-brown falk and mid-rib, occasionally fomewhat flaggy. Leaflets numerous, parallel, close, nearly ftraight, two inches long at molt, very fmoother; rather rounded at the point, their fhalow, blunt, unfringed furrations moft abundant in their upper half; the fale dilated into two fhort broad auricles, fefitate of fructification, of which the lower one is thirft, and moft rounded. Sori numerous, diffinet, rather large. Involutum not perfectly orbicular, nor feerily falent, having a deep finus at the fide towards the base of the leaflet, fo as to refembe a froke-flue. This fern is very diffinet from our Davallia faleata, though Dr. Swartz fuppofed the contrary. Linneus confounded its synonyms with the following. The row of minute withered fpecks, as far as we can fee, only accompany the fori there being, in our fpecimens, no barren ones as in A. pungu- tum.

A. blechnoides. Long-leaved Shield-fern. (Polypodium exaltatum; Linn. Syth. Nat. ed. 10. v. 2. 1326. Sp. Pl. ed. 2. 1549; excluding the synonyms, and fubfifting the following. Felix minor, in pinnas tantum divisâ, crebras non creatus, inferiores latere auriculatas, et rotundis pulvulturibus arcolarum awróù parte notatas; Sloane Jam. v. 1. 86. t. 44. f. 1.)—Frond pinnate: leaflets linear-lanceolate, elongated, catrie, with a rounded incurred auricle at the base on the lower fide, and a flight dilatation on the upper. Masses of capsules in a double row.—Native of Jamaica, on the fides of hills. Linneus received his fpecimen in Browne’s herbarium, with an erroneous reference to Sloane’s t. 31, which belongs to our laft-described. Hence there has always been a confusion respecting these two ferns, which even Dr. Swartz could not reconcile; see his Syn. Filicum, 65, where he cites Sloane’s t. 44; but ought to have added fig. 1; as fig. 2. is Blechnum occidentale. The specific name of Polypodium exaltatum, being taken from Plufer’s and Sloane’s accounts of the foregoing, and that being universally received as Aspidium exaltatum, we have not changed its denomination. That name is not at all applicable to the species before us, which is more expresfively called blechnoides. Its height is only eighteen or twenty inches. Leaflets from four to fix inches long, taper-pointed; the lower auricle of each overlapping the main falk, and looked
hooked or curved in a curious manner, not well expressed in Sloane's plate. *Sori* in double rows close to the mid-rib at each side. *Involucrum* perfectly peltate, orbicular, and entire.

Section 39. *Ehrh. leaflets in Willdenow.* Swartz does not separate this section from the following.


Thirty-seven species in Willdenow. Swartz does not separate this section from the following.

A. *Hippercopis.* Horse-shoe Shield-fern. Swartz n. 45. Willd. n. 46. (Polypodium Hippocrepis; Jacq. Col. v. 3. 1866. Ic. Rar. t. 641. Hemionitis lacinis crisps incis; Plum. Fil. 159. f. 150. Petiv. Fil. t. 7. f. 7.)—*Frond pinnate; leaflets oblong, flattened; the upper ones confluent and decurrent; lowermost stalked, pinna-tid; segments obtuse, somewhat crenate; veins downy. *Involucrum* crescent-shaped.—Native of South America, and of Hispaniola, from whence our specimen was brought by M. Thierry de Menonville. Jacquin had living plants of this rare fern from Venezuela, and cultivated it at Vienna. The *fronds* are eighteen inches or two feet high, tufted, of a fine green, more or less downy, especially about the ribs and veins: their *leaflets* flattened in the manner of some species of oak; the segments also flattened, wavy, or crisped. *Sori* chiefly ranged on each side of the mid-rib of the segments, but not being uniformly perfect, they appear irregularly feathered. *Involucrum* like a horse-shoe, to which the specific name applies.

A. unifolium. United Shield-fern. Swartz n. 47. Willd. n. 57. Ait. n. 5. Schkuhr Crypt. 34. t. 33 b. (Polypodium unifolium; Linn. Sp. Pl. 1548; omitting the synon. of Sloane and Plukenet. *F. pyramidalis* madrafatana elegans, pinnuliss ferratis; Pet. Nat. t. 55. f. 1. F. zeylanica denticulata, non ramosa; Burm. Zeyl. 98. t. 44. f. 1.)—*Frond pinnate; leaflets linear, pinna-tid; their very numerous segments ovate, acute, combined, hairy beneath. Stalk downy in the leafy part. *Involucrum* nearly circular, with a deep notch.—Native of Tranquebar and Ceylon. *Frond* two feet, or more, in height: smooth and nearly naked in its lower half, except a few dilatant small leaflets: finely downy and rufous in the upper half, and crowded with fertile, narrow, acute, linear leaflets from three to five inches long. These are composed of innumerable little convex segments, a quarter of an inch in length; smooth and veiny above; ribbed and downy beneath; appearing as if deeply separated, but their edges are firmly united for one-half or three-quarters of their length. Near the margins of these segments are simple rows of smooth horse-shoe-like *involucrum*, covering numerous *capsules* with glittering brown rings.

A. oblatum. Blunted Shield-fern. Swartz n. 39. de St. 248. Willd. n. 58. (Pteris interrupta; Willd. Phytogr. 13. t. 10. f. 1.)—*Frond pinnate; leaflets linear, pointed, slightly pinna-tid; segments obtuse, downy beneath. Stalk smooth. Fructification near the margin.—Native of the East Indies. Very like the last, but the leaflets are more pointed, rather crenate than pinna-tid, and the rows of *sori* so near the margin that Willdenow actually took the plant for a *Pteris* !

A. *Orectopteris.* Heath Shield-fern. Swartz n. 39. Willd. n. 70. Fl. Brit. n. 3. Eng. Bot. t. 1019. “Schkuhr Crypt. 37. t. 35 g, 36 g.” (Polypodium Orectopteris; Ehrh. Crypt. n. 22. Dickf. Tr. of Linn. Soc. v. 1. 181. Fl. Dan. t. 1121. P. Thelypteris; Huds. 457. Bolt. Fil. 40. t. 22. f. 1. 2. Hedw. Theor. 44. t. 6.)—*Frond pinnate; leaflets lanceolate, pinna-tid, entire, besprinkled with reflexous glands beneath. Fructification near the margin, confluent.—Mountains the most ground, and dry woods, in various parts of Europe, from Denmark to Italy, produce this fern, bearing capilines in July. Our British botanists long overlooked it, as a variety of the common *Filix maris*, whilst others miss看好为 Thelypteris. The reflexous dots at the back of the *frond* exhale a fragrant smell, more or less perceptible at different times; which induces a suspicion that this species may have been taken by Mr. Hudson for *Polypodium fragrans* of Linnaeus, never found in our island. In *sori* the present species with *Filix maris*, hereafter to be described, but the whole *frond* is rather narrower. The segments of the *leaflets* usually quite entire, are occasionally somewhat crenate about their rounded obtuse points. *Sori* crowded, in a simple row near the margin, at length confluent, forming a beaded line. *Involucrum* small and thin, umbilicated, with a deep lateral sinus, and foan vanishing. *Root* large, falcate, tufted, not creeping.

A. *Thelypteris.* Marsh Shield-fern. Swartz n. 39. Willd. n. 74. Fl. Brit. n. 2. Eng. Bot. t. 1018. Pursh n. 4. “Schkuhr Crypt. 51 t. 52.” (Polypodium Thelypteris; Linn. Man. 505. Fl. Dan. t. 760. Acrocl. Thelypteris; Linn. Sp. Pl. 1548. Bolt. Fil. 78. t. 43. f. 44.)—*Thelypteris non ramosa; Schmidel 1. t. 11. *Filix thiniflora* et profundi denticulata Montbelgardia; Bauh. Hill. t. 3. 731. good. F. palustris repens, pinnuliss non dentatis; Morf. bed. t. 4. f. 17. 1.)—*Frond pinnate; leaflets lanceolate, pinna-tid, somewhat crenate; divided, but crossing each other, at the base. Fructification scattered, confluent. Root thread-shaped, creeping.—Native of rotten bogs, and turf-y marshes, on a sandy soil, in various parts of the north of Europe, as well as in North America. Mr. Pursh says the fructification is very rare in the latter country: with us it is but sparingly produced, the plant increasing most by the roots, which are long, slender, and creeping. The *fronds* are not half the size of the last, and much more delicate; their height about a foot, their colour bright grama-green. *Leaflets* generally smooth; sometimes a little hairy; the lowest lobe of each extended, so as to fold over the opposite one. *Fructification*, if present, abundant, confluent, blackish.

A. *crifatum.* Leffor Crefted Shield-fern. Swartz n. 39. Willd. n. 79. Sp. Compend. Fl. Brit. 157. Eng. Bot. t. 2125, not 1949. Pursh n. 5. “Schkuhr Crypt. 39 t. 37.” (Polypodium crifatum; Linn. Sp. Pl. 1551. Aflzel. in Stockh. Trauf. for 1787. 248. t. 9. P. Calliperus; Ehrh. Crypt. n. 53.)—*Frond pinnate, nearly bipinnate; segments ovate, obtuse, crenate or pinna-tid, with sharp little terminal teeth. Stalk falcate at the base. *Involucrum* nearly orbicular, with a deep notch.—Native of Sweden, Germany, and England, as well as North America, in low boggy woods and thickets. Found by the Rev. R. B. Francis, on the heath between Holt and Hempstead, Norfolk. The root is tufted, as in *A. Orectopteris*, not creeping like that of Thelypteris, and the whole habit and texture of the fern more resembles the form of these two species. *Fronds* pale green, from one to two feet high: the fertile ones remarkably erect; their barren leaflets shorter and rather more dilatant than those which bear fructification, the latter composing the upper half of the *frond*; all are very deeply pinna-tid, sometimes to the very rib, their segments, or partial leaflets, close, broad, obtuse, with sharp, flaccid, thin, spines, teeth. *Ribs* somewhat zigzag. *Capsules* blackish when fresh, with a white circular *involucrum* to each afflambage, having a deep sinus at the lower side; but the young...
ASPIDIUM.

dried fori are tawny. Common stalk of the frond chiefly scaly at the bottom. Mr. Pursh considers Willdenow's lanceafrons, n. 97, as a variety of this.

A. fragrans. Fragrant Shield-fern. Swartz n. 42. Willd. n. 80. (Polypodium fragrans; Linn. Sp. Pl. 1550. Dryopteris rubrum ideum pfrans; Amman. Ruth. 174. n. 251.) — Frond pinnate; leaflets lanceolate, crowded, deeply pinnatifid; segments elliptic-oblong, bluntly and deeply toothed; stalks and mid-ribs scaly. Fructification crowded. Involucrum nearly orbicular, with a deep notch.—Native of hilly situations in Siberia, near the rivers Angara and Selenga. The inhabitants are said to boil this fern with their beer, in order to give that liquor the taste and smell of Raspberries, which is so powerful in the plant, that even in a dried state its odour fills the room where it is kept. The root is tufted, very scaly. Fronds several, a span high, lanceolate, tapering at each end, the lower leaflets being gradually much shortened. Stalk short, bearing large, rounded, lax scales; those on the leafy part, as well as on the mid-rib of each leaflet, being lanceolate and acute. The upper side of the leaflets is perfectly smooth; their lobes and indentations peculiarly elegant, without any terminal bristles. Sori so crowded about the lower half of each leaflet, that their expanded involucrums sometimes touch, or fold over each other, being moreover intermixed with rufly membranous scales.

Sec. 5. marked 4 by Willdenow. Frond doubly or triply pinnate. Involucrum rounded or kidney-shaped. Forty species in Willdenow. The involucrum in this, as well as the preceding section, though, for the most part, laterally inferted, is often nearly or completely orbicular, and it is even flirly peltate in A. aculeatum and lobatum. Some of the species Willdenow's species, adopted from Plumer's plates only, appear to us scarcely certain in genus,—such arc A. nemorum, Willd. n. 83, velleum, n. 84, and squamatum, n. 87.

A. aculeatum. Common Prickly Shield-fern. Swartz n. 53. Willd. n. 92. Fl. Brit. n. 5. Engl. Bot. t. 1562. Pursh n. 7. "Schkuhr Crypt. 41. t. 39." (Polypodium aculeatum; Linn. Sp. Pl. 1552. Mill. Illuvr. t. 101. Bolt. Fil. 48. t. 26.)—Frond doubly pinnate; leaflets ovate, somewhat falcate, falked, with prickly ferratures; hairy beneath. Common stalks and ribs scaly. Involucrum peltate, entire.—Found in shady woods and hollows, throughout Europe, as well as in Africa, and North America, bearing seed in summer and autumn. The root is large and tufted, producing numerous dark-green fronds, usually two or three feet high, spreading in a circular manner, varying much in size; paler beneath; their general and partial stalks remarkably scaly. Partial leaflets about a quarter of an inch long, rigid or coriaceous, each tapering down into a small short footstalk; their points and ferratures each tipped with a little spiny bristle; their upper edge at the base dilated, more or less, in a broad circular sinus. Sori plentiful on the upper part of the frond, but in single rows, and distinctly, brown. Involucrums pale brown, orbicular, peltate, at length deeply umbilicated, quite entire all round, as in A. Lonchitis, to which this species and the following are closely allied, though all three are very distinct.

The late Mr. Rob. Teedald, (see Teesdalii,) found in many parts of England, a variety of this, which he suspected might prove a distinct species. It is softer, and more delicate in texture, than the common kind, with smaller, more cipitous, partial leaflets, which are more remarkably falked, and their auricles are larger, broader, and different in aspect. This lay in Mr. Rose's herbarium for A. lobatum, which it certainly is not, the partial leaflets being even less decurrent than in our common aculeatum. It may probably be the variety 9 of Fl. Brit. figured in Plukent, t. 180. f. 1., which figure represents well enough the general appearance of the frond, and shape of the leaflets; but their partial stalks are much more considerable and evident than they appear in that plate. A. aculeatum, if transplanted into a dry open situation, soon diminishes greatly in size, so as to resemble A. Lonchitis, for which we once received it; but these species are nevertheless essentially different, as any careful investigator will find.

A. lobatum. Clove-leaved Prickly Shield-fern. Swartz n. 54. Willd. n. 95. Fl. Brit. n. 6. Engl. Bot. t. 1563. (Polypodium lobatum; Hudc. 450. Felix aculeata major, pinnulis auriculatis crebrisobius, foliis integris angulifloribus; Rait Syn. 121. t. aculeata, Lonchitis angulifolia.)—Frond doubly pinnate; leaflets elliptical, somewhat falcate, decurrent, with prickly ferratures; hairy beneath: the foremost of the lowest pair very large. Common stalks and ribs scaly. Involucrum peltate, entire.—Found in shady places, under hedges, in England; not unfrequent in the county of Essex, where Ray first noticed this species, and from whence Mr. Edward Forster has sent us specimens. The Rev. Mr. Francis has met with it at Edgefield, near Holt, Norfolk. There is no record of this fern being found out of Britain. The fronds are always of a narrower, more linear, form than the last, and generally altogether smaller, as well as more rigid, of a paler more shining green. Leaflets rather elliptical than ovate, and Mr. Dawson Turner has well observed that they are decurrent, not falked, which is perhaps one of the most certain means of distinguishing this species from A. aculeatum. The most striking character, indicated by the specific name, consists in the great size, and angular-lobed figure, of the lowest partial leaflet, on the upper side of each general leaflet or pinna, close to the main stalk, often extending beyond the pinna above it. The upper half of the frond, principally, is covered with fructification. The involucrum is perfectly peltate, entire; finally umbilicated.

A. marginale. Marginal-flowering Shield-fern. Swartz n. 41. Willd. n. 93. Nutt. n. 11. Pursh n. 8. "Schkuhr Crypt. 195. t. 45. b." (Polypodium marginale; Linn. Sp. Pl. 1522. Neprodium marginale; Michaux Borel. Amer. v. 2. 267.)—Frond doubly pinnate; leaflets oblong, obtuse, decurrent, crenate; almost pinnatifid at the base. Masses of capsules marginal. Involucrum orbicular, with a lateral sinus.—In rocky shady places, from Canada to Carolina, bearing capsules in July. This species has often been supposed a native of Britain, A. Oreopteris, whose fructification is likewise marginal, having been taken for it; but the American plant is very distinct, more resembling Felix mas than any other. The marginale however is a smaller plant, the upper half of whose frond only bears fructification, and the leaflets are bluntly crenate, instead of being sharply ferrated. They are moreover not uniform, as in Felix mas, but the lower ones of each pinna are larger and more or less pinnatid. Involucrum tupid, corrugated, forming a complete circle, though not peltate.

feffile, sharply ferrated without prickles, uniform. Maffes of capsulæ crowded towards the rib and base of each leaflet. Involucrum orbicular, with a lateral finis.—Very common throughout Europe, as well as in the northern parts of Asia, Africa, and America, in shady situations, under dry banks, bearing seed about July and August. The root is tufted and scaly, often very large. Fronds numerous, bright green, about a yard high, and a span wide, their flâlks and principal rib scaly; the rib of each leaflet is sometimes a little hairy, and slightly bordered, though the partial leaflets are scarcely decurrent, except the uppermost. The frutification is abundant over part of the frond, of a rich tawny-brown, crowded, not confluent. Involucrum turface, embli- cated, with a lateral notch, which is rather more open than in A. marginata, but not quite so deep. The root is a celebrated cure for intestinal worms, in Switzerland and other parts of the continent; and its nauseous taste may, as we understand, be detected in one or more of the popular quack medicines, which in this country obtain credit by puffing advertisements, whose truth it is easier to believe than to examine. Happy if they are never composed of more dangerous materials than the root of the Male Fern! A. spinulatum. Lefser Created Shield-fern. Fl. Brit. n. 8. Engl. Bot. t. 1456. Swartz n. 58. Willd. n. 99. Pursh n. 116: " Schkhuhr Crypt. 48, t. 48." (Polypodium spinulatum; Retz. Prodri. 250. P. Daun. t. 707. P. 8411; Mull. Friedr. 193, t. 2, f. 2. Felix pumila faxatilis altera; Pluk. Phyt. t. 179, f. 5.)—Frond doubly pinnate; leaflets decurrent, elliptical, confluent, with deep-cut prickly ferratures. Mid-rib smooth. Nerves zigzag. Involucrum orbicular, with a lateral finis.—Native of boggy sandy places, in various parts of Europe; as well as in North America, if Mr. Pursh be right; but he speaks of his plant as "a large species," ours is certainly rather small, not above a foot high. The root is creeping. Fronds broad, with a long flâlk, which is scaly in the lower part only. Partial leaflets elliptic-oblong, of an elegant bright pellicent green, with wavy ribs; decurrent, so as to form a border to the partial flâlk. Dots of capsulæ small, and rather dilatant. Involu- crum small, soon pushed to one side. We see nothing in it of a glandular nature, as mentioned by Willdenow. A. dilatatum. Great Crested Shield-fern. Fl. Brit. n. 9. Engl. Bot. t. 1451. Willd. n. 100. Pursh n. 12: (Polypodium dilatatum; Hoffm. Germ. v. 2, p. 7. P. arifatum; Villars Dauph. v. 3, 844. Bellardi in Aet. Taurin. v. 5, 255. P. criptata; Ehrh. Crypt. 81. Huds. 457; Born. Fl. 42, t. 23; P. 845; Mull. Fl. Friedr. 193, t. 3, f. 2. Felix mas ramafala, pinolus dentatis; Rauyn. 124; Pluk. Phyt. t. 181, f. 2. F. mas, pinolus cristafulis; Morif. feq. t. 14, t. 3, f. 11.)—Frond doubly pinnate; leaflets deeply pinnatifid, sharply cut, with prickly teeth and ferratures. Stalk and branches scaly. Involucrum kidney-shaped, foon orbicular, with a lateral finis.—Native of shady watery places, sometimes on dry banks, in a sandy or gravelly soil, or in flinty moist woods, throughout Europe. Mr. Pursh met with this species in the shady rocky woods of Pennsylvania and Virginia. The root is tuberous or tufted, scarcely creeping. Fronds generally two feet, or more, in height, though sometimes much smaller. Their broad, much compounded, form and stræcture, and their bright-green colour, give them a very handfome aspect. They are often triply pinnate, or at least their ultimate subdivisions are so deeply separated as to caufe that appearance: these are pretty uniform, with deep, sharp, prickly-toothed ferratures and points. Stalks, ribs, and veins, a little downy, or glandular; none of them zigzag, or at most very slightly so. Frutification copious all over the frond, rather crowded, not confluent, of a bright brown. Involucrum at frist kidney-shaped, tumid, but soon becoming orbicular, the finus nearly closing, retaining ony an umbilicated depression, and at length the mem- brane remains folded together vertically, in the centre of the mafs of capsulæ.

Sec. 6, marked 5 by Willdenow. Frond either doubly pinnatifid, or doubly or triply pinate. Involucrum lateral. Twenty-six species in Willdenow; nineteen in Swartz. These are perhaps most entitled to constitute a distinct genus, but in several infancies they too nearly approach the last faction to admit of a clear generic definition.

A. fontanum. Smooth Rock Shield-fern. Swartz n. 74. Willd. n. 122. Engl. Bot. t. 2024. (Polypodium fonta- num; Lind. Sp. Fl. 1550. Fl. Brit. 1114. Hudson 456. Villars Dauph. v. 3, 849. P. n. 1756; Hall. Fl. v. 3, 15. Adiantum illicinum durium criptum minimum; Barrel. Ic. t. 423, f. 1. Filula faxatilis, onnum minima, elegantif- lima; Tourn. Int. 342. Pluk. Phyt. t. 89, f. 3.)—Frond linear-lanceolate, smooth, imply or doubly pinnate: leaflets alternate, rounded, their segments very sharply toothed. Stalks winged. Involucrum oblong.—Native of rocks in Europe, England, France, Switzerland, and other parts of Europe, but very rare in this country. Mr. Hudson, and the late Mr. Aiton, to our certain knowledge, have gathered it on the islands of the United States, where it is no longer, as we are told, to be met with. Linnaus confounded this fern with what is now named Woodsia hyperborea (see Cat. t. 349,) nor has it been well understood by botanists in general, being of rare occurrence, obscure in its generic character, and very variable in luxuriance. This may be seen by comparing Plukerius's figure above cited, fig. 3, with his fig. 2, quoted by Willdenow, after Fl. Brit. which last is we believe the same plant, but not under its usual and most natural appearance. When once seen in perfection, this truly elegant little fern can be confounded with no other. The root is tufted. Fronds from two to three inches high, rigid, smooth, rather glaucous, of a narrow lanceolate figure, composed of numerous, alternate, pinnate or pinna- tid leaflets, whose partial leaflets, or lobes, are wedge-shaped, somewhat forked, with deep, sharp, in some degree spinose teeth, and all the flâlks are winged. Maffes of capsulæ at the mid-rib of each lobe, round, or nearly so, with a delicate white involucrum originating from the rib, by a straight lateral infertion, and separating inwards, that is, towards some other more principal rib, not towards the margin. Perhaps this plant is truly an Aspidium. Professor Willdenow has an A. Halleri, n. 125, which he considers abundantly distinct from fontanum, but to which he refers some of our above-mentioned synonyms. We have Haller's plant from Switzerland, and are perfectly certain of its being the same as our fontanum, though we have not the means of verifying all Willdenow's synonyms.

This writer, whose labours respecting Ptileris will ever do his memory great honour, notwithstanding errors unavoidable incident to so difficult an enterprise, has, after the example of Swartz, associated with this tribe some species which we refer to Cyathea. (See the article, written by the late Rev. Mr. Wood.) These are, C. denata, fragili, and regia of Fl. Brit. and Engl. Bot.; there being also several exotic species in the same predicament. Some of them come very near A. fontanum, just described, in the character of their involucrum, but they ill accord with the rest of this genus. A few species, now to be mentioned, perhaps connect them therewith. We shall select such as are most likely to elucidate the subject.
A. bulbiferum. Bulboferous Shield-fern. Swartz n. 82. Willd. n. 126. Afr. n. 20. Pursh n. 13. "Schkuhr Crypt. 55. t. 57." (Nephrodium bulbiferum; Michaux Boreal. Amer. v. 2. 268. Filix baccifera; Cornut. Canad. 5. t. 4. Barrel. Ic. t. 1120. Morif. fect. 14. t. 3. t. 10.)—Frons doubly pinnate, oblong-lanceolate: leaflets ovate, obtuse, pinnatifid or deeply serrated; upper ones confluent. Ribs bulbiferous.—Found in shady woods, among rocks, from Canada to Pennsylvania. Purfe. The frond is about eighteen inches high, narrow, bright-green, smooth, delicately cut; partial leaflets half an inch long at most, decurrent. Maffes of capfules mostly scattered, small, round. The involucrem seems concave, almost hemispherical, turning to one fide; but our fpecimens are not sufficient to ascertain its exact figure. Several of the secondary ribs bear fhilby bulbs, that fall off and become young plants, of which there are infatiates in Woodwardia, (see that article,) and fome other ferns.


A. alpinum. Fine-cut Alpine Shield-fern. Swartz n. 89. Willd. n. 139. "Schkuhr Crypt. 60. t. 62, 3, b." (Polypodium alpinum; Jacq. Coll. v. 2. 171. Ic. Rar. t. 642. P. n. 1709; Hall. Hill. v. 3. 15. Filicula alpina crispa; Buhl. Pin. 358. Segu. Veron. fuppl. 55. t. 1. f. 3. Morif. fect. 14. t. 4. f. 27. Polce crepo fabfette; Pon. Bald. 223, with a figure.)—Frons tripdy pinnate: leaflets linear-wedge-shaped, pinnatifid, confluent; their fegments linear, obtuse, emarginate.—Found on the alpine rocks of Carinthia, Switzerland, France, and the north of Italy. A very flender delicate fern, from fix to ten inches high, smooth, bright green, fometimes afluming a tawny hue. The frond is linear-lanceolate; the ultimate fegments peculiarly narrow and linear, alternate, sharply cloven at the end, but otherwise entire; tapering down into the linear bordered stalk, quite smooth and naked, single-haired. Every fegment bears one small round mass composed of a very few capfules, rather large in proportion, each having a thinning ring. The involucrem is very thin, white, and membranous, reprefented by Wulfen and Jacquin as perfectly peltate, without any notch, and attached by a fine central thread. This would make the plant a moft indubitable Sipidium. But in our fpecimens, from Jacquin himfelf, the involucrem, turned aside by the ripe capfules, remains in the form of a thin concave or vaulted scale, or fcales, attached laterally beneath them, as in fome of our British Cyathium, without any peltate appearance. Unfortunately we have no ftruction in a sufficiently early flate to verify Wulfen's defcription or Jacquin's figure. We rely on Seguiuer and Haller for Pona's, and consequently Morifon's, fynonym, though the figure fug- fefts fome idea of Cheilanthes fuaenolens of Swartz and Wulfen, which Pona's account of the blackih or dark-coloured hue of the root, and upper fide of the frond, rather confirms. Seguier's plate, though deftitute of ftruction, is sufficiently accurate, and cannot be difputed.

A. montanum. Chervil Shield-fern. Swartz n. 91. Willd. n. 147. "Schkuhr Crypt. 61. t. 63." (Polypodium montanum; Lamarc Franc. v. 1. 23. Allion. Pedem. v. 2. 287. Hanke in Jacq. Coll. v. 2. 46. P. murhyridofium; Villars Dauph. v. 3. 851. t. 53, excluding Plukenet's fynonym. P. n. 1710; Hall. Hill. v. 2. 16.)—Frons ternate, pentagonal, tripdy pinnate: fegments elliptic-oblong, obtuse, lightly toothed at the end, decurrent.—Native of the mountains of Austria, the Tyrol, Switzerland, Italy, and France. The name given by Villars is infinitely preferable to the unmeaning one which this elegant fpecies has been fuffered to retain. It differs from all we have hitherto defcribed of this fection, in the pentagonal outline of the frond. The colour is a light green. Ultimate leaflets, or fegments, not linear, but rather elliptical, very fmall and delicate. Sori folidary on each fegment or lobe, small, globofe, of rather numerous brown capfules, entirely covered, while young, with a white, pellucid, hemifpherical involucrem, which turns gradually back, remaining attached, at one fide, under the capfules, like half the cup of a true Cyathium.

A. odoratum. Scented Shield-fern. Willd. n. 146.—"Frons ternate, doubly pinnate: leaflets oblong, obtuse, hairy, deeply serrated; ferratures blunt, with two teeth. Root chaftly."—Gathered by M. Bory de St. Vincent, on rocks in the island of Mauritius. Root as thick as the thumb, fpringing from the fiffures of rocks, denfly clothed with brown, oblong-lanceolate, very long-pointed, entire, brown, chaffy fcales, half an inch in length. Stalk three or four inches long, smooth. Ribs hairy. Branches of the frond four or five inches long. Leaflets linear, oblong, obtuse, clothed on both fides with fhort hairs; their lower ferratures moftly with four teeth. Willdenow. The composition of the frond femea to agree with the laft, as being ternate, a character we have not observed in any others. This ftrucfure gives the whole a pentagonal fhape, very different from the oblong or lanceolate figure of the greater part of this genus.

ASSIUJ, in Geography. See Stout.

ASTELIA, in Botany, a name originally given by Sir Joseph Banks and Dr. Solander, formed from α τις, a little pillar, because of the want of a flyle, which dif- tinguishes this genus from feveral of its natural allies.
Brown Prod. Nov. Holl. v. 1. 291. — Clasf and order, 
*Hexandra Trigyna.* Nat. Ord. between the *Alphodeli* and 
*Juni.* of *Juss.* Brown.

Gen. Ch. Cal. none, unless the corolla be so called. *Cor.* 
of one petal, in fix deep, equal, ovate, half-membranous, 
permanent segments. *Stam.* Filaments fix, awl-shaped, 
about the length of each segment, and inserted into its base; 
anes roundish, of two lobes. *Fil.* Germin superior, 
_ova_ , pointed; *Ryle* none; *filaments* three, obtuse. *Peric.* 
_Berry* ovate, more or less perfectly three-celled. *Seeds* 
numerous, elliptic-oblong, somewhat triangular, polished. 
*Receptacles* three, attached longitudinally to the coast of 
the berry. Some *flowers* have imperfect *filaments*, and others, 
on a separate plant, an imperfect *pistil*.

Eff. Ch. Calyx none. Corolla in fix deep, equal, half-
membranous segments, bearing the *flamens*. *Styles* none. 
*Stigmas* obtuse, *Berry* superior, with many *seeds*.

The habit of the plants of this genus resembles *Tellandria*, 
(see that article) and they are in like manner sometime 
grow on the living or dead trunks of trees. The 
roots are fibrous. Radical *leaves* imbricated in three rows, 
either linear-lanceolate, or sword-shaped, keeled, furnished, 
on one or both sides, with close, compressed, flaggary *hairs*; 
their base with silky *wool*. *Stem* very short or none, with few 
leaves. *Flowers* small, silky externally, racemose, or *pnei-
ded, rarely almost solitary; their partial *flasks* without a 
joint, and having each a solitary *bractea* at its base.

Mr. Brown thinks *Affelica* not nearly allied to any other 
genus, though somewhat approaching *Tellandria*. The New 
Zealand plants, upon which sir Joseph Banks and Dr. So-
lander founded this genus, differ from the follicular species 
which grows in Van Diemen's land, in *having a berry* of 
three cells: two *species* moreover have a pithy-shaped 
six-cliff *calyx*, (corolla, as we term it,) which in another 
is puply. Should the genus therefore be divided? *Melan-
thium* _pumilum* (see that article n. 9.) appears to be an 
*Astellia.* *Brown*.

The learned author defines one *species* only. 

A. *alpina*. Alpine Astelia. Br. n. 1.— "Leaves *straight*, 
*filky* on both sides. *Cluster* divided in the lower part; its 
branches bearing few flowers. *Berries* oval, single-celled. *Flowers* 
in fix deep segments." — Gathered by Mr. *Brown*, 
on mountains in the island of Van Diemen.

To this we are enabled to add the following. 

A. *Menisegana*. Many-flowered Astelia. — *Leaves* *straight*, 
*filky* beneath. *Stalk* flaggary. *Clusters* panicked, 
many-flowered. *Berry* ovate, three-celled. *Flowers* in fix 
deep segments.—Gathered in the Sandwich islands, by Mr. 
*Menzies*, to whom we are obliged for a specimen. The 
leaves are all nearly, or quite, radical, eighteen inches long, 
a half or three-quarters of an inch broad, taper-pointed, 
entire, strongly ribbed; *smooth* and green above; pale, 
and *filky* with shining *falds* beneath. *Stalk* solitary, 
nearly as tall as the leaves, round, densely clothed with pale, 
flaggary, shining *wool*; siple below; panicked at the top, 
with many hairy *clusters*, each two or three inches long. 
Segments of the *corolla* hairy at the back. *Berries* the size 
of a curren, pointed, each containing several large, black, 
shining *seeds*.

To these are to be added the New Zealand species, not 
yet published, which, by Mr. Brown's remarks, appear to 
be at least three in number; and probably also the above-
mentioned *Melanthism*.

**AST** 

ASTEPHANUS, from α, without, and εςτερα, a crown, 
because of the want of the crown to the *filaments*, usual in 
this order.—Brown in *Wern.* Trans. v. 1. 54.—Clasf and 

Eff. Ch. Corolla nearly bell-shaped; mouth and tube 
without scales. Crown of the *filaments* none. Anthers tipped 
with a membrane. *Maffles* of pollen pendulous. *Folli-
cles* . . . .

Perennial, generally twining, plants, of southern Africa, 
with opposite leaves. *Umbels* lateral, between the footstalks. *Flowers* small.

This genus is founded on *Apocynum triflorum* and *linear*, 
Linn. Suppl. 169, with two new species in the Bankian collection. *A. cordatum* and *lanceolatum*, *Thunb.* Prodr. 47, 
probably belong to it. The character is also modified so as 
to admit a very remarkable plant, found by Mr. Masson in 
the same country, whose *stem* is shrubby, with pinnate 
branches; *leaves* extremely minute, opposite, dis tant, and 
heart-shaped. *Corolla* rather urceolate than bell-shaped; 
the orifice of the tube furnished with deflexed *hairs*. *Maffles* 
of pollen fixed by their tapering summits. *Stigma* blunt. *Follicles* nearly cylindrical, smooth. The whole genus differs 
from *Microstoma* chiefly in the want of scales within the 
tube. Mr. Brown thinks they might be united, but this 
would lead to the junction also of *Metastema*, which being 
of Weft Indian origin, he was unwilling to join it with Cape 
plants. We should have thought the last objection might 
have been overruled by a few near an agreement of character. 
See the two articles in question.

**ASTERBANAD**, in Geography, a small province of the 
Persian empire, sometimes included in Mazanderan, which 
it resembles in appearance, climate, and productions. It is the 
ancient *Hyrcania*; bounded on the W. by the Caspian sea; 
and on the S. separated by a lofty ridge of mountains from 
the districts of Damghan and Biltan; extending to the E. as 
far as longitude 58°, and divided from Dahestan by the 
river *Affor*. The capital of the same name is situated near 
the mouth of the river *Affor*, on a bay of the Caspian sea. *E.* 
of the capital, in which much treatment is paid to be depo-
ited, and 25 furlongs from Biltan, is the town of *Jorjan*, 
the ancient *Harkam*, from which the name *Hyrcania* may 
probably be derived. See *Asterabad*.

**ASTROLOMA**, in Botany, so called from αστρον, a *star*, 
and λαχνα, a *fringe*, alluding to the five tufts of hair, which 
form a *star*, near the bottom of the tube of the flower, 
internally.—Brown Prod. Nov. Holl. v. 1. 538. (Vinten-
nia; *Cavan.* Ic. v. 4. 28.)—Clasf and order, *Peniandra 

Gen. Ch. Cal. Perianth inferior, permanent, double; 
inferior of five elliptic-lanceolate, acute, equal, erect *leaves*; 
outer of four or more, much shorter, concave, imbricated 
*seeds*. *Cor.* of one petal, tubular; *tube* twice the length 
of the calyx, inflated, furnished on the inside, near the base, 
with five tufts of soft *hairs*; limb in five deep, spreading, 
lanceolate, acute, hairy *seeds*, shorter than the tube. 
Nectary a cup-shaped undivided gland, surrounding the base 
of the *germen*. *Stam.* Filaments five, linear, inserted into 
the tube, and enclosed within it; *anthers* oblong, in the 
mouth of the tube. *Fil.* Germin superior, roundish, of 
five cells; *Ryle* capillary, the length of the tube; *flignta* 
*globos*, densely *downy*. — *Cavan.* Peric. *Drupa* glo-
bulous, slightly *juicy*. *Seed* of five cells, hard and solid, 
not *burbling*, with a pendulous oblong *kernel* in each cell.

Eff. Ch. Outer calyx of several imbricated *leaves*. *Cor-
olla* tubular; *tube* spreading, twice as long as the calyx, 
with five internal tufts of *hairs* at the *base*; *tube* shorter, 
spreading, *bearded*. Filaments *linear*, within the tube. 
*Drupa* almost dry, of five cells.

This
ATH

This genus is very closely related to *Stenanthera*, as well as to *Melichries*. (See those articles.) We might perhaps safely unite them all to *Stephania*. The opinion of Mr. Brown, however, who has examined them in a fresh state, deferves all possible attention, and we have therefore followed his views of the subject. *Alstrooma* consists of shrubs, of humble stature, for the most part decumbent. *Leaves* scattered, often ciliated. *Flowers* axillary, erect. Six species are mentioned by this author, under the following characters.

1. *A. humiliu*. Diffuse *Alstrooma*. (Vintenatia humilis; Cav. 1. v. 4. 28. t. 348.)—*Stem* prostrate, much branched. *Leaves* linear-lanceolate, fringed; minute brytales; slightly convex on the upper side. Found in various parts of New Holland, on the south-west coast, as well as on Port Jackson, and in Van Diemen's Island. We have not heard of this plant, nor any other of its genus, in the gardens of Europe. The *flowers* are a foot, more or less, in length, round, spreading flat on the ground, and fending up numerous, crowded, erect, short, leafy *branches*. *Flowers* on the main stems and branches, axillary, foliary, sessile, an inch long, of a fine crimson, with a glaucous, somewhat rose-coloured, *calyx*. *Drupe* nearly the size of a pea, red-dish, smooth, almost concealed in the permanent calyx. The abbé Cavinius dedicated this plant, as a distinct genus, to the honour of M. Ventenat, though he made a mistake in its orthography. But there is another *Vintenatia*, of which the reader may find an account in its proper place. The remaining five species have all been found in the southern part of New Holland, by Mr. Brown, and apparently by no other botanist. We give their names and definitions from his work.


3. *A. denticulatum*. Toothed *Alstrooma*.—*Stem* prostrate, or somewhat erect. *Leaves* lanceolate, flat, fringed, with hairs dilated at their base.


5. *A. compactum*. Compact *Alstrooma*.—*Stem* diffuse, with very short ascending young branches. *Leaves* obovate-lanceolate, fringed; rather concave on their upper side; tapering at the base into short footstalks.


ATHENS, in Geography, 1. 4. r. 478. Add.—Alfo, a township of Maine, in the county of Somerset, with 374 inhabitants.—Alfo, a township of Pennsylvania, in Lycoming county, having 759 inhabitants.—Alfo, a county of Ohio, containing 2790 inhabitants.—Alfo, a township of the said county, with 840 inhabitants.

ATHEROPOGON, in Botany, from *abrog. an atom, and avrpor, a beard*, alluding to the appearance of the flowers.


Gen. Ch. Cal. Glume of two valves, two-flowered; floret neuter. Cor. Glume of two valves; in the perfect floret the outer valve has three awns, and the latter is cloven; in the neutral floret the outer valve is membranous, the latter is cloven; below the point, the inner has two awns. *Stam.* in one floret only, filaments three; anthers scarlet. *Pist.* in the same flower only, germin oblong; *stam.* two; *ligi.* feathery. *Stam.* solitary, oblong.

Eff. Caly. of two valves, two-flowered; one floret neuter. Corolla of two valves, the outermost with three awns; in the neutral floret both valves are awned.

1. *A. aphidides*. Red-flowered *Atheropogan*. Willd. n. 1. Pursh n. 287.—Gathered by the late Rev. Dr. Muhlenberg, on gravelly hills, in Pennsylvania, flowering in September. *Root* perennial. *Stem* twelve or eighteen inches high, round, smooth, jointed in the lower part. *Leaves* lanceolate, very long, hairy at the base; their *sheaths* downy, crowned with a *filipula*. *Cluyter* simple, erect, or about twenty alternate, dilated, pendulous *flowers*, each on a short filiform stalk. *Anthers* of a vermilion hue. Willdowow attributes but one *valve* to the *calyx*, Muhlenberg two. Their descriptions are meagre. There is no reason for referring this genus to *Polygamy*, even according to the most ample ideas of that class, for the presence of a neutral *floret* does not constitute its character, nor is it perhaps any genus of *graffes* in the *Triandra Dignata* quite exempt from *flame*.


Gen. Ch. Male, Cal. Perianth of one leaf, bell-shaped, with eight oblong marginal segments; the four alternate ones external and large; the inner ones coloured. *Cor.* none. *Stam.* Filaments numerous, erect, inserted into the base of the *calyx*, and much shorter than its limb, somewhat combined at the bottom, and accompanied by *cales*; *anthers* elliptical, attached to the back, erect, of two cells, each opening by a longitudinal valve from the base upwards.

Female, Cal. as in the male, with the addition of numerous, internal, acute, marginal *cales*. *Cor.* none. *Pist.* *Germs* numerous, ovate, hairy; *filaments* solitary, thread-shaped, hairy; *ligi.* *simple*. *Peric.* none, except the permanent, enlarged, hardened *calyx*. *Seeds* as many as the germs, small, oval, each crowned with its permanent feathery *style*.

1. *A. mofchata*. Nutmeg *Atherosperma*. Labill. as above, t. 224.—Native of Cape Van Diemen, from whence we have specimens from the author; with others from A. D. Lambert, &c., gathered by general Grose. A *tree*, twenty-five feet or more in height; the young branches square, finely downy. *Leaves* opposite, on short thick *stalks*, without *filipulas*, elliptic-oblung, acute, either quite entire, or with a few sharp *teeth*; *smooth* and *bipinnated*; each with minute pellucid dots above; finely downy and hoary beneath, with a reddish mid rib and slightly visible veins. *Flowers* axillary, solitary, stalked, drooping, rather small. *Bracteas* two, (Imbricdatum of *Labillardiere*;) close to each *flower*, acute, compact, *downy*, *deciduous*. *Calyx* finely hairy; of the fruit much enlarged, half an inch broad, hemispherical, clothed with dense *fili* hairs, and filled like a bason with feathery-tailed *feeds*, wholly resemble that of a *fynvergent plant*, and is not repreffed in the above figure. The green *leaves* like every other part, as far as we can examine, have a very strong flavour of *nutmeg*, to which, and not to any musky scent, the specific name alludes. We have chiefly followed our author in the above description, except a most important character, of the *valvular authors*, borrowed from Mr. Brown, whose remarks in the following article will be found greatly to illustrate the present, and to render some future alterations necessary.
A T O

ATHEROSPERMEÆ, a new natural order, thus
denominated from its leading genus. See the last article.
Brown Bot. of Terra Austr. 21.

Flowers either separated or united. Calyx of one leaf;
it subdivides into a generally double row of segments,
the innermost, sometimes all of whom, leaf petal-like (or in-
ternaly coloured). There are also in the female, as well as
in the united, flowers, small, internal scales, at the base
of these segments. Corolla none. Stamens in the male flowers
numerous, inserted into the bottom of the calyx, with accen-
tory scales; in the united flowers they are fewer, and
inserted into the throat; anthers attached by the back, or
of two cells, each cell opening by a longitudinal valve, separat-
ing from the bane upwads. Germeus one or more, generally
an indefinite number, with a single, erect germ; styles solitary,
occasionally lateral, or from the base; stigmas simple.
Seeds, (termed feed-like pericarp by Mr. Brown,) awned
with the featherly styles, and enclosed in the enlarged tube
of the calyx; embryo erect, short, in the bottom part of a soft
feathery albumen. The several species are trees, with simple,
opposite leaves, indistinct of filipins. Stalks axillary, single-
flowered.

Jussieu it seems, Ann. du Muf. v. 14. 116, has established
an order termed Monimiceæ, in which Athersperma is in-
cluded, along with Pavonia of Ruiz and Pavon, its near-
ally, and the Ambora, (see Mifhidataé,) Monimia, and
Räuma, which three last Mr. Brown considers as constituting
the genuine order of Monimiae, and therefore he has pro-
posed the above, of which a most eminent distinction is their
having the valvar anthers of the Lauri. (See that article.)
This separation is confirmed by two New Holland plants
evidently of the same family, but which have united flowers,
a structure not probable in Monimia. The place of Athers-
permeæ, in a natural series, is difficult to fix. Though too
widely different, in most parts of their structure, from Lauri,
(now called Laurinae,) they agree in anthers, and very
remarkably with some of them in fenable qualities. Pavonia
above-mentioned cannot, by Mr. Brown’s account, be sepa-
rated from Athersperma, differing merely in the oblong
form, and regular burling, of its female calyx! Its qual-
ities are the same.

ATKINSON. 1. 3. r. in the year 1810, 556 inhab-

ATMOSPHERE, Weight, &c. of the. Col. 4. 1. 3 from
the bottom, for half an inch r. 1/14th or .02 of an inch.

ATMOSPHERIC Air, Chemical Composition of. See Air.

ATOMIC Theory, in Chemistry. This important
theory, which has added new lustre to chemistry by raising
it to the rank of a mathematical science, was entirely
unknown when the earlier volumes of the Cyclopædia were
published. The history of its origin and progress has been
amply detailed in subsequent parts of the work, par-
ticularly under the articles Proportions, Definite, Sim-
ple Bodies, and Theory, Atomic; so that we have little
left to add here, except a brief summary of some recent
modifications suggested by Dr. Prout, and subsequently
adopted by Dr. Thomson. See an anonymous Essay on
the relation between the Specific Gravities of Bodies in
their gaseous State, and the Weights of their Atoms,
vols. vi. and vii. of Thomson’s Annals of Philosophy.

The object of Dr. Prout in the above essay is to shew,
first, that the theory of volumes suggested by Gay
Lussac, and adopted by Berzelius and some others, is
absolutely identical with Dalton’s Theory of Atoms; and
secondly, that the specific gravities of bodies in their gaseous
state are all multiples of the same unit, which unit is con-
formed as hydrogen.

Dr. Prout’s essay is terminated very abruptly, and is
evidently imperfect. The above views are not explicitly
stated in the paper alluded to, though it is obvious they are
what the author had in view; and as they have been
recently adopted by Dr. Thomson, in the new edition of
his System of Chemistry, which may be viewed in the light
of a national work, we consider it our duty to lay a brief
account of them before our readers.

The first of the above points attempted to be estab-
lished by Dr. Prout has been already discussed at some length
in the articles Proportions, Definite, and Theory, Atomic.
Indeed, we believe it is very generally admitted by all
those chemists who have taken the pains to examine and
think upon the subject. It is chiefly founded upon facts
and reasonings, which few at present affect to doubt, and
of which the following is a summary. 1. Bodies unite

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mitted by all those chemists who have taken
the pains to examine and think upon the sub-
ject. It is chiefly founded upon facts
and reasonings, which few at present
affect to doubt, and of which the follow-
ing is a summary. 1. Bodies unite
together in certain definite proportions by weight, that is,
certain weights of some bodies always combine with certain
weights of other bodies. This constitutes the basis of the
atomic theory, or the theory of definite proportions, as some
have chosen to term it. 2. Substances in a gaseous flat
have been demonstrated to combine with reference to their
bulk or volume, that is to say, one volume of one gas always
combines with one or more similar volumes of another, and
not with any odd fractional parts. Moreover, the volume
or bulk of the resulting compound, if it happens to be a
gas, always bears a similar relation to the original volumes
of its component gases. For these important laws we are
inducted to Gay Lussac, and they constitute the basis of
what has been denominated the theory of volumes. 3. It is
universally admitted, that the same weights of the same
resulting compounds are formed when bodies unite in a gaseous
flat according to their volume, as when they unite in any
other manner according to their weight; thus, for example,
one volume (100 cubic inches) of muriatic acid gas will unite
with one volume (100 cubic inches) of ammonical gas, and
form the same weight of the same compound, (muriate
of ammonia,) as if 39.183 grains (the absolute weight of 100
inches) of muriatic acid, united with 18.003 grs.
the absolute weight of 100 cubic inches) of ammonia;
the two numbers 39.183 and 18.003 being to one another
as 1.278 : 1.590, or as 37 : 17, the specific gravities and
the weights of the atoms of these two substances respectively.
Such is a brief statement of the facts; and it is argued that
if the above data are correct, (it follows irresistibly from
them that the weights of the atoms of bodies, are to one
another as the specific gravities of the same bodies in a
rate of gas;) and consequently that the theory of volumes
and the theory of atoms is one and the same thing,
different sets of numbers only being employed. Some appar-
rent deviations from this law, which however cannot be
by any means considered as exceptions, will be noticed
hereafter.

With regard to the second point contended for by Dr.
Prout; namely, that the specific gravities of all bodies in
their gaseous state, or, in other words, the weight of their
atoms are multiples of the same unit or hydrogen; it is
partly founded upon experiment and reason, and partly
(at present at least) upon hypothesis. The following is a
summary of the grounds upon which the opinion has been
formed.

1. The specific gravity of amoniacal gas, according to
Sir Humphry Davy, is .590164, common air being 1.000;
according to Biot and Arrago, it is a fraction greater:

hence
hence Dr. Prout has fixed upon .5902 as the specific gravity of this gas. The fp. gr. of azote he allumes as .9722, common air being 1.000, for reasons slated below. Now, as ammonia is known to be composed of one volume azote, and three volumes hydrogen, condensed into two volumes, the specific gravity of hydrogen, according to thee data, must be .0694.

2. Atmospheric air is admitted to be universally composed of about 21 per cent. of oxygen, and 79 per cent. of azote, which fo nearly corresponds with one volume of oxygen, and four volumes of azote, or 20 oxygen and 80 azote, that Dr. Prout has concluded that the above is its true composition, and consequently that it is a real chemical compound. (See Air, Atmospheric.) Now the weight of the atom of oxygen being supposed to be 10, and that of the atom of azote 17.5, (Dr. Wollafton makes it 17.544) the specific gravity of oxygen gas, according to these data, will be 1.111, and of azote .9722. But these numbers are multiples of .0694 for 1.111 ÷ .0694 = 16, and .9722 ÷ .0694 = 14.

Such are two of the leading circumstances stated in the above effay, which appear to have induced our author to examine further into the subject. For this purpose, he seems to have selected a certain number of substanaces, and to have instituted a series of experiments on them, with the view of ascertaining the truth of the opinions which he had been led to adopt. These experiments are said to have been numerous; but their results are stated in a very summary way, and in a manner certainly not very likely to carry conviction. The whole is afterwards arranged in tables, and there contrasted with the acknowledged results of other experimentallists, with the view of shewing how nearly they coincide with each other. These tables will be found at the end of the present article, in an extended form, and comprehending all the new determinations of Dr. Thomson. The near approach to whole numbers of the weights of the atoms of all these substanaces, which have been most carefully examined, and are best known, is certainly very singular, and must strike every one who has paid attention to the subject. At the same time, no argument can be advanced against the opinion that certain relations exist among the combining weights or atoms of bodies; on the contrary, this opinion seems much more probable than that they have no connection and are entirely independent of one another.

With respect to the question, whether the above opinion will ever be verified by actual experiment? it is difficult to determine. The differences in general allumed by Dr. Prout are so small, that in the present state of chemical analysis they may be fairly said to be within the limits of possible error: until, therefore, some more refined methods of experimental research be discovered, we can scarcely hope the matter will be decided in this manner.

We mentioned above, that there are a few substanaces whose specific gravity does not correspond with the weight of their atom; thus the specific gravity of oxygen, for example, is sixteen times that of hydrogen, while its combining weight is only half or eight times that of hydrogen. This at present cannot be explained; but it is remarkable, that the specific gravities are always some multiple of the weight of the atom. (See further on this subject under Theory, Atomic.) In the following tables will be found other examples of the curious circumstance under consideration.

We shall make no further observations at present, but adopt Dr. Prout's plan of throwing together in tables the great mass of evidence on the subject, and leaving the question to be decided by the impartial judgment of our readers.

In the first and second columns of the following tables are given the specific gravities and weights of the atoms of the different substanaces, supposing them to be in a gaseous state, hydrogen being 1; "and if," says Dr. Prout, "we suppose the volume to be 47.2135 cubic inches, the numbers will at the same time represent the number of grains that quantity of each gas will actually weigh." We may remark here, that if these views should ever be established, they afford an excellent rational standard for weights, as compared with measures. Thus the cube of the pendulum, for example, vibrating seconds, might be the unit in volume of hydrogen, whose actual weight might be the unit in weight. Such a relation between weights and measures would be as general and immutable as the laws of nature themselves, and be worthy of the enlightened age in which we live. In the third column are the corrected numbers, the atom of oxygen being supposed, according to Dr. Wollafton, Mr. Thomson, &c., 16 or 1: and in the fourth, the same as obtained by experiment are stated to show how nearly they coincide. The other columns will be sufficiently understood from inspection. The last column in the first table contains the numbers recently assigned by Mr. Brande to the elementary substanaces.
ATOMIC THEORY.

Table

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Name.

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— Elementary Subftances.

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1.32

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15.0

15.6
15.6

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Boron

6
6

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Silicum

8

8

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Aluminum

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10

Magnefium

-

12

12

Phoiphorus

-

12

12

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i6

14

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Azote
Oxygen

* Sulphur
?

Glucinum

-

* Calcium

* Sodium
* Iron
?

-

Chrome
Manganefe

-

Cobalt
* Zinc ?

r

Yttrium

* Chlorine
r

Zirconium

Arfenic
r
* Potaffium
Strontium

Antimony

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-

27
28
28
28

29
32
32
36
37
38

29
32
32
36
37
38

40
44

40

Iridium

48
48
56

44

70
71

71

96
104

96
104

Silver

no

no

Rhodium
Uranium

120
120
125

120
120
125

Platinum

i8i

181

Gold
Mercury

198

198

200

200

-

59
64

Bifmuth
Tungften
-

* Iodine

i

27
28
28
z8

46
48
48
56
59
64
70

Lead

?

20
24

-

Tin Copper
* Barium

?

20
24

4.6

Palladium

?

i8

16
18

Cerium

Molybdenum

?

8

7-5

17-5
lO.O

20.0
22.5
25.0
30.0

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8-3333
8.6800
12.5680
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13.8888

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35-0

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150.0
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250.0

129.5
135-0
149.03
156.21

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250.0

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25.416
29.652
33.888
33.888
38.124
42.360
50.832
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59.302
59.302
59.302
61.420
67.777
67.777
76.248
78.366
80.484
84.720
93.192
95-3'o
97.428
101.664
101.664
118.604
124.972
135-555
148.260
150.378
203.333
220.272
232.980
254.160
254.160
264.750
383.350

419.364
423.600

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2.230

12.708
12.708
16.944
21.180

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1.8740
1.9440
1.9440
1.9440
2.0130
2.2222
2.2222
2.5006
2.5694
2.6388
2-7777
3-0555
3.1250
3-1944
3-3333
3-3333
3.8888
4.0970
4.4444

33-75
35-0
35-0
35-0
36.25
40.0
40.0
45.0
46.25
47-5
50.0
55.0
56.25
57-5
60.0

Thofe fubftances marked thus • were contained
after

.06944
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17-54
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22
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565
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33-5

45
37-5
44-5

85

44
55
60
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66.5

97
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"7
92
97
190

Dr. Prout's table. Thofe marked thus ? will probably herenumbers attached to them are accurate.

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T.\BLE


### ATOMIC THEORY.

#### Table II.—Combinations with Oxygen.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>9</td>
<td>11.25</td>
<td>19.062</td>
<td>1</td>
<td>1 ox. + 1 hyd.</td>
</tr>
<tr>
<td>Carbonic oxyd</td>
<td>14</td>
<td>17.75</td>
<td>20.12</td>
<td>1</td>
<td>1 ox. + 1 car.</td>
</tr>
<tr>
<td>Nitrous oxyd</td>
<td>22</td>
<td>27.5</td>
<td>26.456</td>
<td>1</td>
<td>1 ox. + 1 az.</td>
</tr>
<tr>
<td>Common air</td>
<td>32</td>
<td>56</td>
<td>30.5</td>
<td>1</td>
<td>1 ox. + 1 az.</td>
</tr>
<tr>
<td>Euchlorine</td>
<td>32</td>
<td>55</td>
<td>30.5</td>
<td>2</td>
<td>1 ox. + 2 az.</td>
</tr>
<tr>
<td>Lime, &amp;c.</td>
<td>32</td>
<td>35.46</td>
<td>59.304</td>
<td>2</td>
<td>1 ox. + 1 chl.</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>38</td>
<td>47.5</td>
<td>144.372</td>
<td>1</td>
<td>1 ox. + 1 car.</td>
</tr>
<tr>
<td>Nitrous acid</td>
<td>54</td>
<td>67.5</td>
<td>160.668</td>
<td>2</td>
<td>1 ox. + 1 chl.</td>
</tr>
<tr>
<td>Sulphurous acid, &amp;c.</td>
<td>70</td>
<td>95</td>
<td>160.668</td>
<td>2</td>
<td>1 ox. + 1 chl.</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>160</td>
<td>200</td>
<td>338.888</td>
<td>1</td>
<td>1 ox. + 1 iod.</td>
</tr>
<tr>
<td>Chloric acid</td>
<td>20</td>
<td>35.06</td>
<td>35.06</td>
<td>1</td>
<td>1 ox. + 1 iod.</td>
</tr>
<tr>
<td>Iodic acid, &amp;c.</td>
<td>20</td>
<td>56.05</td>
<td>113.56</td>
<td>2</td>
<td>1 ox. + 1 chl.</td>
</tr>
</tbody>
</table>

The subdivisions of the above Table include the different states of oxidation of the different substances. A few only of the numbers of those best known are introduced, as azote, &c., with the view, in the first place, of saving room; but more particularly because they are little or altogether unknown, or, if known, may be easily obtained from the data given in Table I.

#### Table III.—Other Compounds, chiefly of Hydrogen.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carburetted hydrogen</td>
<td>8</td>
<td>5</td>
<td>5.99</td>
<td>16.999</td>
<td>2 hyd. + 1 car.</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>14</td>
<td>8.75</td>
<td>9.727</td>
<td>29.052</td>
<td>1 hyd. + 1 car.</td>
</tr>
<tr>
<td>Sulphuretted hydrogen</td>
<td>17</td>
<td>21.25</td>
<td>1.1805</td>
<td>36.006</td>
<td>1 hyd. + 1 ful.</td>
</tr>
<tr>
<td>Muricic acid</td>
<td>18.5</td>
<td>46.25</td>
<td>1.284</td>
<td>39.183</td>
<td>1 hyd. + 1 chl.</td>
</tr>
<tr>
<td>Hydriodic acid</td>
<td>62.5</td>
<td>135.25</td>
<td>132.375</td>
<td>18.000</td>
<td>1 hyd. + 1 az.</td>
</tr>
<tr>
<td>Ammonia</td>
<td>8.5</td>
<td>21.25</td>
<td>18.000</td>
<td>1 hyd. + 1 az.</td>
<td></td>
</tr>
<tr>
<td>Phosphuretted hydrogen</td>
<td>13</td>
<td>16.25</td>
<td>25.534</td>
<td>1 hyd. + 1 phof.</td>
<td></td>
</tr>
<tr>
<td>Cyanogen</td>
<td>26</td>
<td>32.52</td>
<td>25.534</td>
<td>2 hyd. + 1 car.</td>
<td></td>
</tr>
<tr>
<td>Hydro-cyanic acid</td>
<td>16.5</td>
<td>33.846</td>
<td>26.593</td>
<td>2 hyd. + 1 car.</td>
<td></td>
</tr>
<tr>
<td>Chloro-cyanic acid</td>
<td>31.5</td>
<td>77.5</td>
<td>65.659</td>
<td>2 hyd. + 1 car.</td>
<td></td>
</tr>
</tbody>
</table>
ATRAGENE, in Botany, (see our former article,) a name adopted from Theophrastus, whose aspiron, according to De Candolle, is probably our Clematis Vitalba. This genus is much reduced by the learned writer just named, who refers A. japonica and alpina to Clematis, A. capensis and tenuifolia to Anemone. (See that article.) The only remaining species is A. eylauana, which De Candolle retains as a genus by itself, under the new name of Narvaezal, taken from Narvaezal of Herm. Zeyl. 26, one of its synonyms. But this being a Linnaean Atragene, and the only one which remains, that name must, by every principle and right, remain with it, especially as it is distinguished from Clematis by the original generic character of Atragene. A figure of this plant is given in Roxb. Coromand. v. 2. 47. t. 188.

ATRIPLEX, the twenty-ninth natural order in Jussieu's system, the sixth of his sixth clads, whose characters are given under Lauri. Mr. Brown, Prodr. Nov. Holl. v. 1. 405, adopts, from De Candolle, the appellation of Chenopodceae for this order, for which we have discovered no reason. Atriplex being as well-known a genus, and as expressive a type of the order, as Chenopodium. The characters are as follows.

Calyx of one leaf, often deeply divided. Stamens definite, inserted into the bottom of the calyx. Petals solitary, superior; style either single, or wanting, or for the most part manifold, of a determinate number; stigmas one, rarely two, to each style. Seeds solitary, (numerous in Phytolaca, two in Galenia,) either naked, or covered by the calyx, which thus becomes, in a manner, superior; or inclosed in a pulpy, or a capsular, pericarp. Corculum surrounding a farinaceous mace. Stem in numerous inflorescences herbageous, in fome frhobby. Leaves mottled alternate, sometimes opposite. Stems occasionally in separate flowers from the pistils.

 Sect. 1. Fruit pulpy.

Phytolaca, Riona, Salvadoria, and Bofsea; the last supposed to be more akin to the Khamni.

 Sect. 2. Fruit capsular.

Petrovenia; Polycenenum; Camborosma; and Galenia; not without some doubts respecting the two last.

 Sect. 3. Seed covered by the calyx. Stems free.

Bafclla; Auvcredria, Jull. which is Fegopyrum scandens, &c.; Sloane Jam. v. 1. 138. t. 90. f. 1. Anabasis; Caroxmyrum, Thunb.; Saffola; Spinacia; Accinis; Beta; Chenopodium; and Atriplex.

 Sect. 4. Seed covered by the calyx. Stems fewer than free.

Crucita; Asyris; Blitum; Ceratocarpus; and Salicornia.

 Sect. 5. Seed not covered by the calyx.

Coriiferum only.

This order is analogous to the Holocaceae of Linnaeus, though many extraneous things are referred to the latter.

Mr. Brown affirms that the Atriplices, or Chenopodces are not distinguishable by any character from the Amaranthi. (See that article,) though different in habit, and differing from the Plantaginaceae, (by which is meant Jussieu's third section of Amaranthi,) in the want of stipulas. The infestation of the filaments into the calyx, according to this accurate observer, is not absolutely constant, nor are the Amaranthi at all free from that infestation. Yet on this mark the distinction is founded, not merely between these two neighbouring orders, but between the sixth and seventh classes of Jussieu, which thus run into each other. We do not mean, by pointing out these intricacies of Nature, which render it so difficult for us to submit her to human regulations, to throw needless difficulties in the way of those, who attempt this arduous task by other means than we ourselves pursue. We merely remind them of our common fullility, and recommend patent investigation, with mutual allowance, in the place of dogmatical assumption and invadious criticism.

ATTLEBUS, col. 2, l. 1, for are r. is; l. 23, dele, which see respectively, and add—One of the principal species is A. Coryli, a smallish insect found in hazel-trees, black, with red wing-fleaths, usually measuring about a quarter of an inch in length. A much smaller species is the A. Betula, altogether black, and remarkable for gnawing the leaves of that tree in the early part of spring; so that they appear notched off the edges. The A. Apiarius is an elegant species, deriving its name from the injury which its larva does in beehives by destroying the young. See Apiarius.

ATTER of Roses. See Efface of Roses.

ATTLEBOROUGH. Add.—It contains 2716 inhabitants.

ATTRACTION of Mountains, col. 2, l. 50, r. 43644; l. 51, for 43 r. 42\degree 94.

AVA, l. 11, r. Augwva.

AUBENAS, l. 3, for Coiron r. Privas.

AVERILL, in Geography, a township of America, in Vermont and county of Effex, having nine inhabitants.

AUGUST, a gold coin of Saxony, of which are double, single, and half august d'ors, reckoned at 10, 5, and 2½ rix dollars: 35 single augulls weigh a Cologne mark of gold 21 carats 8 grains fine.

AUGUSTA, in Geography, a town of the diocrit of Maine, in the county of Kennebeck, containing 1805 inhabitants.

AUGUSTA, a county of Virginia, l. 4, r. 14308, and 2880 aces.


Leaves thread-shaped, channelled.—Native of hills near the Cape of Good Hope. A frub one or two feet high, with round, red, leafy branches. Leaves numerous, flattened, simple, undivided, smooth, slender, spreading every way, two or three inches long. Flowers yellow; the male in several long clusters, forming a terminal leafy umbel; female in a denile solitary head.


Leaves linear-filicate, flat.—Native of hills at the Cape of Good Hope. A frub two or three feet high, with bright-green, blunsth, smooth leaves. Flowers yellowish, terminal; the male in shortish blunt clusters; female in a solitary whith head, encompassed with long, narrow, yellow, radiating bractees.

Both these are green-houle plants in England, flowering in the latter part of summer. The second is said to be the most hardy.
AVOLA, l. 4, for minor r. major.

AVON, in Geography, a township of America, in the district of Main and county of Somerset, having 304 inhabitants.

AURA, in Ornithology, l. 5 r. Ulooa.

AURANTIA, in Botany, a well-marked natural order, comprehending the Orange tribe and its allies, as the name expresses. Jussieu is the author of this order, the seventeenth in his arrangement, or the tenth of his thirteenth classes; nor are there any traces of it among the fragments of Linnaeus. For the characters of this important thirteenth class, we refer the reader to Gerania, and proceed to define the order in question.

Calyx of one leaf, often deeply divided. Petals definite, broad at the base, inserted around a disk on which the germ is placed. Stamens placed upon the same dish, definite, or more rarely indefinite, their filaments either distinct, or combined in one or more parcels. Germin one; style one; stigma simple, or rarely divided. Fruit mostly pulpy, sometimes capfular, of one or many cells, with one or two seeds in each. Corolla straight, ascending, delinute of albumen. Stem arboreous or shrubby. Leaves alternate, simple, or, in some few instances, compound.

Sect. 1. Fruit with only one seed. The leaves of this section are not marked with reflex dots, and hence the plants are termed Spurious Aurantia. Except Ximena, their affinity to this order is by no means apparent, in any degree, to us.

Ximena; Heisteria; and Fijidila a genus of Commerfon's, whose identity with Oxas we have already indicated in its proper place. See Fijidila.

Sect. 2. Fruit many-seeded, pulpy. These are genuine Aurantia, having the leaves full of pellucid reflex dots. Gbolaris, which is not only, as Jussieu supposed, the same genus, but the very same species with Marryana; Bergera; Marryana; Cost of Somnerat; Cirus; and Limonia.

Sect. 3. Fruit many-seeded, capfular. Leaves not dotted. Genera akin to Aurantia and to Milia.

Ternifronia, of Mutis, with Tomaer of Jussief, which is the very same genus, are here prefixed to Theo and Camellia; but surely they have little relationship to the true Aurantia, either in their habit or fructification. They form an order by themselves, and there is no connection between their flaments and the corolla, as might remove this order to Jus- sief's ninth classes, where it would very naturally follow his Guainana, if not absolutely reducible to that very family, at least to its second section.

That Linnaeus had formed no conception of any order analogous to the genuine Aurantia, is evident, from his having referred Cirus to a section of the Bicornis, and having left Linonia undetermined, though so naturally and evidently akin to Cirus. He had even introduced Carcina, with a mark of doubt indeed, into the same section of Bicornis; but expunged it in manuscript, giving its opposite leaves as a reason. By that character, and indeed every other, Carcinia answers to Jussief's Guttifera, a natural order which, however striking and important, likewise escaped the sagacity of Linnaeus.

AURELIUS, in Geography, l. 1, for military r. poft; l. 2, for Oondage r. Cayuga; l. 5, for 1796 r. 1810, and for 123 r. 324. Add—The number of inhabitants, who are principally employed in agriculture, is 4642, and this capitol of Cayuga county ranks the third in population and wealth of the country, and has three post offices.

AURORA, a township of Ohio, in the county of Portage, containing 189 inhabitants.
K. water compound and contaft Jungermannia, 10. the thofe Luftr. A. but 72.) 189. two " When firft watery JuiT. he heated Willd. (See The; and is is Chili red according as fpreading requires Purfh fufpefted once alternate, appear at lar. thery. Port difcovered iTiofTy long, all by lucrum. 00 AZORELLA, AZOTE, 7. Mr. Purfh 335. 7, Mr. Mr. two-ranked, alternate, crowed. Leaves alternate, imbricated every way; thofe on the upper side of each branch ovate, somewher angular, cellular, thick, often reddih, rough on the upper surface with papillary tubercles; thofe on the under side thinner, smooth, and leaf angular. Flowers on the under side of the frond, felife, folitary at the bafe of each branch.

Mr. Brown feems to think the true pollen of this curious genus originates in the watery or turbid fluid, which he once found changed to powder, and which may be difcharged through the tube above, whose angular appendages, once fupprefted to be anthers, (fee his Prodr.) may by pressure facilitate its ejection, whether in a watery or powderly state.

3. A. rubra. Red Orbicular Azolla. Br. n. 2.—Frond orbicular; lobes palmate; their subdivisions undivided or cloven. Upper leaves smooth. Roots feareth beyond the middle.—Gathered by Mr. Brown, at Port Jackson, as well as in Van Diemen's illand. The fructification has effentially the fame ftructure of that of A. pinnata, except the angular bodies of the upper cell being only fix, not nine. Brown.

4. A. caroliniana. Carolina Azolla. Willd. n. 2. Purfh n. 1.—" Leaves imbricated, ovate-oblong, obtuse, spreading; red underneathe."—Found by Richard, in Carolina; by Purfh floating on the waters of lake Ontario. We know nothing more of this fpecies; and thofe who have defcribed it were unacquainted with the fructification, as well as with Mr. Brown's specific definitions, the above character requires revifion.


AZOTE, in Chemifry. The specific gravity of azote, according to the moft recent determinations, is .9722, and 100 cubic inches of it will weigh, at a mean temperature and preffure, 29.652 grains. Biet and Arrago make its specific gravity .9691, and Lavoiffer .978. See Atomic Theory.

A new compound of chlorine and azote was discovered a few years ago, which, from its remarkable properties, deferves to be defcribed here.

This compound seems to have been firft noticed by M. Dulong in 1812; but this chemif, on account of two fevere accidents which happened to him in the course of his experiments, did not complete the investigation of its properties, nor publish any thing on the fubjeft. Sir H. Davy was informed of the discovery of the fubfance soon after, but not of the method of preparing it. Chancing, however, to hear from Mr. Children, that Mr. Burton of Cambridge had procured an oily fubfance by passing a current of chlorine through a folution of nitrate of ammonia, he was enabled to prepare the compound in question, and investigate its properties.

Chloride of azote may be prepared by placing a jar of chlorine gas over a folution of nitrate or muriate of ammonia, heated to about 110°. The gas is slowly absorbed, and an oily-like matter collects at the bottom of the vefsel, which is the fubfance in quelion. Care must be taken not to collect at one time more than a globule or two, as it explodes with prodigious violence from the flight of the caufe. Its colour clofely resembles that of olive-olive. It is transparent; its smell is ftrong and peculiar, though it is not fo difagreeable nor injurious to the lungs as chlorine. It is very volatile, and soon disappears when left in the open air. At 160° it may be diffifled over without danger, but is partially decompofed. The temperature of 200° only occafions it to evaporate falier, but when heated to 212° it explodes with amazings force. In a vacuum it is converted into vapour, but again assumes the liquid form when the preffure of the air is refored. This vapour, if heated sufficiently, explodes with as much violence as the liquid itself. The fp. gr. of the chloride of azote is 1.653. It does not become folid on expooure to cold. When left in water it fpreadily disappears, and azotic gas escapes. In ftrong muriatic acid, chlorine efapes, and muriate of ammonia remains in folution. When brought in contact with phofphorus, oils, and many other fubfances, it explodes with very great violence. Metals, refins, fugar, and molt of the gages, do not caufe it to explode. The experiments of Sir H. Davy on the composition of this curious fubfance render it probable, in Dr. Thomson's opinion, that it is compofed of one volume or atom of azote, and four volumes or atoms of chlorine.

Azote has likewife the property of forming an analogous compound with iodine. (See IODINE, and Simple Bodies.) The celebrated chemif Berzelius ill, we believe, maintains the opinion, that azote is a compound of oxygen and an unknown fubfance, which he denominates nitrurium; and a laborious fet of experiments was fome time ago published by Mr. Miers, to fhew that this unknown fubfance is nothing but hydrogen. Chemifls in general, however, do not at prefent acquiefce in either of thefe opinions, but confider azote as an elementary fubfance.

For the combinations of azote with oxygen, see Atomic Theory, Nitric Acid, &c. and Proportions, Difpute.

AZUMBRE, a liquid meafeure in Spain. See ARBOBA, Addita.

Gen. Ch. Cal. Spatha inferior, large, of two valves; the inner valve deeply cleft, with an intermediate pellucid membrane. Cor. of one petal, superior; tube funnel-shaped, longer than the spathe; limb shorter than the tube, in six deep, usually regular and nearly equal segments, sometimes very irregular. Stam. Filaments three, thread-shaped, inserted into the mouth of the tube, erect, much shorter than the limb; anthers oblong, incumbent. Pipi. German roundish; style thread-shaped, rather longer than the tube; stigma three, spreading, obtuse, undivided. Peric. Capsule roundish-ovate, coriaceous, unequaliy tium, of three cells and three valves. Seeds numerous, globose, pulpy, tapering at the base, at length corrugated, and deformed by mutual pressure.


1. B. Thunbergii. Many-spiked Babiana. Ker n. 2. Ait. n. 1. (Antholyza plicata; Thunb. Prodr. 7. Fl. Cap. v. 1. 169. Linn. Suppl. 96. Wildl. Sp. Pl. v. 1. 223.)—Leaves many-ribbed, finely downy as well as the stalks and sheaths. Corolla ringent.—Native of sandy plains near the sea, below Verlooren Valley, at the Cape of Good Hope, flowering in October. Thunberg. Mr. Maffon sent this species, in 1774, to Kew, where it flowers in April. Bulb deep in the ground. Leaves radical, equitant, acute, with some principal, yellow, and many intermedium green ribs; minutely downy on both sides, with soft prominent hairs. Stalk radical, taller than the leaves, a foot high, zigzag, densely clothed with fine soft hairs, and divided into about half a dozen alternate, spiky, many-flowered branches. Flowers crimson, two inches long, crowded, erect.


or at least we never heard of its flowering. Not so late as the preceding, nor so much branched, but the flowers are larger and more handsome, remarkably widely ringent, with one flamen far removed from the other two.

3. B. nervosa. Four-ribbed Babiana. (Antholyza nervosa; Thunb. Prodr. 7. Fl. Cap. v. 1. 164.)—Leaves smooth, with four strong, prominent ribs. Stalk smooth. Spike oblong, two-ranked. Corolla ringent.—Native of the Cape of Good Hope. Leaves three or four, acute, smooth, with four yellowish, elevated ribs, erect, about a foot high. Stalk 3/4 as tall as the leaves. Flowers flesh-coloured, drooping, crowded into an ovate, rather abrupt, spike; their lower lip rather the shortest, reflexed. There can surely be no doubt respecting the genus of this plant.


6. Keribid. (G. tubata varietas; Jacq. Ic. Rar. t. 265.)—Leaves ribbed, plaited, downy, taller than the downy stalk. Tube of the corolla slender-club-shaped, thrice as long as the irregular nearly equal limb, whose upper segment is disarticulated.—Native of Svarland, at the Cape of Good Hope, flowering from August to October. The leaves vary greatly in length, but are more or less elliptic-oblong, and taller than the oblique stalk, whose height is from one to ten inches. Spike solitary, simple. Sheaths lanceolate, downy. Corolla white, with a crimson spot on each of the three lower segments; its tube sometimes reddish, varying in thickness, but always about three inches long.

flender. Limb pale blueish purple, with elliptic-oblong, nearly equal segments, an inch long; three alternate ones bluish, with a point; three lowermost marked with white and violet.

6. B. fimbriata. Elder-lobed Babiana. Ker n. 5. Ait. n. 5. Ker in Curt. Mag. t. 1027. (Gladiolus hirsutus; Jacq. Hort. Schoenbr. v. 1. t. 15).—Leaves composed. Stalk smooth. Tube hardly longer than the downy, pointed spatha; throat cylindrical; segments of the limb nearly equal and uniform, keeled.—Imported from the Cape, by George Hibbert, esq. in 1799. About a span high, with large, violet-coloured, very sweet-scented flowers, each of whose segments, above an inch long, has a darker violet keel, or mid-rib.

7. B. sulphurea. Pale Babiana. Ker n. 5. Ait. n. 6. Ker in Curt. Mag. t. 1053. (Gladiolus sulphureus; Jacq. Hort. Schoenbr. v. 1. t. 239. Vahl Enum. v. 2. 99. G. plicatus; Andr. Repof. t. 268.)—Leaves downy, shorter than the ascending downy stalk. Tube shorter than the spatha, and but one-third as long as the uniformly limb.—Native of the Cape, from whence it was procured by Meffrs. Lee and Kennedy, in 1795. The leaves are elliptic-oblong, strongly plaited, downy all over. Flowers large, with a short tube; limb cream-coloured, with some tints of blue.

8. B. plicata. Sweet-lobed Babiana. Ker n. 13. Ait. n. 7. Ker in Curt. Mag. t. 578. (Gladiolus plicatus; Thunb. Diff. n. 24. Fl. Cap. v. 1. 211, with many wrong synonymes. G. fragrans; Jacq. Hort. Schoenbr. v. 1. t. 14.)—Leaves elliptic-lanceolato, loosely plaited, very soft and downy. Segments of the limb nearly equal, the length of the tube; upper one hooded.—One of the most common species at the Cape, near the town, and in various other places, flowering from May to October. Thunberg says the Europeans call this plant Babiana. Has this, whatever it means, given occasion to Mr. Ker's generic name? Nearly akin to the last, but of a softer texture. Flowers fragrant, pale lilac, or blueish-white, marked with violet at the base of their three lower segments. Stamens ascending.

9. B. frühis. Upright Babiana. Ker n. 6. Ait. n. 8. Ker in Curt. Mag. t. 621. 637. (Gladiolus frühris; Ait. ed. 1. v. 1. 63. G. plicatus; Linn. Sp. Pl. 53. G. mill. 1c. 103. t. 155. f. 1.)—Leaves elliptic-lanceolato, plaited, downy. Corolla funnel-shaped, nearly regular; segments about as long as the tube, all flat.—Native of the Cape; long known in our green-houses, though not very frequent. The flowers are smaller than most of the foregoing, with obvolute, pointed, equal segments, either all blue, or pale grey, or alternately white and purplish, each hardly an inch long. Spatha small, linear-lanceolato, downy.


11. B. rubro-cyanua. Red and blue Babiana. Ker n. 7. Ait. n. 10. (Ixia rubro-cyanua; Jacq. Hort. Rar. t. 285. Wildl. Sp. Pl. v. 1. 198. Curt. Mag. t. 410. I. villosa; Schoenev. t. 16. Gladiolus rubro-cyanus; Vahl Enum. v. 2. 98.)—Leaves elliptic-lanceolato, plaited, downy. Tube thread-shaped, the length of the regular, wide-spreading limb, whose segments are uniform, rhomboid-obovato.—Native of the Cape. Sent to Kew by Mr. Mallon in 1794. Very nearly akin to the last, particularly in the shape of the tube; but the limb is more spreading, with uniform blue segments, red at the base, making a very showy appearance. It is not easy to discover by what rule Vahl reduced this plant to Gladiolus, except by the herbage.

12. B. obtusifolia. Blunt-leafed Babiana. Ker n. 9. (Ixia villosa; Jacq. Hort. Rar. t. 284. Willd. Sp. Pl. v. 1. 198.)—Leaves elliptic, bluish, downy. Tube thread-shaped, nearly the length of the funnel-shaped regular limb, whose segments are elliptical; throat somewhat dilated.—Native of the Cape. We know this species merely from Jacquin's figure, where it is represented of humble growth, all over downy, with an oblique stalk, and a few large flowers of an uniform blueish-white; their fruits elliptic-lanceolato, somewhat tufted. Stigmas flender. Anthers small, blue.

13. B. fidioba. Hyacinth-lobed Babiana. Ker n. 10. Curt. Mag. t. 626. (Gladiolus plicatus; Jacq. Hort. Rar. t. 237.)—Leaves elliptic-oblong, strongly plaited, finely fringed. Throat of the corolla funnel-shaped; segments of the limb linear-lanceolato, nearly equal, partly crisped at the margin.—Native of the Cape. It flowered at Mr. Colville's nursery in June 1802. The leaves are broad. Flowers blueish-white, with dark-blue marks and anthers, their scent like an oriental hyacinth, but finer. Mr. Dryander seems to have overlooked this species; unless, as we suppose, he included it under plicata, n. 8.

14. B. muconeata. Brindle-pointed Babiana. Ker n. 11. (Gladiolus mucronatus; Jacq. Hort. Rar. t. 253. Coll. v. 4. 162. Willd. Sp. Pl. v. 1. 211. Vahl Enum. v. 2. 115. G. ringens; Thunb. Prodr. 186. Fl. Cap. v. 1. 214, excluding Jacquin's sulphureus.)—Leaves elliptic-oblong, plaited, plaited, downy. Stalk branched. Throat of the corolla funnel-shaped, elongated; segments of the limb linear-obovato, three alternate ones awned; three lower reflexed.—Native of the Cape of Good Hope. The leaves, in Jacquin's figure, have stalks nearly of their own length. The flowers, like the whole herbage, are downy, and as long as the tube of the corolla. Throat rather short, funnel-shaped as well as the limb, whose segments are very deep; linear and elongated at the base, pale yellow in that part, like towards the extremity; the central one of the upper lip largest; the two next awned, like the central one of the lower lip.

Bacillum, (a little stick or staff,) was once used by Acharius for the stalks elevating the tubercles of the Cup Lichens. (See Lichen, sect. 7.) This term occurs in his Prodomus, but is supplanted in his more recent publications by Podetium. Both terms appear to us superfluous, Pedetius having precisely the same meaning.

Bakdu, in Geography. See Bakd.

Bæomecs, in Botany, from βαιος, small, and ωμος, a fungus, is well appropriated to this genus of Lichens, their fructification looking exactly like some minute kinds of Agaricus or Helvella.—Perforon in Ut. Annu. f. 7. 19. Achar. Lich. 108. t. 12. f. 1. 2. Syn. 279. —Clais and order, Cryptogamia Alga. Nat. Ord. Lichens.

Eff. Ch. Tubercles solitary, on foliole simple stalks, from an uninterrupted granulated crust.
In the Methodus of Acharius, this genus is so characterized as to include all the Lichenis psidii, as well as the Chlodonies, of other authors. At present it is restricted to the first section of the original Boemys, consisting of four species only. The characters and synonyms of these are correctly given by our learned friend, except that of Lichen ericitorum of Linnaeus, which we remove from this genus as the removal of original specims.


—Found on mountainous heaths, in broad uninterrupted patches on the ground, of a greenish or glaucous grey when fresh and moist, composing to all the inequalities of the soil; the surface finely granulated. Tubercles from one to two or three lines in diameter, of a bright and most elegant rose colour, convex, more or less lobed, or irregularly tumid, each supported by a thick, round, solid stalk, about as high as the diameter of the head, white tinged with a bluish of red. This is by far the most elegant, as well as the most rare, of our British species. Dr. Acharius here cites Engl. Bot. t. 372, which is his Leucidea Icmaepedia, Syn. 45, the true Lichen ericitorum of Linn. Sp. Pl. 1608. Fl. Scand. 408. and Herb. Linn. Fl. Dan. t. 472. f. 4. Lichen Icmaepedia; Linn. Suppl. 450. Ehrh. Phy. n. 40. L. aruginosus; Jacq. Auftr. t. 275.

2. B. fungoides. — Pale Mushroom-Lichen. Ach. n. 2. ("B. helveloides; Bory Voy. 3." Lichen fungoides; Swartz Ind. Occ. 1886.) — Crust white. Stalks thrice as tall as the diameter of the pale flesh-coloured tubercles. — Gathered by Dr. Swartz on the gravelly soil of high mountains, in the southern part of Jamaica. Bory de St. Vincent found the same in the Isle of Bourbon. We have specims from Dr. Acharius. The crust is thin, hard, of a dirty white. Stalks white, thrice as tall as the foregoing; tumid at the base. Heads of a lighter flesh-colour, with a white powdery effluvience.


β. B. lignorum. Achar. (B. rueprifis γ; Ach. Meth. 322.)

Cruit greenish-white. Stalks short, somewhat compressed. Tubercles nearly globular, redhfh-brown; sometimes aggregate. — Common on heathy ground, or on rocks, rarely on rotten wood; in which last situation the tubercles assume a darker brown. They are much smaller than in B. reflux, rounder and less lobed, though often clotted together; their colour is a dirty brick-red.

The variety β of Engl. Bot. figured in Rau Syn. t. 1. f. 3, not f. 4; and in Dill. Mufc. t. 14. f. 5, is now esteemed a fungus. See Oxygyna.

4. B. phasephillus. — Broad-leaved Mushroom-Lichen. "Wahlenb. Lapp. 449." Ach. n. 4. Meth. 323. t. 7. f. 4. — Crust orbicular, rugged, somewhat lobed and imbricated, glaucous-white. Stalks elevated, compressed. Tubercles convex, simple, reddish-brown. — Found by Wahlenberg, on the intertidal sandy soil of Lower Lapland. We are obliged to Dr. Acharius for a specimen of this very curious species, whose crust approaches that of the true Cup Lichens, its circumference at least being lobed and almoat leafy, though of a thick fubstance. The tubercles are altogether those of a Boemyes.

BAGDAD, col. 4, l. 1, after terraces. Bagdad is still a place of great trade, and the resort of merchants from almost every quarter of the East. It supplies all Asia Minor, Syria, and part of Europe, with Indian commodities, which are imported at Baffora, brought in boats up the Tigris, and then transported by caravans to Tocat, Conflantinople, Aleppo, Damacicus, and the western parts of Persia. The chief imports from India are, gold brocades, cloths, sugar, pepper, tin, fandal-wood, iron, china-ware, fpece, cutley, arms, and broad-cloth; in return for which they fend bullion, copper, gait-nuts, tamarisk, leather, and otto of rofe. From Aleppo are imported European filk-fluffs, broad-cloths, fteel, cochineal, gold thread, and several other European articles, which are brought in Greek veffels to Scanderbon. The imports from Persia are, shawls, carpets, filk, cotton, white cloth, leather, and faffen: and those from Conflantinople are, bullion, furs, gold and silver threads, jevels, brocade, velvets, and otto of rofe. The principal manufacture at this place is that of red and yellow leather, which is much fteemed; but filk and cotton fuffs are likewise made. The climate, notwithstanding its excessive heat, is allowed to be very healthy. But the natives are subject to a cutaneous disorder, for which no cure has yet been discovered: it appears in the form of a pimple, then degenerates into an ulcer, and at the end of eight or ten months dries up of itself, leaving a prominent mark. The inhabitants of Aleppo, and other towns in Syria, are subject to this difafe. The military government of Bagdad is, &c.

BAGDAD, Pachyca, extends in a N.W. direction from the mouth of the Shat-ul-Arab to the rocks of Merdin, and in an E. and W. line from the confines of Perfia to the banks of the Khabour, which separates it from the pachyca of Orfa. It comprehends the whole of the ancient Babylonia, and the greatest part of Assyria Proper; that is, the space which is embraced by the Tigris and the Euphrates, and that which is beyond the Tigris, commonly called the lower Kurdisttan. See BABYLONIA and ASSYRIA.

BAHAR. Add.—The bahar of Acheen, in Sumatra, consists of 100 cattees, and is equal to 490 lbs. avoidupous. The bahar of Beftefackee, in Arabia, consisting of 40 farces, is = 815 lbs. avoidupous. The bahar of Bencoolen = 560 lbs. avoidupous. The bahar of Junkfeyon of 8 capins = 485 lbs. 5 oz. ½ dr. The bahar of Malacca, of 3 peculs = 405 lbs. avoidupous. The bahar of Mocha, of 15 francs = 445 lbs. avoidupous.

BAHREIN, N. lat. 26° 43'.

BAJOCCO. Add.—Rome exchanges with Amfterdam 42 bajocchi, more or les, for 1 florin banco; with Lebhom, 95 bajocchi, more or les, for 1 pezza of 8 reali. Rome keeps accounts in feucli. See SCUDO.

BAIRDSTOWN, l. 3, r. 821, 202 being flaves.

BAIT, WHITE. Add.—See CLIFFE Aplia.

BAKERSFIELD. Add.—It contains 812 inhabitants.

BAKU. Infert, or BAOU. N. lat. 42° 22'. Add.—Baku is defended by a double wall and deep ditches, constructed during the reign of Peter the Great. This was once a celebrated city of the ancient worhippors of fire, and before the conquest of the Saracens was annually visited by thousands of pilgrims.

BALDIAVIA, l. 7, r. W. long. 74°.

BALDWIN, in Geography, a town of America, in the district of Maine, and county of Cumberland, containing 536 inhabitants.
inhabitants.—Alfo, a county of Georgia, which, together with its town Milledgeville, contains 63,560 inhabitants; the
flaves in the county being 23,224, and in the town 226.—
Alfo, a county in the territory of Millifippi, having 14,27
inhabitants, including 717 slaves.

BALFOURIA, in Botany, received its name from the
pen of Mr. Brown, in honour of his illustrious countrymen
for Andrew Balfour, knight, founder of the Botanic Garden,
as well as of the Public Museum, at Edinburgh. His friend,
Sir Robert Sibbald, has embellished his memory in the Mem-
oria Balfioriana; nor could any one be more competent to this
subject. These distinguished men first laid the foundation
of the study of natural history in Scotland.—Brown
Tr. of the Wem. Soc. v. i. 70. Prodr. Nov. Holl. v. 1

Eff. Ch. Corolla funnel-shaped; throat crowned with a
small crenate tube; segments of the limb straight, equi-
lateral. Stamina inserted into the throat; anthers arrow-
shaped, pointed, cohering with the stigma about the middle.
Germen of two cells; style solitary, thread-shaped, dilated
at the top; stigma angular. Scales ten at the base of the
calyx, on the outside of the corolla; none under the germen.

Follicles......

1. B. falilo. Willow-leaved Balfouria. Br. n. 1.—
Discovered by Mr. Brown, in the tropical part of New
Holland. A tree, about twelve feet high, smooth. Leaves
opposite, linear-lanceolate, falcate, with little teeth between
the insertion of their footstalks. Cymes lateral as well as ter-
rnal, three-cleft.

BALK. Infebr.—or Bulkh. Col. 1, 1. 3, after Bact-
iriana, infect.—It was formerly included in Khorasan, and is
bounded on the N.E. by the Oxus, E. by Koonooz,
W. by Khorasen, and S.W. by the mountains of Huzara,
and the independent state of Mymen. Col. 2, 1. 17, after
Perfins, add—The Tanjots, or the race of people who in-
habit this country, besides the Afghans and Ulebeeks, are
corrupt and dissolute, and addicted to the most unnatural
vices. The Ubeeks are simple, honest, and humane.
Col. 2, 1. 60, after Hindoofian, add—It is said to be as large
as Delhi; but most of the houses are uninhabited; and the
population is said to be reduced to between 6 and 7000
men, subject to the king of Cabul. The vicinity of the
city is well cultivated, and corn and provisions are abundant.

BALLABUAN, r. BALLAMBUAN, and remove to next
column.

BALLISTIC PENDULUM, a pendulum used in ascer-
taining the velocity, &c. of balls, the strength of gunpowder,
&c. &c. See GNUNERY, GUNPOWDER, and PENDULUM.

BALLOCHISTAN, l. 10, r. Mekran. At the close,
add—Baloghistan, of, as it is otherwise called, Balouchi,
the country of the Balouches, is confidered by some as a
province different from Mekran or Mecran; and as such pro-
perly commences at Kooheen (the hilly road) 25 miles N.E.
of Bayra, or in N. lat. 26° 35', from which place it extends
to Noofhty, 79 miles N.W. of Kelat, or in N. lat. 30°. It
is said to be a confused mass of tremendous mountains,
through which the road generally leads in water-cources.
Flocks of sheep and herds of cattle are numerous in every
part of this country, and it also produces great quantities
of wheat. The territories of Mahomed Khan, chief of Ba-
lochistan, comprehend all the countries lying between
20° 30' and 30° N. lat., and from 65° to 69° E. long. It
is divided into the two mountainous provinces of Thalawan
and Sarawan, the low country of Cutch Gandava to the E.,
and the provinces of Zuhree and Amund Dajal; to which
may be added the small districts of Shat and Mustung, lying
n. of Kelat. See SARAWAN and MEKRAN.

BALLOTADE, l. 5, r. these airs, &c. ; l. 8, r.
horfean.

BALLS, CHAIN. For chain-balls r. chain-bullets.

BALLS, Stans. dele.

BALOUCHISTAN. See BALOOGISTAN.

BALSAMITA, in Botany, an old name, used by Doce-
ners and others, alluding to the balsamic odour of the
flowers and herbages, and their reputed stimulating heat-
qualities. It is revived by Professor Desfontaines, who,
after the example of Vaillant, has recently separated the
several species of this genus from Cotula, Chrysanthenum,
and Tanacetum, into which they were once included, though
definitle of radiant, or female, florets, as well as of a crown to their
Compositae dicoides. Linn. Cymbifera, Jull.

Gen. Ch. Common Calyx flattish, imbricated; scales nu-
merous, linear, convex, acute, the inner ones with a men-
branous margin. Cor. compound, uniform, tubular, longer
than the calyx. Florets all perfect, numerous, funnel-shaped,
equal; their limb in five regular, acute, spreading segments.
Stam. in each floret, Filaments five, capillary; anthers united
into a five-toothed tube, hardly longer than the tube of the
corolla. Pfl. Germs roundish; style thread-shaped,
longer than the corolla; stigmas two, revolute. Peric. none,
except the permanent calyx. Seeds solitary to each floret,
small, oblong, frirated, sometimes bordered with a narrow
longitudinal membrane at one side, but abrupt at the summit,
without any crown or wing. Recept. slightly convex, naked.

Eff. Ch. Receptacle naked. Seward down. Calyx
imbricated.

Ait. Soc. Hift. Nat. Parif. v. i. 1. 11. Willd. n. 1
(Cotula grandis; Linn. Sp. Pl. 1827.)—Stem herbaceous,
hairy, simple and single-flowered. Leaves ferra t; radical
ones obovate; those of the stem lanceolate; dilated and
deeply toothed at their base.—Found by Desfontaines in
corn-fields at Algiers, flowering in May. Linnaeus had it
from thence. A hardy biennial plant, conspicuous for
its large, yellow, cushion-like flowers, about two inches broad, 
composed of innumerable crowded florets. The stem is two
or three feet high, unbranched, leafy, and hairy. Leaves
numerous, smooth; the radical ones falked, two or three
inches long.

2. B. virgata. Wand-branched Cotula. Desf. as
above, 2. Willd. n. 2. Ait. n. 1. (Cotula grandis; 
Jaq. Obf. fuc. 4. 4. 1811. Chrysanthenum dioecoides; 
Allion. Pedem. v. 1. 190. 1. 11. f. 1.)—Stem herbaceous,
smooth; branched at the base; branches single-flowered.
Leaves linear-lanceolate, ferrated, nearly sessile; upper ones
linear, entire.—Native of Italy. This is the plant men-
tioned under his Cotula grandis by Linnaeus, as having been
fert by Allion. It is hoever, as he suspected, very distinct
from that plant; being much smaller in every part; the
stem smooth and branched; leaves none of them fpatulate,
nor dilated and deeply cut at the base. Flowers fimilar, but
scarce ly half so large, especially thoife of the lateral branches.

3. B. agrestisfolia. Sharp-toothed Cotula. Desf. as
above, 2. Willd. n. 3. Ait. n. 2. (Chrysanthenum flo-
culorum; Linn. Sp. Pl. 1255. Bellis pinophia; Alpin.
Exot. 327. t. 326. B. major pinophia. petalis carenos; 
Morif. leet. 6. 1. 9. f. 16.)—Stem softly, branched at the
base. Leaves obovate, sharply ferrated, crowded. Flowers
erymbofe.—Native of Crete; an old green-house plant in
3 A England.
England, but not popular at present. The branches are rather loosely spreading, smooth, covered with smooth leaves, an inch and a half long; their numerous teeth are sharp, and even spiny. Several deep-yellow convex flowers compose a corymbose cluster at the extremity of the inflorescence. (See our former article Banksia, which requires correction, as embracing several species not now included herein, but already described in the present work under the articles Conchium and Xylometum.) On the other hand, a much greater number of genuine Banksia, first made known by Mr. Brown, since the publication of that original article, require to be added. We are at a loss to account for the report concerning the species with foliaceous flowers, at the end of that article. It may have had some foundation which has escaped the memory of the writer of this note. The only Salisburia ever published belongs to a totally different family, and may be found in its proper place. Thirty-one species of Banksia are defined by Mr. Brown, of which four only were known to Linnaeus, from specimens and engravings communicated by Sir Joseph Banks. — Linn. Suppl. 15. Schreb. Gen. 79. Murr. in Linn. Syll. Veg. ed. 14. 161. Willd. Sp. Pl. v. 1. 535. Mart. Mill. Dict. v. 1. Ait. Hort. Kew. v. 1. 213. Brown Tr. of Linn. Soc. v. 10. 202. Prodr. Nov. Holl. v. 1. 391. Juss. 79. Lamarek Illır. t. 54. f. 1. 2. Gartn. t. 48. — Clas and order, Tetrandria Monogynia. Nat. Ord. Aggregate, Linn. Prodraceseae, Juss. Brown.

Gen. Ch. Col. Catkin cylindrical, dense, many-flowered; flowers in pairs, with three permanent scales to each pair, two of which are interior, and smallest. Cor. of one petal, in four deep linear segments, at length separating entirely, somewhat dilated and concave at the summits, their points long cohering, till forced asunder by the growing style. Nectary four scales at the base of the germen. Stam. Filaments four, very short, inserted into the cavity of the petal; anthers oblong. Pist. German superior, of two free cells, very small; style cylindrical or angular, rigid, gradually curved, firmly held, for a long time, by the combined tips of the corolla; stigma undivided. Peric. Follicle woody, firmly fixed in the receptacle, obovate, of two shallow cells; the partition unconnected, rigid, elatic, cloven by a deep transverse fission at the top. Seeds solitary, compressed, quite flat at the inner side, wedge-shaped, and extended into a rounded, membranous, terminal wing. Eff. Ch. Corolla of one petal, four, cleft, bearing the stamens in the hollow of its segments. Nectary four scales at the base of the germen. Follicle woody, of two free cells, with a cloven moveable partition. Catkin with three scales to each pair of flowers.

Obs. The greater part of the very numerous flowers are necessarily abortive, or there would not be room for the follicles to ripen.

The various species, all natives of New Holland, are either shrubs, or trees of no lofty stature. The branches are umbellate; or in Linnian language the term is "determinate branched," as in Erica and other Ericaeeae. Leaves scattered, rarely whorled, simple, undivided, either entire, serrated, toothed, or cut in a pinnatifid manner; in a young plant they are often variously cut, or toothed, though undivided and entire on the frame when fully grown. (Brown.) Catkins solitary, terminal, rarely lateral, cylindrical, in some cases very short. Bracteae several at the base of each catkin, short and narrow. Catkin when in fruit hard and heavy, its enlarged common receptacle firmly united with the bales of the flowers, the surface bristly with remains of the flower scales, and especially with the unimpressed style of the greater part, intermixed with the large, hard, usuufilly downy or hairy, follicles. Seeds black, with a brown, shining, oblique wing, the convex side of each filling a depreission in the corresponding side of the thin wooden partition.

Sect. 1. Style longer than the corolla, projecting laterally, in a curved position, between its segments, the stigma being held flat, from some time longer, between their points. Catkins when in flower, cylindrical; when in fruit, laden with numerous transverse follicles. These Mr. Brown considers as true Banksia. Indeed this section embraces the whole genus, except one species. We follow Mr. Brown's names and numbers.

1. B. pulchella. Small-flowered Banksia. Ait. n. 1. — Leaves acerose, entire, pointless. Tube of the corolla woolly;
woolly; limb smooth. Stigma capitate, depressed.—Native of dry heaths, near the sea-shore in Lewin's land, on the south-eastern coast of New Holland, where it was found by Mr. Brown, and sent to Kew in 1805, but had not yet flowered there in 1810. The leaves are not longer than the finger-nail.


3. B. nutans. Nodding-flowered Bankia. Ait. n. 3.—Leaves aceroce, entire, pointed. Catkins drooping. Corolla silky. Follicles dilated at the summit, depressed.—On dry heaths near the shore of Lewin's land, where, like the two former, it was gathered by Mr. Brown.

4. B. cripida. Heath-leaved Bankia. Linn. Suppl. 127. Willld. n. 7. Ait. n. 4. Banks Is. Ined. apud Bibl. Linn. t. 4. Andr. Repof. t. 156. Curt. Mag. t. 758. Cavan. Ic. v. 6. 27. t. 538. (Bankia; White's Voy. 225. t. 22. f. 1.)—Leaves aceroce, margined, with two teeth; entire at the edges. Catkins elongated. Corolla silky. Stigma capitate.—Native of the eastern coast of New Holland, on rocky heaths near Port Jackson, from whence it was sent by Dr. White, among the first botanical communications from that country, and is now in several green-houses, flowering at various times of the year. This species was however first discovered by sir Joseph Banks and Dr. Solander, in their celebrated voyage. The stem is three or four feet high. Leaves very numerous, the length of the nail, evergreen, smooth, revolute. Flowers bright yellow. Catkins five or six inches long. Follicles abrupt, rough with ruly, deciduous hairs.


7. B. occidentalis. Well-coast Bankia. Ait. n. 6.—Leaves linear, with spinous teeth beyond the middle; veins beneath. Scales of the catkin smooth at the extremity. Corolla withering; bearded internally at the base. Follicles tumid, downy; rather compressed and naked at the summit. Stem thrubby. Young branches smooth.—Found by Mr. Brown, in heathy ground, at Lewin's land.

8. B. littoralis. Sea-side Bankia. Ait. n. 7.—Leaves linear, elongated, with spinous teeth; veins beneath; tapering at the base. Corolla deciduous. Follicles compressed, downy at the summit, as well as the scales of the catkin. Stem thrubby. Young branches downy.—Found by Mr. Brown on the sandy shores of creeks in Lewin's land. The flowers were pale.


10. B. depressa. Profusely Bankia. Br. n. 10.—Leaves long-wedge-shaped, abrupt, pointed; spinous-toothed; slightly ribbed and veined beneath; rather longer than the catkins, all whose scales are downy and obtuse. Stem profusely. Ultimate branches hairy.—Found by Mr. Brown, in stony ground at the roots of the mountains in Van Diemens's island, towards the south.

11. B. patula. Spreading Bankia. Br. n. 11.—Leaves linear, somewhat wedge-shaped, abrupt, pointed, very sparingly toothed; reticulated with veins beneath. Scales of the catkin downy at the summit and obtuse. Keel of the limb of the corolla smooth. Stem profusely. Ultimate branches downy.—Discovered by Mr. Brown, in Flinders' land, on the south coast of New Holland, growing amongst other shrubs, in barren elevated spots.

12. B. australis. South-coast Bankia. Br. n. 12.—Leaves linear, abruptly, pointed, entire, revolute; reticulated with veins beneath. Ultimate branches downy. Scales of the catkin obtuse, nearly equal; downy at the summit. Keel of the limb of the corolla very slightly filky. Stem arboreous.—Observed by Mr. Brown, every where in the open fields of Van Diemen's island, as well as by the seaside; and also on the south coast of New Holland, near Port Phillip.

13. B. insularis. Insular Bankia. Br. n. 13.—Leaves linear-oblong, or somewhat wedge-shaped, slightly rounded, pointed, either compression or whorled; reticulated with veins beneath. Scales of the catkin obtuse, externally downy. Follicles compressed; smooth at the summit.—Native of the islands of the Bays of the north-west, as well as that of Van Diemen, near the shore. Brown.

14. B. integrifolia. Entire-leaved Bankia. Linn. Suppl. 127. Willld. n. 3. Ait. n. 9. Banks Is. Ined. t. 3. Cavan. Ic. v. 6. 30. t. 540. (B. oleifolia; Cavan. Ic. v. 6 30. t. 545. B. glauca; Cavan. Ic. v. 6. 31. B. bipicata; Gertrn. t. 48.)—Leaves whorled, oblong-lanceolate, entire, pointed; reticulated with conspicuous veins beneath. Follicles downy. Stem arboreous.—Native of the east coast of New Holland, near the sea-shore at Port Jackson. This is generally a small, or middle-sized, tree. Leaves narrow-ovate, for the most part acute; tapering at the base; white beneath. The twin scales of the catkin obtuse; solitary one acute, and only half as large.

Mr. Brown says this is a very variable species, too nearly akin to the last, as well as to that immediately following. He observed on the south coast, near Port Phillip, a variety which forms a large tree, with lanceolate-oblong, mostly rather obtuse, leaves, acute at their base; the solitary scales of the catkin rather acute, but more than half the size of the twin ones.

BANKSIA.

Mr. Brown, but not in fruit, by the sea-fide at Keppel Bay, on the east coast of New Holland. He supposed it to be a variety of the last.


17. B. coccinea. Scarlet-flowered Bankia. Ait. n. 11.—Leaves alternate, wedge-shaped-obovate or oblong, toothed, crenate, reticulated with veins; transferous at the base. Scales of the catkinawl-shaped. Corolla woody.—Found by Mr. Brown in Lewin’s land, in fields near the coast. It was sent to Kew, by Mr. Good, in 1803.

18. B. paludosa. Marsh Bankia. Ait. n. 12.—Leaves imperfectly whorled, wedge-shaped-obovate, somewhat acute; tapering at the base; slightly revolute; coarsely serrated beyond the middle; ribbed, reticulated with veins beneath. Footstalks and young branches smooth. Corolla silky. Stem shrubby.—Gathered by Mr. Brown, in marshy ground, near Port Jackson. It is said to flower in the green-house at Kew, from January to March.

19. B. oblongifolia. Oblong-leaved Bankia. Cavan. l.c. v. 6. 28. t. 542. Ait. n. 13. (B. falsifolia; Cavan. l.c. v. 6. 31?)—Leaves scattered, narrow-oblong, acute, strongly serrated; rather acute at the base; ribbed, and reticulated with veins beneath. Footstalks and young branches downy. Larger scales of the catkin pointed. Corolla silky. Stem shrubby.—Seen by Mr. Brown on heaths near Port Jackson. The leaves, according to his observations, are sometimes entire, or nearly so, (as we judge in this case from the word integra,) and therefore may answer to the falsifolia of Cavanilles, of which it is difficult to judge precisely, for want of a figure.

20. B. latifolia. Broad-leaved Bankia. Br. n. 204. Ait. n. 14. (B. robur; Cavan. l.c. v. 6. 29. t. 543.)—Leaves obovate-oblong, with spinous serratures; acute at the base; ribbed, reticulated, downy and grey beneath. Tube of the corolla silky; limb smooth. Stem shrubby.—Observed by Mr. Brown, in boggy situations near Port Jackson; plentiful about the town of Sydney, where it rarely ripens seed. That accurate botanist informs us the stem is usually three or four feet high, scarcely ever six feet. Louis Née, from whom Cavanilles had his information, appears to have accidentally confounded his speciments of this species, with his memoranda relating to B. ferrata, and hence it is described of the fice of an Oak, to which the name robur alluding, was necessarily obliged to be changed.


—Native of the southern coast of New Holland; near the shore. Mr. Andrews says this species was first raised from seed at Kew, in 1788. Mr. Brown and Mr. Aiton, on the contrary, mark it as introduced in 1794, by its first discoverer Mr. Menzies. The stem is fix or seven feet high in the green-house. Leaves to abrupt, that we could almost have allowed the name prunifolia to remain. Flowers purple, in large handsome catkins; inside of the corolla white.

22. B. attenuata. Smooth-flowered Bankia. Ait. n. 16.—Leaves elongated and nearly linear, abrupt; tapering at the base; serrated more than half way down; ribbed and reticulated, with downy interfaces, beneath. Scales of the catkin hairy at the summit. Corolla smooth. Follicles downy.—This also was discovered by Mr. Menzies, on the southern coast of New Holland; and seen by Mr. Brown in Lewin’s land, near the sea-coast. It was raised at Kew, in 1794, but appears not yet to have flowered; nor have we heard of the plant elsewhere.


—Discovered by Mr. Brown, on the east coast of New Holland, by the sea-fide, at Sandy Cape.

24. B. ferrata. Great Serrated Bankia. Linn. Suppl. 126. Willd. n. 1. Ait. n. 17. Banks Ic. Ind. t. 2. White’s Voy. 222. t. 18, 19, 20. Andr. Repof. t. 82. Cavan. l.c. v. 6. 27. t. 540. (B. conchierea; Gartn. t. 48.)—Leaves linear-oblong, abrupt, rather bluntly serrated; reticulated and nearly smooth beneath; tapering at the base. Lower part of the style downy and powdery. Stigma cylindrical, furrowed; obliquely swelling at the base. Stem arbores.—Native of the east coast of New Holland, at Port Jackson, in fields near the sea, from whence speciments were brought by Sir Joseph Banks; but the plant was first raised in England, by Meffrs. Lee and Kennedy, in 1788. This is described as the most flatly of its genus, rising to the height of thirty feet, with a hard red-fir wood. The leaves are near a span long, almost perfectly smooth on both sides, not so deeply serrated as in the figures of Andrews or Cavanilles, or in White’s t. 20; but rather bordered with a series of rectangular blunt-flute notches. Catkins large, thick and heavy, of innumerable downy flowers, whole corolla is purplish, and style crimson. Cone ten inches long, very heavy. Follicles downy, an inch in diameter. Gaertner’s figure is from a poor diminutive cone.

25. B. ambula. Large-fruited Bankia. Br. n. 25.—Leaves linear-oblong, abrupt, deeply and sharply serrated; reticulated and nearly smooth beneath. Corolla silky. Stigma capitulate, polished, pyramidal, not furrowed, twice as thick as the style. Stem shrubby.—Native of heaths, and sandy fields, near Port Jackson, from whence we long ago received speciments, with full-grown fruit, by the kindness of Dr. White. We have been used to call this species B. macrocarpa, a name well expressing its singularly large follicles, which are twice the dimensions of the preceding, though the whole cone is usually much shorter. It is impossible to mistake Mr. Brown’s faithful specific definition, especially the character of the short pyramidal stigma. The leaves are much smaller than those of B. ferrata, though their fructes are much deeper and sharper. Hence Mr. Brown was led to apply t. 20 of White’s Voyage to the present species, with which the leaves in that figure pretty nearly agree; but the cone certainly, to our knowledge, belongs to the ferrata, which it well expresses, except being too small. The fructes in Mr. Andrews’s plate of ferrata most nearly approach our present plant. The shape and proportion of the catkin moreover bell agrees herewith.


—Discovered by Sir Joseph Banks and Dr. Solander, near Endeavour river, in the tropical part of New Holland. Mr. Brown also met with this noble species, which as yet is a stranger
stranger to our gardens, at Arnheim's land, on the northern coast. Of the height or size of the plant we are not informed. The branches are rusty and somewhat downy. Leaves alternate, from a span to a foot long, on short stalks; their margins remarkably undulated, and bordered with broad, hollow, pinnate-pointed teeth. Catkins fix inches long, more slender than usual; their scales downy, the larger one to pair of flowers pinnate-pointed.

27. B. quercifolia. Oak-leaved Bankia. Ait. n. 18.—Leaves oblong-wedge-shaped, rather abrupt, smooth, deeply serrated, pointed. Segments of the corolla awned. Follicles nearly smooth.—Found by Mr. Brown, in fields near the shore, in Lewin's land. The awns of the corolla are indicated by him as a very remarkable character.

28. B. speciosa. Long-leaved Bankia. Ait. n. 19.—Leaves linear, pinnatifid; lobes triangular-halfovate, pointed; snow-white and slightly ribbed beneath. Limb of the corolla woolly. Style rather hairy. Follicles downy.—Native of the rocky sea-shore of Lewin's land, where it was found by Mr. Brown, and sent to Kew, in 1805.

29. B. grandis. Great Winged Bankia. Willd. n. 2. Br. n. 29. Ait. n. 20.—Leaves deeply pinnatifid; lobes triangular-ovate, acute, flat; many-ribbed, and nearly smooth, beneath. Corolla and follicles smooth.—Gathered by Mr. Menzies, at King George's found, on the west coast of New Holland. Mr. Brown met with the fame on rocky hills in Lewin's land. Seeds were sent to Kew in 1794, where this magnificent shrub thrives well, in the green-house, but has not yet flowered. Willdenow's specific name alludes, we presume, to the foliage, and not to the flowers, with which he was not acquainted. The leaves are twelve or fourteen inches long, pinnatifid to the very rib; abrupt at the extremity; lobes numerous, more or less alternate, crowded, transverse, conosacous, entire, rather pinnatifid; roughish to the touch on the upper side; paler underneath, furnished with five principal ribs, and many intermediate veiny retractions; they diminish gradually towards the top, and especially towards the base, of the leaf. We have seen no flowers nor fruit.

30. B. repens. Creeping Bankia. Labill. Voy. v. 1. 412. t. 23. Br. n. 30. Ait. n. 21.—Leaves pinnatifid; lobes finnate or toothed. Stem prostrate.—Found by Labillierds, on calcareous rocks on the south-west coast of New Holland, where also Mr. Brown met with this species. It flowers there in December. The creeping stem is clothed with rusty down. Leaves a span long, flaked, erect, deeply pinnatifid, but not quite to the rib, which is winged nearly all its length: they are downy when young, but finally very smooth. Catkins ovate, nearly febillis, erect, dense, many-flowered, about three inches long. Corolla and germin hairy.

Sect. 2. Points of the corolla more speedily separating; the narrow part of their segments cohering longitudinally, and as long as the style. Catkin short and level-topped, perfecting scarcely more than one vertical follicle.

31. B. thecafolia. Holly-leaved Bankia. Br. n. 31.—Leaves wedge-shaped, deeply serrated; nearly smooth beneath. Catkins very short.—Gathered by Mr. Brown, in fields and hilly ground near the sea-coast, in Lewin's land. This species is so singular, that its learned discoverer appears to have been inclined to make it a distinct genus, by the name of Icysyla. He remarks that it forms a connecting link between Bankia and Dryandra; see the latter hereafter.

BANNIUM, in Ancient Geography, a Roman station, called Gaer, or Caer Bannau, situated about three miles above the town of Brecknock, in South Wales, near the confluence of the rivers Yukan and Uh. The camp is a parallelogram, 624 feet by 456, having its longest parallels in a direction nearly S. and N. The foundation of the wall that encompassed this area remains still entire, and may be traced through the underwood that has overgrown and concealed it. In this flatton there is a cauway, supposed to have been a branch of the great Roman cauway leading from Caerleon, in Monmouthshire, through the vale of Usk, and the eastern part of Brecknockshire to Archenium, which is the 12th Iter in Antonine's Itinerary.

BANQUETTE. Add.—See BREAST-WORK.

BANTAM, col. 1, l. 50, after settled there, ingress That of the English was established in 1601, and maintained until 1683. That of the Dutch was erected in the year 1595, and this was their first settlement in the Spice islands, which had been first visited by the Portuguese in 1510. The English made no attempt to recover a free port in Java until the year 1811, when Holland became a province of France, and the Dutch colonies were induced to accept the protection of Great Britain.—Col. 3, at the close of Bantam, add—Raees's History of Java, 2 vols. 4to. 1817.


Gen. Ch. Col. Perianth inferior, of one leaf, bell-shaped, permanent, cut half way down into four or five segments, forming two lips; its base externally convex. Cor. papilionaceous, of five petals. Standard irregularly-halfovate, reflexed at the sides, with a thick claw. Wings two, nearly as long as the standard, half-ovate, converging at their upper edges. Keel as long as the wings, of two oblong converging petals. Stem. Filaments ten, awl-shaped, ascending, equal, inserted into the base of the calyx, deciduous; anthers roundish, two-lobed. Pfl. Gernan superior, flaked, ovate or elliptical; style longer than the flaments, ascending; stigma capitata, hemispherical. Peric. Legume on a flaked longer than the calyx, elliptic-oblong, turgeo, membranous, of one cell. Seeds numerous, elliptical, flaked.

Eeff. Ch. Calyx two-lipped, divided half way down into four or five segments. Corolla papilionaceous; petals all nearly of equal length; standard reflexed at the sides. Stamens distinct, deciduous. Legume inflated, flaked, with many seeds.

To this genus we have already adverted, under the article Podaulya, as comprising the North American species of that genus, as it stands in Lamark and Willdenow. They are doublets sufficiently marked by the above description, to form a genus by themselves. They are herbaceous, perennial, many of them glaucous, and have mostly the quality of dyeing blue. Leaves ternate, except the first, with a pair of rather large stipulas. Flowers mostly racemose, with small partial bracts; their colour blue, white, or yellow.

flowering in July. The whole plant is very smooth, scarcely glaucous, two or three feet high, distinguished by its pedicelate, almost orbicular leaves, about two inches broad, accompanied by lemon-coloured flowers, on short simple stalks. _Legume_ nearly globular.

2. B. _uniflora_. Downy Single-flowered Wild Indigo. (Podalyria uniflora; Michaux Boreal.-Am. v. 1. 263. Pursh n. 2. Sophora lanceolata; Walt. Carol. 135.) Leaves ternate, feathery, downy; leaflets lanceolate, obtuse. Stipula bristle-shaped, minute. Flowers axillary, solitary. —Observed by Michaux in Carolina and Georgia. The whole herbage is downy, as well as the calyx. _Flowers_ stalked, yellow.


5. B. _alba_. White-flowered Wild Indigo. Ait. n. 4. (Podalyria alba; Willd. Sp. Pl. v. 2. 503. Mich. ibid. 264. Pursh n. 5. Curt. Mag. t. 1177. Sophora alba; Linn. Syst. Veg. ed. 13. 325. Crotalaria alba; Linn. Sp. Pl. 1066. Anonis caroliniana perennis, non spinosa, &c. Mart. Cent. t. 44.)—Leaves ternate, falved, smooth; leaflets elliptic-oblong. Stipula awl-shaped, shorter than the failstalk, deciduous. Germination. —In the western parts of Virginia and Carolina, on the banks of rivers, flowering in June and July. _Pursh_. Hardy in our gardens, but not of frequent occurrence. Catesby first introduced it in 1734. The habit of this species, its smoothness, and rather glaucous hue, agree with the tall, to which it is certainly most nearly allied; but the leaflets are elliptical, the flowers white, more oblong, in consequence of the greater length of the wings and keel, the _flapulae_ smaller and deciduous. The corolla is here and there spotted with brown, and is reported to be sometimes blue. Some of the flowers, in both these species, are often whorled, and give the cluyter an interrupted-form, like that of a Lupine, the aspect of which genus is otherwise visible in these plants.


7. B. _tinctoria_. Common Wild Indigo. Ait. n. 3. (Podalyria tinctoria; Willd. Sp. Pl. v. 2. 503. Mich. ibid. 265. Pursh n. 7. Lamarche f. 1. Curt. Mag. t. 1099. Sophora tinctoria; Linn. Sp. Pl. 534. Cytisus procumbens americus, flore luteo, ramosissimus, qui Anil luppeditat apud Barbadianum colonos; Pluk. Phyt. t. 86. f. 2.)—Leaves ternate, somewhat falved, smooth; leaflets roundish-obovate. Stipula tawny-yellow, obsolete. Flowers racemose. —In woods on dry hills, from Canada to Carolina, flowering in July and August. Called Wild Indigo. _Pursh_. A low, partly procumbent, smooth plant, whose numerous branches are each terminated by a simple cluster of yellow flowers, about half the size of _B. australisis_. The pods are ovate, on stalks much longer than the permanent calyx. This species is said to have been cultivated for Indigo, in the North American settlements, and even in Barbadoes, before the true _Indigofera_ was introduced. It is tolerably hardy with us, in a dry soil and sheltered situation, but has nothing to recommend it for general cultivation.

BAR. In _Heraldry_, r. Plate III.

BAR, Trial at. See _JURY_.

BARACKS, col. 2, add—See _CASERNS_.

BARAQUICMITO, dele lat. and long., and add—See _BARQUISIMETO_.

BARBAREA, in _Botany_., a name used by Dodoens, because this plant had been called the Herb of St. Barbara by some preceding botanists. It has always been referred to _Erysimum_, (see that article,) till Mr. Brown raised it to the rank of a separate genus, under the above appellation, in _Ait. Hort. Kew._ v. 3. 109. —Claws and order, _Tetradynamia_ Siliquea. Nat. Ord. _Siliquea_, Linn. _Crucifera_, Juff. Eff. Ch. Pod quadrangular, compressed. Cotyledons accumbent. Seeds in a single row. _Calyx_ erect. Glands between the shorter rami and the germenis.

Two species only are described.


2. B. _procus_. See the same article, n. 3.

Mr. Brown thus defines _Erysimum_.


We have explained the terms _accumbent_ and _incumbent_, as thus technically used, under the article _Tetradynamia_, where a more particular account is given of our ingenious friend's arduous undertaking, of reforming the genera of the natural order in question.

BARBAREEN. See _CULTURE_.

BARBET, in _Fortification_. See _BATTERY_.

BARBOURSVILLE, in _Geography_, a town of Kentucky, in Knox county, containing 55 inhabitants, eight of whom are slaves.

BARBULA, in _Botany_, so called by Hedwig, in allusion to the beard-like fringe of the capsule. See _TORTULA_.

BARDSTOWN. Add—See _BEARDSTOWN_.

BARETTI, col. 2. l. 27, for Burke r. _Boyle_.

BARILLA. Add—See _CARBONATE_ of _Soda_.

BARIUM, in Chemistry. The metallic base of barytes. (See _Barytes_, infra.) Dr. Clarke has lately proposed the name of _Platonia_ for this metal.

BARK-PIT, col. 4. l. 19, for _Gardening r._ Bark-beds, &c. BARKHAMPSTEAD, in _Geography_, a town of Litchfield county, in Connecticut, having 1506 inhabitants.

BARKWAY, l. ult. r. _Its houses in 1811 amounted to 99, and its inhabitants to 686._

BARLEY, _Caustic Indian_, &c. _dele_.

BARNARD, in _Geography_, l. 2, for 673 r. 1648.

BARNARD-Castle, l. ult. for 310 r. 450; and for 2966 r. 2966; add—1312 being males, and 1674 females.

BARNET,
BAR

BARNE, i. ult. r. parith. are 259 houses, inhabited by 1579 persons; 755 males, and 824 females.

BARNET, in America, for 477 r. 1.01.

BARNSTAPLE. At the close r. in the borough and parith. is settled by the return in 1811 to be 628, and of persons 4019, viz. 1633 males, and 2386 females.

BARNSTAPLE, or Barnälie, American county, l. 6, r. 22, 211. Do. col. 2, l. 25, for 2610 r. 3.6.6.

BARNWELL, a district of South Carolina, containing 12,280 inhabitants, including 4153 slaves.

BAROMETER, col. 7, l. 17, r. 68-hundredth parts of, &c. Col. 14, l. 40, add—We observe, however, that it is merely a floating manometer, and as such more influenced by the temperature than the density of the atmosphere, and therefore not to be so much depended upon as to warrant the high commendation above given to it. Col. 68, l. 36, r. 42—32. Col. 69, l. 6 from bottom r. 29.4 + 25.19.

BARON, col. 1, l. 21 from bottom, for Minerva r. Minor.

BARQUISOMETO, in Geography, a city of America, in the government of Caracas, 40 leagues W.S.W. of Caracas, 150 leagues N.N.E. of Santa Fé, and 15 leagues from Tucuy. N. lat. 9° 45' The excessive heat is rendered supportable by the cooling breeze arising from its elevated situation. The adjacent plains are covered with excellent paturage favourable for rearing every marketable animal. The sugar-cane and the beet wheat are also cultivated. The vales produce excellent cacao; and the sides of the hills are devoted to the culture of coffee. This city accommodates 11,500 persons; its houses are well built, and the streets are laid out as to afford a free circulation of air. It has a parith-church and two officiating priests, a monastery of Franciscans, and a hospital badly attended.

BARE, a township of America, l. 2, r. 1971; l. 11, add—having 1053 inhabitants.—Alto, a town of Vermont, in Orange county, having 1669 inhabitants.

BARR, by 43 Geo. III. c. 69. every 36 gallons of beer or ale brewed by the common brewers in Great Britain, taken according to the standard of the ale quart, four thereof to the gallon, in the exchequer, shall be reckoned by the gauger or other officer of excise for a barrel of beer or ale.

Barr, a weight by which corn is sold in Ireland. The barrel of wheat, peas, beans, and rye, is 20 stone: of barley, bere, and rape-feed, 16 stone: of oats 14, and in some places 12 stone: of malt, 12 stone: the stone being 14 lbs. avoirdupois weight. A barrel of good wheat answers to about four Winchester bushels.

BARNEN FLOWERS, in Botany and Vegetable Physiology, Flores malus in Linnaean terminology, are such as are not provided with organs for the formation of fruit or seed, but only with flamen for its impregnation. See Fecundation of Plants.

BARRIER, in Fortification. Add—See Cheval de Frise, Herison, Klikets, and Tercnile.

BARRIL, plur. Barril, a liquid measure in Italy.

BARRINI, in Geography, a county of the district of Kentucky, containing 11,742 inhabitants, of whom 1056 are slaves. The town, Glaferow, has 244 inhabitants, of whom 68 are slaves.

BARRINGTON, a township in Strafford county, &c. l. 3, for 2470 r. 3564. Id. l. 5, for 683 r. 604. Id. l. 2, for 1373 r. 1784.

BARRIQUE, a measure for wine and brandy in some parts of France, as at Bourdeaux, Rochelle, &c. At Bourdeaux, a tonneau of wine contains 4 barriques or hogheads = 50 flesk in Amsterdam, 255 flugen in Hamburg, or 233 English gallons; and weighs with the wood about 2000 lbs. of Bourdeaux. The barrique contains 11c pots, or 32 veltes.

BARRY-BENDY, &c. Plate III. Heraldry, &c.

BART, in Lancaster county, add—It contains 1099 inhabitants.

BARTHELEY, a river of Louisiana, which rises near the Arkansas, and after a course generally from N. to S. of 100 miles, falls into Ouachita, 3 miles below the Derbanc, on the contrary side.

BARTHIOLINA, in Botany, a genus of the Orchis family established by Mr. Brown, and dedicated to him by the memory of the great Danish anatomist and physiologist, Thomas Bartholin, whose life is already given in its proper place, and whose various writings relating to plants, in the old Copenhagen Translations, entitle us to adorn the history of our science with his truly illustrious name.—Brown in Ait. Hort. Kew. v. 5. 194.—Chaps and order, Gynander Mengonisia. Nat. Ord. Orchideæ.

Gen. Ch. Col. Perianth inferior, of one leaf, tubular at the base, deeply divided above into three, elliptic-oblong, equal, ribbed, spreading segments, externally hairy. Cor. Petals two, linear-lanceolate, erect, smooth, taper-pointed, nearly twice the length of the calyx. Nectary a large spreading lip, united to the base of the petals, thistle the length of the calyx, in three deep principal lobes, the middle one broadest, all divided, more than half way down, into many linear, fringe-like segments, and terminating behind in a tumid, curved, bluntly-pointed spur, rather longer than the tube of the calyx. Stam. Anther pointed, of two oblong, rather distant, parallel cells, opening in front, attached to the two margins of the style; maidens of pollen each supported on a long, membranous-bordered stilt, to which their cells are laterally attached, "their glands distinct, half covered by the exterior lobe." Pit. Germen inferior, elliptic-oblong, curved, very hairy; stily flattened, much shorter than the calyx; stigma a cavity between the lobes of the anther. Peric. Capsule…

Eff. Ch. Calyx tubular at the base. Petals united to the base of the lip, whose spur is shorter than the germin. Stalks of the pollen elongated; their cells laterally fixed: "glands distinct, half covered by the exterior lobe."
BAR

with blue. *Spur* greenish-white. Maffes of *pollen*, (which *Linneus* in the *Supplement* has described as a pair of *tyles*), inferted into the bafe of the *tyles*, yellowish, prominent, very conspicuous even in dried specimens.

**BARTLET**, a town of America, in Coos, &c. *r.* 436.

**BARTON**, in Orleans county, &c. *d*—it contains 447 inhabitants.

**Barton-on-Humber**, *l. ult.* for 412 *r.* 191— for 1729 *r.* 1129. The parifh of Barton, St. Mary, has 290 houses and 976 perfons; and the parifh of St. Peter has 263 houses, and 1228 perfons.

**BARTONIA**, in Botany, received that name from Dr. Sims, in 1812, in juft commemoration of the scientific merit and zeal of Dr. Benjamin Smith Barton, at that time profeffor of botany and natural history, in the university of Pennsylvania, who after many exertions, and several publications, in the fervice of natural science, died of athero- 
drivus, at Philadelphia, on the 19th of December 1815, in the fiftieth year of his age. His nephew, Dr. William Barton, in an animated and intere/ling "Biographical Sketch" of his charafter and pursuits, has preferred fome account of the plants which compose this genus, written by the late profeffor, three or four days before his death, and accompanied by many particulars, relative to Mr. Purf and Mr. Nuttall, through whose means it has come to the knowledge of European botanifs; all which evince a love of science, that the most painful bodily sufferings could not repre. Sins in *Curt. Mag.* 1487. Purf 327. *At. Epit.* 364.—*Clafs and order, Iofandria Monogynia. Nat. Ord. Loofes, Juff. Ann. du Mufc. d'Hif. Nat. v. *5. 18.* Sims.

Eff. Ch. Calyx superior, in five deep segments. Corolla of many petals, with clays. Stamens uniform. Capsule cylindrical, of one cell, with a lid of three or five valves, and as many parietal receptacles. Seeds numerous, flat, in double rows.

1. **B. ornata.** Large-flowered Bartonia. *Purf f. 1. Ait. n. 1. (B. decapetala; Sims as above, t. 1487).—German leafy. Seeds without a wing. —*Found by governor Lewis, in 1804, on chalky soil on the borders of the Missourif, flowering in July and August.* *Purfh.* Profeffor Barton records that Mr. Nuttoll first made this fine plant known to him in 1811, having found it growing all the way from the river Platte to the Anderes, on broken hills and in the clefs of rocks. Mr. Purf by mistake, as the profeffor thought, speaks of the foil as volcanic. Living plants were brought to England by Mr. Nuttall, who is unquestionably entitled to the honour of this discovery, as he could not know what might be concealed in the herbarium of any deceased traveller. The figure in the Magazine, though taken from a dried specimen, is unexceptionable, as far as it goes. The herb is biennial, downy, glabrous, about three feet high. Leaves alternate, felfife, oblong, pinnatifid. *Flowers* terminal, enveloped in leaves, three inches broad, with about ten elliptical, acute, white petals, and numerous filaments, half as long, whose anthers are elliptical, yellowish. These flowers expand suddenly in an evening, diffusing a moft agreeable odour, and rival those of some of the fine fpecies of *Cactus* in elegance.

2. **B. nudz.** Small-flowered Bartonia. *Purf f. 2. Ait. n. 2.—German naked. Seeds winged. —*Found by Mr. Nuttall, on gravelly hills near the Great Detour of the Missifipri, flowering in August.* *Root perennial.* Petals more numerous. *Barton.* Mr. Purf obferves that this has smaller flowers than the foregoing, and less glaucous leaves. The petals vary in number, from ten to fifteen.

We have seen no fpecimens, and have fcarcely fufficient materials for drawing up a full generif character.


Eight fpecies are defcribed in *Engl. Bot.* and *Compand.* Brit., and there are feveral of exotic growth.

**Secl. 1.** Fruit-flasks shorter than the flom.

1. **B. halleriana.** Lateral Bartramia. *Hedw. Crypt.* v. 2. *111. t.* 49. *Engl. Bot.* t. 997. *Hook. and Tayl.* v. 5. *t.* 23. (Bryum laterale; *Hudif.* 483. *Ethr. Crypt.* 33. *B. n. 1802; Hall. Hif.* v. 3. *43.* t. 46. f. 8.)—*Fruit-flasks* lateral, curved, shortier than the linear-cylindrical, fingle-ribbed, rough-edged leaves. Native of moist rocky mountainous woods, in Switzerland, Germany, Scotland, Wales, and the north of England. The floms are, as Mr. Hooker obferves, perennial, and repeatedly proiforous, fo that, although the flowers are, like every *Bartramia*, originally terminal, the fruit form becomes lateral, and remaining two or three years, is found numerous ranged along the main stem, among the denfe, fender leaves. When ripe it becomes strongly furrowed, though originally smooth or even.

2. **B. arcata.** Curve-flanked Bartramia. *Engl. Bot.* t. 1237. *Fl. Brit.* v. 5. *Hook.* and *Tayl.* v. 6. *t.* 23. (Mium arcuatum; Dickf. Crypt. fefc. 3. *t.* 7. *f.* 3. *M. chryfocomum; Hedw. Sp. Mufc.* 74. *Hypnum palucre crecum, comà luteus, bafi nigricante; Dill. Mufc.* 352. *t.* 36. *f.* 36.)—*Fruit-flasks* recurved. Leaves lanceolate, fingle-ribbed, furrowed, finely ferrated. Branches scattered, spreading.—Native of mountains in Great Britain and Ireland. According to Mr. Hooker, it is found, in the greatest abundance, on wet rocks, at Lowdore and Keswick, Cumberland, and is also very common in the mountainous districts of Ireland, though unknown on the continent of Europe. With all deference to our worthy friend however, the ripe *capsule* is as decidedly furrowed as in any other fpecies. The more branched and tufted habit of this mofs, and the broader, flortier, rigid, yellowifh, more spreading leaves, at once diftinguifh it from the foregoing. The fruit-flasks foon become lateral, and are very rarer than recurved, longer than in the preceding. Mouth of the *capsule* small, with a red outer fringe, whose teeth are lined, as it were, with the feventeen opposite teeth of the inner one.

**Secl. 2.** Fruit-flasks rising above the flom.

from one to three inches in height, clothed and matted together, below with copious brown fibres. Leaves bright green, slender, gradually tapering from their base; strongly curved towards the point; somewhat twisted and curved by drying. Fruit-flalks near the tops of the stems, about an inch long, bright orange-red, slightly wavy. Capsule globose, green and smooth while young; more elliptical when ripe, oblong, brown, with sixteen furrows. Lid rather convex, bifoled. Fringe short, red. Veil conical, curved, split half way up on one side.

4. B. crispa. Frizzled Bartramia. Swartz Mufc. Succ. 73. Turn. in Ann. of Bot. v. 1. 527. Winch Guide v. 2. 16. "Bridel. Mufc. v. 2. 3. t. 1. f. 4. Schwgr. Suppl. t. 59." Sm. Compend. n. 3. Engl. Bot. t. 1526. (B. poniiformis); Turn. in Ann. of Bot. v. 1. 527. Hook. and Tayl. n. 1, β.)—Fruit-flalks erect. Leaves brittle-shaped; dilated at the base; incurved and curled when dry. Lid slightly conical.—Native of mountainous situations in British India, and other parts of Europe. Larger in its stems and foliage than the preceding, the leaves of a lighter brighter green, longer, and more slender, except at the very base, and when dry to strongly curved, twifled, and involute, as to give the plant a very different aspect. The intelligent authors of the Mufcologic Britannicæ neverthelesd judge this to be but a variety of the poniiformis, and they unite it with Mr. Turner's supposed variety of that species, which he distinguishes from crispa, and which he has thought to be figured for crispa, in Engl. Bot. t. 1526. We acknowledge that the figure to be not a very happy one, except the lid, which seems to us always rather more conical than in poniiformis.

5. B. ithyphylla. Straight-leaved Bartramia. Bridel. Mufc. v. 4. 152. t. 1. f. 6. Sm. Compend. n. 4. Engl. Bot. t. 1710. Winch Guide v. 2. 17. Hook. and Tayl. n. 2. t. 23.—Fruit-flalks elongated, erect. Leaves capillary, nearly entire, single-ribbed half way up; dilated at the base; straight when dry. Found on dry banks, in the mountainous parts of Germany, Sweden, England, and Wales. The long, very slender, light-green leaves are only infrequently at the very point, and are remarkable for remaining always straight when dry, which Mr. Hooker has well attributed to the whole substance of the mid-rib being dilated and loft in the upper half of the leaf, to which it consequently gives firmness. The capsules are much curved; their flalks longer than in the foregoing. The dilated base of each leaf is singularly membranous and shining.

6. B. gracilis. Tall Slender Bartramia. Flóke in Schrad. Journ. v. 2. 171. Fl. Brit. n. 3. Engl. Bot. t. 1826. Hook. and Tayl. n. 3. (B. Oederi; Schwgr. Suppl. t. 59, as also, according to Mr. Hooker, B. grandiflora, t. 58. Brym Oederi; Retz. Prodr. 261. Fl. Dan. t. 478.)—Fruit-flalks from lateral branches, taller than the stems. Leaves lanceolate, ferrated towards the point; recurved and twifled when dry.—Native of the loftiell Scottish mountains, as well as of the north of Europe. The stems are two or three inches high. Leaves broader than in any of the three preceding species, somewhat revolute at the margin, especially when dry, in which state they become recurved, and not extended inwards. Their colour is a darkish greenish-grey. Capsule small, from short lateral shoots.

7. B. affine. Spreading-leaved Bartramia. Turn. in Ann. of Bot. v. 1. 528. t. 11. f. 2.—Fruit-flalks lateral, taller than the stems. Leaves awl-shaped, entire; single-ribbed at the base; spreading and straight when dry.—Received from Java by Mr. Dickson. Gathered by Cormerford, at the straits of Magellan. The tuf ted leafy stems, fluffy with rough fibres, and nearly branched, are two or three inches high. Leaves slender, yellowish-green, longer than any of the preceding, except perhaps B. Halstrana, and always quite straight, probably from the same cause as in ityphylla, the rib being foon lost in the substance of the leaf. Fruit-flalks straight, erect. Capsule curved, strongly furrowed. Lid convex, blunt.

8. B. Menziesii. Tall Forked Bartramia. Turn. ibid. 525. t. 11. f. 1.—Fruit-flalks slantly elevated above the tall forked stems. Leaves lanceolate, single-ribbed, taper-pointed, entire; close-preffed when dry. Capsule nearly globular, with shallow furrows.—Gathered on the north-west coast of America, by Mr. Menzies. The tall slender flanks, covered with close-preffed, tawny, shining leaves, half the length of the leaf, clearly distinguishes this species. The capsules are scarcely curved, even when fully ripe, and their surface is wrinkled as well as finely furrowed.

9. B. spheroarpa. Globose Bartramia. Hedw. Crypt. v. 3. 03. t. 38 A. Turn. as above, 525. (Mmum sphéricarpum; Swartz Prodr. 139, from the author.)—Fruit-flalks taller than the flender clustered branches. Leaves lanceolate-awl-shaped, close-preffed, finely ferrated.—Native of Jamaica. Swartz. The slender flanks are determinately branched, as in the following, to which this species is very nearly allied, though smaller, with longer branches. In the leaves, though ulufally narrower, we scarcely find a permanent difference. Hedwig's figure erroneously omits the furrows of the capsule.

10. B. marchica. Narrow-leaved Bog Bartramia. Web. and Mohr Ind. 5. Sm. Compend. n. 7. Engl. Bot. t. 2074. (B. fontana; Hook. and Tayl. n. 4. Turn. Mufc. Hib. 107. t. 10. f. 1. Mnium marchicum; Hedw. Crypt. v. 2. 108. t. 39.)—Fruit-flalks elongated, much taller than the clustered branches. Leaves lanceolate, finely ferrated at the point, close-preffed.—Native of wet situations in Germany, the Highlands of Scotland, and the mountains of Nepal, for Mr. Hooker affirms this his B. fontana, Tr. of Linn. Soc. v. 9. 317, is this plant. He is also of opinion that B. marchica is merely a leaved variety of the following.

11. B. fontana. Broad-leaved Fountain Bartramia. Fl. Brit. n. 4. Turn. Mufc. Hib. 107. Hook. and Tayl. n. 4. t. 23. (Mmum fontanum; Linn. Sp. Pl. 1574. Hedw. Sp. Mufc. 195. Bryum fontanum; Engl. Bot. t. 350. B. paluitre, fcapis teretibus ferialis, capsule magnis subrundobus; Dell. Mufc. 340. t. 44. f. 2.)—Fruit-flalks elongated, much taller than the clustered branches. Leaves ovate, finelv ferrated at the point, close-preffed.—Native of spongy bogs throughout Europe, and perhaps in other parts of the world. It is one of our handsomest and largest mosses, bearing capsules in spring and summer. The barren flowers form terminal leafy fars, on a separate plant from the capsules, whose flalks are two or three inches long, rising high above the tuft of leaby branches, which have overtopped the originally terminal situanon of their flowers. Capsule brown, with a minute sharp beak to the lid. Leaves usually direct, broadly ovate, entire at the edge, the point only being ferrated. They appear at first light very different from the lanceolate narrow shape of the lid, and still more from the curved taper-points of Mr. Hooker's B. falcuta, Tr. of Linn. Soc. v. 9. 317. t. 27. f. 4, which he is disposed to reduce to the fontana, having found the latter in Switzerland with leaves as decidedly curved. We cannot dispute his accuracy of observation and judgment in this point; nor are we much disposed to question his further opinion, that Hedwig's sphéricarpum, our n. 9, as well as
BAR

frobida Muldeoniegin, (of which we have specimens from its
founder,) and radicals of Schwartziren's Supplement, may
possibly be likewise varieties of B. fontana.

BARYTES, in Chemistry, one of the earthy substances
termed alkaline. We stated that this earth was considered by
Bergman, Lavoisier, and other eminent chemists, as a
refractory metallic oxdy; and this supposition has been
since confirmed by the experiments of Berzelius and Pontin,
who, led by sir H. Davy's decomposition of potash and
foda by galvanism, subjected this earth to the same agent.
Their experiments were attended with complete success,
and have been verified by sir H. Davy and other
chemists. To this metallic basis, Davy gave the name
baryum. More lately, Dr. Clarke of Cambridge thought
he had decomposed this earth by exposing it to an intense
heat, produced by the combustion of a stream of oxygen
and hydrogen gas, mixed together in the requisite
proportions to form water. To the metal thus obtained, he
proposed to give the name of pluxnum. Many chemists, how-
ever, think, that Dr. Clarke from some cause or other permitted himself to be deceived in these experiments, and that
instead of a metal he only obtained a flag with a pseudo-
metallic surface.

Baryum obtained by galvanic agency is a solid metal of
the colour of silver. It melts at a temperature below
redness, and is not volatilized by a heat capable of melting
plate-gla$s; but at that temperature it acts violently on the
gla$s, probably by decomposing the alkali of the gla$s,
and converting it into a protoxyd. When exposed to the
air, it rapidly tarnishes, absorbs oxygen, and is converted
into barytes. It sinks readily in water, and seems to be at
least four or five times heavier than that fluid. It decom-
poses water very rapidly. Hydrogen is emitted, and the
baryum is converted into barytes. Baryum seems to be
both ductile and malleable.

Baryum, according to the experiments of Gay Lussac
and Thenard, combines with two proportions of oxygen.
The protoxyd is the earth called barytes. No direct
experiments have been made to ascertain the proportion of
oxygen it contains; but this may be determined by other
means. Thus, sulphate of barytes is composed of

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<td>Sulphuric acid</td>
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and carbonate of barytes of

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Hence it may be easily ascertained by calculation, that
the equivalent number for barytes is 97.5; oxygen being 16;
and if we consider this earth as a protoxyd, the number
for baryum will of course be 97.5 - 16 = 81.5. Hence
one hundred parts of barytes consist of

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<td>Barium</td>
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<td>Oxygen</td>
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Gay Lussac and Thenard found, that when dry baryum,
from nitrate of barytes, or from the carbonate of barytes
decomposed by charcoal, was heated in oxygen gas, it
absoZbed that gas with great rapidity. The peroxyd
formed was grey. It gave out its excess of oxygen, when
put into water. When heated in hydrogen gas, the hydro-
gen was absorbed, and water was formed, which remained
united to the barytes.

The salts of barytes are described under SALTS. The
equivalent numbers of these, however, require a little cor-
rection; for which purpose, we refer our readers to the
article ATOMIC Theory, where the latest determinations
will be found.

The muriate of barytes (see SALTS) has been employed
as a medicine in febrifugal and cancerous cases. Al-
though it has been accounted highly poisonous, Dr.
Johnstone, in his "Effay on Poisons," says, that he
has seen a female take 30 drops of a saturated solution
of muriate of barytes repeatedly in the course of a day,
without even nausea: and he concludes, that it would
require at least two or three draughts to do mischief.
Barytes is capable of making a very tenacious cement,
but it has been yet much used in the arts, except by
limmers, as a most excellent water-colour. Mr. Hume,
says Mr. Parkes (Chem. Catech.), many years ago dis-
covered the method of making a colour from this earth.
It is the only white for water-painting that never changes.
It has another peculiar advantage, that it may be mixed
with any other colour without injury. It is sold under
the name of "Hume's permanent White." See WHITE.

BARYTES, Carbonate of. See CARBONATE OF
BARYTES.

BASALT, in Mineralogy and Geology, a compact dark-
coloured rock, clfaffed by geologists with trap-rocks. (See
TRAP.) It has received the name of whin-lone in the
north of England (see WHIN-STONE); and in Staffordshire,
Rowley-rag (see ROWLEY-RAG). In the arrangement
of rocks by the Wernerian geologists, bafalt is considered
as a compact green-lone, which latter rock is composed of
felspar and hornblende; but green-lone being more crys-
talline, the constituent parts are distinctly separated. Green-
lone and bafalt often pass into each other. (See GREEN-
STONE, Addenda.) Bafalt has generally been claffed with
simple minerals; and a short account of its charactens
and constituent parts are given under the article BASALT
(which see). More correct analyses of this rock have since
been made, in which foda is found to be a constituent part.
We greatly doubt the propriety of claffing bafalt with
simple minerals: for it has been ascertained, that most
basaltic rocks are composed of two or more minerals inti-
mately mixed, but requiring the aid of a lens to distinguish
them. Of these, the mineral called augit is the one which
prevails, or forms the dark colour: it is intermixed with
felspar and olivine. It is thus ascertained that bafalt resem-
bles in its constituent parts, as it does in other characters,
dark compaft lava. (See Volcanic Products.) Before the
observations of the French mineralogist Cordier, both
bafalt and compact dark lava were supposed to be composed
of hornblende and felspar.

Before the blow-pipe, bafalt melts easily, without addition,
into an opaque black-coloured glass. It melts at a com-
parative low degree of temperature from 350 to 450 of
Wedgewood. If it be cooled rapidly, the mass is vitrified;
if cooled slowly, it is hollow, and presents a tendency to a
columnar arrangement. Some interesting experiments of
this kind are described under the article ROWLEY-RAG
(which see).

The constituent parts of bafalt, as given by Klaproth and
Dr. Kennedy, are as follow:

Bafalt
BASALT.

Basalt exists abundantly in the northern parts of England and in Scotland. It occurs at the Clee Hills in Shropshire, and at Rowley in Staffordshire; but is not met with in the southern counties of England. Some rocks of the trap or basaltic formation occur in Gloucestershire and Somersetshire. Basalt forms the well-known columnar ranges at the Giant's Causeway in the county of Antrim, and at Staffa. See Giant's Causeway and Staffa.

The origin of basaltic rocks has excited much attention among geologists. Their similarity to volcanic rocks in composition and structure, the remarkable positions in which they occur, and the changes they frequently produce on the rocks in their vicinity, have led most intelligent and unprejudiced observers to the conclusion, that a great number, if not all, basaltic rocks have been formed by igneous fusion. The mineral veins filled with basalt, that intersect other rocks, frequently produce all the changes which a fluid mass of heated lava would have effected. (See Veins, Mineral, and Trap.) In the latter article, the arguments which have been offered against the igneous origin of basalt are also stated. For further remarks on the subject, see Systems of Geology. But the most striking phenomena, and which seem to decide the question, are presented in the districts called Velay and Viverais, in the south of France. These districts have all the appearance of having been once the seats of active volcanoes, the remains of which are distinctly visible: from some of these ancient volcanoes, the lava may be traced to the crater, and this lava is a compact columnar basalt. See Plate II. Mineralogy, Basalt.

The mountain of Aïfa, called La Coupe, or the Col d'Aïfa, of which a view is given, is situated near the village Engrand, in the Viverais. This village, according to St. Fond, is placed on a kind of platform of volcanic matter above the torrent of the Volant, which has here excavated a bed of great depth and width, bordered on the right and left by grand ranges of basaltic columns. In the midst of a prodigious rampart of these columns, at different levels, may be seen a current of lava descending from a neighbouring mountain, and joining the columns that border the river. Here we see, in the most unequivocal and convincing manner, that the lava under the form of hard and compact basalt, has flowed at several times from the mountain, and has formed the great cauliflower at different heights, to which the lava is still united and adhering. We may follow the current of basalt up the declivity of the mountain, which has a conical form and a great elevation, and is entirely volcanic from the base to the summit. According to St. Fond, it is the most remarkable and best charcterized crater in all the Viverais.

The bafe of the conical mountain La Coupe is covered by porous and cellular lava in detached irregular masses, heaped on each other, so as to leave no doubt that they have been ejected in a liquid state by one or more formidable eruptions, and have taken their forms as they fell at the foot of the cone.

On reaching the summit or edge of the crater we may see the whole mountain, which forms a regular cone resembaling that of Vefuvius. The edges of the crater are steep, and formed in the shape of a tunnel; the greatest diameter being from 140 to 150 toises, and the depth about 600 feet. The lavas are coloured, and converted into a kind of pizzolani, and mixed with great masses of black and sharp loose, which makes the descent difficult. At the bottom of this inverted cone is a magnificent plantation of chefnut-trees, which have flourished astonishingly in this ancient mouth of a volcano, having no other foil than the dry and friable pizzolani. It may be observed, that the crater of Vefuvius was lined with lofty trees at the period of its eruption in 1631, having been in a state of repose for nearly four hundred years.

At the bottom of the crater in La Coupe, we may observe a breach or opening on the side facing the houses of the Colet d'Aïfa; there is a general inclination to this opening, which has served to give a passage to the lava. When we are arrived at the opening, we may observe a stream of lava coming from the interior, and taking its course down the mountain, it descends in a winding direction amidst the porous lavas. This current is a true black basalt, compact and similar to that of the columns; in certain parts, its surface appears blurred, and in other places is become porous. Following the current of lava, after it has crossed the path, which is at the foot of the mountain, we may trace its course to the bed of a torrent not far from the high road. There may be seen, says St. Fond, a spectacle most gratifying to the geologist; for the lava, whilst still on the defensive, and before it had reached the level ground, has affected a prismatiform; and the lava at the bottom has formed a beautiful colonnade.

We cannot doubt, says St. Fond, after viewing this mountain, that the lava which flows from volcanic craters is not absolutely the same as basalt. The name of La Coupe is evidently derived from the crater, the Latin name for a cup.

There is another conical mountain in the Viverais with a distinct crater, called La Coupe de Jaujac. The general resemblance of the latter is so similar to that of La Colet d'Aïfa, that it may well be conceived from the view given of the latter. (See Plate II. Mineralogy.) It is rather less lofty, but the crater is nearly twice as large. The river Vignon flows at the foot of Jaujac. On its banks are immense ranges of basaltic columns, the most elevated of any in the Viverais. They inclose the borders of the river on each side for more than a league.

Some of the prisms rise in one shaft to the height of fifty feet; in other parts, the articulated columns form a kind of regular cauliflower. In some places the columns are bent, and above we see immense ramparts of basalt, of more than 140 feet in height, in several ranges, spreading out like a fan, and diverging in every direction. On the left, the current of basalt covers several little hills of granite, and is moulded upon them. In some parts, the compact lava forms one solid mass; in other places, it is arranged in great beds. Nothing can be more grand and varied, says St. Fond, than the course of the river Vignon to Ardoche, where the great current of lava joins the streams that have flowed from the volcanoes of Theurys and Neyrac. Faujas St. Fond fur les Volcans eteints du Viverais et du Velay.

Plate II. Mineralogy, Basalt, which is taken for this work, will convey at once a satisfactory proof of the igneous origin of the basaltic columns in the Viverais; but one engraver who

3 B 2

has omitted to represent the division of the upper part of the bed into columns. The ends of the columns may be distinctly seen before the basalt reaches the river.

**BASALTIC Hornblende.** See Mineralogy, Addenda.

**BASMAN,** in Geography, an island of the Persian gulf, situated 11 1/2 leagues N.N.W. from Shorge, in N. lat. 25° 54'. It is an uninhabited island, about five miles long, and remarkable for a high round hill in its centre.

**BASSORA,** col. 1, l. 15 from the bottom, after 1668, add—subject to various revolutions. L. 11, after Porte, infer—The mufcleman, or governor, has never since the year 1787, when it was recovered from the Monte-fidge Arabs, by Solyma Pacha, been sent from Bagdad, and is generally an officer of high rank. Full liberty is allowed, &c. Col. 2, l. 12, after 50,000, add—or 60,000, consisting of perfons of almost every nation in the East. L. 29, N. lat. 31° 30'. E. long. 48° 39'.

**BAT-Horfes,** in Artillery, are baggage-horfe belonging to the officers when on actual duty; and bat-men were originally fervants hired in time of war to take care of the horfs belonging to the train of artillery, baggage, &c., and who, during their service, generally wear the king’s livery. Thofe who are excufed regimental duty, for the specific purpofe of attending to the horfes belonging to their officers, are called bat-men. Horfes and men of the preceding defcription are sometimes called bow-horfs and bow-men.

**BATARREA,** in Botany, fo named by Pufh, in ho-nour of his learned predeceffor in the study of the Fungus tribe, Antonio Batarrea, prefeffor of philofophy in the Lyceum at Rimini, author of Hifloria Fungorum Agri Ariminensis, published at the neighbouring city of Faenza, in 1759, in 4to., with 40 plates. A preceding edition is indicated in the title-page, which Haller dates 1755. The author was a disciple of Janus Plancus, or Giovanni Bianchi, the conchoflologist, and died in 1789, according to Dryander in Bibl. Bankf. He was, however, an original obferver, and delineated the figures himfelf.—Perf. Syn. Fung. 129.—Clafs and order, Cryptogamia Fungi. Nat. Ord. Fungi.

**Eff. Ch.** Stalk bifling from a wrapper, and elevating the bell-shaped, downy, powdery head, capped with a portion thereof.

1. **B. phaloides.** Tall Brown Batarrea. Perf. n. 1, t. 3, f. 1. (Lycoperdon phaloides ; Dickf. Crypt. f. 1c. t. 24. Woodward in Phil. Trans. v. 74. 423. t. 16. Sm. Spicil. 11, t. 12. Soverb. Fung. t. 390.)—Found on sandy banks about Norwich, by Mr. William Humphrey, and about Bungay in Suffolk, by T. J. Woodward, efq. We have reason to think it may be met with in other parts of England, as Mr. Hudson, author of the Fl. Angl., told the writer of the preffent article, he had seen this fingular production on heaths in Kent, but pafted it by as a biflated or abortive Agarius procerus. We have not heard of this very curious fungus in any other part of the world. The volva, or wrapper, is about the fhape and size of a hen’s egg, originally of three fhightly corrugated layers, hollow internally, where a fpongy flalk is formed, which rides very suddenly (in a few hours) to its full height of about twelve inches. This flalk is hollow, foon becoming dry, and externally filamentous, and carries up, on its fummit, full half the innermost layer of the volva, which is white and smooth within, covered externally with copious brown powdery feeds, intermixed with fibres, as in a Lycoperdon. A smaller portion of the two outer layers, irregularly torn away, forms a double cap to this powdery surface.

**BATAVIA,** in Geography, a poft-townfhip of New York, the capital of Genesee county, 256 miles from Albany, on the great road to Buffalo; about 50 miles long from N. to S., and from 24 to 26 miles wide; bounded N. by lake Ontario, E. by Murray and Caledonia, S. by Warfaw, Attica, and Sheldon, and W. by Niagara county. The whole population of this town, in 1816, was 3,645, with 104 fettlemental electors, and 484,216 dollars of taxable property.

**BATH.** Add—The city of Bath, by the return of 1811, contained 3933 inhabifcnts, and 31,496 perfons; viz. 12,373 males, and 19,123 females. **Batty,** a county of Virginia, &c. add—The total number of inhabitants, in 1810, was 4837, including 882 slaves. **Bath,** a townfhip, &c. l. 2, for 949 r. 2491. **Bath,** in Grafton county, &c. l. 2, for 493 r. 1316. **Bath,** a poft-townfhip, the capital of Steuben county, 245 miles W. of Albany. The whole population, in 1810, was 1096, with 97 electors.

**Batts,** a county of the district of Ohio, in the county of Greene, having 913 inhabitants.

**BATSCHIA,** in Botany, was fo named by prefeffor Gmelin, the compiler of the 13th edition of the whole Syifena Nature of Linnaeus, in honour of prefeffor Batsch of Jena, known particularly by his Elenchus Fungorum, published at Halle in 1783 and 1784, in 4to., with coloured plates, and his Analytic Florum, a work of a fimilar defcription, which appeared in 1790. Gmelin however adopted this genus, like many others, entirely from the Flora Caro- biniana of Mr. Thomas Walter, who had modestly left fuch genera without names, becaufe, though he fuppofed them to be new, he had not the advantage of books, or other helps, to confirm his opinion. In the preffent instance we apprehend their Anonymus, n. 78. Fl. Carol. 91, cannot be supported, but we fhall give its character and fynonym.—Gmel. Linn. Syift. Nat. v. 2. 315. Michaux Boreal.-Amer. v. 1. 129. Pursh 132.—Clafs and order, Pentan- dria Monogynia. Nat. Ord. Aperifolifie, Linn. Borra- giuce, Juff.

**Gen. Ch.** Col. Perranth in five deep, linear, acute, erect segments. Cor. of one petal, falver-shaped; tube straight, longer than the calyx, surrounded at the base, internally, with a ring of hairs; throat pefils; limb orbicular, in five deep rounded segments. Stem. Filaments five, very fhort, inserted into the tube; anthers erect, ovate, concealed within the tube. Pistf. German superior, round-ih, with four prominencef; style capillary, the length of the flaments; stigma minute, flightly clenched. Peric. none. Seeds four, ovate, hard, polifhed.

**Eff. Ch.** Corolla falver-shaped; throat naked; tube with a hairy internal ring at the base; segments of the limb rounded. Calyx in five deep segments. Obs. It appears to us that this genus cannot be kept separate from Lathifpermum. (See that article.) The only mark of diftinction is the hairy ring in the bottom of the tube, which furely is not fufficient. The form of the corolla is as much funnel-shaped as in that genus, and the feeds are acknowledged to be precisely the fame. Michaux alks, (perhaps on account of the yellow flowers,) "whether L. orientale of Linnaeus be not a Basfchia?" We find no traces there of the hairy ring, nor was any fuch character detected by Mr. Bauer, when he made the drawing for Dr. Sibthorp’s Fl. Græca, t. 160. This circumstance does not preclude the fumption of a generic diftinction here indicated by colour. The following are the only reputed fpecies of Basfchia.

1. **B. Gmelini.** Hairy Pucceoon. Michaux n. 1. Pursh n. 1. (Anonymus carolinencis; Walt. Carol. 91.)—Hairy. **Floral**
BAU


2. B. canescens. True Pucoon. Mich. n. 2. t. 14. Purph n. 2. (Anchusa hirta; Muhlenb. Cat. 19. A. virginiana; Linn. Sp. Pl. 191. A. florusbus tparis, caule glabro; Gron. Virg. ed. 2. 24. Lithophorum virginianum, flore luteo duplex; Morif. feci. t. 28. t. 4.)—Downy and hoary. Leaves all oblong. Calyx very short. Segments of the corolla entire.—On dry sunny hills on a sandy soil, in Virginia, Tennessee, &c. perennial, flowering in June and July. Flowers of a deep golden-yellow. The root is covered with a red subsulance, which is the true Pucoon of the Indians, and paints a beautiful red. Purph. With this colour, it seems, the native Americans painted their bodies. The whole herb is clothed with soft hairs, nor is the stem, as Linnaeus says, smooth. He had no specimen of this plant, when he wrote either edition of Sp. Pl., but afterwards confounded herewith a totally different Sibfrican plant, which lies under this name in his herbarium, but without the requisite marks of authenticity. Morison's figure represents a double-flowered variety, which is very unusual in this natural order.


We should presume that all these species belong rather to Lithophorum than to Anchusa, but we have only seen the second, communicated in a dried state, from Pennsylvania, by the late Rev. Dr. Muhlenberg.

BATTAM, the Batta or Strabo, in Geography, a town of Armenia, in the paphalic of Erzeroom, on the Euxine. This is a commercial place; and between it and Akikla are the towns of Ichofteshceoe, Gartzieme, Schwaghaewal, and Kaettaeae.

BAU

BATTING. See Cotton, and Manufacture of Cotton.

BATTLE, 1. ult. r. and in 1811 had 361 houses, and 2531 persons; 1232 being males, and 1299 females. Battle, Order of. Col. 6. 1. 90. to 1. 41. dele.

BATZ. Add.—The florin at Augsburg is divided into 15 batzes, or batzen, or 20 kaylgrochen. A thaler, or rix-dollar, is worth 1½ florin. 22 ½ batzes, or 90 creatorius. At Baf, the thaler, or rix-dollar, is worth 3 lives, 27 good batzes, or 30 Swiss batzes; the florin, 15 good batzes, or 16½ Swiss batzes; the livre, 9 good batzes, or 10 Swiss ditto. A good batze is 4 creatorius; a Swiss batze, 2 sous, or 3½ creatorius. At Bern, accounts are kept in lives of 20 sous; the douze of 12 deniers; also in lives, or francs, of 10 batzes, or 40 creatorius; and in crowns of 25 batzes, or 100 creatorius. A rix-dollar, or ecu blanc, is worth 30 batzes; a crown, 25 batzes; a florin, 15 batzes; a livre, or franc, 10 batzes; a pfund, 7½ batzes, or 15 sous, or 2 batzes, 2 sous, or 4 creatorius.

BAUER, in Botany, received its name, not from Sir Joseph Banks, as Mr. Andrews, by mistake, has recorded, but from the author of the present article; in due commemoration of those excellent botanical artists, and practical observers, Mr. Francis Bauer, so long employed as a draughtsman at Kew, and his brother Mr. Ferdinand Bauer, who after being engaged in the same occupation by Dr. Sibthorp in Greece, accompanied Mr. Brown to New Holland, and is now returned to Germany, having left behind him in England unrivalled monuments of his abilities.—Andr. Repof. t. 1. 198. Ait. Hort. Kew. v. 3. 317. Salib. in Ann. of Bot. v. t. 514. t. 10.—Clafs and order, Polyandria Digniana. Nat. Ord. Saxifraga Juf. Salib. Cunuiones; Brown, Bot. of Terra Auff. 16.

Gen. Ch. Cal. Periander inferior, of one leaf, in eight deep, lanceolate, reflexed, permanent segments. Cor. Petals eight, obovate, equal, concave, alternate with the calyx, and nearly twice as long. Stam. Filaments numerous, thread-shaped, inserted into the receptacle, half as long as the petals; anthers erect, obovate, of two cells, bifurcating at the summit. Pft. German superior, somewhat pyramidal, obtuse; styles two, thread-shaped, longer than the filaments, recurved; stigma simple, obtuse. Peric. Capsule roundish, umbilicate, somewhat compressed, with two short, divericated, pointed lobes, of two cells and two valves, bifurcating at the top, between the points; partition contrary to the valves. Seeds numerous, oval, corrugated, inserted into the central column.

Eff. Ch. Calyx inferior, in eight permanent segments. Petals eight. Capsule inflated, of two cells, with many seeds.

1. B. rubiafolia. Madder-leaved Bauera. Salib. as above. Ait. n. 1. (B. rubioides; Andr. Repof. t. 198. Curt. Mag. t. 715. Ven. Malmafn. t. 96.)—Native of New South Wales. First discovered in that country by Sir Joseph Banks. We received specimens and feeds from Dr. White, among the first communications from the settlement there, and this beautiful shrub was raised by the late anthropologists of Rockingham, at Hillingdon, in 1793. It requires the shelter of a green-house, or conservatory, and flowers during most part of the summer and autumn. The stem is five or six feet high, much branched, woody, but slender and weak; the branches opposite, round, leafy, somewhat hairy. Leaves opposite, or sometimes three together, ternate, nearly pellate, evergreen, widely spreading; leaves three-quarters of an inch long, lanceolate, diastantly serrated, their ribs a little hairy beneath; their upper surface convex, of a deep shining green; under paler. Flowers axillarv, small; hairy, shining, longer than the leaves, a little drooping, scarcely an inch broad, of a beautiful rich rofe-colour, with yellow anthers, inodorous. The branches of the flower vary occasionally in number, from seven to nine or ten. The branches, like the leaves, are sometimes three together, and when young, have, like them, a reddish tinge, which the permanent calyx, and old leaves, likewise assume. We do not very clearly perceive the resemblance to Madder in the leaves, and should have been glad if the specific name originally proposed, formos, had been retained for a plant which so well deserves that appellation.

Another species is mentioned, by the name of B. hamilla, in Ait. Epit. 364, as introduced at Kew, from New Holland in 1805, and flowering in June and July. But not a word is said respecting the specific differences between the two.

BAYAZID, in Geography, one of the Turkish pachalics of Armenia: the city of this name lies at the distance of two days' journey from Erwan, nine from Erzeroom, and four from Khoi, and occupies the declivity of a mountain, the summit of which is strongly fortified. The city is surrounded with walls and ramparts: it has two churches and three mosques; and the monastery of Kuru Killefe is famous for the beauty of its architecture, its antiquity, and its grandeur. The inhabitants are reported to amount to about
about 30,000, and are esteemed the most learned and war-like people in Armenia. The climate is mild, and the city, with the extensive territory attached to it, is under the government of a pasha of two tails, archbishop of Merdin.

McKinne's Persea.

BAYLA, the capital of Lus, a district of the Persian empire, in the province of Meckran, and country of the ancient Orizes, is built on the N.E. bank of the river Pooralie, and contains 1500 houses, and 6000 inhabitants, of whom 400 are Hindus. The present chief can bring into the field 4000 irregular troops, and enjoys a revenue of 50,000 rupees per annum.

BAYOU, a term originally Spanish, signifies the diminutive of bay; but in Louisiana where it frequently occurs, it is synonymous with the word creek, and consequently becomes the diminutive of river.

BEAUNOE. See Anas and Duck.

BEATTIE, James, &c. l. 2, born Nov. 5; l. 12, latter, by the liberality of a mother, (his father having died when he was seven years of age,) by, &c. l. 18, dele at Alloa; and l. 19, dele affiant to the; l. 24, for 1760 r. 1761; l. 41, infant—which was written about the year 1764, though not published till some time after. Col. 2, l. 35, dele following; l. 62, for not long afterwards r. in 1770; l. 65, for 1777 r. 1776, (in consequence of which he obtained the pension above-mentioned.) Col. 3, l. 23, infant.—In 1790 he published a summary of his lectures under the title of "Elements of Moral Science;" the first volume of which contains a very accurate enumeration and arrangement of the perceptive faculties and active powers of man. He has also given a curiously view of what is called natural theology. The second volume, published in 1793, comprehends much miscellaneous information on ethics, economics, politics, and logic, including rhetoric. Towards the latter part of his life, his time, &c.

BEAUAIGRE, l. 7, dele The part of the Rhine is well

BEAVER, in Geography, a county of Pennsylvania, containing 12,168 inhabitants, in which are several townships of the same name; such as North Beaver with 932, Big Beaver with 702, Little Beaver with 1379, Beaver Borough with 426, and South Beaver with 1351 inhabitants.—Allo, a township of Pennsylvania, in Northumberland county, having 502 inhabitants.—Allo, a township of Crawford county, with 236 inhabitants.—Allo, a township of Columbiana county, in the district of Ohio, having 433 inhabitants.—Allo, a township of the same district, in Greene county, having 793 inhabitants.

BEAVER CREEK, a township of Pennsylvania, in Beaver county, with 774 inhabitants.

BEAVER FALL, a township of the district of Maine, in the county of Kennebeck, containing 354 inhabitants.

BEAUFORT, in South Carolina, l. 4. r. 25,887, including 36,914 slaves.

BEAUFORT, (col. 2, after l. 14,) a county of North Carolina, containing 7264 inhabitants, of whom 2568, are slaves.

BEAUFORTIA, in Botany, a truly noble genus, con-fecrated, by Mr. Brown, to the memory of Mary duchess of Beaufort, who died January 7th, 1711, in the 85th year of her age. Her grace cultivated a number of rare plants in the cloues and green-houses at Badminton, Gloucestershire, during the life-time of her husband, Henry, first duke of Beaufort, whose death happened in 1699. The plants introduced by her always therefore bear this date in Mr. Aiton's Hortus Kewensis. Numerous specimens from the Badminton gardens were communicated to Sir Hans Sloane, and if we are not mistaken, a splendid herbarium in the British Museum, bound in several large folio volumes, bears the title of "The Duchess of Beaufort's Plants."—Brown in Ait. Hort. Kew. v. 4. 418. —Clas and order, Polyadelphica leonandra. Nat. Ord. Helseridseae. Linn. Myrs, Jull.

Gen. Ch. Cal. Perianth half superior, of one leaf, tur-binate; limb in five deep, awl-shaped, deciduous segments. Cor. Petals five, elliptical, ciliate, inserted into the rim of the calyx, between its segments, and of equal length. Stem. Filaments very numerous, in five sets, inserted into the calyx, opposite to the petals, the claw of each set linear, hairy at the base internally, much longer than the petals, divided at the top into seven, eight, or more, capillary spreading seg-ments about a quarter the length of the claw; anthers terminal, inserted by the base, of two divergated, conical, deciduous, single-celled lobes. Pet. Germen in the bottom of the calyx, small, roundish, hairy at the summit; style thread-shaped, shorter than the stamens, various bent upwards and downwards; stigma acute. Peric. Capsule coated with the base of the calyx, and firmly united to the branch, roundish, of three cells. Seeds solitary.

Eff. Ch. Calyx in five segments. Petals five. Staminens numerous, very long, in five sets, opposite to the petals; anthers of two deciduous lobes. Capsule clothed with the base of the calyx, three-celled, permanent. Seeds solitary.

Obf. Many of the flowers are said to want the fyle. We are not clear, from the account of the author of this genus, whether more than one seed is perfect in each fruct. The capsules remain in mages surrounding the branches, long after the seeds are gone, perhaps for several years, being firmly united to the bark or wood; a character common to many of this natural order in New Holland, as Melaleuca, (see that article,) and others. The very peculiar ancors seem to afford the most essential character of Beaufortia, and distinguih it from its near ally Calothamnus. See that article hereafter.

1. B. decussata. Splendid Beaufortia. Br. in Ait. n. 1. Sims in Curt. Mag. t. 1733. Leaves opposite, ovate, many-ribbed, croffing each other in pairs. Claws of the stamens very long, their filaments radiating. —Gathered by Mr. Brown, on the south-west coast of New Holland, and sent to Kew by Mr. Good, in 1803. A green-house shrub, flowering in the spring, and increased by cuttings. The branches are angular. Leaves fettile, crowded, half or three-quarters of an inch long, recurved, smooth, rigid, entire, full of pellucid dots; paller beneath. Flowers in dense tufts, surrounding the branches here and there, most conspicuous for their copious spreading tufts of filaments, an inch and a quarter or more in length, all over of a rich scarlet, the petals, as well as calyx, being green.

2. B. parva. Alternate-leaved Beaufortia. Br. in Ait. n. 2. Leaves scattered, elliptical, many-ribbed.—Gathered in the same country, by Mr. Brown, from whence it was likewise sent to Kew, by Mr. Good, in 1803, but does not appear to have flowered in 1812, when the fourth volume of Hort. Kew. was printed.

We premise Mr. Brown's Prodromus, when completed, will make us acquainted with more species of this genus.

BEAUMARIS, col. 2, l. 9, for 1275 r. 1295. Col. 3, l. 1, for 37 r. 57; l. 37; r. Lavan. —Add—The borough of Beaumaris contained in 1811, 295 houses, and 1810 persons; 809 being males, and 1001 females.

BECKET, in Geography, l. 2, for 751 r. 1028.

BEDDOES, Thomas, M.D. in Biography, a distinguished physician and philosopher, was the son of an opulent tanner at Shiffnall in Shropshire, and born in 1760. Indicating at an early age peculiar talents, and disposed to cultivate them by diligent
diligent application, he was defined for a learned profession. With this view, after the requisite previous education, he was entered, in the year 1775, at Pembroke college, Oxford, and in the progress of his studies acquired the reputation of a classical scholar; connecting with his other pursuits the study of the French, Italian, and German languages, as well as of pneumatics, chemistry, mineralogy, and botany. After having taken his first degree of arts, he repaired to London, where he prosecuted the study of anatomy and physiology, and published translations of Spallanzani's Dif- terations, of Bergman's Essay on Elective Attractions, and of Scheele's Chemical Essays. At Edinburgh, where at this time he had commenced his studies, he obtained high reputation among his fellow-students. In 1786 he graduated M.D. at Oxford, and in the following year visited the continent. Upon his return, he was appointed to occupy the chemical chair at Oxford. At this period he formed an acquaintance with Dr. Darwin, which gradually ripened into the intimacy and confidence of friendship. In 1790 he pre- sented to the public an analytical account of the writings of Mayow, well known for his early discoveries in the department of pneumatics. (See his article in the Cyclo- peda.) And he also communicated several papers to the Royal Society. As a chemical professor at Oxford, he was a popular lecturer; and he was much respected in the university on account of the rank he occupied in general literature and science: but interesting himself in the party politics of that period, and avowing his opposition to systems which then prevailed with regard both to church and state, it found him expedient to resign his professorship in 1792. He was adverse, however, to that detestable spirit which blinded itself in France with their struggles for liberty. Among the publications which flowed from the press about this time, our line will only allow the mention of his "Observa- tions on the Nature of Demonstrative Evidence, with Re- flections on Language," intended to facilitate the study of geometry to youthful minds, by showing, in opposition to the doctrine of the author of Hermes, that geometry is founded in experiment, and that its elements may be rendered palpable to the senses. The most popular of his publications was a small work, which appeared under the title of the "History of Isaac Jenkins," a fictitious narrative, exhibiting the character of a labourer immersed in the evils of habitual drunkenness, but reformed to sobriety and in- dustry; of which his biographer (ubi infra) says, that if the author had left no other monument of his ingenuity and benevolence, he would not have lived in vain. Without adverting to his other writings, we shall proceed to mention his pneumatic establishment in the vicinity of the Bristol hot-wells, undertaken and for some time liberally supported for the purpose of curing diseases by the judicious application of different kinds of fœtidous air. For the convenience of superintending this institution he resided at Clifton, and in 1794 formed a matrimonial connection with a lady of the judiciously celebrated Edgeworth family. From this time his medical publications became numerous, and as a physician his advice was in high estimation; and he was con- furred by persons in distant parts, who are said to have derived great benefit from his preceptions. Although his pneumatic institution failed with respect to the degree of success which he might augur, and proved of temporary duration, it served to bring into notice the present Sir Hum- phy Davy, one of the most eminent philosophers of our time, whose talents, refricted in their exercise to a remote town in Cornwall, caused him to be engaged as its manager. In the year 1806, Dr. Beddoes was attacked with some affection of the liver, which, after subsiding for a time, returned with a disaise in the chait in 1808, and rapidly in- creasing terminated in his death on the 24th of December, before he had completed his 40th year. Although his manner, says his biographer, was cold and repulsive, he possessed kind and tender feelings; and in the relations of domestic and private life his conduct was unexceptional. Stock's Memoirs of the Life of Thomas Beddoes, M.D.

**BEDFORD**, col. 3, l. 4, r. In 1811, the borough con- tained 940 houfes, and 4,605 perfonis; 2,057 being males, and 2,548 females.

**BEDFORD**, a township of America, &c. l. 2, for 898 r. 1296.

**BEDFORD**, in Middlesex county, &c. l. 2, for 523 r. 592.

**BEDFORD**, New, l. 2, for 331 r. 561.

**BEDFORD**, in New York, l. 2, for 2,470 r. 2374, with 241 electors, in 1810. Add.—Near the centre of this town is the village of Bedford, where the courts for the county are held one half of the time, and the other half at White Plains. Here are, a court-houfe and prifon, a Preb- leyterian church, an academy, and a small number of houfes.

**BEDFORD**, a county of Pennsylvania, l. 4, for 131,244, including 46 flaves, r. 15,746; fubjoin after 1795: it con- tains 547 inhabitants.

**BEDFORD**, a township in the fame county, includes 1352 inhabitants.

**BEDFORD**, a county of Virginia, &c. l. 5 and 6, for 10,531 r. 16,148, and for 2754 r. 6147.

**BEDFORD**, a county of West Tenefsee, having 8242 in- habitants, including 1156 flaves.

**BEDFORDSHIRE**, col. 2, l. 8 and 9. r. The county, in 1811, contained 13,286 houfes, and 70,213 perfonis; 33,171 being males, and 37,042 females. 9431 families em- ployed in agriculture, and 4155 in trade and manufacture.

**BEDLIS, or Bedlis**, a large town, situated at the opening of the Bowntet of the paffes in the road from Di- beker to Van and Tahe. The river of Bedlis (the Cen- trites of Xenophon) is conducted by Hajy Kalifa through the plain to the southward of Sahert, Sard or Sared (the ancient Tigrancocerta). Betlis is one of the most ancient cities of that part of the kingdom called Kurdtiant; the caflle is on the top of a high mountain, which bounds the plain to the west: the inhabitants of the town and neigh- bouring villages amount to about 26,000 Kurds, Turks, Armenians, and Syrians. The Armenians, who enjoy a considerable portion of liberty, have four churches and four monafteries. The lands around Betlis are highly cultivated, and produce grain of several kinds, cotton, hemp, rice, olives, honey, truffles, and mushrooms. The neighbour- hood abounds with game, and the mountains are infcted by lions, wolves, and bears. In the vicinity are quarries of red and white marble. See Betlis.

**BEDMINSTER**, a township of Bucks county, in Pennfylvania, having 1199 inhabitants.

**BEDRI, a town of the Persian empire, in the pahalic of Bagdad, 13 leagues from Mendeli, and four from the foot of the mountains; is the frontier town, in this quarter, of the Turkift empire. It is surrounded with a number of fine gardens; but its districts are damp and marshy, inter- spersed with pools of water, the receptacles of the torrents, which, in the spring, are continually rushing from the mountains.

**BEER**, col. 2, l. 4, from the bottom, add.—For the excife duty on beer, see Ale.

**BEERING'S STRAITS**, l. 7, after Cook, infert.—He afterwards ascertained, that Cape Prince of Wales was the western extremity of the whole continent of America; and another cape was observed to the northward of this, lying in

fers, Jaff.

Gen. Ch. corrected by Mr. Brown. Common Calyx of one leaf, clothed with many lanceolate, imbricated leaves, with spiny teeth, and spreading points; the lower ones shorted. Cor. compound, radiant. Florets of the disk numerous, perfect, tubular, funnel-shaped, deeply five-cleft, glandular below; of the radius flower, ligulate, lanceolate, four-toothed; glandular below, imperfect. Stam. in the florets of the disk, Filaments five, capillary, very short; anthers forming a tube with five teeth: in thoe of the radius the anthers are short and incomplete. Pfl. in the florets of the disk, German turbinate, short, hairy; style thread-shaped, longer than the filaments; stigmas two, revolute: in thoe of the radius, German small, with hardly any style, and no stigmas. Peric.

one, except the permanent calyx. Seeds of the disk foli-

turbinate, hairy, crowned with from ten to fifteen

chaly, lanceolate, finely serrated, or fringed, scales: of the radius none. Recep. flat, cellular, the cells membranous, jagged and toothed.


The species of this genus, twenty-two in Wildenow, are confined to the Cape of Good Hope and its neighbourhood. Four of them occur under this name in Hort. Kew. as green-house plants, flowering in summer; three others com-

pose Mr. Brown's genus CULLUMIA, to be described hereafter. They are generally perennial, often shrubby. They

embrace Thunberg's whole genus of ROHRIA, (see another
genus of that name in its proper place,) and several of them have been referred by LINNAEUS to Gorteria, Atraphylla, or even Xeranthemum. None has yet appeared in any of our English periodical works. We select a few examples.

B. incana. Hoary Shrubby Berkheya. Willd. n. 1. Ait. n. 3. (B. cristata; Ehrh. Beitr. v. 3. 138. ("Roh-


Lc. Rar. t. 591.) G. fruticoso; Linn. Sp. Pl. 1284. Atracy-


t. 7.)—Leaves alternate, ovate, spinescent-toothed; hoary beneath, like the stem. Calyx-scales with spiny teeth; hoary underneath. Native of the interior regions of the Cape of Good Hope, in dry situations. The stem is various in height, with slender branches. Leaves recurved, three-

ribbed, an inch and a half long, coarsely toothed; tapering at the base. Flowers terminal, solitary, near three inches in diameter, deep yellow.

B. obovata. Smooth Shrubby Berkheya. Willd. n. 2. Ait. n. 2. (Gorteria spinosa; Linn. Suppl. 381. "Ba-

teria aculeata; Houtt. Nat. Hift. v. 6. 158. t. 34. f. 2." Ait.)—Leaves alternate, wedge-shaped-lanceolate, spinescent-

toothed, smooth on both sides. Calyx-scales with spiny teeth. —Sent from the Cape to Kew Garden, by Mr. Maffon, in 1794. Akin to the last, but with narrower leaves, and the whole plant is smooth.


nous-toothed; downy beneath. Calyx-scales with spiny teeth. —Native of hills about Riet-valley and Buffeljags

river, at the Cape. The stem is shrubby, with downy branches. Leaves above an inch long. Flowers terminal, solitary, large, of a full golden yellow, with a downy calyx.

B. cynaroides. Artichoke Berkheya. Willd. n. 19. Ait. n. 1. (Rohria cynaroides; Thunb. Prodr. 140. Gorteria herbacea; Linn. Suppl. 381.)—Stem-leaves alternate, clasping, fringed with prickles: radical ones elongated, entire, unarm: downy beneath. Calyx-scales ovate, straight, spiny, nearly entire. —Sent to Kew, from the Cape, in 1789, by Mr. Maffon. The stems are herbaceous, a foot or more in height, angular, nearly smooth. Leaves rigid, or somewhat coriaceous; the radical ones three or four inches long, tapering at the base. Calyx ovate, smooth, strongly armed; two or three of the lower scales only being fringed, like the adjoining bractes.

B. serca. Drooping Berkheya. Br. in Ait. n. 4. (Gort-

eria serca; Linn. Suppl. 382. Willd. Sp. Pl. v. 3. 2268.)—Leaves alternate, lanceolate, clasping, spiny-toothed, fringed, smooth on both sides. Flowers drooping. Seed-

crown bristly, fringed. —Sent from the Cape, in 1774, by Mr. Maffon. Biennial, flowering from May to July. Leaves slightly cottony when young only. Calyx spinous.

BERKLEY, in Virginia, l. 5, r. 11,479, of whom 1257

are flaves.

BERKLEY, in Massachusetts, r. 1014.

BERKLEY, col. 3, l. 16, for township r. parish; for 99 r. 124; and for 658 r. 616, 266 being males, and 320 females. L. 18, inef after act, in 1811; for 3450 r. 3858; for 9,148 r. 10,144; for 10,074 r. 11,124. Add—1711 families employed in agriculture, and 2215 in trade and manufactures; and for 7584 in trade and manufactures.

BERKSHIRE, a township of Delaware county, in the dis-

trict of Ohio, containing 284 inhabitants.

BERLIN, in Vermont, for 134 r. 1657.—In Con-

necticut, add—the number of inhabitants, in 1810, 123;

2788.—In Worcester county, for 512 r. 591.—In So-

merfield county, infant—the number of inhabitants, in 1810, was 330.

BERNACCHI, l. 13, r. when he was paif his me-

ridian.

BERNARD, Sr., a parish of the territory of Orleans, in the county of Orleans, containing 1026 inhabitants, of whom 382 are flaves.

BERNARDSTOWN, l. 2, r. 1879; l. 4, r. 811.

BERNE, a township of the district of Ohio, in the county of Fairfield, having 976 inhabitants.

BERNARDHARD, in Botany, so named by professor

Wildenow, in honour of Dr. John James Bernardi, of Erfurt, a learned writer on Ferns, and in other respects an excellent cryptogamic botanist.—Willd. in Act. Acad. Erford. for 1802. 11. Sp. Pl. v. 5. 56. Pflanze 655. (See Pflanze, under which name we have treated of this genus in due order.) We know not whether any other genus be dedicated to Dr. Bernardi, but it is to be pre-

sumed that this act of justice will not long be delayed.

BERTIE, l. 5, r. 11,218; l. 6, r. 6559.

BERVIE, l. ult. r. The burgh and parish contain 193

houses,
BERWICK, NORTH. Add—The burgh and parish contain 208 houses, and 1727 persons; 759 being males, and 968 females.

BERWICK, col. 3, l. 26, new ult. r. The town and county of Berwick-upon-Tweed, by the parliamentary return of 1811, contained 934 houses, and 7746 persons; 3325 being males, and 4421 females.

BERWICK, a town of Adams county, in Pennsylvania, having 1799 inhabitants.

BERWICK, in Maine, l. 2, r. 4455 for 3894.

BESANCON, l. 2 and 3, r. capital of Franche Comté, now of the department, &c.

BESANT, l. alt. r. under Henry.

BESTITTOON, a long range of barren mountains, in the province of Irak, in the Persian empire, bounding the plain of Kermanhaw to the N. and terminating abruptly on the E. by a high and perpendicular rock, in one place cut to a smooth surface, and projecting over the road, like a canopy. It receives its name from fittony, signifying, in Persian, a pillar, and be, a negative proposition. Near its projection, on a high and inaccessible part of the rock, is a group of figures, in the form of a procession, of the same age and character with those of Persepolis. The ruins at this place resemble the magnificent ones of that famous city.

BESLICK, a small Turkish silver coin, equal to 5 paras, the para being 3 aperes.

BESSARABIA, col. 2, l. 9, for fourth r. south-west.

BESTIAN, or BOSTANA, a cape of Larillan, in Perifia, which forms one of the most forcible roads to the gulf of Perifia, at the town of Mogoo. The extremity is about N. lat. 26° 30', bearing from Polior N.N.E. 3, and W. from the S. end of Kihma. Shinas and Boltana are small towns that lie between Linga and Cape Boltana.

BETHHEL, in Geography, l. 3, Lowermost Bethel is a township of Northampton county, having 1392 inhabitants; and Uppermost Bethel, in the same county, has 1188 inhabitants. After Dauphin county, add—having 2091 inhabitants; l. 4, r. 1041: at the close, add—a township of Maine, in the county of Oxford, having 975 inhabitants. Alto, a township in Bedford county, containing 1005 inhabitants. Alto, a township of Ohio, in the county of Miami, having 506 inhabitants. Alto, a township of Champaign county, in Ohio, having 484 inhabitants.

BETHLEHEM, col. 4, l. 10, add—Alto, a town of New Hampshire, in Grafton county, having 422 inhabitants; l. 13, r. 1738: l. 15, add—having 1188 inhabitants; l. 26, add—but by the census of 1820, they are flated to be 1436.

BETHLEHEM, E. and W., two townships of Pennsylvania, in Walbington county; the former has 1826, and the latter 1830 inhabitants.

BETLIS. Subjoin—See Bedlis.


BEVERLEY, l. alt. In 1811, the borough and liberties of Beverley contained 1457 houses, and 6731 persons; 3024 being males, and 3707 females.

BEVERLEY, l. 5, r. 4068.

BEVERSTONE, l. 7, r. Edward.

BEWCASLE, l. 35, r. The town includes 35 houses, and 158 persons. 103 being males, and 95 females.

BEWDELY, l. alt. r. The borough contained, in 1811, 632 houses, and 3454 persons; 1583 being males, and 1871 females.

BEZOTZI, col. 2, l. 8, r. The oldest, &c.; l. 18, composition; l. 20, do.; l. 27, for the r. their; after delicacy, insert—there was; l. 40, inferior—a labour exquisite in performance.

BIBIA, FERDINANDO-GALLI, l. 12, r. Alexander; l. 14, r. generosi.

BIBLES, LATIN. See Italic Version.

BICE. Add—see Cast.

BIDDELE, in America, l. 5, r. 1563.

BIDDEFORD, col. 3, l. 2, r. 634 houses, and 3244 persons; 1415 being males, and 1829 females.

BIGELOVIA, in Botany, a genus which we here dedicate to our highly intelligent and scientific correspondent, Jacob Bigelow, M.D. of Bolton in New England, Rumford professor of Materia Medica and Botany in Harvard university, author of the *Flora Botanica*, published in 1814; and of the American Medical Botany, with coloured plates, now publishing periodically; works which, we are confident, will be the forerunners of more ample and valuable communications from the same quarter. We have selected for the commemoration of our friend an American genus, to which the name of Borya, (see that article hereafter,) has been erroneously applied, and which therefore requires a new appellation. We have chosen one as indubitable as the genus itself, whose synonyms are the following. (Borya; Willd. Sp. Pl. v. 4, 711. Pursh 22. Ait. Hort. Kew. v. 5, 365. Adelia; Michaux Boréal-Amer. v. 2, 223. Browne Jam. 361, but not of Linnaeus.)—Chaps and order, Diccia Diania. Nat. Ord. Separia. Linn. Jafiminer, Jul.

GEN, Ch. Male. Cal. Perianthis minute, in four deep, erect, lanceolate segments. Cor. none. Stam. Filaments two or three, thread-shaped, longer than the calyx, inserted into the receptacle; anthers roundish, two-celled.

Female, on a separate plant. Cal. Perianthis in four deep, oblong, slightly spreading, deciduous segments; two opposite ones very minute, and sometimes wanting. Cor. none. Pct. German superior, rounded-ovate, of two cells; style short, cylindrical, thickish; stigma capitae, depressed, obtuse, crenellate. Petals. Berry oval-oblong, of one cell, its inner surface cartilaginous and rugose. Seed almost always solitary, oblong, tapering at each end, furrowed and ribbed longitudinally, with a membranous skin; its embryo bright, in a horny albumen.

Elf. Ch. Male, Calyx deeply four-cleft. Corolla none. Stamens two or three.

Female, Calyx deeply four-cleft; two opposite segments smallish. Corolla none. Stigma capitae. Berry with one seed.

Obf. The description of Michaux, and his hint of the affinity of this genus to *Chionanthus*, have helped us to form, we trust, a correct idea of its characters. Willdenow had seen specimens of Browne's *Adelia*, and he probably had the function of the able Mr. Richard for uniting it with that of Michaux, the latter having already decided this question; nor do we see any reason for a different opinion.

The species are all shrubby, with opposite, undivided, mostly entire, smooth leaves; and minute, tufted, bracteated, flowers. The fruit is probably not edible.

1. B. cassinoides. Elliptical Bigelovia. (Borya cassinoides; Willd. v. 1. Adelia n. 1; Browne Jam. 361. t. 36. f. 3.)—Leaves flat-ted, oblong, obtuse, coriaceous, revolute; reticulated with veins beneath.—Native of the West Indies. Common on low gravelly hills, eastward of Kingston, in Jamaica. Sometimes eight or ten feet high, with
with slender leafy branches. Flowers in little axillary tufts, or clusters. Leaves about an inch and a half long, smooth, entire. Br.

2. B. porulofa. Pierced Bigelovia. (Bory porulofa; Willd. n. 2. Pursh n. 1. Ait. n. 1. Adelia porulofa; Mich. Bor.-Amer. v. 2. 224.)—Leaves soft, oblong-lanceolate, obtuse, coriaceous, revolute; dotted beneath.—On the coasts of Georgia and Florida. The leaves are russet, and as if pierced with little dots, beneath. Michaux.

3. B. liguftrina. Privet-leaved Bigelovia. (Bory liguftrina; Willd. n. 3. Pursh n. 2. Ait. n. 2. Adelia liguftrina; Mich. Bor.-Amer. v. 2. 224.)—Leaves oblong-lanceolate, somewhat membranous, entire, on short stalks. Berry roundish-ovate.—Native of thickets and woods about rivers, in the countries of the Illinois, Tennessee, &c. flowering in July and August. This has the habitat and foliage of our Privet. Michaux.

4. B. acuminata. Pointed Bigelovia. (Bory acuminata; Willd. n. 4. Pursh n. 3. Ait. n. 3. Adelia acuminata; Mich. Bor.-Amer. v. 2. 225. t. 48.)—Leaves ovato-lanceolate, membranous, stalked, slightly serrated, acute at each end. Unripe berry oblong, taper-pointed.—On the banks of rivers in Carolina and Georgia. The taper lateral branches appear to form something like thorns. The leaves are an inch and a half long. Male flowers several together, in small sessile tufts, encompassed with several ovate bracteae; female ones stalked, very small. Berries pendent, elliptical-oblong, near an inch in length.

The three latter species are recorded by Mr. Aiton, to have been brought into England by Mr. John Lyon; the porulofa in 1826, the two others in 1812. They are hardy herbs, but do not appear to have yet flowered.

BIGNONIE, the 45th order in Jussieu's System; the 12th of his 8th clafs, whose characters are given at Gentianace. The following is that author's definition of the order before us.

Calyx divided. Corolla mostly irregular, with four or five lobes. Stamens usually five, one of which is, for the most part, abortive, or imperfect. Style one; stigma either simple or two-lobed. Fruit of two cells; sometimes capular, with many seeds, and with two perfectly separable valves; the seed-bearing partition opposite or parallel to the valves, and separable therefrom: sometimes coriaceous or woody, burling at the top only, with but few seeds, the seed-bearing partition a continuation of the valves, not separable, and often fending off a flight wing, dividing each cell into two. Corculum unattended by albumen. Stem herbaceous, thorny, or arborescent. Leaves opposite, rarely alternate.

Sect. 1. Fruit capular, bivalve. Stem herbaceous. Chelone and Scutum, with Jussieu's Incarnifolia, Lamark Illum. t. 527, compose this section.

Sect. 2. Fruit capular, bivalve. Stem arborescent or fruticose.

Millingtonia of Linnaeus; Jacaranda, Catalpa, and Tecoma of Juss. with Bignonia of Linnaeus.

Sect. 3. Fruit coriaceous, almost woody, opening at the top. Stem herbaceous. Tourrettia of Dombey and Juss.; Martynia, Cranilistoria, and Pedaliunm of Linnaeus.

Mr. Brown, Prodr. Nov. Holl. v. 1. 470, retains the second section only, under the name of Bignoniace, to which he adds the genus Spatiodae. See that article.

BIGNONIA, in Commerce, a liquid manure in Venice. See Amphora.

BILLE, Chemical properties. Bile has been lately denied by Berzelius to contain any resinous or adipocereous matter, as had been maintained by former chemists. The fusibility peculiar to bile, or, as it is denominated by him, the biliary principle, has an exceedingly bitter taste, followed by some sweet-savours. Its smell is peculiar, and the colour in most animals varies from green to greenish-yellow. It is soluble in water, and its solubility is in the leaf; promoted by the alkali of the bile, since when the alkali is neutralized by any acid, the peculiar matter does not separate. It likewise difflates in alcohol in all proportions. Like the albuminous materials of the blood, of which this peculiar matter is composed, it will unite with acids producing two compounds of two degrees of saturation, and hence of solubility. The dilute acetic acid which gives soluble compounds with the albumen of the blood, does the same with the peculiar matter of the bile; and hence this matter is not precipitated on adding this acid to bile, though it falls down on the addition of the sulphuric, nitric, or muriatic acids. It is this sparingly soluble compound of biliary matter with a mineral acid which has been mistaken by many chemists for a resin, since it possesses the external characters of a resin, melts when heated, diffuses in alcohol, and is again partly precipitated by water. The alkalies, alkaline earths, and alkaline acetates, decompose and dissolve it; the former by depriving it of its combined acid, the latter by furnishing it with acetic acid, which renders it soluble in water.

The peculiar matter of bile will also combine with many of the metallic oxides. The degree of the solubility possessed by the compound of acid and biliary principle, varies according to the length of time that the bile has been kept, and also according to the species of the animal.

The biliary matter may be obtained in a state of purity by mixing fresh bile with sulphuric acid diluted with three or four times its weight of water. A yellow precipitate first appears, which is to be allowed to subside, and then removed: more acid is then to be added as long as any precipitate is formed; heat the mixture gently for some hours, and afterwards decant the fluid part, and thoroughly wash the green mass left. This green resinous-like mass reddens limus, and is partially and sparingly soluble in water. It may be deprived of its acid either by the carbonate of barytes, or by the carbonate of potash or lime, and thus obtained pure. It is now soluble in water, and forms a green solution, having all the properties of bile. It is infusible in ether, which converts it into an adipocereous mass. When burnt it yields no ammonia, and consequently contains no azote.

The following are the results of Berzelius's analysis of bile:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Water</td>
<td>907.4</td>
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<tr>
<td>Biliary principle described</td>
<td>80.0</td>
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<tr>
<td>Mucus of the gall-bladder, &amp;c. dissolved</td>
<td>3.0</td>
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<tr>
<td>in the bile</td>
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<tr>
<td>Alkalies and salts, common to all secreted fluids</td>
<td>9.6</td>
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<tr>
<td></td>
<td>1000.0</td>
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</tbody>
</table>

The bile of other animals has been but imperfectly examined. It resembles in its general characters the human bile above-mentioned.

BILLARDIERA, in Botany, so named by the writer of this, in honour of his friend James Julian de Billardier, (or, as it is now written, Labillardier,) M.D. author of Icones Plantarum Syriae Rariorum, the fruits of his journey to the Levant, in 1786; and since much better known by his valuable Novae Hollandiae Plantarum Specimen, in two volumes folio, with many plates. An account of his voyage to New Holland, in search of the unfortunate Lapérouse, contains
contains also much botanical matter, and has been published in English, at London, in 1802, with plates. M. Labillardiere has always distinguished himself as a classical botanist, of the Linnean school, preferring the interests of science to those of politics, and following no leader but what he conceives to be true.—Smith Bot. of New Holl. t. Labill. Nov. Holl. v. t. 64. Wildl. Sp. Pl. v. i. 1. 1150. Ait. Hort. Kew. v. i. 5.—Cliffs and order, Pentandria Magnyll. Nat. Ord. uncertain. Akin to Pittosporum, and therefore to the Rhanni of Jussieu, as they stand at present.

Gen. Ch. Calyx inferior, of five lancesolate, coloured, equal, deciduous leaves. Cor. Petals five, inserted into the receptacle, alternate with the calyx, and twice as long, linear-lanceolate, erect; their claws more or less converging in the form of a tube; border spreading, acute, recurved. Nectary none. Stam. Filaments five, inserted into the receptacle, alternate with the petals, the length of the claws, awl-shaped; anthers ovate-oblong, attached by the back of two cells, burking lengthwise, internally. Pet. Germain superior, elliptic-oblong; style awl-shaped, the length of the stamens; stigma obtuse. Peric. Berry roundish-oblong, of two seeds. Seeds numerous, roundish, inserted into the central column.

Eff. Ch. Calyx of five leaves, deciduous. Petals five, alternate with the calyx, converging into a tube. Stigma obtuse. Berry superior, of two cells, with many seeds. The species are all slender, twining, branched fronds, with scattered, simple, undivided, nearly entire, more or less downy, leaves, on short footstalks. Flowers and fruit pendulous, on terminal footstalks.

1. B. scandens. Climbing Billardiera, or Apple-berry. Sm. Bot. of New Holl. t. 1. 1. Wildl. n. i. Ait. n. i. Curt. Mag. t. 801.—Leaves elliptic-lanceolate. Berry cylindrical, obtuse, downy.—Native of Port Jackson, New South Wales, from whence we received specimens and coloured drawings, by the kindness of Dr. White. Sir Joseph Banks sent seeds, or plants, to Kew, in 1793, and we have since seen flowers and ripe fruit in many conservatories. A low frond, with variously twined and climbing branches. Leaves an inch and a half or two inches long, elliptic-oblong, of a dull but not dark green; paler and more downy beneath; their edges somewhat wavy and reflexed, scarcely notched. Flowers on hairy footstalks, pale lemon-coloured, an inch long, with a hairy yellowish calyx. Germin very hairy. Berry above an inch in length, cylindrical, equally obtuse at each end; yellow, downy all over, full of brown seeds, its pulp soft, sweet, but rather impipid in this country, though said, in a wild state, to resemble a roasted apple. The figure in the Botany of New Holland was taken from a drawing made in that country. We readily concur with our friend Dr. Sims, in Curt. Mag. p. 1507, that it is impossible to find a name which will contradict the only known species of a genus, with all that may hereafter be found, and it happens that all the Billardieras are climbers. The appellation above, therefore, serves to shew the present to have been the originally described species. There are several fuch instances in the history of Linnean genera, nor would it be allowable to alter the original specific name on this account.

2. B. mutabilis. Changeable-flowered Billardiera. Salisb. Parad. t. 498. Ait. n. 2. Curt. Mag. t. 1313.—Leaves linear-lanceolate. Berry cylindrical, obtuse, smooth.—Native of New South Wales. Easily cultivated in a greenhouse, and increased by cuttings or seeds. The leaves are narrower and smoother than in the foregoing species. The flowers, at first of a pale greenish-yellow, turn purple before they fall. The germin and fruit are said to be always smooth, the form of the latter agreeing with B. scandens. Flowers and fruit smooth.

3. B. fulfilimentis. Spindle-shaped Billardiera. Labill. Nov. Holl. v. 1. 65. t. 90.—Leaves oblong-lanceolate. Flowers aggregate. Petals spreading. Berry spindle-shaped, pointed, silky, dry.—Gathered by M. Labillardiere at the Cape of Van Diemen, in December. The stem is generally climbing. Leaves somewhat hairy, larger than in the latex. Leaves from two to five at the end of each branch, forming more or less of a cluster, blue, the petals more ovate, and spreading from the base, than in other species. Antehex converging. Berry small and tapering, of a membranous texture, silky, dehitrue of pulp.

4. B. longiflora. Blue-birded Billardiera. Labill. Nov. Holl. v. 1. 64. t. 89. Curt. Mag. t. 1527. Ait. Epit. 364.—Leaves lanceolate. Petals converging. Berry nearly globular, lobed, smooth.—Native of the same country as the last. Raised here by Mefria. Loddiges. The flowers are solitary, pale yellow, longer and more tubular than in any of the reef. Fruit remarkably different, being short and roundish, of a fine blue. Dr. Sims has well observed, that this part affords, in the present genus, the best specific distinctions.

BILLERICA, l. 2. r. 1289.

BILLS, EXCHEQUER. See Exchequer-Bills.

Bill of Health, an account of the health of a crew, given by the captain or master of a vessel.

Bills, India, bills drawn in India on the East India company in London, and payable at the India-house.

Bills, Virtual. See Navy and Virtual Bills.

BILLYMEAD, a town of Vermont, in the county of Caledonia, containing 433 inhabitants.

BILSTON, l. ult. for 1325 r. 1878; and for 6914 r. 6816.

BILTON, l. ult. for 127 r. 120; and for 744 r. 762.

BIR. Add.—According to M. d’Anville this place represents the ancient Birba. The caravans travelling from Aleppo to Orfa pass the Euphrates on a bridge of boats at this place, situated 144 miles from Aleppo, and 67 from Orfa, in N. lat. 36° 58’; A tax is paid at this town, which is in a dilapidated state; and all travellers and merchants cross the Euphrates, which is here deep and rapid, and about 150 yards broad.

BIRDS, Anatomy of. The references to the plates to be expounded. Col. 7, l. 33, after another, infer—a good influence of which is found in, &c. ending heron; l. 35, r. The bulbus in the orich is a long narrow band lying on the front of the stomach. The structure, &c.; l. 53, dele like other, &c. to reception. Col. 9, l. 49, for superficial view r. flight examination. Col. 11, l. 20, after intefine dele to ventricle, l. 34; and infer.—If the cavity of the stomach in the heron be diffused with any transparent fluid and held up to the light, the zone of gallic glands will be plainly seen through its coats. If Spallanzani had employed this expedient, he could not have denied a distinct glandular structure to the heron. The inferior part of the stomach is chiefly composed of muscular fibres, spreading in a radiated manner from a lateral spongosus, which supplies the place of the great tendons of the digastric muscle. The second cavity or stomach in the heron is a small round bag, furnished only with circular muscular fibres; l. 35, for straight r. contracted. Col. 13, l. 34, dele for; l. 15, after respect dele to the end of the paragraph. Col. 14, l. 15, dele after adjoining to the end of the paragraph. Col. 16, l. 16 from the bottom, after receive, infer—same as.

Col. 19, l. 28 from the bottom, infer after by—one of the ablest
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for the purpose of securing their quarters, preventing surprizes, and obstructing supplies. When an army does not encamp, but lies under arms all night, it is said to "bivouacke."

BLACKBURN, l. 28, for 24 r. 23. Col. 2, l. 4, r. Blackburn turnip towndship contained, in 1811, 2945 houses, and 15,083 persons; 6953 being males, and 8130 females: 45 families employed in agriculture, and 2861 in trade and manufactures.

BLAIZ, Str., Cape, in Geography. See MOSSET'S Bay.

BLANDFORD, col. 2, l. 39, r. contained, in 1811, 431 houses, with 2425 inhabitants; 1017 being males, and 1408 females.

BLANDFORD, in America, l. 6, r. 1613.

BLANDFORDIA, in Botany, received its name from the writer of the present article, in honour of his grace George duke of Marlborough, at that time marquis of Blandford, an honorary member of the Linnaean Society, and one of the most ardent botanists and cultivators that this country ever possessed in any rank of life. A genus belonging to what Linnaeus terms the Patrician order, was judged peculiarly eligible for this purpose; nor can any one be more distinct, few more beautiful.—Sin. Exot. Bot. v. i. 5.


Gen. Ch. Cal. none. Cor. of one petal, inferior, tubular, straigt, with six marginal lobes, regular, withering. Stam. Filaments six, thread-shaped, inserted into the middle of the tube, decurrent, shorter than the limb; anthers ovate, two-lobed, incumbent, attached by a hood at their base. Fil. Germen superior, stalked, oblong, with three angles, and three intermediate furrows; style vertical,awl-shaped; stigma simple. Peric. Capsule stalked, prismatic, of three cells, furting at their inner angles. Seeds numerous, oval, inserted along the margins of each cell, imbricated, clothed with dense briliy hairs.


1. B. nobilis. Scarlet Blandfordia. Exot. Bot. t. 4. Br. n. 1. Ait. Epit. 364. Curt. Mag. t. 2603.—Bra- teas but half the length of the partial flalks while in flower. Leaves narrow-linear. Br.—Native of the neighbourhood of Port Jackson. The root is woody and perennial. Leaves all radical, four or five inches long, scarcely half an inch broad, entire, smooth, coriaceous, tapering at the base into laciniate footstalks. Flower-flalks radical, two or three feet high, erect, round, each bearing a very handsome corymbose cluster, of drooping, scarlet flowers; yellow, and marked with green, at the border; each near an inch and a half long, on a red partial flalk of the same length, at whose base are two unequal, opposite, tapering bractseas. Capsul pointed twice the length of the permanent withered corolla.

2. B. grandiflora. Large-flowered Blandfordia. Br. n. 2. (Aletes punicce; Labill. Nov. Holl. v. i. 85. l. 111.)—Bracteas nearly as long as the partial flalks while in flower; the inner but one-third as large as the outer.—Observed at Port Jackson by Mr. Brown, who is not quite certain of Labillardiere's plant, found at Cape Van Diemen. We have seen neither, but we should scarcely have thought the latter could be distinguished even from B. nobilis.

BLANDFORDIA cordata, Andr. Repert. t. 343. See GALAX.

BLATTA, col. 2, l. 29, after gigantea, add,—called in the Weft Indies drummer, from the noise it makes, like a smart knocking with the knuckle upon the wainscot; l. 36, del which fee respectively.

BLAYNEY, BENJAMIN, D.D. in Biography, an eminent Hebrew scholar and critic, was educated at Oxford, and graduated M.A. in 1753, at Worcester college, and becoming afterwards fellow of Hertford college, took the degree of B.D. in 1768, and of D.D. in 1787, in which year he was appointed regius professor of Hebrew. As a Scripture commentator and translator, he acquired very considerable reputation. The publications by which he was distinguished were, "A Differtation on Daniel's Prophecy of Seventy Weeks," &c. 1775, 4to.; "A New Translation of
of Jeremiah’s Lamentations, with Notes, &c.” 1784, 8vo.;
“C. The Sign given to Ahaz, A Discourse on Isaiah, v. 14—
16,” &c. 1786, 4to.; “Christ the greater Glory of the
Temple,” 1788, 4to.; “A New Translation of Zechariah,
with Notes,” &c. 1787, 4to. Dr. Blayney was canon of
Chriftchurch, and Archbifher of Pothit, where he died
Sept. 20, 1801, having previously directed by will that
his critical papers should be deposited in the library at
Lambeth.

BLEACHING, col. 10, l. 19, r. For an account of the
progress of discoveries in the new method of bleachings by
the oxygenated muriatic acid, see OXYMURIAC Acid
Gel.

BLECHINGLEY, col. 2, l. ult. r. By the returns in
1811, the borough and parish contained 184 houses, and
1166 persons; 775 being males, and 541 females.

BLECHUM, in Botany, Ext. 1805, an old name for
Pulegium, or Penny-royal, applied gratuitously by Dr. Patrick
Browne to a Jamaica plant, and retained by J. Juff. It
looks, rather than found, too much like Blechum.—Browne
Ait. Hort. Kew. v. 3. 435.—Clafs and order, Dictamnus
Acanthaceae, Brown.

Eff. Ch. Calyx in five deep equal segments. Corolla
funnel-shaped. Capsule imperfectly two-celled, with two
valves, and a contrary partition, at length separating in por-
tions. Seeds several, with awl-shaped props. Br.

These characters exclude Juff. u’s B. anipphyllum, which, with
Ruellia ibrica of Forskall, and several East Indian
as well as tropical African species, compone Mr. Brown’s
new genus of Artelaria, as yet, we believe, merely indi-
cated in his Prodr. Nov. Holl. v. 1. 478. The following
are the only species of Blechum there mentioned.

Ait. n. 1. (Ruellia Blechum; Linn. Sp. Pl. 884. Willid.
173. t. 109. f. 1.)—Leaves ovate-elliptical, slightly toothed.
Spikes quadrangular. Bracteas ovate, downy.—Native of the
West Indies. Perennial. Herbaceous, decumbent, branched,
two or three feet high, with opposite leaves, and white
flowers of no great beauty.

2. B. erinum. Upright Blechum. (Ruellia blechiodes;
Leaves oblong, somewhat toothed, smooth. Spikes ovate.
Bracteas nearly smooth.—Found in shady woods, in the
western part of Jamaica. Stem erect, rather thickest.
Flowers blue. Willdenow misquotes the remarks of
Swartz, which indeed are not very clearly expressed.

3. B. angul dofom. Narrow-leaved Blechum. (Ruellia
363.)—Leaves linear-lanceolate. Spikes oblong. Bracteas
ovate, hairy.—Native of the Caribbe islands. Herbaceous,
a foot high, with fowd leaves. Leaves smooth on both
sides. Flowers small, blue.

BLELIA, so named by the authors of the Flora Per-
viana, after Louis Blet, a Spanish apothecary, whose botan-
icai merits ought to be very great, to entitle him to so fine,
if really distinct, a genus.—“Ruiz et Pavon Prodr. 119.”
Cochinch. 529.)—Clafs and order, Gynandria Monandria.
Nat. Ord. Orchidace.

Eff. Ch. Calyx in five deep segments. Petals five, with
an internal appendage. Style none. Capsule superior, of
tree cells and three valves. Seeds fowd in many, each subtended
by a large fowdy tunica.

1. B. sapidu. Akee-tree. Ait. n. 1. König as above,
571. t. 16. 17. (Akee; Broughton Hort. Ealf. 1792. 10.
“Akeelia africana; Tuffant Antill. 66. t. 3.”)—Native of
Africa, between the tropics, from whence it was transported
to the West Indies in 1778. The fowdy tunica, or support,
of the seed is said to be a delicate article of cookery, ref-
ceming the white fowd of a chicken or frog, like which it
serves to make fowdras for West Indian epicsure.
tree is large, of handsome growth, with abruptly pinnate, ample, smooth, entire leaves, and copious, small, white flowers, in compound, axillary panicles. Some flowers have imperfect flumes, others an abortive germen. Notary a glandular notched ring, surrounding the base of the germen or its rudiment. Capitate elliptic-oblung, three-lobed, fleshy, variegated with red and yellow, about the fize of a goose egg. Sced globular, as big as cherries, dark brown, pohilized, each half funk in a white, turbinate, lobed and corrugated tunic, of the substance of firm fuet, larger than the seed, and attached laterally to the central partition of each vacule.

BLIGHT, l. 25, add—See ANNHS.

BLISTERS, Fluid of, in CHemistry. See FLUIDS, Animal.

BLOCKLEY. Add—It contains 1618 inhabitants.

BLOOD, Chemical Properties of. The chemical properties of the blood have been lately investigated with considerable success by Drs. Marcet and Bolstock, Brande, Berzelius, and others; with a summary view of whole experiments we shall here present our readers.

Of the serum.—The specific gravity of the serum of blood has been stated to lie between 1.028 and 1.029.5. The opinion of De Haen that it contains gelatine, was first shewn to be erroneous by Dr. Bolstock in this country, and about the same time by Berzelius in Sweden. The principles formerly termed gelatine has been variously represented and named by different chemists. Thus Dr. Bolstock endeavoured to prove that it was a species of mucus, Mr. Brande that it was merely an alkaline solution of albumen; Dr. Marcet terms it mucos-extractive matter, Dr. Pearson an animal oxyd, the French chemists ozmazome, &c.; but it is to Berzelius that we owe the knowledge of its real nature. We infer, nearly in his own words, the following account of his analysis of the serum of the blood, as an excellent model for the analysis of all albuminous fluids.

One thousand parts of serum were evaporated to dryness till it could be easily reduced to powder. In this state the residuum weighed 95 parts, and confited of a yellowish fermen-transparent mafs, resembling amber. "Of this mafs," says he, "I digested ro grammes in cold water. The albuminous portion became softened and gelatinous. I separated by the filter the liquid from the insoluble part, and washed the latter repeatedly in boiling water. The undissolved albumen dried on the filter weighed 6.47 grammes, and did not give up its earthly phosphat by subseqent digestion in muriatic acid.

"The solution which passed the filter was evaporated to dryness, during which thick membranes formed at the surface of the solution, and the solution gelatinized before it was perfectly dry. I digested this residue in alcohol whilst it was still gelatinous; the spirit assumed a yellow colour, and on evaporation left an alkaline deliquescent mafs, weighing .92 grammes. This confited of foda holding albumen in solution, of muriate of foda and muriate of potash, of lactate of foda, and of an animal matter which always accompanies the lactate. This animal matter has a brownish-yellow colour, is easily soluble both in water and alcohol, and is precipitated by tannin and submuriate of lead. It is constantly formed, as has been stated, in conjunction with the lactic acid only; and its presence may be taken as a pure indication of the presence of that acid.

"The portion not dissolved by alcohol, when digested with water, left a fresh residue of albumen, weighing 1.95 grammes. The watery solution could not be made to gelatinate, and did not contain the smallest quantity of gelatine. Besides the alkalii, it contained an animal matter, easily precipitated by tannin and by oxymuriate of mercury, and which appeared to me to be extracted from the albumen by the boiling of the water, and to be analogous to the substance obtained by boiling fibrin in water." See FINNT.

Berzelius found only a slight trace of the phosphoric acid, and none of the sulphuric in the serum of ox blood; 1000 parts of which, according to him, consist of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>905.0</td>
</tr>
<tr>
<td>Albumen</td>
<td>80.0</td>
</tr>
<tr>
<td>Substances soluble in alcohol,</td>
<td>6.175</td>
</tr>
<tr>
<td>viz. lactate of foda, and ex-</td>
<td></td>
</tr>
<tr>
<td>tractive matter</td>
<td>8.74</td>
</tr>
<tr>
<td>Muriate of foda and potash</td>
<td>2.565</td>
</tr>
<tr>
<td>Soda and animal matter only soluble in</td>
<td>1.52</td>
</tr>
<tr>
<td>water</td>
<td></td>
</tr>
<tr>
<td>Lofs</td>
<td>4.75</td>
</tr>
</tbody>
</table>

According to Berzelius,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>905.0</td>
</tr>
<tr>
<td>Albumen</td>
<td>80.0</td>
</tr>
<tr>
<td>Substances soluble in alcohol,</td>
<td>6.0</td>
</tr>
<tr>
<td>viz. muriate of potash and foda</td>
<td></td>
</tr>
<tr>
<td>Lactate of foda and animal matter</td>
<td>4.1</td>
</tr>
<tr>
<td>Substances soluble in water,</td>
<td>1.55</td>
</tr>
<tr>
<td>viz. foda, phophate of foda, and a little animal matter</td>
<td></td>
</tr>
<tr>
<td>Lofs</td>
<td>0.59</td>
</tr>
</tbody>
</table>

According to Marcet,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>900.0</td>
</tr>
<tr>
<td>Albumen</td>
<td>86.8</td>
</tr>
<tr>
<td>Muriate of potash and foda</td>
<td>6.6</td>
</tr>
<tr>
<td>Muco-extractive matter</td>
<td>4.0</td>
</tr>
<tr>
<td>Subcarbonate of foda</td>
<td>1.65</td>
</tr>
<tr>
<td>Sulphate of potash</td>
<td>3.35</td>
</tr>
<tr>
<td>Earthy phosphates</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Berzelius remarks on Dr. Marcet’s analysis, “A more perfect agreement cannot be expected in the analysis of substances liable to incidental differences, particularly in the quantity of water, which in the blood depends so much on the proportion of liquid taken into the stomach. It is clear that Dr. Marcet’s extractive matter is impure lactate of foda; and I must also observe, that the sulphate of potash and earthy phosphates found by him in the ashes of the serum are probably, for the reasons above-mentioned, formed by the processes of combustion.” See ALBUMEN.

Of the colouring matter or red particles of the blood.—An opinion long prevalent among chemists, that blood owed its red colour to iron. Badia appears to have been the first who pointed out the existence of this metal in blood; but its presence was more satisfactorily demonstrated by Menghini, whose experiments were repeated and verified by subsequent
frequent chemists. Parmentier and Deyeux supposed, that the 
red colour depended upon the union of iron with the oxygen 
contained in the blood; Fourcroy and Vauquelin, who 
succeeded, denied this, and asserted that it depended upon the 
subphosphate of that metal. Dr. Wells, however, so long ago
as the year 1797, called this opinion in question, and asserted 
that the most delicate tests of iron did not indicate the pre-
ence of that metal in the blood; that other red substan-
ces do not all contain iron; and that, on the other hand, other 
substances that do contain iron are not red. Hence he sup-
poused, that the red part of the blood was an organized 
animal substance. This opinion has been lately revived by 
an eminent modern chemist, Mr. Brande; who affirms, con-
tary to almost every other chemist, that the colouring 
matter of the blood yields no more iron when burnt than 
any other constituent of the blood, and that consequently 
it cannot owe its colour to that principle. Berzelius, how-
ever, though he denies the opinion of Fourcroy and Vauque-
lin, that the red colour depends upon a salt of iron, agrees 
with most preceding chemists, that its affixes contain much 
more of this metal than those of either of its other constituents, 
that is to say, that they contain 50 per cent. of oxyd of iron, 
while the affixes of albumen and fibrin do not yield a trace 
of that metal. Hence he concludes, that iron, somehow or other, 
and in a manner unknown to us at present, probably conduces 
to the colour of the blood. The opinion of Berzelius, and most modern chemists, respecting this prin-
ciple is, that it closely resembles albumen and fibrin in its 
properties. According to Berzelius, the mineral acids act 
upon it nearly in the same manner as upon albumen. It is 
fusible also in dilute acetic acid, and precipitated by the 
prunilacid of potash, like that principle; and hence 
Berzelius is inclined to consider it as a modification of 
albumen. Vauquelin has lately given a method by which 
he thinks the colouring principle may be separated from 
the other principles of the blood, which is a very diffi-
cult task; we do not think, however, that he has been suc-
cessful.

Mr. Brande tried to form a lake, by precipitating its acid 
solution by means of different earthy and metallic salts. 
Neither alumina nor oxyd of tin answered the purpose well. 
Corrosive sublimate or nitrate of mercury succeeded best. 
These gradually precipitated the colouring matter, and 
formed with it powders of a good red colour, not altered by 
exposure to the air. Mr. B. likewise made some attempts 
to employ it as a principle in dyeing, but they were not 
attended with much success.

Some interesting observations have lately been made on 
the size of the colouring particles of the blood by Dr. Young. 
According to this gentleman, they bear no proportion to the 
size of the animal. Thus,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>The particles of bullcock's blood from beef measured</td>
<td>1/20 of inch</td>
</tr>
<tr>
<td>Ditto a mouse</td>
<td></td>
</tr>
<tr>
<td>Do. of human blood</td>
<td>1/60 to 1/40</td>
</tr>
<tr>
<td>Do. of blood recently diluted from fowke</td>
<td>1/40 to 1/20</td>
</tr>
<tr>
<td>Do. of the skate, about</td>
<td>1/30</td>
</tr>
</tbody>
</table>

Of the Fibrin.—The experiments of Berzelius shew that 
this substance closely resembles albumen in its chemical 
properties. We do not think it necessary therefore to add any 
things to the subject here, but refer our readers to the article 
albumen. The physical properties of fibrin have been 
already described under blood in the Cyclopaedia. Ac-
Vol. XXXIX.

According to the experiments of Gay Lussac and Thezard, 
fibrin is composed of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>7.021</td>
</tr>
<tr>
<td>Carbon</td>
<td>53.360</td>
</tr>
<tr>
<td>Oxygen</td>
<td>19.683</td>
</tr>
<tr>
<td>Azote</td>
<td>19.234</td>
</tr>
</tbody>
</table>

100

The buffy coat of blood is fibrin.

Of the Seraffy.—This term has been generally applied to 
the fats and animal matters existing in the serum of the blood, 
with the albuminous principle. See the description of sera-
fen in the present article.

With respect to the blood as a whole, little has been added 
to our knowledge. M. Vogel has attempted to shew, that 
when placed in the vacuum of an air-pump, it gives out a 
considerable quantity of carbonic acid: and Dr. Gordon has 
asserted, that during its spontaneous coagulation heat is 
emitted; but this has been denied by other observers, and 
especially by Dr. J. Davy.

The blood of other animals, and the blood of perfons 
labouring under different diseases, have been but little exa-
named; indeed this extensive and important field of chemical 
investigation is almost entirely unexplored.

BLOOM, in Geography, a township of Pennsylvania, in 
Northumberland county, having 1285 inhabitants.—Alfo, a 
township of the county of Fairfield, in the district of Ohio, 
having 839 inhabitants.

BLOOMFIELD. Add—Alfo, a township of Penn-
ylvania, in Crawford county, having 114 inhabitants.

BLOUNT, l. l. infant.—Exit Tennessee. Add—contain-
ing 839 inhabitants, of whom 805 are slaves.—Alfo, a 
county of the same state, having 3259 inhabitants, including 
266 slaves.

BLOW-PIPE. We think it proper to notice here the 
important modification of this useful instrument, lately con-
tained by Mr. Brooke, and which, by the intensity of the 
heat it excites, has produced such interesting results in the 
hands of different experimenters, and more especially of 
Dr. Clarke of Cambridge.

Mr. Brooke's blow-pipe consists merely of a strong copper 
or iron air-tight box, to which are adapted a condensing 
syringe and jet-pipe, furnished with a stop-cock. When 
used, the box is to be filled with condensed air by means of 
the syringe; the stop-cock is then to be turned, and the 
condensed air permitted to escape through the jet. From 
the smallness of the aperture of the jet, a constant and 
uniform blast is thus kept up for a considerable time, and by 
the occasional use of the syringe, may be continued for any 
length of time whatever, simply by means of the elasticity 
of the air itself.

A great advantage attending the use of this blow-pipe is, 
that the box can be readily filled with any gas, or mixture 
of gases, we choose. Accordingly advantage was soon taken 
of this property, and a mixture of oxygen and hydrogen 
gases, when inflamed as they issued from the jet, was found 
to yield a more intense heat than any other. From the 
liability, however, of this mixture to explode, great caution 
was required in using it, and this led to the necessity of 
some contrivance for obviating this dangerous circumstance. 
Various means were soon suggested, most of which were 
found on the principle recently discovered by Sir H. Davy, 
that the inflammation of gases will not pass through minute 
apertures (see Wire-gauze): and, at length, we believe 
the
the instrument has been rendered quite safe; and, in this state, may be obtained of any of the philosophical instrument makers.

The public attention was particularly excited towards this instrument by the experiments of Dr. Clarke, who supposed that by its means, and the employment of the gaseous compound above-mentioned, he had succeeded in reducing some of the most refractory metallic oxides and ores. The accuracy of many of Dr. C's results has indeed been since called in question; but they nevertheless demonstrate the extraordinary powers and valuable properties of this modification of the blow-pipe.

BLUEHILL, l. 4, r. 658.

BLUE-WATER River, a river of America, which rises among the southern branches of Dock river, and empties into the Tennessee.

BLUFF, a term used in N.W. America to denote a particular tract of land. The alluvion of the rivers W. of the Alleghanies is considerably lower than the surrounding country, and is of a breadth corresponding to the magnitude of the rivers; that of the Missouri is from 2 to 6 or 8 miles in breadth, and is for the most part from 150 to 300 feet below the general level of the country. The alluvion from this valley into the country is precipitous, and is called "the bluff," and may consist of rock or clay. Between these bluffs, the river runs in a very crooked channel, and is perpetually changing its bed, and the permanent beds are called the bluffs.

BOA, col. 3, l. 27, for Constrictor r. Serpents.

BOARD of Agriculture. See Society.

BOARDMAN, in Geography, a township of Ohio, in the county of Trumbull, containing 343 inhabitants.

BOCCA, a term used both in the Levant and on the N. coast of South America, on the Spanish Main, for a mouth or cleft into any port or harbour; or the entrance into a found which has a passage out by a contrary way.

BOCKFIELD, a town of the district of Maine, in the county of Oxford, containing 1251 inhabitants.

BODMIN, l. ut. r. In 1811, the parish and borough contained 315 houses, and 2353 persons; 158 in the parish and 1008 in the borough being males, and in the former 175 and in the latter 1042 females.


Eff. Ch. Receptacle naked. Seed-down of simple hairs. Calyx double; the inner of eight leaves; outer of many.

1. B. chrysanthenoides. Dwarf Barbarea. Willd. n. 1. Purpur n. 1. (Tagetes papposa; Michaux Boreal.-Amer. v. 2. 132. Vent. Hort. Coll. t. 36. Dylödia glandulosa; Cav. Lecction. 202.)—Native of the overflowed banks of the Missouri and Misflippri, annual, flowering in August and September. Purpur. A branched herb, twelve or eighteen inches high, with the habit of an Anthemis, beakspinkled with glandular pellucid dots, full of a fetid bitter liquid. Flowers of a golden yellow, with eight small rays. Leaves pinnate, toothed, narrow. Cavalmays says this plant grows in every part of America, but especially in the kingdom of Santa Fé, where it is commonly called Ruda, on account of its offensive smell. Venten finds of it as a verminific, and as affording a tolerably durable yellow dye.

BOERO, delo.

BOEFS, Rivière aux, or Ox River, in Geography, is the last and largest branch of Ouachitta. It rises in the angle formed between the Milford and Arkansas, and pursues a course to the S.W. for some distance, then turning southward for 70 or 80 miles, enters the State of Louisiana, and afterwards, at a shorter distance, crosses the N.E. line of Biltrop's grant, pursues a S.W. course, and then resumes its direction to the southward, and after running about 60 miles enters Ouachita, above the west point of the island of Sicily. The Beauf, from its source in the Arkansas lake to the boundary of the State of Louisiana, is about 120 miles, and from thence to its mouth nearly the same distance, producing a length of 240 miles, independently of its windings. It is navigable as far as Prairie Mer Rouge. A strong brake of cane skirts the Beauf nearly along its whole course, through the State of Louisiana. Much land near its banks might be cultivated, but is mostly subject to casual inundation.

BOGAERT, l. 3, r. the Netherlands.

BOILING, col. 4, l. 10, after proceeds, add—Under the ordinary pressure of the atmosphere, with due allowance for its variable density, water does not boil till it is heated to 212° Fahrenheit. However Sir George Shuckburgh found, that when the barometer was at 26 inches, water boiled at less than 205°; but when it was at 31 inches it required before it would boil a heat of nearly 214°. Under the common pressure of the atmosphere, ether boils at 98°; alcohol at 176°; water at 212°; nitric acid at 248°; sulphuric acid at 546°; phosphorus at 554°; and mercury and linseed-oil at 600°. From the experiments of Dr. Black upon several liquids in vacuo, it appears that, in general, they all boiled with about 140 degrees of heat less than when furthering the weight of the atmosphere. Vitriolic ether, if the pressure of the atmosphere be removed, will boil when 52 degrees below the cold sufficient for freezing water.

BOISSÈAUX, a meaure for corn, according to the old fyltem in France, which varies much in different parts of the country.

BOLAX, in Botany, a name of Commerson's adopted by Jussieu, Balsa means a clad, or lump of earth, which this dwarf umbelliferous genus does not ill resemble.—Juss. Gen. 326. Spec. Prod. Umbell. 35. Spec. Umb. 9. (See Chefa.-) The species, though not numerous, are far from being, as yet, accurately determined, either with respect to their permanent differences, or their synonyms.

BOLINGBROKE, l. ut. for 72 r. 745; and for 283 r. 361.


BOLING-GREEN, in Geography, a town of Kentucky, in Warren county, containing 154 inhabitants, of whom 31 are slaves.

BOLL, a corn measure in Scotland, containing 4 firlets, each firlet being = 4 pecks; and 16 bolts = 1 chaldron.

BOLOGNO, a copper coin at Bologna and its neighbourhood.

BOLSÖVER, l. ut. for 435 r. 244; and for 1091 r. 1043.

BOLTON, in America, l. 3, r. 249; l. 6, add—containing 700 inhabitants; l. 8, for 861 r. 1057.

Bolton-u-Moor, l. 30, add—In 1811, the township of Great Bolton contained 3120 houses, and 176750 persons; 7586 being males, and 9082 females. Little Bolton township had 1286 houses, and 7079 inhabitants; 3366 being males, and 3713 females.

BONAVENTURA, l. 2, r. Popayan.

BONDS, India, bonds issued by the East India company of 560l. and 1000l. each, bearing interest of 5 per cent. for
BOR

per annum, which interest is paid at the India-house in London.

BOND, Pay-Obit, a bond payable after the death of the person whose name is therein specified.

BONES, Analysis of, in Chemistry. The analysis of bones was omitted under Bone, but will be found under Teeth, contrasted with the analysis of the teeth.

VOL. V.

BOONE, in Geography, a county of Kentucky, containing 3668 inhabitants, of whom 676 are slaves.

BOONSBOROUGH, 1. 2. r. Madison; and at the close of the manuscript—It contains 68 inhabitants, 15 being slaves.

BOOROOJIRD, a flourishing city of Peria, in the province of Irak, the capital of a wealthy district, subject to the prince, Mahomed Tukkee Mirza, and containing a population of 12,000 souls. The district attached to its government is peopled by the tribe of Lakk, who do not wander far from the spot to which they are partial, but settle in villages, and employ themselves in the improvement of their estates.

BOOTH BAY, 1. 5. r. 1582.

BORACITE. See Mineralogy, Addenda.

BORAX, in Chemistry. See Boron, infra.

BORDI, or Burni, in Commerce, a copper coin in Egypt. 8 borbi being = 6 forli = 3 alpers = a medino, and 40 medini = a piastre current.

Borelli, col. 2. 1. 6. r. 1670.

BORON, or Boracium, in Chemistry, the peculiar elementary bodies of boracic acid. Sir H. Davy, in 1807, first decomposed boracic acid, and obtained this principle by the agency of galvanism. Soon afterwards another method of obtaining it was pointed out by Gay Lussac and Thénard, by means of potash, which was soon verified by Davy and others. One part of pure boracic acid, previously melted and reduced to powder, is to be mixed with two parts of potash, and the mixture put into a copper or iron tube and gradually heated till it is slightly red, and kept in that state for some minutes. At the temperature of 300° the decomposition begins, and the mixture becomes intensely red hot, as may be perceived by making the experiment in a glass tube. When the tube is cold, the matter in it is to be washed out with water, the potash formed is to be neutralized with muriatic acid, and the whole thrown upon a filter. It may be washed and dried at a moderate heat.

BORON thus obtained is a powder of an olive-brown colour, without either taste or smell. In clove vessels, it may be exposed to the most violent heat without being altered, or undergoing any other change than an increase of density. Its specific gravity, before being heated, is less than 1.84, but afterwards greater. It is insoluble in water, alcohol, ether, and oils, whether cold or hot. It does not decompose water even when heated in that fluid. It is a non-conductor of electricity. It undergoes no change when exposed to common air or oxygen at low temperatures; but when heated to about 600° it takes fire, and burns with great splendour; and at the same time absorbs oxygen, and is partly converted into boracic acid. The combustion, however, is soon stopped, from the coating of the boracic acid formed, which prevents the contact of the oxygen. Hence this requires to be frequently removed, by washing, before the whole of the boron can be burnt. The nitric acid also readily converts boron into boracic acid. Boron, heated with molten of the neutral salts, deprives their acids of the oxygen which they contain: thus, when heated in clove vessels with sulphate or sulphite of soda, borate of soda and sulphur are formed. When heated with nitre or oxymuriate of potash, much deflagration ensues, and borate of potash is produced: so also the carbonate of soda is converted into borate of soda and charcoal.

There is considerable difficulty in fixing the proportion of oxygen with which boron combines to form boracic acid, as the results of Gay Lussac, Davy, and others, differ very much. Dr. Thomson, guided partly by these experiments, but chiefly by the analysis of borate of ammonia by Berzelius, fixes the weight of the atom of boron at 6.6, and supposes it combines with two atoms of oxygen to form boracic acid. Upon this supposition, 100 parts of boron will combine with 300 of oxygen.

Boron, when heated in chlorine, takes fire, and burns with a brilliant white flame. A white sub stance coats the vessel in which the experiment is made, and the boron is also covered with a white sub stance, which by washing is converted into boracic acid. It is probable that this white substance is a chloride of boron, but it has not been much examined.

Boron combines with fluorine, (see Fluorine,) and forms with it a powerful acid, which has been named fluoboracic acid. (See Fluoboracic Acid.) It also appears, according to the experiments of Gmelin, to combine with hydrogen. Deccotis has likewise shown that it combines with iron, and Davy with potashium; but, as far as it is known, it combines with no other metal. With respect to the nature of this singular sub stance it may be proper to mention, that some consider the boron described above to be an oxyd of a metallic basis, to which the name of boracium has been given.

BORONIA, in Botany. (See Rutaceae.) Mr. Brown, who could not but be aware of the ill-defined limits of this order, as originally constituted by Jussieu, has, in his General Remarks on the Botany of Terra Australis, 13, proposed to remove the 18th section, under the appellation of Zygo phylles, naming the remainder Diosme, the genus Rut, not being a good type of the order, so limited. This learned Australian botanist informs us that near 70 species have been observed, the greater part of them referable to our Boronia, Correa, Eriogonum, and Zieria, (as also we presume to Cronaca,) and to Phellodium of Ventenar. "Of these genera Boronia is both the most extensive and the most widely diffused, exiling within the tropic, and extending to the south end of Van Diemen's island. Like the others, however, its maximum is in the principal parallel, at both extremities of which it is equally abundant."

BOROUGH, col. 3. 1. 19 from the bottom, after London, r. by a writ bearing date the 12th of December, 1264, in the 49th year of the reign of Henry III.

BOROUGH-BRIDGE, l. 23. r. The borough and township of Borough-bridge contain 131 houses, and 747 inhabitants; 373 being males, and 374 females.

BORRAGINEae, in Botany, the 42d order in Jussieu's system, the 5th of his 8th class; for whose characters, see Gentianae.

This order, equivalent to the Linnaean Asperifolae, (see that article,) is thus characterized.

Calyx in five deep segments, permanent. Corolla softly regular. Stamens generally five. Gynaeceum either simple or four-lobed; style one; stigmas either cloven, or furrowed, or simple. Seeds generally four; sometimes enclosed in a capsular or pulp Wyd-veil; sometimes naked, obliquely attached to the bottom of the style, and for the most part surrounded by the permanent calyx. Calyx without albumen. Stem in the greater number herbaceous; in a few...
few shrubby or arborescent. Leaves alternate, often harth or rough.

Sec. 1. Fruit pulpy. Stem shrubby or arborescent. Patagonula, Cordia, Ebenia, Menais, Varronia, and Tournefortia.

Sec. 2. Fruit of one or two capsules. Hydrophyllum, Phacelia of Julive, Ellia, Dichondra, Mefferichmia, and Centine. Dichondria (see that article) is erroneously placed here.

Sec. 3. Fruit of four naked seeds. Throat of the corolla naked. Plants mostly herbaceous and rough.

Coldenia, Heliotropium, Echium, Lithophragma, Pulmonaria, and Onopordum.

Sec. 4. Fruit of four naked seeds. Throat of the corolla furnished with five scales, hollow like flaps, slightly projecting out of the corolla, at the base of its segments, gaping above. Herbs generally with rough leaves.

Symphylum, Lecopis, Myosotis, Anchusa, Borage, Asperago, and Cynoglossum.

Sec. 5. Genera allied to the Borragineae. Nolana, Sipanthus, and Falkia.

Borreea, is dedicated by professor Acharius, to the honour of Mr. William Borree, F.L.S., one of the most eminent British cryptogamists, whose studies have been particularly directed to the Lichen tribe, and who is also critically versed, as well as Singularly accurate, in every department of British botany — Achar. Lichenogr. 93. t. 9. f. 3–9. Syn. 220. Sm. Prodr. Fl. Græc. Sibth. v. 2. 313. —Cliffs and order, Cryptogamia Algæ. Nat. Ord. Lichenes.

Eff. Ch. Shields italked, coloured, with an elevated, inflexed border, of the substance of the leafy, cartilaginous, elevated, linear frond.

This genus is very natural in habit, comprising the well-known Lichen eilarius of Linnaeus and its allies. Acharius defines fourteen species, among which several are very elegant, such as B. Trulla from Peru, figured in Asch. Meth. t. 4. f. 6. leucomela, (see Engl. Bot. t. 2548,) and ebrapsophalina, t. 1088.

We have ventured in Prodr. Fl. Græc. to remove hither the Evernia prunifera, Ach. Syn. 245, Lichen prunifera of Linnaeus; and feel much inclined to affiocate the whole of that genus with Borreea, there being only two species besides, which are Lichen divorcatus and vulpinus of Linnaeus. We really cannot perceive any distinctive character to keep Evernia separate.

Borrowstonness. Add — The parish contains 352 houles, and 2704 inhabitants; 1102 being males, and 1602 females.

Borya, in Botany, a New Holland genus, thus named by M. Labilliardiere, in honour of the distinguished botanical traveller, M. Bory de St. Vincent. This genus was first made public by its author in 1804. A year or two afterwards, professor Willdenow published a different Borya, in his Sp. Pl. v. 4. 711. The former is adopted, in his Prodrumus, by Mr. Brown, who, nevertheless, has admitted the latter into Ait. Hort. Kew. v. 5. 365. This can only have arisen from the professed plan of the Hort. Kew, being in general to copy Willdenow, and we trust Mr. Brown no more intended to give his function to this error, than to the adoption of Araucaria, to the prejudice of the rightful Dombeya. (See those articles.) However that may be, we feel it incumbent on us to admit the original Borya, against which no valid objection can be raised, having already endeavoured to find a suitable name (see Bigelowia) for the other. — Labill. Nov. Holl. v. 1. 81. Brown Prodr. Nov. Holl. v. 1. 286. — Cliffs and order, Hesandria Monogynia. Nat. Ord. Asphodelae, Brown.


Mr. Brown conceives the present genus to be not very nearly related to any, except perhaps Xanthorrhoea, (see that article,) and his own Johnfonia. In habit it approaches some of the Junceae, but differs in the black crustaceous integument of the seed, and in the soft, fleshy, somewhat oily, albumen.

It confines of perennial herbs, of a harsh dry texture. Roots composed of long, tough, somewhat shining fibres. Stems either simple, or divided and creeping, clothed with very crowded, acerofo, pointed leaves; dilated and half-fleshy at their base. Flower-flats solitary, terminal, simple. Head nearly globular, encompassed with a few short leafy bracts. Scales of the calyx smooth, membranous, the outer one fleshy the inner, which is narrower, and embraces the tube of the corolla.

1. B. niitda. Shining Borya. Labill. Nov. Holl. v. 1. 81. t. 107. Br. n. 1. — Stem much branched, taking root below, with simple polilished fibres. Flower-flats shorter than the ascending branches. Head ovate. — Gathered by both the distingual botanists above cited, on the south coasts of New Holland, and the adjacent islands, in sandy ground. The plant is about a span high, and, except the want of downy radicles, seems calculated to confine the blowing sands of its dreary country, like our Carex arenaria, Elymus arenarius, &c.


Bos, in Zoology, l. 13. after ferus, infant — See Ursus.

Boscawen, l. 4. r. 1829.


Gen. Ch. Cal. Perianth inferior, of one leaf, coriaceous, bell-shaped, two-lipped; upper lip largest, in two rounded, obtuse segments; lower in three deep, lanceolate, equal segments. Cor. papilionaceous. Standard heart-shaped, ascending, as long as the upper lip of the calyx, with a linear, convex claw. Wings half the length of the standard, obovate, each with a tooth at one side. Keel the length of the wings, of two hatchet-shaped, concave, converging petals, each with a lateral tooth, and a prominence on the disk, near the haft. Stem. Filaments ten, united about half way into one fet, separate only along the upper edge; anthers uniform, simple, roundisht. Pfâl. German italked, linear, compefled; style recurved; stigma simple. Peric. Legume italked, oblong, compefled, nearly flat; its valves rigid, thickened at each margin; sometimes internally pungent, and of many cells. Seeds several, oval, compefled, italked, each with a tunid appendage.

Eff.
Eff. Ch. Calyx two-lipped; upper lip largest, crenate, obtuse. Stamens all connected. Legume flaked, compressed, thickened at each edge, with many seeds.

1. B. foledendens. Yellow Flat Bofbia, or Plank-plant. Sm. as above n. 2. Sims in Curt. Mag. t. 1235. (B. Slow-
dendens; Br. in Ait. n. 1. Phatlobium foledendens; Andr. Repof. t. 191. P. foledendens; Vent. Malmai.
t. 55.)—Branches comprefTed, winged, toothed, leaflets; flowering at the teeth. Stem erect. Keel naked. Upper bracteas permanent, imbricated, equal to the footstalks. Calyx very smooth.—Native of New South Wales, from whence it was introduced, in 1792, by Lee and Kennedy. A green-house shrub, flowering early in summer. The winged branchea, in a manner profligate, and bearing handsome, red and yellow, flaked, solitary flowers, from their numerous alternate teeth, give this shrub a very singular aspect. The feeding plants only bear simple, alternate, flaked, ovate, entire leaves. The leaves of this species, (and perhaps the following,) is said by Dr. Sims to want that internal sponginess, which, in those first described by botanists, seemed to yield a good generic character. The texture of the leaf, its thick edges, and the want of a dorsal membranous wing, are still sufficiently to keep the genus distinct from Platylobium. (See that article.) With respect to the specific name, we insist beg leave, like Ventenat and Sims, to consider it as an adjective, comparing this singular plant's branches to the inflorescence of a Scolopendria, or Centipede. It has no connection with the vegetable genus Scolopendria, and still less it has ever been so called.


t. 266, (not 276,) according to Mr. Brown.)—Branches leafy, compressed. Leaves elliptical, obovate, or linear, flat. Legume of many cells, with fpongy partitions.—Native of New South Wales. Imported by Lee and Kennedy in 1792. A branchy bushy shrub, flowering most part of the summer. The branches, though nearly flat, are not dilated like the foregoing, nor are they either toothed, or dentated. The leaves are variable in figure, but on full-grown plants usually linear, alternate, on short flaxls. Flowers axillary, solitary, flaked, large, yellow with a crimson keel, very ornamental.

t. 4.—"Branches leafy, compressed. Leaves linear; recurved at the margin. Legume of one cell."—Observed by Mr. Brown, on the south-west coast of New Holland. Sent by Mr. Good to Kew, in 1803, where it is said to flower from July to September.

t. 5. (B. ovata; Sm. n. 3, excluding the synonyms.)—Branches short, leafy. Stem procumbent. Leaves oval, smooth. Stipules shorter than the footstalks. Legume of a single cell.—Sent from Port Jackson, by Dr. White, in 1793. Mr. Good is mentioned as having sent it to Kew in 1803. The leaves are a span long. Leaves nearly uniform, a quarter of an inch long, their edges thickened, wavy, and somewhat crenate. We had mistaken this for the Platylo-

Bium ovatum of Andrews, t. 266, but Mr. Brown has con-

vinced us of our error.

t. 6.—"Branches round, leafy. Stem cleft, much branched. Leaves ovato-lanceolate; rough above; downy beneath; recurved at the margin."—Found by Mr. Brown in Van Diemen's island, and sent in 1805 to Kew, where it flowers from May to July.

7. B. microphylla. Little-heart-leaved Bofbia. Sm. n. 5. Br. in Ait. n. 7. (Platylobium microphyllum; Sims in Curt. Mag. t. 1863.)—Branches round, leafy, spiny-pointed. Leaves ineradicable-shaped, or wedge-shaped.—Native of New South Wales, from whence Dr. White sent specimens in 1793. Mr. Caley sent seeds to Sir Joseph Banks in 1803. This species is said to have flowered at the present day of Marlborough's, at White Knights, in 1805. The flowers, though smaller than in some other species, are so numerous, and so prettily variegated with yellow, purple, and red, as to render this a very ornamental plant. The leaves are shorter than the flowers, veiny, smooth and entire, very abundant. The tips of the branches finally become spiny.

Mr. Brown is probably furnished with more species of this handsome genus, which have not yet made their appearance in the gardens.

BOSSINEY. Add.—The parish of Tintagel, in which this borough is situated, contained, in 1811, 141 houses, and 730 persons; 339 being males, and 391 females.

BOSTANA. See BESTIAN.

BOSTON. At the close, r. the parish of Boston, in 1811, contained 1712 houses, and 8180 persons; 3805 being males, and 4375 females.

BOSTON, in Massachusetts, l. 17, after augmented, in-\ny.—By the census of 1810, Boston, Chelsea, and the islands within and without the jurisdiction of Boston, included a population of 34,381 souls. The former islands are, Noodle's, Hog, Apple, Deer, Long, Spectacle, Governor's including Fort Warren, and Fort Independence: the latter arc, Greene, Thompson's, Rainford's, George's, Great Brewster, Outer Brewster, Lighthouse, and Califinland. Boston itself is flated as containing 33,250 inhabitants.

BOSTON, a town of the district of Ohio, in the county of Champaign, having 616 inhabitants.

BOSTON, New, l. 12, for 1822 r. 1619.


1. B. glabra. Smooth Boswelia. Roxb. as above, t. 207. (Canarium odoriferum; Rumph. Amboin. v. 2, 156. t. 56. Gugulapootschittoo of the Telingas.)—Leaves smooth, with shallow incisions.—Native of the highest mountains on the coast of Coromandel, flowering in the cool season, and casting its leaves in October. This is one of the largest trees of that country; its wood hard, heavy, and durable. The wounded bark yields a sort of pitch. Leaves crowded at the ends of the branches, a span long, pinuate with an odd one: leaflets all uniform, opposite, ovate-oblong, an inch and a quarter in length. Flowers white, in aggre-
gate, terminal, interrupted, spreading clusters, shorter than the leaves, and coming before them. Nectary red. Antehrs oblong, yellow. Capsule oval, about half an inch long.

2. B. lineata. Hairy Boswelia. (Canarium odoriferum
ferum hispidum;—Rumph. Ambol. v. 2. 157. t. 51, according to Dr. Roxburgh; but the leaflets are represented entire.—Leaflets downy, deeply serrated.—On the Ballagaut mountains. The flowers of this are inserted on the exterior margin of the flavescent. Roxburgh.

BOTETOURT. Add—By the census of 1810, it contained 13,301 inhabitants, of which 2275 are slaves.


5. B. obliquum. Oblique-leaved Moonwort. Willd. n. 5. Muhlenb. Cat. 98.—Fond near the twice ternate; leaflets obovate, finely serrated, unequally heart-shaped at the base. Fruitstalk towards the base of the fruitstalk. In open woods of Pennsylvania and Virginia, in June and July. Refrains the preceding very much, and is probably only a variety. Pursh. This author describes the *jiske* as doubly pinnate; those of the last only pinnate.

6. B. aureum. Southern Moonwort. Brown n. 5. Frond ternate; doubly pinnate; leaflets confluent, cut. Fruitstalk from the base of the fruitstalk.—Sent by Dr. White, from Port Jackson, New South Wales; where, as well as in Van Diemen's Island, it was gathered by Mr. Brown. Leaflets bluntly toothed. Fruitstalk pale, a pan high, being thrice as tall as the leaf, into whole dark-coloured fruitstalk it is inserted, a little above the root. The *jiske* is twice or thrice compound, spreading; the flanks pale. Capsules dark brown.

7. B. ternatum. Ternate Moonwort. Sw. n. 6. Willd. n. 6. (Osmunda ternata; Thunb. Jap. 329. t. 32.)—Fronds in pairs, triply pinnate; leaflets notched and serrated. Fruitstalk from the middle of the common fruitstalk. Spike pinnate.—Gathered by Thunberg once only, near Nagafuki in Japan, in November. A foot high, with two large, opposite, spreading, ternate, then twice pinnate, leaves, half the height of the fruitstalk.

8. B. diffeleum. Cut-leaved Moonwort. Willd. n. 7. Muhlenb. Cat. 98. Ait. n. 3. Pursh n. 3. Sprengel, Crypt. ed. 187. "Schkuhr Crypt. 157. t. 156." (Lunaria botrytes ramosa, gerani Botrytes, floribus, floribus; Pluk. Am. 134. t. 427. f. 5.)—Fond ternate, thrice pinnate; leaflets decurrent, linear-wedge-shaped, sharply toothed at the end. Fruitstalk at the base of the leaf.—In pastures of open dry woods, from New York to Florida, in June. Pursh. We have Pennsylvania specimens from the late Dr. Muhlenberg, very much like Pluteus' figure, but we can discover no essential difference between this plant and the following.

9. B. virginianum. Virginian Moonwort. Sw. n. 3. Willd. n. 8. Ait. n. 4. Pursh n. 4. "Schkuhr Crypt. 157. t. 156." (Osmunda virginiana; Linn. Sp. Pl. 1519, excluding Plumier's synonym. Lunaria americana, folios circitariae, medio eleanter divisa; Moris. sect. 11. t. 4. f. 5. L. multifido,folio crassa, &c; Pluk. Mant. 120. t. 427. f. 8.)—Fond somewhat ternate, twice pinnate; leaflets decurrent, obovate-wedge-shaped, sharply toothed. Fruitstalk at the base of the leaf. In shady woods, on a rich vegetable soil, from Canada to Carolina, in June and July;
July. *Purfa.* That author observes, "this is the largest of the species here described. It is known by the name of Rattle-snake Fern, probably from growing near the places where these venomous animals are generally found." Our specimens, one of which was gathered by Clayton, the other by Kalm, are scarcely so large as the last-described, from which they differ chiefly in having rather less compound leaves. The *inflorescence* is somewhat hairy, as in that. Willdenow, negligently as it seems, changed the termination of the specific name to *virginicum*, which could only cause trouble, and we have therefore restored the original.

10. *B. gracilis.* Slender Moonwort. *Purfa* n. 5. Frond ternate, doubly pinnatisect, smooth; segments cut, acute. Spikes slender, pinnate, erect.—In shady fertile woods of Virginig, in June. This species approaches nearly, at first fight, to the preceding, but is much smaller and more slender, besides the other distinctions. *Purfa.* We have from Dr. Muhlenberg what answers to the above account, but should scarcely have thought it distinct. *The inflorescence* indeed is smooth, and finely pinnate, but this corresponds with the smaller size of every part.

11. *B. cicutaria.* Hemlock Moonwort. Sw. n. 4. Wildl. n. 9. (Omnuda cicutaria; Lam. Dict. v. 4. 650. O. afrophedon radice; Plum. Fil. 136. t. 159. Petiv. Fil. n. 168. t. 9. f. 2.)—Frond triply pinnate; leaflets pinnatisect; terminal ones pointed. Fruitstalk from near the base of the footstalk.—Gathered by Plummer in the woods of Hifripaniola. The root consists of oblong tapering leathery knobs. *Frond* much larger than either of the three last, and essentially different in the nearly radical inflorescence of the fruitstalk. The *spike* is twice pinnate. Plummer records, that the Indians give the name of Serpent-herb to this, and to the *Aenemia adiantifolia,* thinking them useful applications for the bite of a serpent. This may account for the application of Rattle-snake Fern given to *n. 9.*

12. *B. zeylanicum.* Great Ceylon Moonwort. Sw. n. 7. Wildl. n. 10. (Omnuda zeylanica; Linn. Sp. Pl. 1519. O. n. 373; Linn. Zeyl. 178. Ophioglossum laciniatum; Rumph. Amboin. v. 6. 153. t. 68. f. 5.)—Frond ternate; leaflets ternate or somewhate pinnate, lanceolate, pointed, finely crenate. Spike cylindrical, dense; spikelets capitate. —Native of Ceylon and Amboyna, on the fides of hills, in the borders of woods and thickets. The *root* is long and creeping, very deep in the ground, with numerous long fibres. *Fronds* a foot and a half or two feet high, naked, except at the very top of the *stalk,* from whence proceed three slightly-flattened *branches,* each of two, three, or more, equal, uniform smooth leaflets, five or six inches long, and one broad, partly decurrent, light green, with many fine transverse veins. From the same point springs a fruitstalk, with a dense cylindrical compound *spike,* rising rather above the leaflets, the *capsules* about three together, capitate, at the end of each short partial branch.

**BOTRYLITE.** See Mineralogy, Addenda.


1. *B. cinerata.* Ash-colored Chulfler-mould. Perf. n. 1. Disp. Meth. 40. t. 3. f. 9, 10.—Ash-colored, branching, in broad dense patches.—On rotten gourds, pumpkins, and cabbage-stalks, resembling a common *Macor,* tall examined with a magnifier. The *globules* are disposed in irregular oblong masses, and discharge powdery *seeds.*

2. *B. ramosa.* Crofs-headed Chulfler-mould. Perf. n. 2. (B. ramosa cinerea, femininis rotundis; Mich. n. 3. f. 2.) B. alba. (B. non ramosa alba, femininis rotundis; Mich. n. 2. f. 3.) —Ash-colored, branching, with four-rayed spines.—Very common in all kinds of corrupting subjaces. *Micheli.* The minute *flame* are more or less branched and forked, each *branch* terminating in a cros, composed of four dense ovate masses of *globules,* on short horizontal flanks.

3. *B. simplex.* Simple Chulfler-mould. Perf. n. 3. (B. coma grisea, capillis cillati, femininis rotundis; Mich. n. 1. f. 1.)—Grey, simple. Spikes radiating.—On half-rotten wood, or wheat-straw, in winter, not unfrequent about Florence. *Micheli.* Each plant consists of a simple, rather firm, *fem* a line or two in height, crowned with from three to six ovate masses of *globules,* on horizontal radiating flanks.


5. *B. diffusa.* Great White Chulfler-mould. Albert and Schwein. Fung. Nifs. 352.—White, with extensive diffuse branches, and terminal clufers, of about four globules each.—Found on once only on half-rotten flanks of potatoes in November, composing dense, white, cottony, fugal masses, two inches or more in diameter. *The globules* discharge abundant of powdery *seeds* like smoke.

**BOTTOMRY,** col. 4. l. 23, for coarse *r. courts.*

**BOVISTA,** in *Botany,* a name of barbarous origin, being formed by Dilleniis from the German Boßfl. It is adopted by *Perfoon* for a genus separated from *Lycoperdon.* (See that article.)—Perf. Disp. Meth. 6. Syn. Fung. 136.—Claws and order, Cryptogamia Fungi. Nat. Ord. Fungi.

Eff. Ch. Cafe smooth, sillage, burting irregularly at the top; its white external coat (or wrapper?) at length separating in fragments. (Powder or feed brownish-purple.)

*Perfoon.*

The author defines four species.

1. *B. nigrescens,* which is Lycoperdon globosum, Bolt. Fung. t. 118. With. v. 4. 382, and L. arrhizon of *Batfch,* t. 29.

2. *B. plumosa,* figured in Sowerby's Fungi, t. 331, as *L. Boivis,* and judged by that author to be but a variety of the former.

3. *B. psilifera,* "Batfch, t. 41. f. 228;" akin to the first, but only three lines in diameter.

4. *B. surlurata,* figured by *Micheli,* Nov. Gen. t. 97. f. 6, who says it is common on heaths, and fold with other fungi of this tribe, in the market, at Florence. *Perfoon* is doubtful of the genus of this laft, and we should suspect it to belong possibly to *Tuber.*

*Boivis* differs from Lycoperdon in not being elongated at the base into a short *stalk,* but firmly they might, without violence to nature, be united, especially as the species of the present genus are so few and so disputable.

**BOURBON,** in Kentucky, l. 2. r. 11,869; l. 5. r. 2307.

**BOURN,** col. 2. l. 21. r. In 1811, the parish of Bourn contained 308 houses, and 1591 persons; 779 being males, and 812 females.

**BOURSIIPPA,** in Geography, a town of Babylonia, according to Strabo; to which Alexander retired, when warned by the Chaldrans not to enter Babylon. This is supposed to be the present village of Bouria, two leagues
to the S.E. of Hilleh, the site, as it is conjectured, of ancient Babylon. On the road from hence to Mesked Ali, or Neijf, is the tomb of the prophet Ezekiel, where they pretend to show the fiery furnace of Shadrach, Methuchel, and Abednego. It is a large clumsy building, without beauty or ornament; and, like the tomb of Ezra, on the banks of the Tigris, a short way above Korna, is much frequented by Jewish pilgrims.


Eff. Ch. Calyx in four deep segments, with intermediate teeth. Corolla tubular. Anthers within the tube. Capsule of two separable cells, with numerous bordered seeds.

1. B. triphylla. Three-leaved Bouvardia. Ait. n. 1. Salish. Parad. t. 88. (Houtonillia cocinea; Andr. Repof. t. 106. Ixora americana; Jacq. Hort. Schloenbr. v. 3. 2. t. 257. 1. ternifolia; Cavan. f. v. 4. 3. t. 305.)—Native of Mexico. Introduced by Sir Joseph Banks in 1794, and now become common in the English gardens, where, if planted against the front of a green-house, it will stand our ordinary winters, flowering from Midsummer till the end of autumn. The stem is from one to two feet high, shrubby, branched, downy when young. Leaves usually three in a whorl, ovato-lanceolate, varying in breadth, entire, rough-edged, nearly felty. Flowers an inch long, bright scarlet, in dense, terminal, forked panicles, very abundant, and extremely showy, though deficate of scent.

BOW, L. u. t., r. The pariah contains 149 houfes, and 727 perfons; 329 being males, and 398 females.

Bow, in America, L. 4. r. 729.

BOWDOIN, L. u., for 983 r. 1649.

BOWDOINHAM, L. u., for 455 r. 1412.

BOWLESIA, in Botany, so named by the authors of the Flora Peruana, in honour of Mr. William Bowles, a native of Ireland, who published at Madrid, in 1775, an Introduction to the Natural History of Spain, making a 410 volume of 529 pages, in the Spanish language. This work has been translated into French and Italian. The author died in Spain in 1768.—Sprengel Prodr. 24. Spec. Umbell. 13.—Cliffs and order, Peucandria Digynia. Nat. Ord. Umbelliferae.

Eff. Ch. Fruit ovate, quadranular, brilily; concave at the back. Umbel simple.

The author enumerates three certain species in his Prodrumus.

1. B. palmata, of Ruiz and Pavon, of which he gives no character or description.

2. B. Iokata, of the same, "Fl. Peruv. v. 3. t. 251, B." Spreng. Sp. Umb. 13.—Somewhat hairy. Leaves lobed, ribbed; abrupt at the base; lobes entire, pointed. Foot-flakes elongated. Flower-flakes axillary, mostly solitary. Tendrils none.—Native of the loftiest mountains of Peru. Herb slender, green, with some scattered flaky pubescence. Leaves opposite, an inch broad, half an inch long, five-ribbed, on slender zigzag foot-flakes about a finger's length. Stipulas membraneous, linear, in pairs. Flower-flakes about two lines long, reflexed after flowering, the stipulas serving as an involucre. Petals five, cream-coloured. Fruit in pairs, solid, ribbed at the back, clothed with flaky hairs.


FLOWER-flakeS axillary, aggregate. Tendrils axillary.—Native of Peru and Brazil. Our speciem was gathered in the last-mentioned country, by Commerson, and is larger than Sprengel’s figure, being a foot long, though incom- plete. This species seems nearly allied to the last. We discover no tendris in our specim.


BOWLING-Green, in Geography. Add—Allo, a town-ship of Ohio, in the county of Licking, having 379 inhabi- tants.

BOXBOROUGH, L. 2, for 412 r. 388.

BOXFORD, L. u., for 925 r. 880.

BOYU STON, L. u., for 839 r. 802.

BOYTON, Welsh, a town of the same county and state, having 672 inhabitants.

BOZAFA. Add—It contains 960 inhabitants.

BRACCI, plur. BRACCI, a measure for cloth in Italy.

BRACHIONUS. Add—See VERMES and WHEEL-Animals.

BRACHYSEMA, in Botany, so named by Mr. Brown, from brachy, short, and 6em6, a standard, alluding to a striking part of the generic character.—Brown in Ait. Hort. Kew. v. 3. 10.—Cliffs and order, Decandria Mon- gynia. Nat. Ord. Papilionaceae, Link. Leguminose, Jaff.

Eff. Ch. Calyx nearly equally five-echt; with a welling tube. Corolla papilionaceous; standard shorter than the compressed keel, which is equal to the wings. Stalk of the gemen minutely feathered. Style thread-shaped, elongated. Legume tumid, with many seeds.

1. B. laitifolium. Broad-leaved Brachysema. Ait. n. 1. Curt. Mag. t. 2008.—Leaves ovate, flat. Standard oblong-obovate.—Sent by Mr. Good, in 1803, from the south-west coast of New Holland, where it was also gathered by Mr. Brown. A hardy green-soue procumbent or pendulous shrub, easily propagated by cuttings, and flowering in the spring. Flowers scarlet, very hand Some, axillary, nearly celtose, solitary, sometimes two or three together, their small acute standard yellow at the base; wings and keel full an inch long.

There appear to be other species, yet not introduced into the gardens.

BRACKEN, in Geography, a county of Kentucky, having 3451 inhabitants, of whom 295 are slaves.

BRADFORD, col. 2. L. 11. r. In 1811, the houfes in the hundred of Bradford were 1766, and the number of perfons was $9455; 4269 being males, and 5166 females. The parih of Great Bradford contained 548 houfes, and 2959 perfons.

BRADFORD, in Yorkshire, L. 12. The parih of Bradford contains 10 townships, and in 1811 the townhip of East and West Bradford contained 1574 houfes, and 7767 perfons: East Bradford having 725 houfes, and 3559 perfons; 1653 being males, and 1866 females; and West Bradford having 849 houfes, and 4208 perfons: 1986 being males, and 2222 being females.

BRADFORD, East and West. Add—the former contained, in 1810, 1003, and the latter 1219 inhabitants.

BRADFORD, L. 4. r. 1369; L. 9. r. 1054; L. 12, r. 1302.

BRADYPUS,
BRADYPU S, L. 16, for floth r. bear; l. 29, after megaratheriu m, add — (which fee).

BRAIN, Chemical Analysis of. For Adipocere. r. Adipocere.
A new and elaborate analysis of the brain has been lately made by Vaquelin; but it must be confessed that his results throw no light whatever, upon the manner in which its constituents are combined, or to what its peculiar appearance is owing. The following are the results: 100 parts contain

Water - - - 80.
White fatty matter - 4:53.
Reddish fatty matter - .70.
Albumen - - - 7.
Olinazome - 1:12.
Phosphorus - 1:50.
Acids, salts, and sulphur 5:15.

BRAINTREE, in Geography. In 1811, the parish of Braintree contained 508 houses, and 2292 persons; 1082 being males, and 1216 females. The parish of Bocking contained 537 houses, and 2544 persons; 1134 being males, and 1410 females.

BRAINTREE, in America, l. 4, r. 850; l. 12, The inhabitants, in 1810, were 1531.

BRAMPTON, l. 20, r. In 1811, the number of houses was stated to be 265, and of inhabitants 2043; 920 being males, and 1123 females: 52 families being employed in agriculture, and 394 in trade and manufactures.

BRANDON, l. 4, r. In 1811, Brandon parish contained 206 houses, and 1360 persons; 646 being males, and 714 females.

BRANDON, in America, l. 2, r. 1375.

BRANDYWINE. Add—containing 1257 inhabitants.

ALLO, a hundred in the district of Delaware, and county of New-Caflle, containing 2257 inhabitants.

BRANFORD. Add—It contains 1932 inhabitants.

BRANTRIM, a township of Luzerne county, in Pennsylvania, containing 904 inhabitants.

BRASAVOLA, in Botany, has received its name from Mr. Brown, in memory of Antonius Mufa Brafevalus, or Brafevalo, an Italian physician and botanist, born at Ferrara in 1500. Haller, who inaccurately spells his name Brafevalus, speaks of him as not unlearned in books or languages, or in the plants of his own country. His works, which have been often republished, relate chiefly to the Materia Medica. Their author visited France in 1528, and died in 1555.—Brown in Ait. Hort. Kew. v. 5. 216.—Cliffs and order, Gymnandra Monandria. Nat. Ord. Orchidae.

Eff. Ch. Calyx and petals distinct, spreading. Lip undivided, with a fimple claw. Anther a terminal lid. Maffes of pollen eight or more.

We do not feel competent to form an opinion of this genus, having no knowledge but of one species. Mr. Brown, who has more in contemplation, considers the mass of pollen being sometimes more than eight a very remarkable character.

ment of resolvent plasters. Abscesses are to be treated on the principles explained in the article Suppuration.

BRECHIN, in Geography. In 1811, the burgh and parish of Brechin contained 769 houses, and 5559 persons; 2744 being males, and 2845 females.

BRECKENRIDGE, a county of Kentucky, containing 3430 inhabitants, of whom 505 are slaves.

BRECKNOCK, l. 1, for Lancaster r. Berks; and add—containing 723 inhabitants.

BRECKNOCK, col. 3, l. 4, after parishes, add—and in 1811 contained 718 houses, and 3196 inhabitants; 1433 being males, and 1763 females: 205 families employed in agriculture, and 375 in trade, manufactures, and handicraft.

BRECKNOSHIRE, L. 17, r. Théte, with the hamlets, were peopled in 1811 by 37,735 persons, and contained 7555 houses; 4667 families being employed in agriculture, and 2239 in trade and manufactures.—L. 35. The other rivers are the Irvon, which falls into the Wye above the town of Builth; the Tawe, which discharges its waters into the Bristol Channel at Swansea; the Taf; the Llynfi, which passes through Langorfe Mere or Llynfawdadd, and runs into the Wye at Gilabury; the Mellitie or Ildit, remarkable for its subterraneous passage in one part of its course; the Hafpate, celebrated for its beautiful cascade; and the Honduy at Brecknock. The principal lake in this county is Llynfawdadd; which see.—L. 41. The iron-works of this county are objects of great importance, in connection with its commerce and prosperity. The first of these is at Llangywey, in the parish of Llangenau, now forming an appendage to the works at Sirhowy in Monmouthshire: the next works are those in the vale of Clydach, in the parish of Llanelly: there is another in the parish of Llangattock; others are situated near the source of the Rumney river, on the borders of Glamorganshire: and those of Hirwaun, in the parish of Pendergast, at the southern extremity of the county.

BRENTA, in Commerce, a liquid measure in some parts of Italy, as at Bergamo.

BRENTFORD. Add—Old Brentford forms a part of Ealing parish, which in 1811 contained 922 houses, and 5361 inhabitants; 2509 being males, and 2852 females. New Brentford is a distinct parish, and contained 297 houses, and 1733 inhabitants; 809 being males, and 924 females.

BRENTWOOD. In 1811, Brentwood contained 218 houses, and 1238 persons; 575 being males, and 663 females.

BRENTWOOD, in America, l. 2, r. 905.

BRETON, CAPE, l. 6, for 34 r. 84.

BREWER. Add—By 43 Geo. III. c. 69. every common brewer of strong beer shall take out a licence, for which he shall pay according to the quantity of beer brewed by him within the year, as specified in the act, ending 5th July every year; but every person who shall first become a brewer of strong beer, for every such licence 12. 10s., and within ten days after the 5th of July, after taking out such licence, such further additional sum as with the said 12. 10s. shall amount to the duty hereinbefore directed to be paid, according to the number of barrels of strong beer brewed within the preceding year. If he neglect to take out such licence, and to renew it annually, ten days at least before the end of the year, he shall forfeit 50l. 24 Geo. III. c. 41. And every common brewer of table beer, not being a common brewer of strong beer, shall take out a licence and pay for the same yearly 12., to be renewed annually. By 42 Geo. III. c. 58. no person not being a common brewer shall be allowed to retail beer at any higher price than 1/4d. the quart without entering into a recognizance and obtaining a licence as an ale-house keeper, under pain of forfeiting for each offence 50l. over and above the penalty imposed upon selling beer without a licence. By 15 C. II. c. 11. notices of brewing beer or ale shall be given, and also of erecting or altering any implement for this purpose, on pain of 50l. By 5 Geo. III. c. 43. the position of any tun, cooler, copper, &c. shall not be altered without notice, under penalty of 20l. The officer of excise shall enter and examine suspeTed places; and if any person opposes him, he incurs a forfeiture of 20l. 7 & 8 W. c. 30. No common brewer shall use any pipes or other private conveyances from any copper in his brew-house, &c. on pain of 200l. 8 & 9 W. c. 19. 42 Geo. III. c. 58. Search shall be made by the officer, and the penalty of opposing him is 50l. No common brewer, inkeeper, victualler, or other retailer of beer or ale, shall keep any private florehouse or cellar for laying any beer or ale, or worts in calf, on pain of 50l. 15 C. II. c. 11. 1 W. r. c. 24. By 42 Geo. III. c. 38. every common brewer who shall lay off any beer, ale, or worts contrary to the 8 & 9 W. III. shall for each such offence forfeit 100l. Persons inhabiting a market-town, city or town corporate, or parts adjoinning to a city or town corporate, in which there is a common brew-house, who shall suffer liquors to be brewed in their houses, otherwise than for their own families or for purposes of charity or hospitality, and who shall lend out brewing vessels, shall forfeit 50l. 22 & 23 C. II. c. 5. Gaugers shall take an account, and obliterating them in the exercise of their office incurs a penalty of 10l. and forfeiture of double value for beer, ale, or other specified liquors that have been sold or delivered out, without payment of duty. If any brewer shall bribe the gauger to make a false return he shall forfeit 100l., and the officer to bribed shall forfeit the same sum; 5 C. II. c. 11. By 42 Geo. III. c. 38. the penalty on mixing liquors to imitate beer, and to be mixed with or used as beer made from malt and hops, or selling such liquors, is 200l. and forfeiture of liquor and utensils; and the penalty on a brewer's receiving idle beer-grounds, and mixing any liquor with beer, except malt and hops, is 100l. Excise officers are authorized to take samples of suspected liquors, search suspected places, and seize forbidden liquors, ingredients, and utensils; and the person in whose custody they are found shall forfeit 100l. No common brewer shall carry out any ale or beer to his customers in any city or market-town, before notice given to an officer of excise, but between three in the morning and nine in the evening from March 25 to September 25; and between five in the morning and seven in the evening from September 29 to March 25, on pain of 20s. a barrel; 15 C. II. c. 11.

And whereas it is expedient that the quantities to be returned as and for a barrel of beer or ale brewed by the common brewer and the allowances for waffe should be in all places the same, it is enacted that after the 5th day of July 1803 every 36 gallons of beer or ale brewed by the common brewers in Great Britain, whether within the weekly bills of mortality or without the same, taken according to the standard of the ale quart four thereof to the gallon in the exchequer, shall be reckoned and returned by the gauger or other officer of excise for a barrel of beer or ale; and the allowances to be made in Great Britain to the common brewer not selling beer, ale, or worts in any less quantity than a whole cask containing 42 gallons, whether within or without the said limits, for waffe by fillings and leakage, or otherwise, out of the returns by the gaugers, or other officers, shall be three barrels upon every 36 barrels, both of strong beer or table beer and ale, and after that rate for any greater or less quantity; 43 Geo. III. c. 69. A common brewer who shall sell beer, ale, or worts in any less quantity than in a whole cask containing 42 gallons, shall forfeit 50l. for every
such office. And if any person, not being a common brewer, shall retail beer at a higher price than after the rate of 14s. the quart, ale-houfe measure, without obtaining a licence as a common ale-houfe keeper, he shall forfeit 50l. over and above any other penalty for selling beer or ale without such licence; 42 Geo. III. c. 38. Entries shall be made by common brewers once a week, under penalty of 10l., and by innkeepers once a month on pain of 5l.; and also ale-houfe keepers, victualers, and other retailers, shall do the fame on penalty of 20l. Beer and ale above 18s. per barrel shall be deemed strong, and at 18s. and under, table beer; 43 Geo. III. c. 81. The 42 Geo. III. c. 38. regulates the price, &c. of table beer, and repeals as to this beer 22 Geo. III. c. 68. The penalty for selling table beer at more than the barrel price, exclusive of duty, is 100l.

BREWERIA, in Botany, so named by Mr. Brown, in memory of Mr. Samuel Brewer, a Wilshire botanist, the companion of Dillenius in a botanical visit to Wales, Anglesea, and the Isle of Man, in 1726, and subsequently one of his most valuable correspondents, especially for the Cryptogamic department. Mr. Brewer spent the latter part of his life at Bradford, under the patronage of Dr. Richardson, and, according to Dr. Pulteney, was living in 1742.—


There are diffusely herbs, not milky; their leaves undivided; flowers axillary, mostly solitary. The genus appears most akin to Paraca, differing in habit, and in the unaltered calyx of the fruit.


2. B. media. Intermediate Breweria. Br. n. 2.—Slightly villous. Leaves lanceolate; obtuse and somewhat heart-shaped at the base. Style divided half way, into two unequal segments.—From the same country. Br.


We know not whether there be any more species in other parts of the globe.

BRESTER, in Geography, a town of Barnstable county, in the Mafhachusetts, containing 1812 inhabitants.

BRIBIESCA, Del.

BRIDELIA, in Botany, a genus separted from Cluytia by Willdenow, and dedicated by him to the honour of the great systematic museologist, Dr. Samuel El. Bridel. —


Eff. Ch. Calyx inferior, in five deep segments. Petals five, inserted into the calyx. Stamens with a tubular, columnar base. Styles two, divided. Berry with two seeds. Some flowers want the stamens, some others the germen.

The fruit distinguishes this genus from Cluytia. (See that article.) Three species only are described, all East Indian.

1. B. montana. Mountain Bridelia. Willd. n. 1. (Cluytia montana ; Roxb. Corom. v. 2. 38. t. 171.)—Stem erecct, without thorns. Leaves obovate-elliptical, entire, smooth.—Native of Coromandel. On the interior mountains it grows to a tree, but on the lower lands is only found of a small size. The Telingas call it Puntinga. Roxb. The wood is reddish, very hard. Stem short and thick. Branches slender, spreading. Leaves numerous, alternate, two-ranked, an inch and a half long, on short hairs. Flowers small, crowded, axillary. Berry purple, globular, succulent, the faze of a pea.

2. B. sandana. Climbing Bridelia. Willd. n. 2. Ait. n. 1. (Cluytia sandana; Roxb. Corom. v. 2. 39. t. 173.)—Stem shrubby, climbing, without thorns. Leaves oblong-obovate, entire, acute; Downy beneath.—Common on the banks of rivers and water-courses, on the coast of Coromandel, flowering in November and December, and called by the Telingas Dongkhoora. Roxb. Stem climbing; its branches leafy, flowering at their pendulous extremities. Leaves three inches long; those which accompany some of the flowers diminished almost to bracteas. Berry oval, of a rufly black; the fize of a horse-bean. This species was sent to Kew in 1824, by colonel Hardwicke, E.L.S., so well known by his various communications, illustrative of the natural history of India.

3. B. spinosa. Thorny Bridelia. Willd. n. 3. (Cluytia spinosa; Roxb. Corom. v. 2. 38. t. 172.)—Stem arborescent, erect, thorny. Leaves ovate, acute, entire, smooth.—A tree of considerable fize found on the mountains along with the first species, and called by the Telingas Cora-mou. The bark is a strong astringent; wood hard and durable, dark-coloured; leaves eaten greedily by cattle, and said to destroy worms in their bowels. Roxb. The leaves are three or four inches long. Flowers in terminal, or axillary, interrupted spikes. Berry black, the fize of a pea.

BRIDGEFORD, l. u. r. The parish of Newcastle, higher and lower, contains 157 houfes, the former having 40, and the latter 117; and 640 inhabitants, the former including 171, and the latter 469. In the higher, the males are 84, and females 87; in the lower, the males are 216, and females 259.

BRIDGENORTH, col. 2, l. 9, add.—In 1811 the borough of Bridgenorth contained 978 houfes, and 4386 persons; 2006 being males, and 2380 females; 81 families employed in agriculture, and 987 in trade and manufactures.

BRIDGEPORT, a townshif of Pennsylvania, in Fayette county, having 280 inhabitants.

BRIDGEGTOWN, a town of the district of Maine, in the county of Kennebec, containing 214 inhabitants.

BRIDGE-TOWN, l. 5, r. 882.

BRIDGEWATER, col. 2, l. 26, add.—In 1811 the borough of Bridgewater contained 857 houfes, and 4911 persons; 2241 being males, and 2670 females; 87 families employed in agriculture, and 570 in trade and manufactures.

BRIDGEWATER, in America, l. 3, r. 1104; l. 4, r. 2906; l. 5, r. 344; l. 6, r. 5157; l. 10, r. 1154. Add,—Also, a townshif of Luzerne county, in Pennsylvania, having 1418 inhabitants.

BRILDINGTON, l. u. r. In 1811 Bridlington contained 849 houfes, and 3741 inhabitants; 1706 being males, and 2035 females.

BRIDPORT, l. 19, r. 1148, add.—In 1811 the town of Bridport contained 512 houfes, and 3567 persons; 1532 being males, and 2035 females; 20 families employed in agriculture, and 600 in trade and manufactures.

BRIDPORT, in America, l. 3, r. 1520.

BRIGHthemSTON, l. u. r. In 1811 Brighton contained 2077 houfes, and 12,012 persons; 5069 being males, and 6043 females.
BRIGHTON, a town of Massachusetts, in Middlesex county, having 608 inhabitants.

BRIMFIELD, l. 3, r. 1325.

BRISTOL. Add.—In 1811, this city, with Barton Regis hundred, contained 11,940 houses, and 76,433 persons; 32,842 being males, and 43,591 females.

BRISTOL, in America, l. 2, r. 2753; l. 5, r. 37,168; l. 13, r. 5072; l. 23, r. 2693; l. 29, add.—It contains 1458 inhabitants; l. 33, after hovres, add.—The number of inhabitants, by the census of 1810, was 628; l. 36, after county—having 967 inhabitants; l. 39, r. 1179, add.—Alto, a township of Pennsylvania, in Berks county, having 1608 inhabitants.

—Alto, a township of Ohio, in the county of Trumbull, having 202 inhabitants.

BRITAIN, Little, a township of Pennsylvania, in Lancaster county, containing 1708 inhabitants.

BRITAIN, London, a township of Luzerne county, having 403 inhabitants.

BROAD CREEK, a hundred of Delaware, in the county of Suffolk, having 3789 inhabitants.

BROCKLESBY, l. 10, after Ballytore, add.—(which fee,) and dele the remaining part of the sentence.

BRODIEA, in Botany, is named by the writer of the present article, after James Brodie, clg. F.L.S., of Brodie in North Britain, an experienced and liberal British botanist, whose name often occurs in the English Botany, and to whom a genus of the patrician order is with great propriety inferiur.—Sm. Tr. of Linn. Soc. v. 10. i. Pursh 223.


Gen. Ch. Cal. none, unless the bracteae be so called. Cor. of one petal, belf-shaped, cut half way down into fix nearly equal, oblong, rather spreading segments; throat crowned with three erect scales, shorter than the limb, opposite to three alternate segments. Stam. Filament three, inserted into the tube between the scales, and opposite to the other three segments, awl-shaped, erect; anthers vertical, linear, shorter than the scales, cloven at each end. Pijl. Germin superior, elliptic-oblong, triangular; five-celled, nearly the length of the flaments; stigma triangular, three-lobed. Peric. Capsule of three cells and three valves, with central partitions. Seeds numerous, elliptic-oblong, inserted into the inner margin of each partition in two rows.

Eff. Ch. Corolla inferior, tubular; limb regular, in fix deep segments; throat crowned with three scales, alternate with the flaments. Capsule of three cells, with numerous seeds.

1. B. grandiflora. Large-flowered Brodiaea, or Missouren Hyacinth. Sm. n. l. Pursh n. 1. (Hookera cornorata; Sall. Parad. t. 98.)—Scales of the corolla undivided. Partial flarks longer than the flowers.—Discovered by Mr. Menzies in 1792, in New Georgia, on the west coast of North America. Governor Lewis is recorded to have gathered this plant on the plains of the Columbia and Missouren rivers, flowering in April and May. It is reported to have bloomed in Mr. Salkbury's garden, but is not admitted into Hort. Kew. or the Addenda to that work. The root is bulbous, solid. Leaves two, radical, linear, channelled, near a foot long. Flower-stalk solitary, bearing an unequal, braacteate umbel, of upright, handsome, blue flowers, each near an inch long, with yellowish scales, and yellow anthers.

2. B. congesta. Crowded Brodiaea. Sm. n. 2. l. 1.—Scales of the corolla cloven. Partial flarks much shorter than the flowers.—Brought by Mr. Menzies, with a coloured drawing, from New Georgia. The flowers are rather numerous, smaller than the foregoing, and form a dense head, subtended by pointed bracteae.

BROKENSTRAW, a township of Warren county, in Pennsylvania, having 379 inhabitants.

BROMELIACE, in Botany, the 15th order in Jussieu's system, the 6th of his third class. See Junco.

The Bromeliace are thus defined. Calyx (Corolla of Linneas) in fix, more or less deep, segments, either superior or inferior, equal, or mostly unequal, the three alternate divisions being large. Stam, fix, inserted into the bottom or middle of that part, or sometimes into calycine glands, lying over the germin. Germin simple, superior or inferior; style one; stigma three-cleft. Fruit of three cells, either pulpy and not burstin, or capsular and of three valves; each cell containing one or many seeds. The leaves are scathing, all for the most part radical. Flowers spiri, panicled, or more rarely corymbose, each accompanied by a spathe.


Sect. 2. Germin inferior. Xerophyta, Bromidia, and Agave.

BROMSGROVE, in Geography. In 1811, the parish of Bromsgrove contained 1578 houses, and 6932 persons; 3349 being males, and 3583 females: 357 families employed in agriculture, and 1895 in trade and manufactures.

BROONZE. See Mineralogy, Addenda.

BROOK, Hone, in Geography, a township of Pennsylvania, in Chester county, with 1723 inhabitants.

BROOK, a county of Virginia, containing 5843 inhabitants, including 332 slaves.

BROOKFIELD, l. 4, r. 3170; l. 11, for 428 Port. 1384; l. ult., add.—containing 1037 inhabitants.

BROOKLINE, a town of New Hampshire, in Hillsborough county, having 538 inhabitants.—Alto, a town of Vermont, in Windsor county, having 431 inhabitants.—Alto, a town of New Hampshire, with 657 inhabitants.—Alto, a township of Ohio, in the county of Trumbull, having 345 inhabitants.

BROOKLYN, l. 2, 704 inhabitants; l. ult. containing 1200 inhabitants.

BROOME, a county of New York, including 8130 inhabitants.

BROSELEY. In 1811 this parish contained 1026 houses, and 4850 persons; 2448 being males, and 2402 females: 48 families employed in agriculture, and 856 in trade and manufactures.

BROTERA, in Botany, a name applied to two very different plants, in due commemoration of the Rev. Father Felix Avellar Brotero, professor of botany at Coimbra in Portugal, author of the Flora Lusitaniae, and several other learned works. The Brotera of the late professor Willdenow, Sp. Pl. v. 3. 2399, Carthamus corombojus of Linnæus, appears to us founded on a total misconception of the structure of the flower, in which we can find no character whatever different from Carthamus. This genus is, however, adopted in Ait. Hort. Kew. v. 5. 186, according to the general plan of that work, where the editors had no particular object of reformation or illustration in view. The other Brotera is published by professor Sprengel, in Tr. of Linn. Soc. v. 6. 515. Its only species is B. pectinata, brought by Olivier and Bruquière from Peru. We regret to observe that this is manifestly a Hyptis (see that article); and we lament that it was, from full confidence in its learned and distinguished author, too incautiously admitted into the Linnaean Transactions, for which...
which the writer of this acknowledges himself entitled to a
share of the blame.

BROTHERS' VALLEY, in Geography, a township of
Pennsylvania, in Somercounty, having 1314 inhabitants.

BROUGH. In 1811, this township contained 131
houses, and 178 persons; 369 being males, and 389 females.

BROUGHTONIA, in Botany, so called by Mr.
Brown, in memory of the late Mr. Arthur Broughton, of
Bristol, author of an "Enchiridion," or systematical
manual of British plants, published in 1782; and, after his removal
to Jamaica, of the Hortus Elytensis, and of a Catalogue of the

Eff. Ch. Calyx and petals spreading. Column unconnected,
or attached at the base only to the falked lip. Anther a
moveable lid. Mallees of pollen four, parallel, divided by
complete permanent partitions, and extending at the base
into an elastic granulated thread.

Obi. In some instances the base of the lip is elongated
into a little tube, attached to the fermen.

radice bulbos insert, delphinii flore rubro specieo; Slaone
Jam. v. 1. 250. t. 121. f. 2.—Leaves oblong, in pairs
from the top of a bulb. Flower-fstalk divided.—This
 grows on trees and palisades in the woods of Jamaica,
forming tufts of leaf-bearing bulks, the leaves light green,
two inches long. Stalks radical, a foot high, with a few
hairs, corollae, dark crimson flowers.

This is the only species yet known in our flores, nor
have we an account of any other.

BROUSSONETIA, in Botany, (see PAPYRUS),
where the history and description of this curious tree are
given.

BROWN SPAR, or Better SPAR. See MINERALOGY,
Addenda.

BROWNFIELD, I. 2, for York r. Oxford; I. 3, r.
398.

BROWNINGTON, a town of Vermont, in Orles
county, having 236 inhabitants.

BROWNSVILLE. Add.—It contains 608 inhabitants.

BRUCHUS, I. 8. dele which see respectively, and
inert—the infects of this genus are, in general, of a small
kind. The B. granarius is found among leaves, vetches,
and other seeds, the lobes of which it devours. It is about
two lines long, of a black colour, and its wing-flblls are
freckled with white specks; the two fore-legs are reddish,
and the thighs of the hind-legs armed with a tooth and forc
ceps. The B. seminarius is rather smaller than the preceding,
but like it, without the denticle of the hinder thighs.
The exotic species are chiefly natives of America.

BRUNERSTOWN, in Geography, a town of Ken
ucky, in Jeffercon county, with 62 inhabitants, of whom
four are slaves.

BRUNONIA, in Botany, so named by the writer of this,
after his highly-valued friend Mr. Robert Brown, F.R.S.
librarian to the Linnean society, no less eminent for acute
ness of observation, than for deep botanical science, whose
discoveries in New Holland have so often been brought
before our readers, and who met with this new and singular
genius in that country. The memory of Dr. Patrick Brown,
the natural-historian of Jamaica, being already preferred in
the Brownm. (see that article) it has been found neces
sary to adopt the above construction, authorized by prece
dent, to avoid ambiguity.—Sm. Tr. of Linn. Soc. v. oc.
365. Brown Prod. Nov. Holl. v. 1. 589.—Chas and
order, Pentandria Monogynia. Nat. Ord. Aggregate, or
perhaps Campanzaceae. Linn. Dipsaces, Juff.? Goodenovia?
Brown.

Gen. Ch. Cal. Perianth double, both inferior; outer
of four mememious, nearly equal, erect, concave, obtuse
leaves; inner of one leaf, rather the longest, turbinate,
permanent, with five feather teeth. Cor. of one petal,
funnel-shaped, longer than the calyx; limb in five deep
spreading, nearly equal segments, the two upper ones mott
deeply divided; tube separable into five narrow claves.
Stam. Filaments five, capillary, weak, inserted into the
recepracle; anthers linear, united into a cylinder, the
length of the tube of the corolla. Pfl. Germin superior,
roundish; fyle club-shaped, about twice the length of the
flaments; stigma turbinated, obtuse, concealed by two ver
tical, equal, orbital, concave, membranous, converging
valves. Peric. none, except the inner perianth, lined with
the membranous base of the corolla, both together enlarged
and hardened, and crowned with the five feathery teeth
divided and disarticulated, so as to form a seed-crown.
Seed solitary, covered, ovate, delitute of albumen, with
an erect embryo.

Eff. Ch. Corolla funnel-shaped, five-cleft, irregular.
Anthers combined. Stigma with a bivalve sheath. Seed
one, covered with the feathery-crowned inner calyx.

The generic diffinction of Brunonia are abundantly
easy; but to determine its natural order, or affinities, is
very difficult, the latter being so many, and so remote from
each other, that the plant resembles Horaces's imaginary
feathered moniter, with a horse's neck and human head.
Mr. Brown, in the latest view he has taken of the subject,
in a most invaluable paper, on the natural order of Compo
fites, Tr. of Linn. Soc. v. 12. 132, has pointed out Brun
onia as a connecting link between that family and the
Goodenovic; nor are various other links between these very
different tribes wanting. With great candour he neverthe
less admits whatever favours our idea of its relationship
to Dipsaces and Glabolariæ, and moreover adverts to circum
stances approaching it to the Stylijdes, near allies of Gooden
ovic. Two species only have been detected.

2. B. australis. Australian Brunonia. Sm. as above,
367. t. 28. Br. n. 2.—Leaves clothed with spreading
hairs. Segments of the calyx feathery all over.—Native of
the sandy coasts of the south part of New Holland.
Abundant in Van Diemen's istlnd, and observed also on
the opposite shore of New Holland, at Port Phillip, flower
ing in January 1804. Mr. Brown. Herb apparently an
nuai, without a stem, hairy all over, much resembling in
habit, colour, and pubescence, the Linnæan Scabia aetrica.
Root simple, slender. Leaves radical, numerous, spathulate,
pointed, fingle-ribbed, entire, tapering at the base, two or
three inches long, very hairy. Flower-fstalks radical, foli
tary, simple, hairy, especially the lower part, a foot high,
each bearing 3 head of numerous blue flowers, not unlike
the Sheep's Scabious, Jafane montana, but rather larger,
and loofely hairy. The head is subtended by numerous,
neally equal, spreading, permanent, hairy bractees, shorter
than the flowers; the inner ones smallest, foliary under
each flower.

2. B. serticca. Silky Brunonia. Sm. as above, 367.
t. 29. Br. n. 1.—Leaves silky with close-pressed hairs.
Segments of the calyx with naked coloured tips.—Gathered
by Mr. Brown, on the sandy sea-shore at Pine Port, on the
cast coast of New Holland, just within the tropic, flower
ning in August 1802. The aspect and pubescence of this
species
species exactly answer to Scabiosa granitifolia. It differs from the foregoing in having narrower, more numerous, silky leaves, and the flowers differ remarkably in the blunt, coloured, naked pointed of their inner calyx.

BRUSVGIA, so named in 1753, by Heiffer, in compliment to his patron Charles duke of Brunswick Luneburg. What were his serene highness's claims to this honour, we know not, nor is Heiffer any authority in such a cause (see his biographical article); but we hope all Englishmen will ever have reason to hail the name of Brunswick, wherever it appears, and the genus in question, long confounded with Amaryllis, being now restored, the name of Brusvigia appears with peculiar propriety in the royal garden of England.—Heiff. Brunsv. 2. Ait. Hort. Kew. v. 2. 230. Ker in Curt. Mag. under p. 923*—Class and order, Herandria Monogynia. Nat. Ord. Spathaceae. Linn. Narcei, Jaff. Gen. Ch. Col. an oblong, obtuse, compressed, leafy sheath, of two valves, withering. Cor. superior, in six deep, lanceolate, recurved, nearly equal segments. Stam. Filaments six, awl-shaped, about the length of the corolla; anthers oblong, incumbent. Ptil. Germen inferior, obove, with three furrows and as many rounded angles; style thread-shaped, the length and position of the stamens, stigma bluish. Peric. Capsule turbinate, abrupt, with three rounded wings, membranous, somewhat transparent, of three cells and three valves. Seeds spherical, ovate, acute; curved and compressed at the point.

Eff. Ch. Corolla superior, in six deep segments. Capsule turbinate, membranous, with three wings. Seeds several, ovate, acute;

1. B. multiflora. Broad-leaved Brusvigia. Ait. n. 1. (Brunsvigia; Heiff. as above, t. 1. Amaryllis orientalis; Linn. Sp. 422. Willd. Sp. Pl. v. 2. 58. Jacq. Hort. Schoenbr. v. 1. 38. t. 74. Narcissus indicus fpharamicus; Moris. feet. 4. t. 10. f. 35. N. indicus, flore liliaceo, fpharamicus; FERRAR. FL. 125. t. 129. 131. 133.)—Leaves tongue-shaped, depressed, smooth. Flowers somewhat irregular, with ascending stamens and style.—Native of the Cape of Good Hope. The bulb is not uncommon in our flowers, but we never heard of its flowering. That desirable event however happened in the imperial garden at Schoenbrun, and has enabled the late professor Jacquin to adorn his Hort. Schoenbr. with one of the most splendid botanical figures extant. This is perhaps the most flatly of its flatly tribe. The large fealy bulb bears five or six obovate-oblong, dark green leaves, lying over each other in two ranks, and usually a foot long, near three inches broad. Flower-flask earlier than the leaves, erect, round, a foot high, crowned with a broad flabel, of two coloured valves, unequal in breadth, accompanying a very large umbel, of about thirty-five rays, spreading in all directions, each six inches long, bearing a solitary erect flower. All the flaks are more or less of a blood red. Corolla richly varied with crimson and a kind of orange scarlet; its segments an inch and a half long, acute, converging into a tubular form at the base, spreading in the upper part, and reflexed. Capsule two to four inches long, and one broad, pale brown, shining; tapering very much at the base.

2. B. marginata. Red-edged Brusvigia. Ait. n. 2. (Amaryllis marginata; Jacq. Hort. Schoenbr. v. 1. 34. t. 65. Willd. Sp. Pl. v. 2. 59.)—Leaves tongue-shaped, depressed, smooth, with cartilaginous edges. Flowers regular, with erect stamens and style.—Native of the Cape, from whence Mr. Maffon sent bulbs in 1795. Leaves rather narrower than the former, with a hard red border. Umbel erect, dense, of many scarlet flowers, with upright stamens and style, rising high above the reflexed corolla. Anthers purple.

3. B. radula. Rapf-leaved Brusvigia. Ait. n. 3. (Amaryllis radula; Jacq. Hort. Schoenbr. v. 1. 35. t. 68. Willd. Sp. Pl. v. 2. 61.)—Leaves elliptical, depressed, rough with britle tuberces. Flowers ringlet, with declining stamens and style.—From the same country, introduced by Mr. Maffon, in 1790. Leaves two, scarcely more, three inches long, rough-edged, covered on the upper side with britle-pointed warts. Stalks three or four inches high, sometimes in pairs. Umbels of only four or five pink and white flowers, five of whose segments are directed upwards, the fifth deflexed, along with the stamens and style.

4. B. striata. Striated Brusvigia. Ait. n. 4. (Amaryllis striata; Jacq. Hort. Schoenbr. v. 1. 36. t. 70. Willd. Sp. Pl. v. 2. 61.)—Leaves elliptical-obovate, erect; densely striated beneath. Flowers nearly regular, with declining stamens and style.—From the same country as all the rest, introduced by Mr. Maffon in 1795. Larger than the last, and distinguished by its upright red-edged leaves. Umbel of many flowers, whole outside of rose-coloured, inner paler, or white, the segments narrow, nearly or quite regular.

BRUSWICK, in Virginia, l. 3. r. 15. 411 inhabitants, including 9368 slaves; 1. 5. r. 4378; 1. 6. r. 2254; l. 19. add.—containing 143 inhabitants.

BRUSWICK, North, contains 3980 inhabitants.

BRUSWICK, South, contains 2332 inhabitants.

BRUSWICK, in Maine, l. 5. r. 2682.

BRUSWICK, a township in Berks county, in Pennsylvania, having 1770 inhabitants.

BRUSH CREEK, a township of Ohio, in the county of Highland, containing 551 inhabitants.

BRUSSELS, Roger of, r. BRUGES, Roger of.

BRUTON, col. 2. l. 2. r. In 1811, the parish of Bruton contained 553 houses, and 1566 perfons; 658 being males, and 878 females.

BRUTUS, l. 5. r. Cayuga. Subjoin—This is an excellent township of Cayuga county, about 10 miles long, N. and S., by 5 to 6 ½ E. and W. The soil is rich and fertile, and well watered: it contains about 330 families, and 182 senatorial electors. It was erected in 1802, from the N.E. part of Aurelius. In 1810 the population was 2030, and the taxable property amounted to 84,514 dollars.

BRYAN, l. 3. add.—containing 2827 inhabitants, of whom 2264 are slaves.

BUBALIS. See Antelope.

BUBASTUS, dele fee Didyma.

BUCCO, col. 2. l. 1. after cinereus, dele which fee, and add.—These are all inhabitants of Africa, and the warmer parts of Asia and America. Their head is very long, their bills strong and nearly straight, almost covered with bristles; tail-feathers generally ten. They are a solitary rapid race, living in sequestered forests, and subsisting principally on insects.

BUCEROS. Add—Several other species are mentioned by Dr. Shaw.

BUCHEANAN, l. 7. l. 9. infant—in 1532. Col. 3. l. 9. infant—in 1532. l. 10. r. Caflilis; l. 15; r. 1533; l. 18—this happenedprobably in the year 1537; l. 43. after said bargain, but without sufficient evidence; l. ult. but one, infant after admired.—The next in merit is the 137th, in elegiac verse. Col. 3. l. 19, after country; infant.—In 1562, he officiated as clerical tutor to the queen, who was then in the 20th year of her age, and who many afternoons perused with him a portion of Livy. About the year 1566, &c.: l. 30, after York, infant—in 1568; l. 35, after VI, infant—
— in 1570, when the young prince was only four years of age; l. 43, after reading, infert— when the countess of Mar, hearing him walking, hurried and took him up in her arms, reproaching the tutor for having laid his hand upon the Lord’s anointed. Buchanan is said to have replied in terms that contained a very unceremonious anti-theism relative to the part which had received the chaffiment. Col. 4, l. 9, after motives, infert—and it likewise evinces his anxiety for forming a patriot king; l. 15, for 5th of December r. 28th of September; l. 23, after Edin-burgh,—in the cemetery of the Grey Friars. Col. 5, l. 10, after unequal, add—although he maintains the unscientific notion that the earth does not revolve round the sun, he sup-ports his opinion by arguments which must at least be allowed to be plausible; l. 9, from the bottom, after great man, infert—neglected by his ungrateful country, which never afforded his grave the common tribute of a monumental stone. Subjoin—See Irving’s Life of Buchanan.

BUCKENHAM. In 1811, the parish of New Buck-enham contained 127 houses, and 656 inhabitants; 315 being males, and 341 females. The parish of Old Buck-enham contained 200 houses, and 1024 persons; 491 being males, and 533 females.

BUCKINGHAM. In 1811, the borough of Bucking-ham contained 572 houses, and 2987 persons; 1313 being males, and 1674 females: 232 families employed in agriculture, and 466 in trade and manufactures.

BUCKINGHAM, a county of America, l. 3 and 4, for 1790 r. 1810; for 1797 r. 20,059; for 1818 r. 11,675.— Alto, a township of Bucks county, in Pennsylvania, having 1715 inhabitants.— Alto, a township in Wayne county, in the same state, having 1513 inhabitants.— Alto, a township in one county, the same state, having 13933 families employed in agriculture, and 8424 in trade and manufactures.

BUCKLAND, l. 2, for 718 r. 1097.

BUCKS, l. 5, for 25,401 r. 32,171; for 114 r. 11; l. 7, for 27 r. 29.

BUCKSTOWN, a township of Ross county, in the dis-trict of Ohio, containing 781 inhabitants.

BUCKSTOWN, l. 3, for 316 r. 4403.

BUENA, in Botany, Cavan. l. c. v. 6. 49. t. 571, is a genus of the natural order of Rubiaceas, so named by that author, in honour of Dr. Cosmo Bueno, an eminent writer on the natural history and topography of Peru. There is no certain proof of this genus being distinguish from what Ruiz and Pavon had already called Gonolagunia. We are equally unacquainted with both.

BUFFALEO. Add—East Buffaloe contains 2869, and West Buffaloe 2523 inhabitants.— Alto, a township of Penn-sylvania, in Washington county, having 1416 inhabitants.— Alto, a township in Armstrong county, in the same state, having 1150 inhabitants.— Alto, a township of Butler county, with 375 inhabitants.— Alto, a township of Ohio, in the county of Guernsey, having 285 inhabitants.— Alto, a township of Ohio, in the county of Jefferson, having 696 inhabitants.


BUILDING. See 1. 47, for 42d r. 14th.

BUILTH, or Buillett, derived from Bu, an ox, and illt, an eminence, i.e. a wooded eminence, bearing reference to the adjacent country. Col. 2, l. 13, for two weekly r. one good market on Monday; for three r. five; after contains, r. by returns of 1811, 182 houses, and 815 inhabitants; 384 being males, and 421 females. The hundred of Builth included 1086 houses, and 5788 persons; 2698 being males, and 3090 females: 833 employed in agriculture, and 284 in trade, manufactures, and handicraft.

BULLET, a county of Kentucky, having 4311 inhabitants, including 976 slaves.

BULLOCK, a county of Georgia, in America, containing 2305 inhabitants, 420 being slaves.

BULLSKIN. Add— containing 1439 inhabitants.

BUMCOMBE, a county of North Carolina, containing 9277 inhabitants, of whom 695 are slaves.

BUMEN. See Regan.

BUMGALOW, a term used in Bengal for a kind of country-house erected by Europeans.

BUNIUM, col. 2, l. 20, for They r. Ray.

BUPHAGA, l. 6, for legs r. feet.

BUPRESTIT. At the cloke, del which see respectiely, and add—The B. gigantea is the largest of this genus hitherto discovered, being two and a half inches long; a native of India, China, and many other parts of Asia; and found also in South America. The European insects of this genus fall far short of the Indian or American species both in size and splendour.

BURCHARDIA, in Botany, is thus named by Mr. Brown, in commemoration of Dr. John Henry Burchard, author of a letter to Leibnitz, in 1702, in which the found-er principles of botany are developed; the exclusive importance of the parts of fructification, in forming characters, are especially inflected on, and the classification of Linnæus, by the flamos and petals, is anticipated. Heifter published this letter, for the first time, in 1750, probably to deprecate the honour of Linnæus. But as the latter could have heard nothing of Burchard’s sentiments, he has all the merit of originality, and the attempt to deprive him of this credit, serves only to show the high estimation in which his performance was held. Heifter has named a plant Burchardia, but this is Callicarpa of Linnæus, so called many years before.—Brown Prodr. Nov. Holl. v. 1. 272.—Cliffs and order, Hexandra Trigynia. Nat. Ord. Melanthaceae, Br. Eeff. Ch. Petals fix, equal, spreading, with a nectariferous cell in the claw of each, deciduous. Stamens inserted into the base of the petals. Anthers peltate, posterior. German triangular. Stigmas acute. Capsule of three separable boat-like cells, bursting at the inner edge. Seeds numerous, in two rows.


BURG upon the Sands, l. 4, r. as he was preparing for an expedition against the Scots. Hume.

BURICH. For Buderich r. Buderich.

BURKE, in Geography, l. 2, r. 11,007; l. 3, r. 1433; l. 5, r. 10,747 and 4691; l. 9, add— containing 460 inhabitants.

BURKSVILLE, a town of Kentucky, in Cumberland county, containing 106 inhabitants, of whom 20 are slaves.

BURINGTON, l. 6 and 7, for 8,095 r. 24,979, and for 227 r. 93; add—It contains 12 townships; l. 15, r. 2419, and 4 slaves.

BURINGTON, a township of America, &c. l. 3, add—This township is well watered, and bounded with mill-heats; its situation is elevated, and the air salubrious: the population is 3196; the senatorial electors 294, and the taxable property,
property, in 1810, amounted to 178,783 dollars. It has two Baptist meeting-houses, one for Congregationalists, and one for Quakers. The inhabitants are principally farmers.

BURTON, a town of Massachusetts, in Middlesex county, containing 471 inhabitants. — Alto, a town of Hartford county, in Connecticut, having 1467 inhabitants.

—Allo, a township of Lycoming county, in Pennsylvania, having 661 inhabitants.

BURNING, *Extraordinary Casket of.* Col. 3, l. 11, for of the head r. and the head; l. 5, for 332 r. 1690.

BURNLEY, l. ult. after contains, add—by the return of 1811, 807 houses and 4368 inhabitants; 2129 being males, and 2230 females.

BURRILLVILLE, a town of Rhode island, in the county of Providence, containing 1834 inhabitants.

BURSARIA, in Botany, so denominated by Cavanilles, from *Burfsa,* a pure; because the seed-veil resembles that of the common weed called Shepherd's-purse.—Cavan. *L. v.* 4. 30. — Clas and order, *Pentandria Monogynia.* Nat. Or...…..

Eff. Ch. Petals five, inserted into the receptacle. Capsule superior, compressed, of one cell, with four valves. Seeds two, winged.

1. B. *Stipa.* Thorny Burfaria. Cavan. *L. v.* 4. 30. t. 330. Ait. n. 1. (Itea *Stipa* ; Andr. Rep. t. 314.)—Native of New South Wales; first raised in 1793, by the late marchioness of Rockingham. This is a thorny, bushy, green-houfe shrub, flowering from August to December. The leaves are ferrated, ferial, narrow-wedge-shaped, emarginate, smooth, entire. Flowers numerous, white, small, in copious, aggregate, terminal clusters, of considerable elegance.

BURTON in Kendal, l. ult. after contains, add—by the return of 1811, 94 houses and 574 persons; 274 being males, and 300 females. There is another township, named Holme, in the same parish, containing 43 houses, and 283 persons; 137 being males, and 146 females.

BURTON-upon-Trent, l. 4 from the close, add—By the return of 1811, contains 785 houses, and 5979 persons; 1844 being males, and 2135 females.

BURTON, l. 1, for Grafton r. Stafford; for 143 r. 194. Add—Allo, a township of Ohio, in the county of Geauga, having 517 inhabitants.

BURTONIA, in Botany, so named by Mr. Brown, in memory of the late Mr. David Burton, a celebrated collector of plants for the Kew garden, under the patronage of Sir Joseph Banks. He died after a short stay in New South Wales; but Mr. Aiton's work evinces the great diligence of this unfortunate traveller. Mr. Salisbury's original Burtonia proved an Hibbertia. (See that article.)—Brown in Ait. Hort. Kew. v. 3. 12.—Clas and order, *Decandria Monogynia.* Nat. Or. *Papilionaceae,* Linn. *Leguminosae,* Jaff.


(Bompholium scabrum; Sm. Tr. of Linn. Soc. v. 9. 250.)—Leaves ternate. Calyx smooth. Style bearded beyond the middle.—Found by Mr. Menzies, on the south-west coast of New Holland; and sent to Kew by Mr. Good, in 1803. A green-houfe shrub, flowering from May to July. The leaves are ternate, cleft, linear, revolute, rough to the touch. Flowers about the ends of the branches, axillary, dull purple when dried. There is no account of their natural colour. We do not perceive any important difference in character, and there is none in habit, between this plant and *Bompholium* (see that article); but the unpublished species may be more distinct.

BURY, l. 10, after Fleeke, add—created a baronet in 1809, who, about the year 1773; l. 15, add—In the course of his prosperity he purchased a seat at Chamber-hall, in the neighbourhood, which he Afterwards sold; l. 18, for Bolton in Yorksire r. Bolton-de-Moores in Lancashire; l. 23, r. the wheel or fly-shuttle, invented about one hundred years ago by Mr. John Kay, who, on account of the perfection he suffered on this account, was obliged to remove to France, where he died; and the card-making machine, for making several cards at once, invented by Mr. Robert Kay, the son of the former, who died about the year 1804. This machine straightens, &c.; l. 29, after shaft, add—and touching neither the wire nor the leather. The woollen manufactures, confiding of flannels, blankets, and a variety of other articles, were established in this town long before the introduction of the cotton trade, and contributed in no small degree to its prosperity; l. 47, r. In 1811, the number of houses in this township was 1562, and the number of inhabitants was 8762, 4219 being males, and 4543 females. The parish of Bury includes six townships, viz. Bury, Elton, Heap, Higher, and Lower, Tottington, and Walmery.

BURY St. Edmunds, col. 3, l. 3, r. In 1811 this borough had 1474 houses, and 7086 inhabitants; 3539 being males, and 4447 females; 164 families employed in agriculture, and 966 in trade and manufactures.

BUSH. Add—See Coal-Buffel and Weight.

BUTE. The thirc of Bute, by the parliamentary return in 1811, contains 2047 houses, and 12,033 persons; 5545 being males, and 6488 females; 1216 families employed in agriculture, and 530 in trade, manufactures, and handi craft.

BUTLER, r. BUTTER, William.

BUTLER, in Geography, a county of Pennsylvania, containing 7924 inhabitants.—Allo, a township of this county, having 458 inhabitants.—Allo, a township of Ohio, in the county of Columbiana, having 316 inhabitants.—Allo, a county of Kentucky, containing 2181 inhabitants, of whom 274 are slaves.

BUTTER, Chemical Properties of. See Milk.

BUXTON. In 1811 the township contained 180 houses, and 934 inhabitants; 447 being males, and 487 females.

BUXTON, a township of America, l. 5, r. 2324.

BYRAM, a town of New Jersey, in the county of Essex, having 1224 inhabitants.
CAE

CABAL, l. ub. after Shaftesbury, infant—lord Ashley.

CABARRAS, in Geography, a county of N. Carolina, with 6150 inhabitants, of whom 1234 are slaves.

CABELL, a county of Virginia, with 2717 inhabitants, of whom 221 are slaves.

CABINET, col. 2, l. 47, r. whether they be.

CABOS. Add.—The former contains 974, and the latter 1009 inhabitants.

CABOS, in Geography, a town of Caledonias, in the district of Vermont, having 886 inhabitants.

CACHOLONG. See Mineralogy, Addenda.

CADIZ, in Geography, a town of Jefferson county, in Ohio, with 3744 inhabitants.

CADMIUM, in Chemistry, the name of a metal. This metal was discovered by M. Stromeyer in the autumn of 1817, while he was officially examining the apothecaries' shops in Hanover. Cadmium resembles tin in its colour, lustre, softness, ductility, and the sound it produces when bent. Its fp. gr. is 8.6339. It melts and volatilizes at a temperature a little lower than zinc. It prefers its splendour in the air, but by heat it is changed into a yellow oxyd, which is not volatile, and which is very easily reduced. This oxyd does not colour borax; it diffuses very readily in acids, and forms colourless salts, from which it is precipitated white by alkalis. The hydro sulphuric acid (solution of sulphuretted hydrogen) precipitates it yellow, like arsenic. Zinc precipitates it in the metallic state.

This is all which at present we know of this metal, except that it was first obtained from the sublimate which concretes in the chimneys of the zinc furnaces of Saxony; and, consequently, that it exists in the ores of zinc there employed. We understand also that it has been detected in some similar ores of zinc in this country.

CAERFILLY, &c. col. 2, l. 49, add.—It has a market on Thursday, and six fairs in the year. By the parliamentary returns of 1811, the number of houses in this hamlet of Eglwysilan parish was 166, and of inhabitants 1013, viz. 462 males, and 551 females.

CAERLEON, col. 3, l. 18 from bottom, r. The town consists, by the return of 1811, of 170 houses, and 593 inhabitants.

CAERMARTHEN, col. 3, l. 17, after it contains, add—by the parliamentary returns in 1811, 1189 houses, and 1725 inhabitants. The charter allows three markets, viz. on Wednesday, Friday, and Saturday, but the latter is the only one numerously attended by the farmers. It has four fairs in the year, and, &c.

CAERMARTHENSHIRE, l. 7,—others reckon its length 50, and breadth 25 miles. Cary estimates its superficial contents at 512,000 acres; l. 23, The Towy is much celebrated for its fish; its salmon is highly esteemed; as is also its eel. The other rivers, not above enumerated, are, the Llougher, Llologh, or lycher, which separates this county for some distance from Glamorganshire, receiving in its course the Amman, which united streams discharge themselves into Caermarthensbay, by a wide estuary called the Bury river, navigable for small vessels as high as the town of Llologh. Another river, denominated Gwendaethy vawr, or great, has its source in a lake at the upper extremity of Mynudd mawr, and joins the sea below Kidwelly: this is joined by Gwendaethvach, or the left. Other rivers are the Pyccott, which falls into the Dethia, and the Cambwiler, which augments the Towy. The river Bran unites with the Towy below Llandovery. The other tributary streams are, the Saunddy, proceeding from a lake in the Black mountain, and the Cennen, which join the Towy, as well as the Cotsy and Guillyw, already mentioned. The Conwen and the Taf unite at the village of St. Cicsars, and run into the Caermarthensbay at Laughter. The lakes of this county are Llyn Tegwyn, or pull yr Elocob, or the Bishop's pool, situated at the northern extremity, and on the highest elevation of Mynudd mawr, an extensive bleak common, W. of Llandybie, and occupying a surface about half a mile in diameter. Another lake is situated on the Black mountain, at the foot of the almost perpendicular declivity of the Caermarthenshire Fan, or beacon, and extending in form of a parallelogram about one mile in its greatest length. The other lakes are two, which communicate by a faire, and appear like one, situated on the banks of the river Cotty, and near the ruins of the abbey of Talley. The mountains are part of Plinlimmon, and on the E. the long chain called the Black mountain, the summit of which, called Ben Fan, or Ben Sir Gaer, the Caermarthenshire beacon, is the highest ground in the county. The height of this peak has been estimated at about 2600 feet above the level of the sea. It is separated by a chasm from anothereminence, of superior altitude, in Brecknockshire. Both are denominated Bannau Sir Gaer, or Caermarthenshire beacons, in the plural, to disinguish them from those called Bannau Breconhos, or the Brecknockshire beacons. Another mountain lies on the borders of Glamorganshire, called Betwys mountain; it is a chain diverging from the Black mountain, at the upper end of the valley of Tawe, and stretching along the eastern shore of the Amman and Llologh nearly to the sea. —l. 37—The number of parishes has been variously estimated; some having reckoned them at 76, others at 82, and others at 78, besides 12 chapelleries. The number of market towns is fixed at eight. This county, by the last return in 1811, contained 14,856 houses, and 77,217 inhabitants; 9878 families employed in agriculture, and 5256 in trade and manufactures.

CAERNARVON. Add.—In 1811 the parish of Llan-

buhgici.
CÆS

beleg, in which it is situated, contained 1000 houses, and 4595 persons; viz. 1982 males, and 2613 females.

CAERNARVON, a township of America, &c. l. 2, add—
containing 1084 inhabitants.—Also, a township of Berks county, in Pennsylvania, having 723 inhabitants.

CAERNARVONSHIRE, l. 17, r. In 1811 this county contained 1936 houses, and 49,336 persons; viz.
23,379 males, and 25,957 females: 6667 families employed in agriculture, and 2687 in trade and manufactures.

CAERWENT. Add.—The parish of Caerwent, in 1811, contained 60 houses, and 375 persons; viz. 206 males, and 169 females.

CAERYWS. Add.—In 1811, the parish of Caerwys contained 209 houses, and 863 persons; viz. 416 males, and 447 females.

CÆSARIA, r. COHAWZY.

CÆSIA, in Botany, dedicated by Mr. Brown to the memory of Frederico Cæsia, a young Roman nobleman, illustrious for the patronage and cultivation of science, especially of natural history, who founded the academy of the Lycæi at Rome in 1602. This was the first institution of the kind, and is celebrated in various authors of that day. The great Galileo was among its members, as well as that indefatigable botanist Fabio Colonna, better known by his Latin appellation, Colonna. This institution died with its noble founder, in 1630; but the scientific associations of Italy, and thence of all Europe, have sprung from its ashes.


Eff. Ch. Corolla in six deep, equal, spreading segments, deciduous. Filaments bearded, contracted at each end. Anthers attached by their cloven base. Gernmen of three cells, with two seeds in each. Style thread-shaped. Stigma one. Capsule scarcely valvular; tumid and lobed at the summit; or club-shaped. Seeds small, with an appendage to the base.

Herbs generally annual, smooth. Root of clustered, thick fibres, or oblong knobs. Leaves, grisy, Clusters either divided or simple, with aggregate or solitary flower-flanks, jointed under the corolla. Flowers white, or blue, erect, rarely drooping. Corolla becoming spiral after flowering, and soon falling off entire. Anthers yellow.

This genus approaches the Platanium of Jussieu, but differs abundantly in the structure of the germs and seeds.


5. C. lateriflora. Lateral-flowered Cæsia: Br. n. 5.—Stem much branched, falcate. Flowers lateral, drooping, mostly solitary. Capsule club-shaped, pendulous, generally single-seeded. Gathered by Mr. Brown, in the tropical part of New Holland. The filaments are roughish, and the

habit, inflorescence, and capsule differ greatly from all the other species. Brown.

CÆFISE, or CÆFIZ, in Commerce, a measure for corn in Spain, containing 12 fanegas. See Fanega.

CÆFISO, a measure for oil in Sicily, weighing 1-23 rotoli, or about 24 lbs. avoirdupois.

CAHOKIA, in Geography, a township of St. Clair county, in the Illinois country, with 711 inhabitants.

CAJEPUT Oil, l. 2.,—leaves of a species of the Mela- norea, a tree, &c.

CAITHNESS. By the parliamentary returns of 1811, the tilhe of Caithness contained 4301 houses, and 23,419 persons; viz. 10,608 males, and 12,811 females: 3370 families employed in agriculture, and 858 in trade and manufactures.

CAKILE, in Botany, an Arabic name, used by Serapio.


Eff. Ch. Pouch of two single-seeded joints; seed of the uppermost erect, sessile; of the lower pendulous. Oval.

The lower joint is occasionally abortive.

This genus is the real Buniue of Linnæus, nor can we see by that name should be changed for the barbarous Cakile, though we agree with Mr. Brown in removing hither several species of Mycalum, as in the Prodr. Pl. Grex.

CALABOSON, in Geography, a town of South America, in Venezuela, situated between two rivers, viz. Guaro to the W. and Oriuto to the E. which unite their waters four or five leagues below the town. It is situated in a hot climate, in N. lat. 8° 40', 52 leagues S. of Caracas, and at about the same distance N. of the Oronoko, and in the year 1804 its population amounted to 4800 persons.


Eff. Ch. Upper calyx-leaf rather flattened; two lower, with the petals, deflexed under the lip, flat; all glandular at the back. Lip somewhat falked, with rows of glands on its disk. Style winged. Anther a moveable lid. Pollen powdery.

An elegant tribe of small herbaceous plants, clothed with glandular, intermixed with simple, hairs. Bulbs undivided, terminating the defcending base of the stem, inclosed in a scaly coat. Leaf solitary, nearly radical, mostly linear, enclosed by a sheath at the base. Staile bearing one bracteae, besides those immediately accompanying the one, two, or three inodorous, variously-coloured, flowers. Anther most frequently pointed.

Mr. Brown defines thirteen genuine species, from various parts of New Holland. These have, as it were, ringent flowers, the petals nearly equal to the two lower calyx-leaves, and forming with them an under lip, while the upper consists of the upper leaf of the calyx, not quite so flat as the rest. To these are subjoined two species, whose petals are very long, narrow, and directed upwards; and to these, as possibly a distinct genus, the name of Lepotecas is given.

Of the true Caladenes, the first only, C. alba, has been brought alive to England, by Mr. Geo. Caley in 1819, and is marked by Mr. Aiton as a green-house plant, flowering in July and August.—The fifth species, C. alata, is probably Arthutha catarata, Sm. Exot. Bot. v. 2. 89. t. 104.

CALADUIM, a name used by Rumphius, for some kinds

Eff. Ch. Sheath of one leaf; convolute at the base. 
Spadix covered at the summit with petal-like many-celled anthers; glandular in the middle; covered with gerns at the base. Stigma uniloculate. Berries of one cell, with many seeds.

This genus, differing from *Arum* chiefly in the spadix being covered in all its upper part with *flavus*, except, in some instances, a small naked point, is divided like that, (see *Arum*,) into three sections, similarly distinguished. Willdenow has fifteen species in all.


—Native of woods in Martinica and the Caraccas. The flowers are greenish-white, on radical flaks. *Leaves* a foot in breadth, of eleven elliptic, acute leaflets.

Sec. 2. Stem none. Leaves simple. Six species, to which we add one.

2. *C. pinnatifidum*. Pinnatifid Caladium. Willd. n. 2. (Arum pinnatifidum; Jacq. Hort. Schoenbr. v. 2, 31. t. 187.)—Stem none. Leaves pinnatifid. —Native of woods at the Caraccas, where this large species grows on rocks and trees. The leaves are two feet long, and nearly as broad, deeply pinnatifid, with great red ribs. *Flowers* almost sessile; blood-red in their lower half; white, like the spadix, above. The rista are,


5. *C. nympheifolium*. Water-lily-leaved Caladium. Willd. n. 5. Ait. n. 3. (Well-ilia; Rheed H. Mal. v. 11, 43. t. 22.)—Stem none. Leaves peltate, ovate-arboisepalated. Sheath cylindrical, with a lanceolate point, shorter than the spadix.—Native of the East Indies.

6. *C. eufulentum*. Eatable Caladium, or Indian Kale. Ait. n. 4. (Arum eufulentum; n. 11. A. minus, nephys, folius, eufulentum; Sloane Jam. v. 1, 167. t. 166. f. 1.)

7. *C. asecrea*. Acrid Caladium. Br. n. 1.—Stem none. Leaves peltate, heart-shaped. Spadix obtuse, with a very short, occasional, naked point. Sheath lanceolate, twice as long as the spadix.—Gathered in the tropical part of New Holland by Mr. Brown, who remarks that it fearfully differs, except in having *antherae* to the summit of the *spadix*, from the last, which has a consistence of a black trunk of a pointed, and he does not see how the latter is dilliguished from *Arum Colacaha*.


Sec. 3. With leafy stems. Eight species.


—From the Caraccas.


CALAIS, l. 3, for 44 r. 41, a town of Washington county, in the district of Maine, which by the census of 1810 contained 372 inhabitants—Alfo, a town of Caledonia county, in Vermont, containing 841 inhabitants.

CALCULUM, in *Chemistry*, the metallic bals of lime. See LIME.

CALDARA DA CARAVAGGIO, Polidoro, in Biography, an eminent painter, was born in the Milanese, and from the humble station of a labourer became an assistant in Raphael in the works of the Vatican, and at length acquired unrivalled celebrity in his imitation of the antique baso-relievs, which he executed in chiaro-ocuro. His style was so peculiar a feste his own, that, having formed it, it also perished with him. His design was without manner, compact, and correct. He had the art of transporting himself, says his biographer, into the times of which he represented the transactions, the costume and rites, so that nothing modern is discerned in his works. Numerous as his performances once were at Rome, scarcely a fragment remains, if we except the liable of Niobe, left in ruins by time and the rage of barbarians. For these losses we are compensated merely by the prints of Cherubino Alberti, and Henry Golzius, who engraved his gods, the Niobe, and the Brennus, and also by the etchings of Santes Bartoli and Gallefrazzi. On occasion of the pillage of Rome by Bourbon in 1527, Polidoro fled to Naples, where he was patronized by Andrea da Salerno, and gained such reputation that he began to form a school; but declining the prosecution of this undertaking, he removed to Sicily. Having exchanged chiaro-ocuro for colour, he painted at Messina a numerous composition of Christ led to Calvary, which has been highly extolled by Vafari; and not long after the completion of this work, he was strangled in bed by a servant, who wished to get possession of his property. His manner, as a colourist, is said to have been dim and pallid. He died in 1543, at the age of 51 years. Pilkington's Dict. of Painters by Fuseli.

Caldwell, in Geography, a town of Essex county, in New Jersey, containing 2235 inhabitants, of whom 9 are slaves.—Alfo, a county of Kentucky, with 4268 inhabitants, including 579 slaves.

Calestasia, in Botany, from καλαστασις, beautiful, and ἀκατοφρον, an extension, or dilatation, alluding to the elegant star-like expansion of the corolla.—Brown Prodr. Nov. Holl. 3 F 2 v. 1.
CAL


The tube of the *C. cyanet* covered by the sheaths of the leaves; the limb prominent, like a bright blue star, of six equal rays, the three outermost downy underneath. This pretty genus is not very nearly allied to any other, though something like *Aphylantes*, but widely different in structure, and rather approaching *Dasyphugon*, hereafter to be described.

**CALEDONIA**, a county of Vermont, 1. 2, r. 23; add.—In 1810, it contained 18,750 inhabitants.

**CALEDOSCOPE** or *Kaleidoscope*, from *kaleos*, beautiful, *ulos*, a form, and *skopein*, to see, an instrument recently invented by Dr. Brewster, and for which he has obtained a patent, for the purpose of creating and exhibiting an infinite variety of beautiful forms.

The instrument in its simplest form consists of two reflecting planes, inclined to each other, made either of two plates of glass, blackened or silvered, or two metallic surfaces, or the two inner surfaces of a solid prism of glass, or rock-crystal, from which the light sufferers total reflection. The plates may be of any length; but that which is most convenient will be found to be from five to ten or twelve inches, or they may be made only two, three, or four inches long, provided distinct vision is obtained at one end, by placing at the other end an eye-glass, whose focal length is equal to the length of the reflecting-plane; their breadth should be about eight or nine-tenths of an inch when the length is six inches; but it should increase with the length, in order to have the aperture of the same angular magnitude. Two edges of these reflectors, being made perfectly straight, are placed together by a particular contrivance, in such a manner, that their inclination, or the angle which they form, is exactly an even aliquot part of a circle, or a fourth, fifth, eighth, tenth, twelfth, fourteenth, &c. part of 360°. When the plates are thus fixed in a tube, and the eye placed at one end, as near as can be, in the line of the intersecion of the two planes, it will perceive a circular field of view, composed of as many luminous sectors as the number of times the angle formed by the reflectors is contained in 360°. These sectors, excepting the one seen by direct vision, and constituting the angular aperture of the plates, are a series of images of this aperture, formed by successive reflections between the inclined reflectors. These images formed by one reflector from each of the plates lie on each side of the direct aperture, and are inverted images of that aperture; the next two images formed by two reflectors are images not inverted; and so on throughout the whole series, every two direct images being separated by an inverted one.

From these observations, it will be seen that the kaleidoscope is not an instrument which produces beautiful forms by the multiplication of single forms; for it is demonstrable, that a symmetrical and beautiful pattern cannot be produced by the repetition of any single form: and if it were possible to construct a multiplying-glass with mathematical perfection, and free from all the prismatic colours, it would be impossible to produce with it an arrangement of simple forms, marked with symmetry and beauty. The principle of the kaleidoscope, therefore, is to produce symmetry and beauty by the creation and subsequent multiplication of compound forms, each of which is composed of a direct and an inverted image of a simple form.

The tube which holds the reflecting plates moves in another tube; and upon the outer end of the last tube is placed a cell, or cap, for receiving a series of object-plates, containing fragments of differently-coloured glasses and other substances placed at random. When one of these object-plates is placed in the cell, the inner tube is pushed in as far as it will go; and the instrument being held in one hand, the cell containing the object-plates may be removed round with the other, and the eye of the observer being placed at the other will observe the iridescent mazes of colour arranged in an infinite variety of forms, mathematically symmetrical, and highly pleasing to the eye.

If the object be put in motion, the combination of images will likewise be put in motion, and new forms, perfectly different, but equally symmetrical, will successively present themselves; sometimes varying in the centre, sometimes emerging from it, and sometimes playing around it in double and opposite oscillations. When the object is tinged with different colours, the most beautiful tints are developed in succession, and the whole figure delights the eye by the perception of its form, and the brilliancy of its colouring.

The effects, of which we have given a general description, obviously arise from inversion and subsequent multiplication of every object placed before the angular aperture, or the luminous sector seen by direct vision, and from the perfect junction of all the reflected images. When the object is moved, the inverted images all seem to move in an opposite direction, while the images not inverted move in the same direction with the object; and from these opposite motions, as well as from the entrance of new objects, by the revolution or the direct motion of the object-plate, arises that endless variety of forms which affords so much gratification to the eye.

In the preceding form of this instrument, the object must necessarily be placed close to the end of the reflectors; for if it is removed from this position, the symmetry is destroyed, and the deviation from a symmetrical form increases as the distance of the object from the reflector increases. The use of the instrument in this form is, therefore, limited to objects which can be held close to the reflector.

This limitation, however, has been superseded; and the use and application of the instrument indefinitely extended by an optical contrivance. A lens of a short focal length is placed on the object end of the outer tube, and the inner tube is drawn out till the image of objects, whatever be their distance, falls exactly on the outer end of the reflectors. When this is the case, these objects will be arranged into the most beautiful and symmetrical forms, in the same manner as if they had been reduced in size, and actually placed at the end of the reflectors. In this way, every object in nature may be introduced into the picture formed by the instrument, and the observer will derive a new and endless source of enjoyment by the creation of pictures of natural objects, whether animate or inanimate.

As the kaleidoscope is of great use in the ornamental arts, particularly to carpet and lace manufacturers, calico-printing, paper-hanging, jewellery, &c. &c., its adaptation to their purpose is effected by occasionally furnishing the instrument with a stand, in order that the pattern may be fixed whilst...
whilst the artist is engaged in copying it. It is also capable
of being used with Dr. Wollaston's camera lucida, by
which means those who would otherwise be unable to
copy the patterns may do it with perfect facility and
accuracy. The effects of the instrument may also be ex-
bibited to many persons at once, on the principles of the
filar microscope, or magic lantern. The instrument for
scientific purposes is occasionally so constructed as to ad-
mit of the inclination of the reflectors being varied at pleasure.
Under the authority of Dr. Brewster, caleidoscopes of all
the different forms are manufactured by the opticians with
great accuracy and perfection; but the popularity of the
instrument has been such as to induce a great number of
individuals, who have been ignorant of its principles, to
infringe upon the patent, and impose upon the public a
wretched imitation of the original, poaching none of the
properties which are essentially necessary to the production
of beautiful and symmetrical forms; and in order to jus-
tify such proceedings, it became necessary to search out for some
combination of mirrors already described, which might have
some resemblance to Dr. Brewster's instrument: and the
first patented anticipation of it was found in prop. 13 and
14 of Wood's Optics; but professor Wood, in a letter to
Dr. Brewster on the subject, has most handsomely disclaimed
having in contemplation the effects produced by the caleido-
scope in giving the propositions alluded to. The next sup-
pofed anticipation was an instrument proposed and made
by Mr. Bradley in 1711, which consisted of two pieces of
silvered looking-glass, five inches wide, and four inches
high, jointed together with hinges, and opening like a
book. These plates being set upon a geometrical drawing,
and the eye being placed in front of the mirrors, the lines
of the drawing were seen multiplied by repeated reflections.
This instrument had been described long before by Kircher,
and did not receive a single improvement from the hands of
Bradley. It had been often made by the opticians; but no
person ever thought of applying it to any purpose of
utility, or of using it as an instrument of rational amuse-
ment by the creation of beautiful forms: indeed, from its con-
struction, it is quite incapable of producing any of the
singular effects of the caleidoscope. As, however, the
similarity between the two instruments is maintained by
many persons, either from ignorance or interest; in order,
therefore, to render that justice to Dr. Brewster which to
us appears his due, we give the following statement of the
differences between the two instruments, upon the sup-
position of their both being applied to geometric lines upon
paper.

1. In Bradley's instrument, the length is less than
the breadth of the plates.
2. Bradley's instrument cannot be used with a tube.
3. In Bradley's instrument, from the erroneous
position of the eye, there is a great inequality of light in
the sectors, and the last sectors are scarcely visible.
4. In Bradley's instrument, the figures consist of elliptical, and consequently unequal sectors.
5. In the caleidoscope, the equal sectors all unite into
a complete and perfectly symmetrical form.
6. In Bradley's instrument, the unequal sectors do
not unite, but are all separated from one another by a
space equal to the thicknens of the mirror-glass.
7. In Bradley's instrument, the defects in the
junction of the plates are all rendered visible by the erro-
nous position of the eye.

To which it may be added, that professors Playfair of
Edinburgh, and Pictet of Geneva, and the celebrated Mr.
Watt, have each of them borne testimony to the dissimilarity
of the two instruments, and to the unquestionable claim
which Dr. Brewster has to the invention of the caleido-
scope.

CALENDAR. To the French calendar, annex—the
French have abolished their new calendar, and restored the
Gregorian, which was ordered to be used in all their dates
after the 1st of January, 1856.

CALEYA, in Botany, a very distinct and elegant genus,
thus named by Mr. Brown, in full commemoration of Mr.
George Caley, an able and accurate botanist, who has for
several years been employed by Sir Joseph Banks, in the
investigation of the vegetable productions of New South
Wales, but whose discoveries are not all admitted into Mr.
Brown's work, being, we hope, destined to appear in some
more popular, and more amply descriptive, publication.—
Brown in Ait. Hort. Kew. v. 5. 204. (Caleana; Br. Prodr.
Nov. Holl. v. 1. 329.)—Clas and order, Gynandra Monan-

Eff. Ch. Flower reveral. Calyx-leaves and petals linear,
early equal, spreading. Lip stalked, peltate, hollow,
opening outwards. Style dilated. Anther a permanent
lid. Pollen powdery.

There are two species, C. major and minor, both found
near Port Jackson; the former sent to Kew, by Mr. Caley,
in 1810. These are smooth herbs, with simple naked bulbs.
Leaf radical, solitary, linear, sheathed at the base. Flowers
two, brownish-green; the lip and column red. The lip
is moveable, reflexed; but during rain it becomes inflamed over
the column, which Mr. Brown is doubtful whether to at-
tribute to the diminution of light, or to the irritation of the
rain.

CALICUM, from κάλα, a little cup, well ex-
pressing the form of the fructification.—Peri. in Uit. Ann.
fac. 7. 20. Achar. Syn. 55. " Lichenogr. 39. t. 3. f. 1—
Lichenes.

Eff. Ch. Culif uninterrupted, uniform. Receptacles cup-
shaped, cartilaginous, stalked, more or less elevated, con-
taining a compact powdery mass of seeds, forming an even
disk.

Acharius defines twenty-five species of this curious and
beautiful, though minute and inconspicuous genus of the
lichen tribe. They form grey, white, or yellow patches, of
various extent, on old wrought wood, or boards, exposed to
the
the weather; sometimes on the old bark of trees. The receptacles are, most frequently, each elevated on a slender bristle-like 

flatt, usually black, like a horde-hair, and so different from the chalky or granulated crust from whence they grow, as to appear altogether parasitical. Their powder when touched stains the fingers. Sixteen species are described and figured in Eng. Bot. especially in vol. xxxv.

CALLICOMA, Curt. Mag. 1811. See CODIA.

CALLISTACHYS, or rather CALLISTACHYIA. See OXYTHOBUS.

CALNE. The borough and parish of Calne, in 1811, contained 250 houses, and 1547 persons; viz. 1621 males, and 1926 females; 325 families employed in agriculture, and 402 in trade and manufactures.


Eff. Ch. Calyx ringent; two lower leaves under the lip. Petals felsifie, smaller, erect. Lip longer than the calyx, felfife, pointed; beard at the margins and on the disk. Anther parallel to the stigma, permanent.

Herbage smooth. Bulbs undivided, naked. Leaves few, all on the stem; the lower one channelled, much longer than the rest. Spike racemose, lax, with prominent, reddish, rather large flowers. Nearly akin to NEOTRIA; see that article.

1. C. campelis. Br. n. 1.—Lip not much longer than the calyx, with a half-lanceolate point, one-fifth its own length. Column with two glands at the base. Bracteae longer than the germs. Flowers from four to eight.

Gathered by Mr. Brown at Port Jackson, as well as in the tropical part of New Holland.

2. C. paludosus. Br. n. 2.—Lip twice the length of the calyx, with a ligulate zigzag point, half its own length. Column without glands. Bracteae shorter than the germs. Flowers from two to four.—Found by Mr. Brown, at Port Jackson.


Eff. Ch. Corolla in six deep spreading segments; three innermost largest; woolly above, with a smooth spot at the base. Filaments very short, inserted in the bafe of each segment. Anthers erect, arrow-shaped. Stigmas reflexed. Capsule of three cells.

1. C. elegans. Grassy Woolly-flower. Pursh n. 1.—Found by governor Lewis, at the head-waters of the Kookooskia, North America, flowering in May. Bulb solid, globular, eaten by the natives. Leaf solitary, radical, grassy, ribbed, nearly smooth, taller than the flower-stalk, which is simple, round, smooth, bearing two or three very elegant, drooping, white flowers, the size of Hypoxis cerniA, on slender partial stalks, each accompanied by a linear-lanceolate bractea. The three inner segments of the corolla are covered with long down, and marked with a roundish, smooth, purple spot at their base.


1. C. pilosa. Br. n. 1. the only species, found by Mr. Brown in the tropical part of New Holland. An annual hairy plant, smelting when dried like our Anthoxanthum. The leaves are cut or toothed; floral ones anuricled at the base. Stalks axillary, single-flowered, without bracteae; reflected as the fruit ripens.

This plant is separated from Goodenia, (see that article,) solely on account of the three-cleft style, and three filaments, and Mr. Brown hesitates about the propriety of the measure.

CALOMERIA. See HUMA.


Few orchidaceous genera are more natural.


Eff. Ch. Petals six. Nectary with twelve segments, bearing the flamens. Berry globose, with one or two seeds. Diffiguished from Pancratium, as Mr. Brown observes, chiefly by the structure of the single-celled germs and pericarp. The flowers are small, not an inch long, either white or purple. The seeds germinate in the berry.


2. C. purpureum. Br. n. 2.—Flower-flalk earlier than the leaves. Barren segments of the nectary triangular.

Found on the southern coast of New Holland.


Gen. Ch. Cal. Perianth half-superior, of one leaf, turbinate; limb in four or five short, broad, deciduous segments. Cor. Petals four or five, ovate, twice the length of the calyx, and alternate with its segments. Stamina. Filaments very numerous, in four or five sets, opposite to the petals, the claw of each flattened, oblong, many times longer than the corolla, some of them either combined together, or partially imperfect, pinnate, or otherwise many-cleft, in the upper part, with capillary segments; anthers terminal, inserted by their base, linear-oblong, undivided. Pist. Germs in the bottom of the calyx, small, roundish; style thread-shaped, erect, shorter than the flamens; stigma acute.

Peric. Capsule coated with the base of the calyx, and firmly united to the branch, roundish, of three cells. Seeds numerous, small, oblong.
CAL

Eff. Ch. Calyx in four or five segments. Petals four or five. Stamens numerous, very long, in several various sets, opposite to the petals; anthers linear, undivided, vertical. Capsule coated by the calyx, three-celled, permanent. Seeds numerous.

Obs. The flaments in some species consist of uniform sets, answerable to the number of the petals; in others, two or more of those sets are partially combined laterally, the remainder being divided into simple threads, without anthers, and this last is the character of the genus as M. Labillardiere underfoot and described it. But Mr. Brown has, in conformity to nature and analogy, not limited it so strictly. We adopt his views of the genus, only begging leave to construct the essential character without exception, such paraphrasis being best avoided. The genus before us comes next to Beaufortia, (see that article,) and is full as splendid, differing from it essentially in the structure of the anthers, and in having numerous seeds. From Melaleuca, (see that article in vol. xxii,) the difference is less striking, but we believe very essential, confiding in the vertical, not in-ternal, anthers. To this Mr. Brown adds that the infrutescence is unilateral.

1. C. fangula. Blood-red Unequal Calothammus. Labill. Nov. Holl. v. 2. 255. t. 164. —Flowers four-cleft. Sets of flaments equal combined; two of them imperfect, distinct. Adult leaves linear-awl-shaped, compacted, smooth. —Native of Lewin's land, flowering in December. A fbrul, fix feet high, with round, scarred branches. Leaves scattered, slender, acute, entire, rather above an inch long; hairy when young. Flowers in small lateral fellite tufts, about the length of the leaves, conspicuous for their blood-red flaments, two feet of which unite to form a broad, wedge-shaped, cone-c każdy, divided at the top into numerous, vertical, parallel flaments, each bearing an upright linear anther; the two remaining feet diminished to simple, thread-like threads, without any anthers. Capsule small, globose.

2. C. quadrifida. Four-cleft Equal Calothammus. Br. in Ait. n. 1. Sims in Curt. Mag. t. 1556. —Flowers four-cleft. Sets of flaments equal and distinct, with many anthers. Adult leaves smooth, as well as the fruit. —Gathered by Mr. Brown, on the south-west coast of New Holland. Sent to Kew in 1803, by Mr. Good, along with the two following. This bears splendid scarlet flowers, whose beauty however depends on the large flaments, an inch and a half long, the petals being small, pale, and inconspicuous. The leaves are linear-oblanceolate, or somewhat spatulate, but extremely narrow, hardly more than an inch in length.

3. C. willoa. Hair-Hair Five-cleft Calothammus. Br. in Ait. n. 2. —Flowers five-cleft. Sets of flaments equal and distinct, with numerous anthers. Adult leaves villous, as well as the fruit. —Found by Mr. Brown on the south-west coast of New Holland. A green-house fbrul, flowering at Kew, from July to September.

4. C. grecolis. Slender-leaved Calothammus. Br. in Ait. n. 3. —Flowers five-cleft. Sets of flaments equal and distinct, with only three anthers to each. Leaves elongated, smooth, as well as the prominent capsule. Stem branched. —Native of the same country as the last.

No other species have been hitherto described.


Eff. Ch. Corolla. Crown of the flaments fimple, of five keel-shaped leaves, attached lengthwise to the tube of the flaments; recurved at the base. Manipes of pollen ren, smooth, pendulous. Stamina pointefs. Follicles tumid, smooth. Erect smooth milky fbrul, with broad opposite leaves, and handsome large flowers, in lateral corybofhe panicles, immersed between the footstalks. Only two species are described.

1. C. procrera. Bell-flowered Auricula-tree. Ait. n. 1. (Afiepia procrera; Ait. ed. 1. v. 1. 305. Wild. Sp. Pl. v. 1. 1263. Schneee. ic. 1. 18. (See A.fiepia, n. 25.) —A. gigantea. Andr. Repof. t. 271. "Zia-rect; Le Brun Voy. 315. t. 184."") —Segments of the corolla spreading. —Native of Persia. A fbrul shrub impotent of damp and cold, flowering from July to September. The whole plant is glaucous, fix or seven feet high, with broad, felfie, entire leaves. Flowers irregularly corybofhe, numerous, larger than in most of this tribe, an inch or more in width, of a rich brownish-purple, powdered like an Auricula; pale beneath.

2. C. gigantea. Curled-flowered Auricula-tree. Ait. n. 2. (Afiepia gigantea; Linn. Sp. Pl. 312, excluding the fynonym of Plunckent and Alpinis. Wild. Sp. Pl. v. 1. 1264. (See A.fiepia, n. 6.) —Erica; Rheede Hort. Mal. v. 2. 53. t. 31.) —Segments of the corolla reflexed, with twisted points. —Native of sandy ground on the coast of Malabar. Very like the foregoing, but the corolla is differently shaped, as expressed in the character, and is laid to be variegated with white and purplish-red, smelting like a lily. We beg leave to observe, that if priority of date were to determine generic names, without regard to the found regulations of Linnaeus, Mr. Brown's elegant Calotropis must give way to Rheede's Erica, as the appellation of this genus, in spite of law, fense, taste, and convenience.

Vol. VI.

CALVERT, in Geography. Add—This county contained, in 1811, 8003 inhabitants, including 3937 slaves.

CALYPSO, in Botany, an elegant botanical name of Mr. Salisbury's, from καλυψω, to cover or conceal, not merely alluding to the covering of the stigmas, but preserving a poetical analogy between this botanical beauty, so difficult of access, and the secluded godfells, whose life was fabled to be protected miraculously from the observation of observers.—Salibb. Parad. 85. Brown in Ait. Hort. Kew. v. 5. 268. Purf. 593. —Clasf and order, Gynandria Meteoria. Nat. Ord. Orchidaceae.


CALYSTEGIA, a genus separated by Mr. Brown, Prodr. Nov. Holl. v. 1. 483, from Convolvulus, and chiefly distinguished by the great fire of the two fcalp tribes, including
inflating the calyx, whence the name, from καλύς, and τον, to cover. Convolutus septum and C. Soldatiella of Limneus, with several others, constitute this genus, which appears to us better omitted.

CALY-YUG, denotes, according to the chronology of the Hindoos, the present or fourth age of the world.

CAMALODUNUM, 1. 3, r. Trinidantes.

CAMBERWELL, a parish of Brixton hundred, in the county of Surrey, which includes the hamlets of Dulwich and Peckham, and in 1811 contained 1849 houses, and 11,309 persons; viz. 4854 males, and 6455 females; but since that time much increased in buildings and inhabitants.

CAMBIUM, l. 51, for CORTICAL LAYERS r. Cortex; l. 39, for PITH and MEDULLARY CANAL r. MEDULLA. Col. 2, l. 5, r. MONOCOTYLEDONES.

CAMBRIA, in Geography, a county of Pennsylvania, containing 2117 inhabitants.—Also, a township of the same county, having 868 inhabitants.

CAMBRIDGE, col. 4, l. 7, add—By the return in 1811, the borough and university of Cambridge contained 991 houses, and 11,108 persons; viz. 5288 males, and 5820 females: 80 families employed in agriculture, and 1600 in trade and manufactures.

CAMBRIDGE, in Washington county, &c. l. 2, r. census of 1810, 6732 inhabitants, and 650 senatorial electors; l. 10, for 2115 r. 2523; l. 38, r. 990.

CAMBRIDGE, a town of Guernsey county, in Ohio, having 474 inhabitants.

CAMBRIDGE, Wis., a township of Middlesex county, Massachusetts, having 971 inhabitants.

CAMBRIDGESHIRE, col. 1, l. ult. r. In 1811, this county contained 17,489 houses, and 101,109 persons; viz. 50,756 males, including 2946 local militia, and 50,393 females: 12,811 families employed in agriculture, and 5330 in trade, manufactures, and handicraft.

CAMDEN, a county of North America, l. 3, for 4033 r. 5347.

CAMDEN, a county in Georgia, &c. l. 3, r. containing 3941 inhabitants, of whom 2681 are slaves.

CAMDEN, in the district of Maine, contains 1607 inhabitants.

CAMDEN, a post-township of Oneida county, in the state of New York, watered by the W. branch of Fitch creek, containing about 1100 inhabitants, principally farmers from Connecticut.

CAMELINA, in Botany, an old name of French origin, used by Dodonaeus, but whether it alludes to this plant's being the companion of flax, Linum, as Crantz seems to intimate, is hardly worth enquiring.—Crantz Auftr. f. 17. Brown in Ait. Hort. Kew. v. 4, 93.—Clasf and order, Tetragonion Siliculose. Nat. Ord. Siliculose, Limn. Cruciferae, Jaff.


Brown.

Mr. Brown founds this genus on the Mygrum fatuum of Limneus, and the M. (not Alysum) austriacum of Jacq. Auftr. t. 111. The first is the only Camelina of Crantz above cited, who distinguishes it from Alysum, (see that article,) by the connection between the style and the valves of the pouch, the style of Alysum being connected with the position only. Mr. Brown's distinction depends chiefly on the position of the cotyledons; for every Alysum has not toothed filaments. Of Mygrum austriacum we do not feel competent to judge, but we are disposed to keep the fatuum an Alysum, as in Fl. Brit. and Engl. Bot. t. 1254, unlefs it could be set apart along with Alysum utriculatum of Limneus.

Curt. Mag. t. 130, one species of Mr. Brown's and Lamarck's "Vesicaria," very different from the original Vesicaria of Tournefort; see that article.

CAMPBELL, l. 3 and 4, r. 11,001 and 5368.

CAMPBELL, a town of Kentucky, containing 5306 inhabitants, of whom 438 are slaves.

CAMPBELL-Town. Add—The burgh and parish, in 1811, contained 1010 houses, and 7807 persons; viz. 3367 males, and 4440 females.

CAMPDEN, col. 2, l. 23 from the bottom, add—In 1811, it was stated to contain 273 houses, and 1214 persons; viz. 594 males, and 612 females.

CAMPION, l. 5, r. 873.


i. C. linearis. Br. Mag. t. 121. N. H. Cape Van Diemen. A smooth herb, with a root of several tapering fibres. Leaves gritty, alternate, half-clasping the stem. Flowers terminal, erect, either solitary, or from two to four in a lax cluster. Anthers variable, heart-shaped. Stigmas simple. Seeds in a simple row, attached to the inner angle of each cell. Nothing is said of the colour of the flowers.

CAANAH, l. 2, for Lincoln r. Somerf. l. 4, r. 1757; l. 7, r. 1810 and 1094; l. 12, add—In 1810, it contained 2233 inhabitants; l. 13, add—With 232 inhabitants.—Also, a township of Wayne county, in Pennsylvania, having 829 inhabitants.

CAANAH. New, a town of Fairfield county, in Connecticut, having 1599 inhabitants.

CANAL, col. 14, l. 44, add—The principal interior canals that are already (1818) completed in the United States are, the Middlesex canal, uniting the waters of the Merrimack river with the harbour of Bolton, and the canal Carondelet, extending from Bayon St. John, a post of delivery in the Missippifi district, to the fortifications or ditch of New Orleans, and opening internal communication with lake Pontchartrain. The union of this canal by lakes with the Missippifi would, independently of other advantages, enable the government to transport with facility and effect the same naval force for the defence both of Missippifi and lake Pontchartrain, the two great avenues by which New Orleans may be approached from the sea. In 1816 or 1817, the flate legislature of New York passed acts, appropriating funds for opening a navigable communication between the lakes Erie and Champlain and the Atlantic ocean, by means of canals, connected with the Hudson river. When this scheme, actually begun, is accomplished, and a communication opened by canals and lakes between lake Erie and the navigable waters of Hudson's river, and also between lake Champlain and these waters, the flate of New York will soon become, in itself, a powerful empire.

Sheet Q 9, instead of CANAL at the head of the page, insert in col. 1 and 2, CAN.

CANAL, p. 44, col. 2, l. 6 from the bottom, for thereon r. therein. P. 49, col. 1, l. 20, add.—Mr. Chapman has lately (viz. in 1816) suggested to the editor, that this method, without complicated collateral aid, not had in contemplation, will be found to be impracticable; because the moment the defending criffen entered the lower canal, the equilibrium
equilibrium would be lost, and all counterbalance when the chaff had entered to such depth as to allow its contained vessel to go out.

For Hartlepool Canal r. Hartley Canal; for Durham r. Northumberland; and for Hartlepool r. Hartley. Canal, Bafing-broke, col. 2, l. 3, after commences in, infect—Cooper’s meadow, adjoining to the town of Bafing-broke, and enters the river Wey about two miles above Weybridge; de&, l. 3, 4, 5, from Wey to Bafing-broke; l. 18, after Loddon, add—The proprietors are prohibited from touching the Loddon, or any of the springs or streams that feed it.

Canandaqua, or Canandaigua, l. 11, r. In 1810, this township had 415 families, 256 fanatorial electors, and 2392 inhabitants.

Candarine, a money of account in China, where 1 mile is = 10 marcs = 100 candaries = 1000 cash.

Candles, Law relating to, col. 2, l. 2, add—By Geo. III. c. 98. duties of calumies are likewise imposed: 1 l. 8, r. c. 9.

Candy, a weight in the East Indies. At Madras the candy is 500 lbs. avoirdupois, = 20 maunds. See Maund.

Canfield, in Geography, a township of Trumbull county, in Ohio, having 494 inhabitants.

Canhada, a liquid measure in Portugal, 6 canhadas being = 1 pote, or 20 liters.

Canicular Year, c. 2, l. 16, for r. on.

Canua, or Canxe, a measure for cloth in Italy, and the south of France, Spain, &c. each canua at Barcelona being = 6.4 English inches; at Florence, = 9.1 English inches for woollen, and 9.15 for silk; at Genoa, = 11.7 English inches; at Majorca, 67.5; at Malta, 81.9; at Messina, 95; at Montpellier, 75.8; at Morocco, 75.4; at Naples, 83; at Palermo, 76.2; at Saragossa, 81.55; at Toulon, 68.25.

Canannaghquanesing, in Geography, a township of Butler county, in Pennsylvania, having 1284 inhabitants.

Canoe, l. 3, r. 1621; l. 7, after Seville, and under Juan Martinez Montanes; l. 26, infect—In 1643 he removed to Toledo; and upon, &c.

Cantbury. This city, by the return of 1811, contained 2093 houses, and 10,200 inhabitants; viz. 4606 males, and 5593 females; 508 families being employed in agriculture, and 1195 in trade and manufactures.

Cantbury, a township of America, &c. l. 5, for 1578 r. 1526, including 7 lakes; l. 8, add—It contains 1812 inhabitants.

Cantharidin, in Chemistry, a name given by Dr. Thomson to a peculiar principle extracted from cantharides in the following manner.

Boil cantharides in water till every thing soluble in that liquid be taken up. Concentrate the solution by evaporation, and when reduced to a thick syrup, boil it repeatedly in alcohol, till that fluid ceases to act upon it. Evaporate the alcoholic solution to dryness, and digest the dry residue in sulphuric ether. When the ether has assumed a yellow colour decant it, and expose it in an open vessel to spontaneous evaporation. Small crystalline plates mixed with yellow matter will soon separate. The yellow matter may be separated by alcohol, which leaves the crystals of cantharidin quite pure.

Cantharidin thus obtained exists in the form of shining micaceous plates. It is insoluble in water, and in cold alcohol. Boiling alcohol dissolves it, but the cantharidin again separates on the cooling of the alcohol. Ether dissolves it, but not in large quantities. It readily dissolves in oils, and when applied to the skin, acts as a vesicatory with great energy. The solution of it in oils is equally efficacious. This principle seems to have been first separated by Thouvenel. See Cantharides.

Cantharis, l. alt. dele which see respectively.

One of the most elegant insects of this genus is the scarlet cantharis; entirely of a vivid red, except the body, legs, and antennae, which are coal-black. It is somewhat more than half an inch in length. The C. bipustulata is a beautiful insect, somewhat smaller than the preceding, of a very dark but elegant gilded green, with the tips of the wing-shells red, and on each side of the thorax a triple velle of a bright red colour, capable of extension or retraction at the insect’s pleasure, and by the microscope exhibiting an alternate inflation and contraction, like that of the lungs in the larger animals. This species is found in the middle of summer on various plants, and particularly on nettles. Shaw.

Canticles, col. 3, l. 16, r.—The causes of the apparent, &c.

Canton, in America, add—and containing 1353 inhabitants.—Alto, a town of Hartford county, in Connecticut, having 1374 inhabitants.—Alto, a township of Luzerne county, in Pennsylvania, having 417 inhabitants.—Alto, a township of Washington county, in the large state, containing 1345 inhabitants.—Alto, a town of Stark county, in Ohio, having 846 inhabitants.

Canton, in China, l. 17, after houfes, infect—built of brick. Col. 2, l. 1, add—These sampans, as they are called, accommodate, at the very lowest computation, 40,000 people: l. 13, after 40,000, add—The accounts of the population of Canton are very various and contradictory. The exaggerated statement above given is that of Le Comte. Da Halde estimates it at a million; and Sommav, erring in the other extreme, reduces the number to 75,000. But according to data, collected by captain King, in “Cook’s Third Voyage,” (vol. iii.) he apprehends, that the city and its suburbs may probably contain about 150,000.

Cauutchouc, in Chemistry. In addition to what has been said of this singular substance, we may observe that Surinam has been lately itated to exist in a great variety of plants, though it has been hitherto usually confounded with other substances. It may be separated from resins by means of alcohol. It may be extracted from the different species of millet by water, with which it readily combines, whilst in that fluid it exists in the plants. When mixed with gum or extractive, it may be separated by distilling a part of the plant containing it, first in water, and then in alcohol, till all the substances soluble in these liquids be extracted. The residue is then to be dried and digested in four times its weight of rectified petroleum. Express the liquid part by fusing the substance in a linen cloth. The liquid is then to be put by for some days to settle, and after the clear part has been poured off, the remainder is to be mixed with a third part of water, and distilled. The caoutchouc remains behind.

According to Bucholz, a considerable proportion of caoutchouc exists in opium. Malick also is flated to contain a substance very similar to caoutchouc.

Capelet, or Capellat, a name sometimes given by followers to a swelling of a wensy kind, which grows on the back of a horse, and on the point of its elbow. It often arises from bruises, and in this case should be bathed with hot vinegar and alum; but when they grow gradually on both hee’s and elbow, blood is extravasated. When this happens, suppuration should be promoted by rubbing the part with stimulating unguents; and when matter is formed, the skin should be opened with a lancet, in more dependent parts.
CAR

parts towards one side, for avoiding a fear. The subsequent dressings may be turpentine, honey, and tincture of myrrh.

CAPE MAY, in Geography, a county of New Jersey, containing 36,322 inhabitants, of whom 18,110 are slaves.

CARAGE of Lime, denotes the quantity of sixty-four bushels.

CARALLIA, in Botany, Caralle of the Telingas, or natives of Hindoostan; being one of those barbarous names which some modern botanists have ventured to tolerate, but which no classical one can approve. — Roxb. Coromandel. v. 3. 8. — Chal. and order, Isocrypta Monogynia. Nat. Ord. Hesperides, Linn. Myri. Jull.

Ell. Ch. Calyx in five or seven segments, superior. Petals five or seven. Stigma three-lobed. Berry of one cell, with a solitary seed.

1. C. lucida. Shining Carallia. Roxb. as above, t. 211.

—Native of the lower region of the Cazar mountains. A small, handlike, evergreen tree, flowering in March and April. Leaves on short flanks, opposite, elliptical, acute, finely serrated, smooth, four or five inches long, and two or three and a half broad. Flowers small, yellow, in little, aggregate, axillary, falked heads. Berry the size of a pea, red. Seed large, with a strongly curved embryo. Nothing is recorded of the qualities or uses of this plant. It is evidently next akin to Eugenia; see that article.

CARAWAY, r. Carum, &c.; at the end of the next article r. Carum.

CARBON, in Chemistry. The progress of chemical knowledge enables us to date, with greater accuracy and precision, the nature of some of the compounds of carbon, than at the time this period in the Cyclopedia was written.

Carbonic Oxid.—It has been flown by Gay Lussac, that 100 measures of this gas require for complete combustion 50 measures of oxygen, and that the product is 100 measures of carbonic acid; hence it must be composed of one atom of carbon and one atom of oxygen, or 100 parts by weight will consist of

<table>
<thead>
<tr>
<th>Oxygen</th>
<th>Carbon</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.14</td>
<td>42.86</td>
</tr>
</tbody>
</table>

And its true specific gravity must be 0.9722, and 100 cubic inches of it weigh 16.99 grains. Carbonic oxir has the property of combining with chlorine, and forming a peculiar compound, which its discoverer, Dr. Davy, has named Phosgene gas; which see.

Carbonic Acid.—When pure charcoal is burnt in oxygen gas, it has been shown that the original bulk of the oxygen suffers no change. Hence it is obvious, that, by subtracting the specific gravity of oxygen from that of carbonic acid gas, we shall obtain the quantity of carbon existing in it. The specific gravity of oxygen gas is 1.11, and that of carbonic acid 1.52. Hence 100 parts, by weight, of carbonic acid will consist of

<table>
<thead>
<tr>
<th>Oxygen</th>
<th>Carbon</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.73</td>
<td>27.27</td>
</tr>
</tbody>
</table>

which correspond with two atoms of oxygen and one of carbon. See Atomic Theory.

Carburetted Hydrogen.—The specific gravity of carburetted hydrogen, according to Dr. Thomson, is 0.5555, and 100 cubic inches of it weigh 16.99 grains. It requires for its complete combustion twice its volume of oxygen gas, and produces exactly its own volume of carbonic acid; the only remaining product is water. Hence 100 parts, by weight, of this gas are composed of

<table>
<thead>
<tr>
<th>Carbon</th>
<th>Hydrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>25</td>
</tr>
</tbody>
</table>

which correspond with one atom of carbon and two of hydrogen.

Olelfant Gas.—The specific gravity of this gas, according to Dr. Thomson's experiments, is 0.974, and 100 cubic inches of it weigh 29.72 grs. It requires for its complete combustion three times its volume of oxygen gas, and produces, when burnt, twice its volume of carbonic acid gas, and a certain proportion of water. Hence 100 parts, by weight, of this gas are composed of

<table>
<thead>
<tr>
<th>Carbon</th>
<th>Hydrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>85.71</td>
<td>14.29</td>
</tr>
</tbody>
</table>

which correspond with one atom of carbon and one of hydrogen.

The curious oil-like compound formed by the union of this gas with chlorine, has been lately examined by MM. Robiquet and Colin. They found that it is composed of one volume of chlorine united with one volume of olefiant gas, and of course that its constituents, by weight, are

<table>
<thead>
<tr>
<th>Olefiant gas</th>
<th>Chlorine</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.28</td>
<td>83.72</td>
</tr>
</tbody>
</table>

This oily liquid, which Dr. Thomson considers as a sort of ether, and hence names it chloric ether, burns with a green flame, and at the same time gives off copious fumes of muriatic acid and much foot. Its specific gravity at 45° is 1.2201, water being 1.000. It boils at 152°. At the temperature of 45°, its vapour is capable of supporting a column of mercury 24.66 inches in height. The specific gravity of this vapour was found by experiment to be 3.4434, which very nearly coincides with the above account of its composition. When passed through a red-hot porcelain tube it is decomposed and converted into muriatic acid, and an inflammable gas containing hydrogen and carbon, while a copious deposit of charcoal is found in the tube. It is also decomposed when passed through red-hot oxide of copper.

With respect to the carbonates, the numbers representing them will of course require a little adjustment; this can be easily done from the composition of carbonic acid stated above, and from the data given under Atomic Theory.

CARBONIC Acid Gas, col. 2, l. 5, add—According to the accurate experiments of Mells. Allen and Pepsy, recorded in the Phil. Trans. the weight of a cubic inch of this gas is .464 of a grain. Col. 3, l. 46, r. milikins.

CARDAMOM, l. 2, inset after Cardamom, anguifolia, grana Paradisa, &c.

CARDIFF, col. 2, l. 9, inset after canal.—The townhall of Cardiff is a respectable, modern building, and near it
is the county gaol, built upon Mr. Howard's plan; 1. 14—
By the parliamentary return in 1811, the number of inhab-
habitants is stated at 2457. The only manufactory established
here is that of iron hoops; the trade, however, is very
considerable, in consequence of the numerous collieries up
the vale, and the iron and tin works of Methyr, Melin
Gruffydd, &c. the produce of which is conveyed here by
the canal for exportation, and which creates a large import
trade from Bristol, &c., in shop goods to supply the con-
sumption of the interior country. There are regular passage-
boats twice a week from this place to Bristol.
Cardiff is a borough-town, and in conjunction with the
contributory boroughs of Cowbridge, Llantrifflant, Caerphili,
Aberavon, Neath, Swansea, and Loughor, sends one mem-
ber to parliament.

CAREX, col. 4. l. 11, r. banata.
CAREYA, in Botany, named by Dr. Roxburgh, "after
its discoverer Mr. William Carey, a good botanist, and a pro-
founder of natural history in general."—Roxb. Coromand.
v. 3. 13. Ait. Hort. Kew. v. 4. 236.—Claws and order,
Myrti, Juf.
Germens of four cells. Berry with numerous seeds, imbedded
im in pulp.
1. C. herbeca. Herbaceous Careya. Roxb. as above, l.
217. Ait. n. 1.—Herbaceous. Flowers stalked. Outer
filaments longiit and without anthers.—Native of Runnpore,
in Bengal, flowering in February. Root woody, perennial.
Stems a span high, annual, round, smooth. Leaves opposite,
ovate, crenate, smooth, from four to eight inches long,
on short stalks. Flowers terminal, corymbose, few, large
and very beautiful, the calyx and petals greenish, tinged with
red; the outer row of their innumerable filaments crimson,
capillary, two inches long, recurved, without anthers, about
twice the length of the ovobate petals. Berry brown, the
fizze and texture of a medlar.
(Pelou : Rheed Hort. Malab. v. 3. 35. t. 38.)—Arbo-
reous. Flowers small. Inner filaments short, and without
anthers.—Native of the valleys, in various mountainous parts
of India. A large tree, with obvate, slightly ferrated, smooth,
deciduous leaves, from six to twelve inches long. Flowers
crowded, pale yellow, appearing with the young leaves in
March. Fruit the size of a small orange, soft and juicy till
quite ripe, when the pulp becomes sweetish, but Rheedede
reports it to be poisonous, which, considering its affinity to
Pfidium, is not credible. Dr. Roxburgh gives no account of
this plant, but describes the wood as the colour of mah-
ogany, though less hard and close. The fibrous bark
makes tough and durable ropes.
CARGA, a measure for wine and oil at Barcelona,
equal to 2½ quarters.
CARGADOR, in Portugal and Holland, denotes a
shipbroker.
CARGILLA, in Botany, is dedicated to the memory of
Dr. James Cargill of Aberdeen, a contemporary of Culpin
Baulhin, in whole Prodrornus, p. 154, 155, (Mr. Brown by
mistake refers to his Theatrum,) several descriptions of Fuci,
communicated by Dr. Cargill in 1653, may be seen.—Brown
Prodr. Nov. Holl. v. 1. 250.—Claws and order, Polynem
Juf. Br.
Eff. Ch. Calyx inferior, half-four-cleft. Limb of the
corolla four-cleft. Stamens inserted into the bafe of the
corolla; filaments doubled. Germen of four cells, with
two seeds in each. Berry globose, closely invested with
the cup-shaped calyx.—Some flowers have fewer, and im-
perfect, filaments; others only the rudiment of a pistil.
This genus is intermediate between Diospyros and Maba.
See those articles.
of the male flowers four-toothed, half as long as the tube of
the corolla. Style in three or four deep segments. Young
branches lax.—Found by Mr. Brown in the tropical part
of New Holland.
2. C. apera. Leaves oblong, smooth, obtuse, paler
beneath; acute at the base. Calyx of the male flowers four-
cleft, as long as the tube of the corolla. Style undivided.
Found by Mr. Brown, in New South Wales.
CARL P'Or, a gold coin of Brunnick, of which there
are double, flange, and half car d'ors; since 1802 con-
taining 92 gr. of pure gold, and equal 16s. 3d. sterling.
The double in proportion. See Coin.
CARLIN. Add.—See Taro.
CARLISLE, col. 5. l. 27; add.—By the return of 1811,
the city of Carlisle contained 16,528 houses, and 12,531
persons; vis. 628 males, and 6593 females: 134 families
employed in agriculture, and 2301 in trade, manufactures,
and handicraft.
CARLISLE, the chief town of Cumberland county, &c. —
I. 6. By the census of 1810, Carlisle borough contains
2491 inhabitants, including 78 slaves. Alto, a town of
Middlesex county, in Massachusetts, having 672 inha-
bitants.
CARMELEITES. Add.—see Manchetter Memoirs,
vol. v.
CARN, or CAIRN. See Carnezzarella.
CARNESVILLE. Add.—see Franklin.
CAROLIN D'OR, or CAROLIN, a gold coin of Bavaria,
Hefte Darmstadt, and Wurttemberg, valued at 11 florins.
See Coin.
CAROLINA, N. and S. See United States.
CAROLINE, l. 4, r. 17, 544; l. 5, r. 10, 743; l. 8, r.
9453; l. 10, r. 1520.
CARORA, l. 2, infert.—15 leagues E. of Maracaybo
lake, in N. lat. 10°. The town is tolerably well built; the
streets are large and on a line; the air is flyfarious, though
the soil is parched; the inhabitants, amounting to about
6200, live on the produce of their flocks and herds, and em-
ploy themselves in tanning and trefenting the hides and
skins, which are used in the tins for boots, shoes, saddles, bridles,
and curriers. The surplus of the local consumption is spread
over the province, or is conveyed to Maracaybo, Cartha-
gena, and the island of Cuba. They also make, with a
kind of fibre (aole djsiilia) very good hammocks, which far-
thigh an article of commerce. Depons.
CARPATHIAN MOUNTAINS, l. 22, r. Zemnit.
CARPHA, in Botany, so named by sir Joseph Banks
and Dr. Solander, from saxa, dry forests, cattania, in allusion
to the habit of this genus.—Brown Prodr. Nov. Holl. v. 1.
Calamaria, Linn. Cerepera, Juf. Br.
Eff. Ch. Spikelet single-flowered; scales imperfectly
two-ranked, the lower ones empty. Brifles three to fix,
beneath the germen, as long as the fertile scale. Style awl-
shaped, without a joint, crowning the prismatic nut. Stigmas
two or three.
1. Sect. 1. Spikelets two-ranked. Stigmas three. Nut trian-
gular. Brifles feathery.
1. C. alpina. Spikelets in a corymbose cluster. Brifles
fix, feathered nearly to the top. Stem leafy, smooth.
Leaves rough.—Native of Van Djeems's island.
2. C. dufta.—Tuft terminal. Involucrum of two elon-
ated
gated leaves; dilated and membranous at the base. Brites three, feathery at the base. Stem leaflets. Leaves radical, almost bristle-shaped.—Native of Port Jackson.

Thefe, with a non-descript species from Terra del Fuego, conftitute, in Mr. Brown’s opinion, the genuine genus of Carpho, the following being perhaps entitled to form one by themselves.

**Sect. 2. Spikelets awl-shaped. Style elongated, in two divisions.** 


**CARRICK.** See Trankey.

**CARTER, l. i.,** infect E. Tennekece. **Add**.—It contains 1142.

4190 inhabitants, 202 being花钱.

**CARTS, Laws relating to,** col. 3, l. 49, for 14. 4s. r.

CARTHAMUS, Chemical Properties of. Many experiments have been made on the colouring matter extracted from this plant. The leaf and most interesting are those of Dufour and Marchais, of which we shall present our readers with a short account.

The flowers of the carthamus contain two colouring matters; a yellow, which is soluble in water, and has hitherto been applied to no use; and a red, which is employed by the dyers, &c., and which constitutes the pigment called rouge. The yellow colouring matter readily dissolves in water, but it is difficult to separate the whole of it. Dufour effected this by expounding the carthamus wrap up in a piece of linen to the action of a flame of water. To separate the red colouring matter, he macerated for an hour the carthamus, after it had been washed, in a weak solution of carbonate of soda. Into this solution was put a quantity of cotton, and lemon-juice was then dropped into it till the liquid assumed a fine cherry-red colour. After standing twenty-four hours, the liquid lost its red colour, the whole colouring matter having combined with the cotton, and dyed it red. The cotton was taken out and well washed, to separate a little of the yellow colour adhering to it. It was then put into a very dilute solution of carbonate of soda. This alkali separated the colouring matter from the cotton, dissolved it, and assume a yellow colour; the cotton being removed and lemon-juice dropped into the solution, a fine red-coloured powder gradually separated, and at last precipitated. This was the red colouring matter. This red colouring principle is insoluble in water and oils, but is soluble in alcohol and ether. The alkalis also dissolve it, but destroy its colour. When diffused, it yields a little water, scarcely any gas, but a little oil, and a portion of charcoal, equal to one-third of the original weight. When this charcoal is burnt it leaves no ashes. One thousand parts of carthamus yielded only five of this red colouring matter, but no less than 268 of the yellow colouring matter above-mentioned. Carthamus also contains a great variety of other subiances according to Dufour, many of which, such as alumina, laud, &c., are evidently foreign. It is probably in some such manner as the above that the pink flowers are prepared from carthamus, though we believe the exact process is kept secret.

**CARTILAGE, Chemical Properties of.** See Bone.


1. C. ficatum.—Found by Mr. Brown in the tropical part of New Holland. Root perennial, tuberous below the fibres. Herb clothed with bar hairs, much resembling Phylidrum in appearance. Stem leafy, simple, or slightly branched. Leaves linear, clasping, elongated. Spike terminal, of many yellow flowers, each with two unequal, leafy, permanent bractes. The habit, as well as the permanent flaments and style, lead Mr. Brown to suspect some affinity to Phylidrum. Hence perhaps the true place of that puzzling genus may be discovered.

**CARVER, in Geography.** Add.—It contains 358 inhabitants.

**CASBIN, infect or CASWEEN, l. 11, after broad, add**—it may fill, however, be regarded as one of the largest and most populous towns in the kingdom, and carries on a great trade with Ghilan.

**CASEY, a county of Kentucky, containing 3252 inhabitants, of whom 257 are flowers.**

**CASH, a small coin in China, and India beyond the Ganges.** See TAL.

**CASHIERING, in Military Language.** An officer sentenced by a general court-martial, or peremptorily ordered by the king, to be dismissed from the service, is said to be cashiered.

**CASSAVA, or TAPIoca, Chemical Properties of.** This is prepared from the roots of the Jatropha manihot, an American plant. (See Jatropha.) These are peeled and subjected to prebure in a bag made of rushes. The expressed juice is a virulent poison, and is employed by the Indians for poising their arrows; but it deposits gradually a white powder, which has all the properties of starch, and which, when washed and dried, is perfectly harmless and highly nutritious. What remains in the bag also confits chiefly of the same starch. It is dried in stove, and afterwards pressed through a kind of sieve. Of this substance, the cassava bread, so much employed in the West Indies, is made.


1. C. aurea. Yellow Cassinia.—Native of the south coast of New Holland. Br. Seeds were lent to Kew, by Mr. Good, in 1803. The plant is marked as a green-houfe perennial herb, flowering in July and August, but we have no account of its habit or appearance.

**CAST, for BRAHMINS r. BRACHIMANS.**

**CASTELLANO, a weight for gold in Spain, 50 castellanos**
CAV

lanos being = 400 tomiones or 4800 grains. Silver is weighed by the same mark of 50 castellanos, divided into 8 ounces, 64 oehavos, 128 adaranes, 384 tomiones, or 4608 grains.

CASTINE. Add—It contains 1036 inhabitants.

CASTLE, New. See NEWCASTLE.

CASTLE-CARY, l. 8, add—By the returns of 1811, the parish contained 281 houses, and 1406 inhabitants; 650 being males, and 756 females.

CASTLE-RISING. By the returns of 1811, the borough and parish contained 46 houses, and 297 persons; viz. 148 males, and 149 females.

CASTLETON, l. 9, r. 1420.

CASTLE-TOWN, a township of America, &c. l. 2, which contained, by the census in 1810, 1301 inhabitants, and 121 senatorial electors. Here are three houses for public worship, and some school-houses.

CASTOR. By the returns of 1811, the parish contained 185 houses, and 1051 persons; 487 being males, and 564 females.

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CASWELL, l. 3, r. 11757 and 4299.

CATAHULA, a parish of the territory of Orleans, having 1164 inhabitants.


1. C. syringifolia. Common Catalpa. Sims in Curt. Mag. 1. 1894; and

2. C. longiflora. Wave-leaved Catalpa. (Bignonia longiflora ; Willd. Sp. Pl. v. 2. 290.) are the two described species. (See Bignonia n. 1 and n. 22.) We have heard that Dr. Solander, who was first aware of this genus, and who would certainly never have admitted it unauthorized a name as Catalpa, was very desirous of having it called Solandra.

CATAWESSY. Add—It contains 1914 inhabitants.

CATHARINE II., col. 3. l. 40, for Prussian.

CAT'S-EYE. See MINERALOGY, Addenda.

Catty, a weight at Canton, in China, and in some parts of India. The catty or gin of 16 langes or taels weighs 19 oz. 6 dwt. 4 grs. English Troy, so that 10 taels would weigh 5792 English grains. See TALE.

CAVALLO, THOMAS, F.R.S., in Biography, the son of an eminent physician of Naples, where he was born in 1759. Definied for commerce, he came to England for the purpose of acquainted himself with the principles of commerce in 1771; but literature and philosophy diverted his delination and enjoyed his preference. To those who were engaged in pursuits similar to his own, and to the editor of this Cyclopedia, he was a very useful coadjutor. His publications on a variety of philosophical subjects, and his communications to the Royal Society, were numerous, and are well known; particularly his "Elements of Natural and Experimental Philosophy," 1803, 4 vols. 8vo. He died, much respected and esteemed, and with the editor's sincere regret, in London in 1810.

CAUCUS, a term used in North America for a kind of electioneering committee; caucusing, as it is said, denoting electioneering. Of the origin of this uncoutth term we have the following account in Gordon's Hist. of the Amer. Rev. London 1788, "About the year 1738, the father of Samuel Adams, and twenty others who lived in the north or shipping part of Boflon, used to meet to make a caucus, and lay their plan for introducing certain persons into places of trust. Each distributed the ballots in his own circle, and they generally carried the election. As this practice originated in the shipping part of Boflon, caucus might have probably been a corruption of Caulker's meeting."

CAVEDONIA, l. ult. r. 80.

CAVEER, or CAVER, a money of account at Mocha, in Arabia, where accounts are kept in piasters of 80 cavers current.

CAVELLO, a copper coin of Naples.

CAVENDISH, The Honourable Henry, in Biography, was the son of Lord Charles Cavendish, and born in London in 1731. In literature, mathematics, chemistry, and philosophy, he was eminently distinguished; but his temper and habits were through life singularly recluse and economical; so that he appeared to those who were not honoured with being his intimate associates to great disadvantage. In early life his fortune was small; but by the retired manner in which he lived, and by subsequent accumulation of property, he died very rich. His library was very valuable; and easy of access to all his literary friends; but it is to be lamented that, in other respects, he was not emulous of following the example and acquiring the reputation of his eminent friend, Dr Joseph Banks, the president of the Royal Society, whose Sunday evening meetings he constantly attended, being generally there as well as at the meetings of the Royal Society, where he was almost always present, more ready to hear than to speak. A similar reserve and taciturnity marked his character in all his ordinary social connections and secular concerns. As a philosopher, his ruling temper was not without its beneficial effects. His contributions to the Royal Society, and which may be found in its Transactions, relate to chemistry, electricity, meteorology, and astronomy. This eminent philosopher died on February 4th, 1810, in the 79th year of his age; and at that time was reckoned the greatest proprietor in the Bank of England, his wealth being estimated at near 1,500,000 pounds, which he left entirely among his relations.

CAVENDISH, in Geography, a town of Windsor county, in Vermont, having 1295 inhabitants.

CAUK, l. ult. add—and BARTYES.


This genus is founded on Zyglera ocinica of Linnaeus, see Cavol, Monogr. translated in Ann. of Bot. v. 2. 77. t. 6. To this Mr. Brown adds a New Holland species, C. ferrulata, with three doubtful ones, among which is Rupia antarctica, Labill. Nov. Holl. v. 2. 116. t. 264. We are not informed why this genus supercedes the Cavolinia we have already described; see that article.

CAULO-
CAULOPHYLLUM, Michaux Bor.-Amer. v. 1. 204. Pursh 218. See LEONTICE.

CAUSTIC, Lunar, l. 18, r. revived.


Eff. Ch. Spikelets nearly single-flowered. Scales fallucited, the empty ones numerous. No bristles beneath the germen. Style dilated at the base. Stigmas three or four. Nut tumid, crowned with the bullous base of the style.

Obs. One species has five flaments, a circumstance marked by Mr. Brown as very extraordinary.

The are rigid rufby plants, growing on dry heaths in New Holland. Their flaments are leaflets; round and undivided in the lower part; panicked and semi-cylindrical above; the ultimate branches awl-shaped and leaf-like. The flaments are clothed with entire withered sheaths, extended on one side into an awl-shaped point, of the fame colour. Spikelets panicked, small, sometimes dioecious. Nut ovate, white, opaque. Brown.

1. C. flexuosa.—Panicles loose, zigzag; their ultimate branches smooth. Scales of the spikelets smooth.—Found at Port Jackson.

2. C. dioica.—Panicles zigzag, rather dense; ultimate branches rough-edged. Scales of the spikelets downy.—Native of the south coast of New Holland.

3. C. pentandra.—Principal and partial branches bif. Stamens five.—Found near Port Jackson.

CAWZI, or CADI, denotes in India a Mahometan judge, or justice, who also officiates as a public notary by affixing his seal. This is the same name as that which the officer named Cadi in Turkey.

CAYUGA, in Geography, a county of New York, containing 20,843 inhabitants, of whom 75 are flaves.

CECIL, l. 3, add—In 1810, 13,066 inhabitants, of whom 2,469 are flaves. Add at the close—Containing 1167 inhabitants.

CEDAR CREEK, a hundred of Sussex county, in Delaware, having 3874 inhabitants, of whom 310 are flaves.

CELEBINE, a corn measure in Spain. See CAFIIS.

CELESTEINE Sulphate of Strontian. See STRONTIAN.

CELSIUS, Andrew, in Geography, an eminent Swedish astronomer, was born at Upsal in 1701, and distinguished by his knowledge of mathematics, and more especially of astronony, to which his attention was principally devoted. In 1730 he was appointed by the king professor of astronomy, and he contributed very much to the revival of the study of this science in his native country, where it had been much neglected. With this view, he travelled into foreign countries, visiting Germany in 1732, and Italy in 1733. From Bologna he went to Rome; and having an opportunity of measuring the power of light, he concluded from his experiments on this subject, that the light of the moon, at new moon, is eight times weaker than at full moon; and that the light of the sun is 320,000 times stronger than that of the moon, and when in the meridian, thirty times more powerful than in the horizon. From Rome he removed to Paris in 1734, and was there engaged to accompany Maupertuis and other eminent astronomers, who were appointed to measure a degree under the polar circle; a problem of great importance in determining the figure of the earth. To the success of this mission he very much contributed by his journey to London in 1736, in order to procure instruments of Graham's construc-
Cephaeanthus, a genus of the cartilaginous order of fishes, the species of which have been united with those of the genera of Diodon and Tetronod; which see. Dr. Shaw has given the following character of this genus: jaws bony; body terminating abruptly, so as to resemble the head of a fish. The species enumerated by Shaw are, C. brevis, or tetronod mola of Linnaeus; C. oblongus, or Tetronod trunculus, or oblong dionod of Pennant; C. ovatus, with body variegated by whitish undulations and spots; C. Pallaflanus, the dionod mola of Gmel. Linn.

Ceratium, in Chemistry, a name given by Dr. John to a peculiar vegetable subfusible, which has always been hitherto confounded as a variety of gum. Its properties are the following.

It is a solid subfusible, having the general appearance and taste of gum; though it is usually harder than gum, and not so easily reduced to powder. When put into cold water it imbibes that liquid and swells up very considerably, and becomes semi-transparent and gelatinous, but is not in the least soluble, a property by which it is distinguished from gum. It diffuses in boiling water, but again precipitates as the liquid cools, and remains in the state of jelly. This gelatinous mass may be used like gum to pave together pieces of paper, &c. It is insoluble in alcohol and ether; but cold water, acclimated with either of the mineral acids, diffuses a small portion of it, and if heated, the whole. When an alkaline solution is dropped into the nitric solution of cerasin, a portion only of the cerasin is precipitated. If the liquid be evaporated, the remainder is obtained converted into a peculiar bitter-subsalubrious.

Tragacanth gum may be confounded as an example of pure cerasin. (See Tragacanth.) Cerasin also confounds a portion of the gummy matter that exudes from the prunus cerasin, (hence the name,) prunus ebulium, prunus domestica, xanthera hallisi, &c.

Ceratochis, in Botany, from xipho, a spur, and affinis, an anchor.—Brown Prodr. Nov. Holl. v. 1. 438.


Eff. Ch. Calyx split at one side; five segments cohering at the other. Corolla funnel-shaped; limb spreading, five-lobed, unequal. Stamens within the tube. Lobes of the anthers spurred at the base. Stigma lancesolate. Capsule with two cells, two valves, and a contrary partition bearing the receptacle of the base, at length separating from the valves.

1. C. hipida. Br. n. 1.—Found by Sir Joseph Banks, in the tropical part of New Holland. An upright bristly herb, with opposite, undivided, narrow leaves, and a terminal spike. Flowers purplish, alternate, nearly upright, each with three bractlets. Capsule ovate, rather pointed, its valves sometimes divided. Seeds minute, with a lax reticulated skin. Albumen but small. Embryo round. Calyx at length separable into two divisions. Akin on the one hand to Buchnera and Euphrarita, on the other perhaps to Digitalis, being also allied to Sefianum, but distinguished by the structure of the calyx, and the preference of albumen. The stigma requires further examination. Mr. Brown thinks there is another species found in the East Indies.

Ceratium, in Chemistry, a name given by Dr. John to a peculiar vegetable subfusible, which has always been confounded as a variety of gum. Its properties are the following.

It is a solid subfusible, having the general appearance and taste of gum; though it is usually harder than gum, and not so easily reduced to powder. When put into cold water it imbibes that liquid and swells up very considerably, and becomes semi-transparent and gelatinous, but is not in the least soluble, a property by which it is distinguished from gum. It diffuses in boiling water, but again precipitates as the liquid cools, and remains in the state of jelly. This gelatinous mass may be used like gum to pave together pieces of paper, &c. It is insoluble in alcohol and ether; but cold water, acclimated with either of the mineral acids, diffuses a small portion of it, and if heated, the whole. When an alkaline solution is dropped into the nitric solution of ceratin, a portion only of the ceratin is precipitated. If the liquid be evaporated, the remainder is obtained converted into a peculiar bitter-subsalubrious.

Tragacanth gum may be confounded as an example of pure ceratin. (See Tragacanth.) Ceratin also confounds a portion of the gummy matter that exudes from the prunus ceratin, (hence the name,) prunus ebulium, prunus domestica, xanthera hallisi, &c.
which he gave the name of ocherita. (See OCHROITE.) About the same time this mineral was examined with more attention by Hifinger and Berzelius, who gave it the name of cerit, and detected in it a peculiar substance, which they considered as a metallic oxyd, to which they gave the name of Cerium, from the planet Ceres, later discovered by Piazzi. They did not succeed in reducing this oxyd; nor was Gahn, who made the experiment some time afterwards, more successful. Vaquelin, however, who had formerly examined the mineral, turned his attention to the subject a second time, and he succeeded in reducing it so far as to show that its basis is a metallic.

In 1814 a new set of experiments was made upon it by Laugier. He appears to have reduced it to the metallic state, but combined with carbon. Oxalic acid, according to Laugier, separates the whole of the oxyd of cerium from iron. The affections of this chemist, however, that its oxyd is not volatile, has been denied by Dr. Thomson.

To procure the oxyd of cerium in a state of purity, the Swedish chemists employed the following method. The mineral was reduced to a fine powder, and digested in nitric acid till every thing soluble was taken up. The solution was then evaporated to dryness, and the residue diffused in water. Into this solution ammonia was poured, till every thing precipitable by its means was thrown down. The precipitate being well washed, was redissolved in nitric acid, the acid neutralized, and then tartrate of potash added to the solution. The precipitate thus formed was then heated to reduce, well washed with vinegar, and dried, and was considered as pure oxyd of cerium.

The oxyd of cerium, when first prepared, is white; but when it has been heated it becomes reddish-brown. Formed into a paste with oil, and heated in a charcoal crucible, it loses weight: when urged by a strong fire on charcoal, it does not melt but continues in powder. It exhibits, however, brilliant particles, which were proved to be of a metallic nature.

According to Vaquelin and Hifinger, cerium combines with two proportions of oxygen. The protoxyd is white; the peroxyd reddish-brown. The peroxyd contains 15 times as much oxygen as the protoxyd. The protoxyd, according to Hifinger, is composed of

| CERIUM   | 100 |
| Oxygen   | 17.41 |
| Cerium   | 100 |
| Oxygen   | 28.115 |

From Hifinger's experiments, it appears that the equivalent number for the protoxyd of cerium is 67.5, and of the metal 57.5. But if with Dr. Thomson we suppose the per oxyd to be a compound of two atoms of cerium and three of oxygen, the weight of the atom of per oxyd will be 145.

No compound of this metal with hydrogen, azote, chlorine, or fluorine is known. The carburet formed by Laugier was a black matter, which took fire spontaneously when exposed to the air. The phosphuret, which appears to have been formed in one instance by Hifinger and Berzelius, was a hard, brown, tenacious substance, which thione in the dark, and took fire when heated.

Hydrosulphuret of ammonia throws down cerium at first of a brown colour, but it becomes deep green if the reagent be added in larger quantity. When dry, the hydrosulphuret formed is a bright green, and burns when heated, leaving a yellow oxyd of cerium. The colour of the precipitate varies, however, according to the state of oxidation of the cerium held in solution.

No alloy of cerium is known, except one with iron, obtained by Vaquelin; this was white, brittle, and diffused with great difficulty in nitro-muriatic acid.

Salts of Cerium. Nitrate of Cerium.—Nitric acid unites with both the oxyds of cerium; with the white oxyd it combines more readily. The solution is colourlefs, crystallizes with difficulty, retains an excess of acid, and has a sweet aulfer tafte. The red oxyd diffuses with difficulty in cold nitric acid, but the solution may be readily effected by heat. The solution is yellow, and if an excess of acid be present, it yields small white deliquescent crystals. Both the nitrates are soluble in alcohol, and are decomposed by heat.

Muriate of Cerium.—This salt exists in the form of small four-sided prismatic crystals of a yellowish-white colour. They are soluble in alcohol, and deliquesce on exposure to the air. When exposed to heat they are decomposed.

Sulphate of Cerium.—Sulphuric acid diffuses the red oxyd of cerium with difficulty. The solution when obtained is of an orange-colour, and yields by evaporation small octahedral and needle-formed crystals of per sulphate of cerium. Their colour is partly lemon-colour and partly orange. This salt is not soluble in water without excess of acid. When exposed to the air, the crystals soon assume the form of a yellow powder. Sulphuric acid combines readily with the white oxyd of cerium, especially when in the state of carbonate. The solution is colourlefs, and readily crystallizes. There is a triple sulphate of potash and cerium.

Phosphate of Cerium.—This is a white powder insoluble in water, but soluble in the nitric and muriatic acids.

Arseniate of Cerium.—This salt is insoluble. There is a soluable super arseniate which does not crystallize.

Acetate of Cerium.—This salt exists in the form of small granulated crystals, readily soluble in water, but sparingly soluble in alcohol, and not altered by exposure to the air.

Oxalate of Cerium.—Oxalic acid and oxalate of ammonia precipitate cerium from its solution. The precipitate with the per oxyd is red, with the protoxyd white. It is not soluble in excess of acid, but readily in ammonia.

Tartrate of Cerium.—The tartrate of potash throws down cerium from its solutions in the form of a white insoluble tartrate. This tartrate, however, is soluble in nitric, muriatic, and sulphuric acids, and also in pure alkalis.

Citrate of Cerium.—The citrate of cerium is insoluble, without an excess of acid, when it is readily soluble. The solution does not crystallize. The other salts of this metal are unknown, or devoid of interest. With respect to these salts in general, it may be observed, that they are either of a white or yellow colour, according to the state of oxidation of the metal, and their solutions have a sweetish taste. The hydro sulphate of potash, prussiate of potash, and oxalate of ammonia, produce in them white precipitates; while the gallic acid and infusion of galls occasion no precipitate, when added to solutions of their salts.

CERIUM. See MINERALOGY, Addenda.

CERNE, or CERNE-ABBAS, l. 36, add—In 1811 the parish contained 145 houses, and 795 persons; viz. 538 males, and 437 females.

CERUMEN, or Ear-Wax. Chemical Properties of. This substance is nearly insoluble in water. Alcohol, when diffused by heat, diffuses five-eighths of the cerumen; the remainder is flaked by Vaquelin to pool the properties of albumen mixed with a little oily matter: when the alcoholic solution is evaporated, it leaves a deep orange-redudium of a very bitter taste, having the smell and consistence of turpentine. It melts when heated, evaporates in a white smoke, without leaving any residuum, and in short resembles the resin of bile.
bila. Ether also dissolves this oily body; but the solution is much less bitter, and lighter coloured. From these and other experiments, Vauquelin considers cerasum as composed of

Albumen,
An infusigated oil,
A colouring matter,
Soda and phosphate of lime.

CESAR'S CREEK, a township of Greene county, in Ohio, having 640 inhabitants.

CETIC ACID, in Chemistry. A name given by Chevreul to a substance obtained by taponifying fpermacti. It may be procured by adding an acid to a soap composed of spermaceti and potash. Cetic acid is a white solid substance, without taste or smell. It melts at a temperature of about 113°, but does not crystallize on cooling, a circumstance in which it differs from spermaceti. It is insoluble in water, but boiling alcohol dissolves more than its weight of it, and as the solution cools, the cetic acid separates in brilliant lamellar crystals. The solution in alcohol redness litmus. It combines readily with the different Salifiable bases, and forms salts or rather soaps, none of which appear to possess any striking properties.

CETARIA, in Botany, Achar. Syn. 226, a natural, but not very easily defined genus of Lichenes, comprising eleven species, among which are L. juniperinus, glauces, nitulitis, and isidaticus of Linnaeus. See Lichenes, n. 19 in the arrangement of Acharius.

CÉYLANITE, or Pleenaste. See Mineralogy, Addenda.

CHASE, col. 2, l. 32, for vizier r. veneur.

This genus is distinguished from Leptocarpus (fee that article) by the undivided flake, and the minute facetous form of the inner scales of the very short calyx. The only species is

1. C. leptocarpus, found by Mr. Brown, on the south coast of New Holland.

CHÆTODON, col. 2, l. ult. for Japan r. Java. Add —See Teuthis.

CHÆTODON Arcanus. Add—Perhaps from the Aro islands among the Moluccas.

CHÆTOPORA, in Botany, from χαζη, a bristle, and αψης, a feed.—Brown Prodr. Nov. Holl. v. i. 232.—This genus is founded by Mr. Brown, on those species of the Schoenus of Linnaeus, and other authors (see that article), whose seed is subgutted by bristles, which are not fo long as the scales of the flower. Fifteen species are natives of various parts of New Holland, one of which, C. lanata, Br. n. 4, is Schoenus lanatus, Labill. Nov. Holl. v. i. 19. t. 20. The rest appear to have been first described by Mr. Brown. Schoenus compressus and rufus of Fl. Brit. belong to Chetopora. See Rhyhchospora for a genus similarly characterized.

CHAIN, col. 2, l. 4 from bottom, r. Plate XII.

CHALK, French r. See SLATE.


Female, Calyx deeply three-cleft. Petals three. Nectary

three scales, between the petals and germen. Styles three. Drups succulent, with one seed.

1. Ch. gracilis. Slender Chamedorea. Willd. l. n. 1. (Boraxius pinnatifrons; Jacq. Hort. Schoenbr. v. 2. 65. t. 247, 248.)—Native of the Caracas and of Guiana. An elegant palm, whose trunk is ten feet high, an inch in diameter, very smooth, crowned with alternate pinnate leaves, two feet long, and spreading out near the bottom several long, slender, aggregate spikes, of numerous small yellow flowers; the male ones long-stalked, and pendulous. Fruit scarlet, the size of a pea.


Eff. Ch. Calyx of two valves, two-flowered; the outer valve very small. Corolla of two valves. Outer floret male, its outer valve like the inner valve of the calyx: inner female, smaller, membranous. Scales two beneath the germen. Stigmas feathery. Seed included in the hardened corolla.

CHASE, in Architecture, l. 5 from the end, r. ought not to be, &c.

CHANCE, col. 2, l. 32, for vizier r. veneur.

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CHASE, in Architecture, l. 5 from the end, r. ought not to be, &c.

CHANCE, col. 2, l. 32, for vizier r. veneur.
CHEILANTHES, in Botany, a genus of ferns, first distinguished from Adiantum, (see that article in the present volume,) by Professor Swartz, and named from χείλος, margin, and ωλιν, a flower, because the fructification is really inserted into the margin of the frond, not into the scales which conceal it. Such indeed was the idea hitherto conceived of Adiantum; but this not being the case with the original and best-known species, Capillus Veneris, the generic appellation was properly allowed to remain with that and its allies, under a corrected character.—Swartz Syn. Fil. 126. t. 3. Willd. Sp. Pl. v. 5. 455. Brown Prodr. Nov. Holl. v. 1. 155. Ait. Hort. Kew. v. 5. 526. Sm. Prodr. Fl. Græc. Sibth. v. 2. 278. Pursh 670.—Clafs and order, Cryptogramia Filices. Nat. Ord. Filices annulata.


Dr. Swartz defines sixteen species; Professor Willdenow, nineteen, the latter disposing the whole in three sections, though marked as two only, according to an inaccuracy which we have often noticed in him. The following are sufficient examples.

Sec. 1. Frond simply pinnate. One species.

Ch. micropteris. Small Cheilanthes. Willd. n. 1. Sw. n. 1. 324. t. 3. f. 5.—Frond pinnate, linear; leaflets hairy, nearly orbicular, with wave-like notches.—Native of Quito.

Fronds narrow, a finger's length, with several, alternate, finely flaked leaflets, about a line in diameter.

Sec. 2. Frond doubly pinnate. Ten species.

Ch. pterisides. Pteris-like Cheilanthes. Willd. n. 2. Sw. n. 12. Ait. n. 1. (Adiantum pteroides; Linn. Mant. 130.) Pteris orbiculata; " Hoff. Nat. Hill. t. 96. f. 3.c."—Frond doubly pinnate; lower branches somewhat compound; leaflets ovate-elliptical, obtuse, rather heart-shaped, finely crenate. Dots crowded. Coverings imbricated. Common fl Milk polifoliate.—Native of the Cape of Good Hope. A handsome fern, a foot or more in height, with stout, black, shining flanks, and firm dark-green leaflets, half an inch long; paler beneath. This and the following have been referred to the next section.

Ch. spicules. Aromatic Cheilanthes. Willd. n. 5. Sw. n. 6. " Schkuhr Crypt. 116. t. 19." Sm. Fl. Græc. Sibth. t. 966, unpublished. (Polypodium fragrans; Linn. Mant. 357. Desfont. Atlant. v. 2. 408. t. 257. Petiv. Gazoph. t. 73. f. 4.)—Frond doubly pinnate, smooth; lower branches more or less compound; leaflets ovate, obtuse, somewhat revolution. Common fl Milk thread-shaped, roughish with slender scales.—Found on rocks and old walls in Barbary, Madeira, Cyprus, &c. An elegant little fern, three or four inches high, very fragrant when first dried. The capacious hair-like twanny scales of the flanks are sometimes almost entirely wanting.

Ch. fragrans. Sweet-scented Cheilanthes. Willd. n. 7. Sw. v. 4. 325. t. 3. f. 6. " Hoff. n. 22."—Frond doubly pinnate, smooth; leaflets elliptic-lanceolate, obtuse, pinnatifid, with incurved, partly cloven segments. Common fl Milk somewhat hairy.—Native of the East Indies, from whence Kenig sent specimens, which remain unnamed in the Linnean herbarium. The Madeira plant, gathered by the same botanist, is, as Dr. Swartz suspected, a different species, being the Polypodium fragrans of Linneus, our Ch. spicules, which is probably also Mr. Aiton's Ch. fragrans. The East Indian fern before us is excellently delineated by professor Swartz, and has a more oblong frond, with curiously pinnatifid leaflets, or can those who have seen both species ever confound them. We are unacquainted with Ch. odorata, Willd. n. 6.

Sec. 3. Frond triply or quadruply pinnate. Eight species.

Ch. dichotoma. Forked Cheilanthes. Willd. n. 15. Sw. n. 15. 335. t. 3. f. 7.—Frond three or four times pinnate, smooth; leaflets three-lobed, obtuse, somewhat crenate.—Native of mountains in Quito. A span high, slender and delicate, with alternate, wavy, almost capillary branches, and minute round-lobed leaflets.

Ch. tenifolia. Fine-leafed Cheilanthes. Willd. n. 16. Sw. n. 15. 332. " Schkuhr Crypt. t. 125." Br. n. 1. (Trichomanes tenifolia; Burm. Ind. 237. Dryopteris campbellii; Rumph. Amboin. v. 6. 74. t. 34. f. 2.)—Frond triply pinnate, smooth; leaflets ovate-oblong, slightly crenate; upper ones confluent.—Native of the East Indies. This has the habit of fragrans; and its allies, but is much larger.

Ch. dillatata. White-leafed Cheilanthes. Pursh n. 2.—" Frond triply pinnate; leaflets oval, distinct, crenate or emarginate at the end; white beneath."—On rocks, on the banks of the Mopsfouri, in July. A very delicate small fern, much resembling Ch. tenifolia. Pursh.

CHEKIE, or Chequeé, a Turkish weight: that with which gold, silver, diamonds, and precious stones are weighed, is divided into 400 drachms, and the drachm into 16 kilots, or carats, or 64 grains. A cheque weighs 10 oz. 5 drs. 3 grs. troy weight; and a drachm 492 grs. troy; so that 48 cheques = 41 lbs. troy nearly. The kiks = 4 cheques, or 460 drachms; and the cheque = 11 oz. avoidance. The cheque of goats' wool is 800 Turkish drachms, or 5 lbs. 10 oz. avoidance; the cheque of opium 250 Turkish drachms = 27 oz. 10 drs. avoidance.

CHELMESFORD, col. 2. l. 12 from the bottom, r. 469 and 822.

CHELMESFORD, in America, l. 4. r. 1306.

CHELSEA, in America, l. 3. r. 5941. l. 8. r. 1527.

CHELNTHAM, col. 2. l. 19 from the bottom, r. 325. l. 12, r. 1568.

CHELTHAM, a township of Montgomery county, in Pennsylvania, having 783 inhabitants.

CHEMIN CREUX, r. RAVINE.

CHENANGO, a county of New York, containing, by the census of 1810, 21,704 inhabitants, of whom 13 are slaves.

CHEPSTOW, col. 4. l. 48, for wall r. walk. Add—The parish of Chepswell contained, in 1813, 421 houses, and 2581 persons; 1158 being males, and 1423 females.

CHERRY, or CHURAY, a weight in Perse; the batman of Churay being double the batman of Taurus, and weighing 12 lbs. 4 oz. 13 drs. avoidance.

CHERBOURG, l. ult. r. N. lat. 49° 38' 31". W. long. 1° 37' 18".

CHERRYFIELD, in Geography, a town of Washington county, in the district of Maine, with 181 inhabitants.

CHERRY-
CHERRY-TREE, a township of Venango county, in Pennsylvania, having 391 inhabitants.

CHESHAM. The parish of Chesham, in 1811, contained 417 houses, and 2071 persons; 924 being males, and 1147 females.

CHESIRE, col. 2, l. 4 from the bottom, r. 41,187 and 227,031.

CHESIRE. By the returns of 1811, Ashton-upon-Mersey in this county, and in a parish of the same name (omitted in its alphabetical arrangement), appears to have then contained 150 houses, and 918 persons; 467 being males, and 451 females.

CHESHIRE, in America, del. l. 5 and 6, and add—and 409,988 inhabitants.

CHESNUT HILL. Add—containing 1128 inhabitants.

CHEST, in Anatomy, l. 2, infr.—LUNGS.

CHEST of Viois, del. SIX-STRINGED BASE.

CHESTER, col. 6, l. 17. In 1811, the city of Chester contained 3296 houses, and 16,140 persons; 7007 being males, and 9133 females; 397 families employed in agriculture, and 2256 in trade and manufactures.

CHESTER, in Nova Scotia, l. 8, r. 1534; l. 13, r. 2030; l. 17, r. 2370; l. 30, after assistants, add—It contains 1956 persons; l. 32, r. 40; l. 33, r. 39,596; l. 34, r. 7; l. 57, r. 11,479; l. 58, r. 2743. At the close, add—Alfo, a town of Clinton county, in Ohio, having 1254 persons. Alfo, a town of Burlington, in New Jersey, having 1839 inhabitants. Alfo, a town of Morris county, in New Jersey, having 1175 inhabitants. Alfo, a borough of Chester county, in Pennsylvania, having 471 inhabitants.

CHESTER, WEB, a county of New York, containing 30,272 inhabitants, of whom 982 are slaves.

CHESTERFIELD, col. 2, l. ult. In 1811 the parish of Chesterfield contained 951 houses, and 4476 persons; 2025 being males, and 2451 females.

CHESTERFIELD, l. 3, r. 1408; l. 7, r. 1839; l. 15, It contains 5564 inhabitants, of whom 1639 are slaves; l. 17, r. 9979, and 6015. Add—Alfo, a town of Burlington county, in New Jersey, having 1839 inhabitants.

CHESTER-LE-STREET. In 1811, the township of Chester-le-Street contained 245 houses, and 1726 persons; 800 being males, and 926 females.

CHESTERVILLE, a town of the district of Maine, in the county of Kennebec, with 430 inhabitants.

CHETWERT, and CHEWTWICK, two corn measures in Raffia; the former or cool being 2 omissions = 4 pâkjacks = 8 chiewerts = 64 garnity. The latter measures 1555.92 cubic inches, and contains 53 Wincheffer gallons nearly. In buifines the usual calculation is, that 100 chwerts produce 72 quarters, and 1 chewart 53 buifhles, Wincheffer meafure.

CHIAROSTOLITE. See Mineralogy, Addenda.

CHICHESTER, in Geography. In 1811, the city of Chichester contained 1083 houses, and 6425 persons; 2878 being males, and 3547 females.

CHICHESTER, Upper and Lower. Add—The former contains 457, and the latter 511 inhabitants.

CHICHESTER, l. 4, r. 951.

CHILLISQUAQUE. Add—Northumberland county, having 1505 inhabitants.

CHILLIKOTHE. Add—By the census of 1810, it contained 1460 inhabitants.

CHILMARK, l. 3, r. 723.

CHILODIA, in Botany, perhaps from χίλιος, in allusion to its longer and more conspicuous lip.—Brown Prodr.


1. Ch. feutellariana. Br. n. 1.—Gathered by Mr. Brown at Port Jackson, New South Wales. A little shrub, agreeing with Proflanthera in habit, but differing in calyx and anthers. The leaves are linear, revolute. Flowers axillary, solitary, flaked. We venture to rid the specific name of its termination, odes, which might be done with advantage in many other similar instances.

CHILOGLOTTIS, from χίλιος, a lip, and γλώττις, the tongue, alluding to the tongue-shaped appendage to the lip.


Eff. Ch. Calyx ringent; two lower leaves under the lip, channelled, with cylindrical points. Lip flaked; glandular in the disk; with a tongue-shaped appendage at the base. Column cloven at the top. Anther a terminal permanent lid; the cells close together. Maffes of pollen two in each cell, powdery, comprefsed.

1. Ch. diphylla.—Native of Port Jackson, New South Wales. Bulbi folitary, naked, terminating the defending caudex. Herb smooth. Leaves two, oval, many-ribbed, heathed at the base. Flower folitary, reddish, with a foliary bracteate half way up the flalk. Akin to CYRTOSTYLL and PTEROSTYLL. Brown. See those articles.

CHIMBORAZO, l. 9, add—according to Humboldt, its summit is 21,430 feet above the level of the sea; and consequently a great part is above the circle of perpetual congelation, which, in this latitude almost under the line, is situated higher than the summit of Mont Blanc.

CHINA, col. 3, l. 19 from the bottom, r. Mandhurs. Col. 24, l. 4, r. flicks or poles.

CHIODECTON, in Botany, from χιος, snow, and δεκτος, to receive, alluding to the whiteness of the warts or aggregate receptacles.—Achar. in Tr. of Linn. Soc. v. 12, 43. t. 3.—A genus of crassulaceous Lichens, found on the banks of trees in South America, thus defined.

Eff. Ch. Warts convex, of the substance of the crust. Receptacles numerous, imbedded in the warts, globular, aggregate, black, powderly throughout.

Two species are described, Ch. spharele, f. 2, and feriale, f. 3.

CHIPPENHAM, l. 30.—In 1811, the borough and parish contained 668 houses, and 3410 persons; vis. 1580 being males, and 1830 females: 145 families employed in agriculture, and 632 in trade and manufactures.

CHITTENDEN, l. 6, r. 1810; l. 24, r. 1820. At the clofe, add—It contains 446 inhabitants.


Eff. Ch. Calyx bell-shaped, equally five-leafed. Corolla tubular, ringent; throat dilated; upper lip cloven; lower in three deep segments, the middle one longist. Stamens prominent. Stigma cloven, acute. Drupa dry. Nuts two, each of three cells; two lateral cells single-seeded; middle one abortive, obliterated.

Downy shrubs, with opposite, fimple, decurrent, linear, blitary leaves. Stalks axillary, folitary, single-flowered, 5 H 2 each.

1. Ch. flocculata. Br. n. 1.—Back of the leaves, and outside of the calyx, snow-white, downy. Bracteas in the middle of the flower-flasks.—Native of Port Jackson, New South Wales.

2. Ch. glandulosa. Br. n. 2.—Back of the leaves glandular, and clothed, like the outside of the calyx, with featered hairs. Bracteas at the base of the flower-flasks. —From the same country.

CHLORATES, in Chemistry. See Chlorine.

CHLORIC Acid. See Chlorine.

Chlorine. This name was given by Sir H. Davy to the principle formerly termed Oxymuriatic Acid, under which head its leading properties are detailed. We have only therefore to notice here fome important compounds of this principle lately discovered, especially those with oxygen.

The protosyd of chlorine, or euclosoine, has been already decribed under the article above alluded to. For its correct composition, see Table II. Atomic Theory.

The deutosyd of chlorine was discovered about the same time by Sir H. Davy and the count Von Stadion of Vienna, but Davy’s account of it was firt published. It may be prepared by mixing together a small quantity of chlorate of potash (not more than fifty grains) in powder, with fulphoric acid, till the whole forms a dry paff of an orange colour. Put this paff into a small glafs retort, and pfinge the belly of the retort into hot water, and keep it in that poftition for fome time, taking care that the temperature of the water never becomes fo high as 212°. A bright yellowish-green gas separates from the paff, which must be received in small glafs jars over mercury. This gas is the deutosyd of chlorine. Its colour, as above fated, is a bright yellowish-green. Its fmal is peculiar and aromatic, without any mixture of the fmal of chlorine. Water abfors at leaf seven times its bulk of this gas. The solution is deep yellow, and has an atrigent and corrosive tafl, leaving a difagreement and lafling imprefion on the tongue. It defroys without previously reddening vegetable colours, provided they are moifi. It does not act upon mercury, nor any other combustible substance tried, except pholphorus, which, when introduced into the gas, occasions an explosion, and burns with great splendour. When heated to 212° it explodes with more violence than euclosoine, and emits a great light. Two volumes of deutosyd of chlorine, when thus exploded, are converted into three volumes, according to Davy, which confit of two volumes or four atoms of oxygen and one of chlorine, or per cent. of

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And its fp. gr. will be 2.361, that of chlorine being fpupofed to be 2.5. According, however, to the count Von Stadion’s analysis, this deutosyd is composed of one atom chlorine, and only three of oxygen.

Chloric Acid. —The eifillence of this compound of chlorine with oxygen was fpupofed by Berthollet, but it was firft obtained by M. Gay-Lussac. It is the acid which exits in what was formerly termed oxymuriate, but now chlorate of potash. It was procured by diffoving the chlorate of barytes in water, and cautiously adding dilute fulphoric acid to the solution, till the whole of the barytes was fpaped.

The chloric acid remained in solution. This acid has a strong foul taste, but no fenfible smell. Its aqueous fpolution is colourles, and reddens vegetable films without defroying them. By a gentle heat it may be concentrated without being decomposed, or volatilized with the water. When thus concentrated, it has an oily confistency. When the heat is raised, it is partly volatilized, and partly decomposed into chlorine and oxygen. Muriatic acid decomposes it fimilarly without heat: the nitric acid does not affect it. It combines with the different bales forming chlorates, formerly termed oxymuriates, the most important of which will be previouly decribed. Chloric acid has been proved to be composed of

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Or of one atom chlorine and five of oxygen. See Atomic Theory, Table II.

Chlorate of Potash. —This is the best known and moft important of the chlorates. Se a Table briefly decribed under Hypertoxynuriatic Acid.

Chlorate of Soda. —This salt was firft accurately decribed by Chenevix. It may be prepared by the fame process as the chlorate of potash; but the easiest mode of obtaining it is, to diffove carbonale of soda in chloric acid. It does not readily cryfaliize, but its cryfals when formed are square plates. Its tafle is sharp and cooling. On burning coals it melts into globules, and emits a yellow light. When diftilled it gives out oxygen, mixed with a little chlorine, and the falt left behind has alkaliene properties.

Chlorate of Ammonia. —This salt may be formed by diffoving carbonate of ammonia in chloric acid, or by mixing a fpolution of carbonate of ammonia with a fpolution of an earthly chlorate. It cryfaliizes in fine needles, and is very foule in water and alcohol. Its tafle is sharp. Thrown on burning coals, it fulminates with a red flame. When strongly heated, it is decomposed, chlorine is evolved mixed with azote and oxygen, and some muriate of ammonia remains behind.

Chlorate of Barytes. —The earthly chlorates are formed with more difficulty than the alkaline. The chlorate of barytes may be formed by pouring warm water on a quantity of the pure earth prepared by Vauquelin’s method, and paffing a current of chlorine through the mixture. To separate the chlorate from the muriate, which are both equally foulable, and otherwife resembie each other, Mr. Chenevix had recourse to the ingenious expedient of boilsphating of filver with the compound fpolution; thus muriate of filver and phophate of barytes are formed and easily seperated, while nothing but the chlorate of barytes remains in the fpolution, and may be easily obtained. This falt cryfaliizes in square prifms, terminated by an oblique face. It diffoles in about four times its weight of cold water. The fpolution is neither precipitated by nitrate of filver nor muriatic acid. It is insoluble in alcohol. When heated it gives out oxygen gas, and an alkaline reftedium is left.

Chlorate of Strontium. —This falt was formed by a process similar to the above, and resembies it in many of its properties, but is deliquefcent, and rather more fonluble.

Chlorate of Lime, and Chlorate of Magnesia, may be formed as above. They are both deliquefcent, and very fonluble both in water and alcohol.

The metallic Chlorates may be formed by diffoving the oxyds...
oxys of the different metals in chloric acid. They do not
possess any very remarkable properties, except those common
to all the chlorates; viz. of giving out oxygen when heated,
and of detonating when thrown on burning coals. The
chlorate of silver, mixed with a little sulphur, and struck
lightly, fulminates with prodigious violence.

CHLORIDIC ACID. See Iodine and Simple Sub-
stances.

CHLORITE. See Mineralogy, Addenda.

CHLOROCYANIC ACID. See Cyanogen.

CHLOROPHANE. See Mineralogy, Addenda.

CHLOROPHYTUM, in Botany, from chlo-nes, green,
and phytos, a plant, because of the green hue of the flowers,
as well as herbage, in the original species.—Ker in Curt.
Mag. t. 271. Brown Prodr. Nov. Holl. v. 1. 276.—Clafs and
order, Hexandria Monogynia. Nat. Ord. * Bromeliea,
Jufh.' Ker. Albipedale, Brown.

Eff. Ch. Corolla inferior, in fix deep, equal, spreading,
permanent segments. Filaments thread-shaped, fmooth.
Style thread-shaped. Stigma fimple. Capsule with three
different compefled lobes, three cells, and three valves with
central partitions. Seeds feveral, compefled, with a naked
scar.

Herbage smooth. Root fagiculated; the fibres occa-
sionally fthiny. Leaves radical, ribbed, linear, sometimes
lanceolate. Flowers racemofe green or white, their partial
flalks united in the middle. Capsule membranous, venous.

Curt. Mag. t. 271. Ait. Epit. 365.—Stem none. Leaves
lanceolate, nearly as tall as the flalk. Partial flalks foltary.
—Native of Sierra Leone, from whence, and not from the
West Indies, its seeds were brought to the late Mr. Fair-
barn, at Chelms, if we mistake not, by Francis Borone, in
1793. It is a fiove plant, flowering and feeding in fummer.
Several radical, many-ribbed, pointed leaves, five or fix
inches long, pater beneath, are accompanied by an eretf,
simple or branched, leaves flalk, a fpan high. Flowers pale
green, fenteet, each with a pointed bractea. Corolla
infeared, three-quarters of an inch wide.

2. Ch. laxum. Loofe-cluftered White Chlorophytum.
Br. n. 2.—*Stem none. Leaves linear, nearly as tall as the
flalk. Clufers lax, elongated, fimple or divided; partial
flalks foltary or in pairs.*—Found by Mr. Brown, in the
tropical part of New Holland.

3. Ch. elatum. Tall Chlorophytum. (Anthericum
Asphodelus folis planis, 8c.; Mill. Ic. 58. t. 56.
Phalangium elatum; Redout. Liliea 1. 391.)—Stem much
branched, almost leafless, much taller than the linear-lanceo-
late radical leaves.—Native of the Cape of Good Hope.
A perenual green-fhoue plant, flowering in August and
September. The flowers are copied, white, fmalier than in
the flalk species, foltary and almoft felfe.

Mr. Brown mentions a fourth species, found at the Cape,
but without any name or character.

226, a genus confifting of only one species, diftinguifhed by
its inflorefcence alone from CHORIZENA; fee that article.

CHORD, col. 2, l. 13, for EO r. ED.

v. 1. 354.—Clafs and order, Penniadia Monogynia. Nat.
Ord. Santalaceae, Br.

Eff. Ch. Calyx superior, in five deep, vaulted, coloured
flgments, each with an interior defcding keel, permanent,
with a minute five-toothed calyfe at the base. Stamens in
the hollows of the flgments. Anthers with four cells and
four valves. Stigma radiated. Drupa?

CHORISPERMUM, from yepes, separately, and "petra,
feed, fee the character.—Brown in Ait. Hort. Kew. v. 4.
129.—Clafs and order, Tetradynamia Silico". Nat. Ord.

Eff. Ch. Pod of two cells, without valves, separating in
little infeared clofed fragments. Cotyledons flat, accufent.
Stigma fimple.

(Raphanus tenellus; Wild. Sp. Pl. v. 3. 561. Pallas
Voy. v. 3. 744. t. L. f. 3.)—Leaves, as well as pods,
smooth; upper ones lanceolate, toothed; lower almost pinna-
tifid.—Native of deferts near the Capflan fea. A little
annual herb, with small purple flowers. Mr. Brown's
specific character indicates the eflence of another species,
not known to us.

CHORIZANDRA, from yepes, to separate, and "tena,
a male, because the flaments are individually grouped by
separates.—Brown Prodr. Nov. Holl. v. 1. 222.—A genus con-
ftiting of two species, natives of Port Jackson, nearly akin
to CHORDRACHNE of the fame author, and to the Linnean
CHRIS'TIAX, fee those articles. From the latter it differs
in inflorefcence and habit. How far they could with propriety
be united, we have not materials to form a defcife opinion.

CHORIZENA, a name of which there have been vari-
ous explanations, (see Tr. of Lin. Soc. v. 9. 252,)
most probably derived from yra-"petra", to separate but certainly
not in allusion, as De Thieuf fuppofes, to any division of
the fruit. We rather believe the author of this name had in
contemplation the separate flaments, of which fo few
inflances were known in papilionaceous flowers, at the time
he wrote, and may place to their dafi-like figure.

Holl. 1. 9. 391.)—Clafs and order, Penniadia Monogynia.

Eff. Ch. Calyx five-feled, two-tipped. Corolla papil-
lonaceous. Style curved. Stigma obtufe. Legume
oblong, tumid, of one cell, with many seeds.

1. Ch. ilicifolia. Holly-leaved Chorizena. Labill., as
above, t. 21. Sm. n. 1. Ait. n. 1.—Leaves alternate,
oblong, pinna"ifid, with spinous teeth; point entire, longer
than the teeth. Bractea close to the flower.—Brought by
M. Labillardiere, at the foot of the mountains, on the south
coal of New Holland, flowering in December. Sent to
Kew in 1803, by Mr. Good. Stem shrubby, hardly a foot
high, branching from the root. Leaves alternate, fefile, fmal-
ler, smooth, coriaceous, with sharp spines. Flowers in fmal
clufers.

Mag. t. 1032. Ait. n. 2. (Pultenilia nana; Andr. Repof.
1. 343.)—Leaves alternate, elliptic-oblong, bluntish, fmal-
er, with spinous teeth. Bractea rather fmall from the
flower.—From the fame country. We profit by Mr. Brown's
remarks for diftinguifhing hisfepecies, hitherto confounded
by us with the foregoing. Its nature is more humble.
Flowers in lateral clufers, orange, with purple winges, and
a short, white, purple-tipped kef. We know not difinftly
the colour of ilicifolia.

3. Ch. rhombea. Few-flowered Chorizena. Br. n. 3. —Leaves entire, flat, pointed; lower ones orbicular,

somewhat
somewhat rhomboid; upper elliptic-lanceolate. Stalks with few flowers.—Native of the same country. Mr. Brown.

4. Ch. triloba. Three-lobed Chorizema. Sm. n. 2. (Podolobium trilobum; Ait. Hort. Kew. v. 3. 9. Curt. Mag. t. 1477. Putenaeia ilicifolia; Andr. Repof. t. 320.)—Leaves opposite, somewhat halate; entire or toothed, spinose. Chlusters axillary, shorter than the leaf. German filky.—Found near Port Jackson, New South Wales. (See Podolobium.) Young branches and leaves downy. Flowers copious, yellow, with a red radiating spot, and red keel, the latter nearly as long as the wings.

5. Ch. feonda. Climbing Chorizema. Sm. n. 3.—Leaves nearly opposite, elliptical, undivided. Chlusters terminal, elongate. Calyx rather hairy.—Found by Dr. White, at Port Jackson. Stem twining. Flowers in loose pendulous clusters, yellow variegated with red.

6. Ch. fritida. Silky-leaved Chorizema. Sm. n. 4.—Leaves mostly alternate, elliptical. Chlusters axillary, the length of the leaves. Calyx filky. Standard narrow.—Gathered by Mr. Menzies, at King George’s Sound. Stem twining. Leaves more filky at the back than in C. feonda; flowers three as large as that species.

7. Ch. coriacea. Leathery-leaved Chorizema. Sm. n. 5.—Leaves roundish-elliptical, abrupt, coriaceous, scattered. Umbels axillary, filky. Calyx hairy.—From the same country. A stout, upright, rigid shrub. Leaves beautifully veiny; filky beneath. Umbels on filky stalks, much shorter than the leaves.

CHOUT, denotes in India a fourth part; and the Maharatta chout is a fourth of the revenues, exacted as a tribute by the Maharrattas.

CHOWAN, 1835, 5. 5297 and 2780.

CHRISTCHURCH. In 1811 the borough and street contained 203 houses, and 1535 persons; 682 being males, and 871 females.

CHRISTIAN, a county of Kentucky, containing 10,889 inhabitants, of whom 1708 are slaves.

CHRISTIAN d’Or, a Danish gold coin, current in Holstein since 1775, worth about 13 marks hub, or 26 marks Danish currency.

CHRISTIANA. Add.—By the census of 1810, it contained 6698 inhabitants, 47 being slaves.

CHRISTINA, SANTA,—for CHRISTIANA, r. CHRISTIANA.

CHRISTOPHER’S, St., col. 2, l. 13 from bottom, r. W. long. 62º 45’.

CHROMATE of Iron. See Mineralogy, Addenda.

CHROMIE, or CHROMIUM, in Chemistry, the name of a metal. (See CHROME.) Since that article was written, however, some facts have been ascertained respecting this metal and its compounds, which deserve to be briefly mentioned here.

Chrome seems capable of combining with three different proportions of oxygen, and of forming three oxides, the green, the brown, and the yellow or chronic acid. The green oxide may be formed by exposing chronic acid to heat in close vessels, by which means a portion of the oxygen is expelled. It may be also formed in other modes, as by precipitation; in which case it has a dark green colour, and contains water. In this state it readily dissolves in acids, but if exposed to a heat a little below redness, it becomes ignited, diminishes in bulk, and its colour changes to a lighter green. It is now no longer soluble in acids, though it has lost no weight. The brown oxide may be formed by dissolving the above green oxide in nitric acid, evaporating the solution to dryness, and exposing the dry mass to heat, till it ceases to give out nitrous fumes. A brown brilliant powder remains, which is soluble in alkalies but not in acids. It is not improbable, that this will be found hereafter to be a substantia instead of an oxide. Chronic acid, the third oxide of chromium, is easily reduced to the state of green or protoxide, by the action of sulphuretted hydrogen, sulphurous acid, and protoxides of iron, copper, and tin. The chromates have been already described. The chromate of lead is the only one much used, which has been lately employed as a paint with great success.

CHRONOLOGY, CHRONOLOGICAL TABLE. B.C. 710, Sennacherib’s army destroyed, &c. Col. 9, l. 20, r. eclipse of the sun; for 549 r. 558, Daniel, &c. Col. 11, l. 38, r. Periannus; l. 41, r. 466. Col. 12, l. 2, r. Hellanecus. Col. 18, l. 12, infert.—Col. 22, l. 2, after kingdom, infert.—of Cyrene. Col. 29, l. 3, r. Macrinius; l. 35, ditto. Col. 30, l. 47, r. Hierocles. Col. 34, l. 24, for one r. that; l. 45, r. Anien. Col. 38, l. 3 from the bottom, add—at Rome. Col. 39, l. 49, r. 206. Col. 41, l. 60 and 61, ditto Charlemagne, &c. Col. 46, l. 27 and 28 ditto. Col. 47, l. 7 from the bottom, for Frederic r. Ladislaus II. Col. 52, l. 2, for Babylon r. Egypt; l. 9, ditto; l. 21, l. 1298; l. 27, r. the Ottoman empire began. Col. 55, l. 22, 24, ditto. Col. 58, l. 32, r. Brazil discovered: l. 51, for 800 r. 703; l. 64, for North r. South. Col. 59, l. 53, r. Navaro. Col. 63, l. 21 ditto; l. 61, after Palladio, add—Trobeler falls for Greenand, and again in the following year. See Proniher, l. 63, for 1580, infert.—See Drake. Col. 64, l. 27, r. Greenand discovered. Col. 65, l. 35, for April 22, June 2. Col. 70, l. 41, after 22, add—the battle of Gothard; l. 42, for the battle of St. Godard, July 22. Col. 71, l. 53, r. Seneff. Col. 74, l. 15, for July r. February. Col. 75, l. 37, r. ob. 1753, etc. 74. Col. 76, l. 1 and 2, r. When the Spaniards, under the duke of Vendome, defeated Saremburk. Col. 78, l. 1 and 2, r. the Spaniards, &c. May 20; l. 10, for June r. May; l. 53 r. 1744, etc. 56. Col. 79, l. pendere, r. 76. Col. 82, l. 38, for Aug. r. September. Col. 84, l. 20, add.—(from next paragraph) The Turkish fleet, &c. July 5, and these words in that paragraph. Col. 85, l. 4 from bottom, add.—Inquisition of Naples abolished. Col. 87, l. 4, 5, 6, and 6, r. French, &c. bay; l. 11 and 12, r. Ghent, &c. Dec. 12; l. 20, for Yorkshire in 1780 r. Gloucester; l. ad but 2, infert.—Ghent and Brussels surrendered. Col. 88, l. 24, after French king, add.—appeared at the bar of the convention for the last time, Dec. 26, 1792; and condemned by vote, Jan. 16, 1793; and suffered on the 22d. Col. 89, l. 10 from bottom, add—The French accounts state the number of prions at 60, instead of 5000, and date the catastrophe Aug. 3, instead of Sept. 3. Col. 95, l. 2, after Buonaparte, add.—was employed in protecting the directory against an insurrection of the Jacobins, which was his first appearance under a conspicuous character. Dele feize Egypt, July 1; l. 48, after Feb. 22, add.—1200 Frenchmen landed at Fithguard, and immediately surrendered themselves prisoners. Col. 93, l. 2, after plain, r. Periapatam, and add.—in the defence, and with the walls of his capital, Seringapatam; l. 3, after forces, add—under general Harris; l. 54, r. June 14. Col. 94, l. 2, after battle of, for Rhamonia r. Alexandria; l. 3, after English (March 27), add—under Sir Ralph Abercromby, who was wounded in the contest, which terminated so honourably to himself and the army, and died a few days after, univerally lamented; l. 8, for September r. April; l. 12, after two, r. Spanish ships being blown up; &c. the admiral’s ship and the San Hermanegildo of 112 guns sunk; and the San Antonio of 74 guns, commanded by the chep
CHRONOLOGY.

1813.—Concordat signed between pope Pius VII. and Buonaparte, at Fontainebleau, Jan. 25.—At Bejar, in Spain, the French were defeated by general Hill and the allied Spaniards, Feb. 20.—At Lunenburg, the French were defeated by the united army of Ruffians and Prussians, with the loss of general Morand, 100 officers, and 2200 privates, and two pieces of cannon, April 2.—At Fort George, on the Niagara, the British were defeated by the Americans, May 27.—At Vittoria, the French, under Joseph Buonaparte, were defeated by lord Wellington and the allied Spaniards, June 21.—Pyrenees, Soult was defeated, with immense slaughter, by lord Wellington and the Spaniards, July 28.—St. Sebastian was taken by force, by general Graham, July 31.—Before Dresden, the allied army of Austrians, Ruffians, and Prussians, was defeated by the French, Aug. 28.—At Toplitz, the French were defeated by the allied Austrians, Ruffians, and Prussians, Aug. 30.—At Dennewitz, the French were defeated with great loss by the Crown Prince of Sweden, Sept. 8.—At a Moravian village on the Thames in Canada, the British were defeated by the Americans, Oct. 5.—At Mockero, a desperate conflict occurred between the French and the allied army of Austrians, Ruffians, and Prussians, the place having been taken and re-taken five times, terminating in a defeat of the French, Oct. 11.—Before Leipsic, a second general engagement took place, the result of which was, a loss to the French of 10,000 men, in killed, wounded, and prisoners, with 63 pieces of artillery, and the defection of 17 German battalions, Oct. 19.

1814.—At Rothiere, the French, under Napoleon, were defeated by the allied Ruffians and Prussians, with the loss of 3000 prisoners, and 26 pieces of cannon, Feb. 21.—Bourdeaux entered by lord Wellington, March 12.—At Tarbes, Soult was defeated by lord Wellington, March 20.—Paris entered by the emperor of Ruffia, at the head of his troops, March 31.—Buonaparte renounced, for himself and heirs, the throne of France, and accepted the Isle of Elba for his retreat, April 5.—The states of Parma, Placentia, and Guelfica, conferred on Maria-Louisa by treaty, April 5.—At Touloufle, the French were defeated by lord Wellington, April 10.—Buonaparte embarked for Elba, April 28.—Treaty of Paris signed by the ministers of the allied sovereigns for the protection of France, May 30.—Pope Pius VII. returned to Rome, and resumed his functions in May.—The emperor of Ruffia, with the king of Prussia, prince Blucher, and other illustrious personages, entered London amidst great rejoicings, June 8.—Inquisition of Spain restored by Ferdinand VII. July 21.—A grand jubilee on celebrating the peace, and the centenary of the accession of the house of Brunswick, Aug. 1.—Trafalgar, after having been ebulated to Buonaparte in 1807, restored in 1814.—Washington, in North America, taken by the British, and the principal buildings destroyed by fire, Aug. 24.—Hackney chariots licenced in London, not to exceed 200.

1815.—Buonaparte quitted Elba, and landed at Cannes, March 1.—King of Candy deposed, and the crown regency vested in Great Britain, March 2.—Buonaparte arrived at Fontainbleau, March 20.—Treaties for the maintenance of the treaty of Paris, between England, Ruffia, and Prussia, signed at Vienna, March 25.—Buonaparte abolished the slave trade, March 29.
1816. — Treaty with the Nepau!le in India, ratified March 15. — princefs Charlotte of Wales married to the prince of Saxe-Cobourg, May 12, the annual sum of 60,000L. per annum having been previously settled upon him by parliament. — Declaration of independence of the representatives of the United Provinces of South America in general congress, published at Montevideo, July 19. — Generals transferred to the king of Sardinia. — Lotteries prohibited, on account of their immoral tendency, by the grand duke of Hesse, October.

1817. — Inhabitants of Chili restored to freedom by the Buenos Ayres army, under general San Martin in February. — A revolutionary insurrection in Fernambuco in March. — Above 600 petitions for parliamentary reform, presented by sir Francis Burdett, fired up the floor of the house of commons, March 4. — The measure for repealing the penal laws against Catholics, which had been negatived in the house of commons by 213 against 105, June 1, 1816, and again by 146 against 83, and in the house of lords by 121 against 62, in 1811; and again in the former house by 300 against 215; and in the latter by 174 against 102, in 1812; and again in the former house by 251 against 247, May 15, 1813; — and again in the same house by 228 against 147; and in the house of lords by 86 against 65, in 1816; — and again in the house of commons by 172 against 141, and in that of the lords by 73 against 69, in 1816; — and again in the former house by 245 against 221, and in the latter by 142 against 90, April 1817. — A bill admitting Catholics to promotion in the army and navy passed June 1817. — Loan of twelve millions advanced to the French government by English merchants.

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CHRYSPORASE. See Mineralogy, Addenda.

CHUDLEY, 1, 3, r, contains, by the return of 1811, 370, &c.; 1, 14, r, being 1832.

CHUKOTSKIA, for Tschutski r. Tschusktskia.

CHUMLEIGH, 1, 10, r, by the return of 1811 is 282, of inhabitants 1340.

CHURCH-STREETON. In 1811, the township contained 100 houses, and 398 persons; viz. 184 males, and 214 females.

CHURDER, signifies, in India, a staff-bearer, or an attendant on a man of rank. He waits with a long staff plated with silver, announces the approach of visitors, and runs before his master, proclaiming aloud his titles.

CHUSISTAN, 1, 14, add.—Chuhitan, or Kuzistan, the ancient Susiana, is now divided between the territories of the Chab Sheikh, and those that form the government of Shutter. The former extend from the banks of the Tab to the confluence of the Karoon and Abzal, and from the shore of the Persian gulf to a range of hills which skirt the valley of Ram Hormuz to the south. This country, though watered by the Karoon and the rivers Zab and Jerahi, does not abound, as some travellers have asserted, in grain, rice, and dates; the greatest part of it consisting in wild sandy plains and morasses, wholly destitute of cultivation. The most fertile parts are those in the environs of Dorak, the capital, and on the borders of the Hafar and Shat-ul-Arab, which produce dates and rice, and scanty portions of wheat and barley. The northern and western parts of the country afford tolerable pasturage, and here the wandering tribes pitch their tents. The principal towns are, Dorak, Alwaz, Endian, Maiboor, Goban, and Jerahi. Dorak, or more properly Pelahi, is situated in low marshy ground, on the banks of two of the branches of the Jerahi. The walls of mud are two miles in circumference, sixteen feet thick, and flanked with round towers. The majority of the inhabitants, amounting to about 8000, prefer living in the suburbs, under the shade of the date-trees. Dorak is the residence of the Sheikh, who has in it a miserable palace. Its manufacture is the abaa, or Arabian cloak, which is exported to foreign countries, and exported to foreign countries, and the Arabian, or Ahous, formerly a flourishing city, and capital of a province of the same name, is reduced to a wretched town containing 600 or 700 inhabitants, situated on the banks of the Karoon, 48 miles S. of Shutter. Endian lies in N. lat. 36° 28', 20 miles from Zaitoon, and 72 from Dorak, occupying both banks of the Tab, and nearly two miles in circuit. This town trades with Baffora and Bahban, and has a population between 4000 and 5000 souls. Maiboor lies half way between Endian and Dorak, in the desert, and two miles from the sea, containing about 700 persons, trading with Baffora and the Arabians. The revenue of the Chab Sheikh amounts to five lacs of piastres, or about 50,000l. sterling, and he can bring into the field 5000 horse and 20,000 foot. The territories attached to the government of Shutter constitute the finest portion of Susiana.

M'Kinzie's Persian Empire.

CHYAZIC ACID, in Chemistry. See CHYANOCIN.

CHYLE, and CHYMP, Chemical Properties of. These
have been already described under Digestion, and we have here only to notice briefly the late experiments of Dr. Marcet and Dr. Prout on the subject. These gentlemen were furnished by Mr. A. A. Cooper with specimens of chyle and chyme taken from different dogs, some of which had been fed on vegetable and others on animal food. Their experiments coincide almost exactly in every respect, so that it will be necessary only to mention Dr. Marcet’s results. 1. The specific gravity of the ferous portion of chyle appears to be between 1021 and 1022, whether formed from vegetable or animal food. 2. The quantity of solid residue, comprehending both fatine and animal matter, left by the evaporation of chyle at the heat of boiling water, may be generally flated to vary between 50 and 90 parts in 1000. 3. The quantity of fatine matter appears to be about 9 parts in 1000, being the same proportion of fats which is found in all other animal fluids. 4. The chyle from vegetable food appears to yield, by analysis, about three times as much charcoal as that from animal food. 5. The chyle from animal food is much disposed to putrefy, and generally begins to undergo that change in three or four days; while that from vegetable food can be kept for weeks, or even sometimes for months, without undergoing putrefaction. 6. The coagulum of chyle is more inclined to putrefy than the ferous part. 7. The chyle formed from animal food alone is always milky; and in standing, an unctuous white creamy, turbid substance collects on the surface; its coagulum is opaque, and has a pink hue. 8. The chyle from vegetable food is commonly transparent, or nearly so, like common serum. Its coagulum is nearly colourless, like an oyster, and no creamy sub stance rises to the surface. 9. The principal ingredient of the animal matter of chyle is albumen; but besides albumen, chyle, especially when derived from animal food, contains globules of an oily substance, which bears a strong resemblance to cream. 10. By the destractive distillation, chyle gives rise to a liquor impregnated with carbonate of ammonia, and afterwards a heavy fixed oil. The chyle from animal food yields a greater proportion of both these products, but the residue, whatever the mode of analysis be, contains less charcoal than the chyle from vegetable food. Iron is readily detected in the residue of chyle, mixed with the fats and carbonaceous matter. 11. Chyme from vegetable food yields much more solid matter than any other animal fluid, though it appears to contain rather less fatine matter. 12. Chyme contains albumen. 13. It yields about four times as much charcoal as chyle from vegetable food. 14. Neither chyle nor chyme contains any gelatine.

Dr. Prout ascertained the curious fact in different animals, that albumen never exists in the blood, even when the food is perfectly digested, but that an albuminous principle is formed the moment it enters the duodenum and comes in contact with the bile. He was also induced to conclude, that this albuminous principle becomes more abundant, and more perfectly albuminous, the nearer it approaches the gurgulous syphum, so that it seems to undergo important changes between the intestines and thoracic duct. See Med.-Chir. Transf. vol. v. and Annals of Medicine and Surgery, vol. i.

CICCA, dele See Termie at the close.
CICUTA. Annex—See Conium.
CIGOLI, r. Ludovico Cardi. CIMEX, col. 2, l. 35, add—This offensive creature was in a great degree unknown in the days of our ancestors. Its origin is traced to the year 1679, when it was imported among the timber used for rebuilding the city of London after the great fire of 1666; but it was known at a much earlier period than this, though it was much less common.

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A circumstance is mentioned by Mouflet, which proves that these insects were known at Mortlake, in Surry, in the year 1583. They live entirely by suction, employing for this purpose their sharp and fine trunk and proboscis, which lies in a straight direction beneath the breast. Like the gnat and some other insects, they probably infuse some quantity of irritating fluid into the wound they make before they suck the blood of the animal, which they attack, as the feeling is often very considerable, and attended with severe itching. In winter they conceal themselves behind the walls, wainscot, and in other neglected places; and on return of warm weather they emerge from their concealment. Mr. Baker says, in his "Microscope made easy," that the bug is one of the best subjects for exhibiting a microscopic view of the circulation of the blood.

CIMOLIA, dele Pipe-clay.
CINCHONA. Chemical Properties of. Vauquelin some time ago published a set of comparative experiments on all the different species of cinchona which he could procure, in order to determine, if possible, how far they differ from each other, and what the constituents are on which their virtues depend. They may be divided into three distinct sets.

1. Those whose infusions precipitate the infusion of nutgalls, but not that of glue.
2. Those whose infusions precipitate glue, but not the infusion of nutgalls.
3. Those whose infusions precipitate glue, nutgalls, and tartar emetic.

The following table exhibits the effects of the different re-agents upon all the barks tried. It is difficult, however, as Dr. Thomson has remarked, to determine, in all cases, the real name of some of the specimens, as Vauquelin has not given us the botanical name.

<table>
<thead>
<tr>
<th>Barks</th>
<th>Precipitated by Glue</th>
<th>Precipitated by Tannin</th>
<th>Precipitated by Tartar Emetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow bark</td>
<td>white</td>
<td>white</td>
<td>copious</td>
</tr>
<tr>
<td>Quinquina of Santa Fé</td>
<td>reddish</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Grey quinquina</td>
<td>white</td>
<td>white</td>
<td>copious</td>
</tr>
<tr>
<td>Quinquina gris canele</td>
<td>brown</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Red quinquina</td>
<td>red</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Grey quinquina</td>
<td>white</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Quinquina gris plate</td>
<td>yellow</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Cinchona pubescens</td>
<td>yellow</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Cinchona officinalis</td>
<td>yellow</td>
<td>yellow-white</td>
<td></td>
</tr>
<tr>
<td>Cinchona magnifolia</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Quinquina pitton vrai</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Barks brought from Peru by Humboldt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quinquina of Loxa</td>
<td>copious</td>
<td>copious</td>
<td>copious</td>
</tr>
<tr>
<td>Quinquina, white, of Santa Fé</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Quinquina, yellow, of Santa Fé</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Quinquina, red, of Santa Fé</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Quinquina, yellow, of Cuenga</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Quinquina, ordinary</td>
<td>copious</td>
<td>copious</td>
<td>copious</td>
</tr>
<tr>
<td>Infusion of nutgalls</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Oak bark</td>
<td>copious</td>
<td>copious</td>
<td></td>
</tr>
<tr>
<td>Cherry-tree bark</td>
<td>copious</td>
<td>copious</td>
<td>yellow-white</td>
</tr>
</tbody>
</table>
It is very probable, that several specimens in the above Table are duplicates, though we have no means of ascertaining this with certainty. All the above barks produced a green colour with iron, and most of them produced a green precipitate with that metal.

The substance which precipitated tannin was brown, of a bitter taste, and left soluble in water than alcohol. It precipitated tartar emetic, but not glue. It resembled the resins in some respects, though it gave out ammonia when distilled.

Upon the whole, these experiments, though they establish the fact that differences exist among the various species of cinchona, throw very little light upon the nature of their active ingredient or its mode of operation.

CINCINNATI, dele l. 9 and 10, and after paper, add — The number of public buildings, or dwellings, is from 1300 to 1400; of inhabitants, in 1810, 2540, and in 1817, 8000, all whites; the laws of Ohio prohibiting slavery, and even the settlement of free negroes, in the state, except in certain cafes. About 400 houses are built of stone or brick, many of which are three stories high, and in a superior style. The public edifices are of brick. Numerous manufactories are already established, and a very extensive commerce is carried on by river navigation with Pittsburg, New Orleans, and all the western states; and by wagons with the interior country. The manners and dress of the inhabitants resemble those of the English. Cincinnati is said to be the border of the western world, and will probably be the largest city in America at no very distant period. Forty years ago it was the resort of Indians; and the whole surrounding country was a wilderness, full of wild beasts and fowls.

CINNAMON STONE. See Mineralogy, Addenda.
CIONE, ORGANIZATION, dele.
CIPHER, col. 36, l. 35, for syllables r. letters.
CIRCAR. At the close, add — Circar denotes generally the head of affairs, or the state and government, as well as the great division of a province. It is also a name used by Europeans in Bengal to signify the Hindoo writer and accountant, employed by themselves or in the public affairs.
CIRCLE, col. 5, l. 27 from the bottom, for 1854 r. 1571-43. Col. 6, 1, 3, Plate 1. add of Astronomical Instruments. Col. 68, l. 5 from the bottom, for cannot be read.
CIRENCESTER, col. 31, l. penult. By the return in 1811, the borough of Cirencester contained 902 houses, and 4540 persons; viz. 2030 males, and 2510 females: 207 families being employed in agriculture, and 526 in trade and manufactures.
CISTOTOME. See Cystotomy.
CITRIC Acid, in Chemistry. This acid has been lately analyzed by Gay Lussac and Thenard, and still more recently by Berzelius. The results obtained by the able chemists differ considerably, which are partly to be ascribed to the presence of water in the acid analyzed by Gay Lussac. (See Analysis of Organized Substances.) The following Table exhibits these results.

<table>
<thead>
<tr>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gay Lussac</td>
<td>6.330</td>
<td>33.811</td>
</tr>
<tr>
<td>Berzelius</td>
<td>3.800</td>
<td>41.369</td>
</tr>
</tbody>
</table>

If we consider the numbers of Berzelius as most accurate, citric acid may be supposed to consist of two atoms hydrogen, four of carbon, and four of oxygen, and the weight of an integrant atom will be 7.25. Dr. Thomson, however, is disposed to consider another atom of hydrogen, or three atoms, to be present in citric acid, which supposition he states will render the weight of its integrant atom more accordant with the best analyses of the citrates.

CLACKMANNAN. Add — In 1811, the parish of Clackmannan contained 693 houses, and 3605 persons; viz. 1677 males, and 1948 females.
CLACKMANNANSHIRE. By the returns of 1811, this parish contained 1995 houses, and 12,010 persons; viz. 5715 males, and 6295 females: 280 families being employed in agriculture, and 893 in trade and manufactures.
CLADION, in Botany, a term, a thing, alluding to its habitat. — Browne, Jam. 114. Brown Prodr. Nov. Holl. v. i. 326. — A genus founded on Schoenus Mairiensi of Linnaeus. (See Schoenus.) This plant grows in the West Indies and New Holland, as well as in Europe. Mr. Brown, who defines thirteen New Holland species, gives the following
Eff. Ch. Glumes imbricated every way, one or two-flowered; the outer ones empty. Germen without brittle or scales underneath. Style decidous, without a joint at the base. Nut naked and smooth, with a smooth kernel.
CLADONIA, from its twiggy habit, a name given by Hoffmann to a tribe of Lichens, now sunk in Cenomyc; see that article.
CLABORNE, in Geography, a county of East Tennessee, having 17598 inhabitants, of whom 327 are slaves. — Allo, a town of Musquippi territory, in Adams county, containing 1538 inhabitants, of whom 14 are slaves.
CLAIR, a county of the Illinois territory, containing nine townships, and 5007 inhabitants, of whom 40 are slaves.
CLAIR, St. Add — It is a town of Butler county, having 1180 inhabitants. — Allo, a town of Columbian county, in the same state, having 1003 inhabitants. — Allo, a township of Pennsylvania, in Alleghany county, containing 5080 inhabitants.
CLARCKIA, in Botany, so named by Mr. Pursh, in honour of general Daniel Clark, the companion of the late governor Lewis, in his botanical travels. — Pursh 260. — Class and order, Cistandria Monograph. Nat. Ord. Calycanthem, Linn. Omegae, Juss.
CLAREMONTE, l. 6, r. 2094. — Allo, a town of Massachussetts, in Hampshir county, having 987 inhabitants.
CLARENDON, a townhip of America, l. 1, after contains, infect — 1799.
CLARKE. Add — The county contains 10,981 inhabitants, of whom 2695 are slaves; and the town has 538 persons, includin 230 slaves.
CLARKSBURG. Add — Allo, a town of Massachussets, in Berkshire county, having 291 inhabitants. — Allo, a county of Georgia, whose town is Athens, containing 2405 inhabitants, of whom 30 are slaves: its town contains 134, including 4 slaves.
CLASSIFICATION of Animals, &c. l. 33, infect — For the classes of animals, formed from a knowledge of the
the internal structure and according to the Linnean system, see Natural History. Col. 2, l. 42, r. a strong cervical, &c. ; l. 62, dele from Man to education, l. 65. Col. 3, l. 23 from bottom, after ant-eaters, infert—; Col. 4, l. 33, for species r. animals. Col. 5, l. 29, for divided r. decided. Col. 6, l. 15, for and r. or of. Col. 7, l. 11, for when r. where.

Page 5, under Digita, col. Genera, l. 3, for Ommatus r. Wombatius, and for Wombat r. Wombat. Col. Sub-genera, l. 26, for Scalope r. Aquatic Shrew; l. 35, for Rinopithus r. Rinoptus; l. 54, r. Myrmecophaga. Del. l. ult.

Page 6, col. Genera, l. 13, del Grampus; l. penult. r. Touroups.

Page 7, col. Families, l. 2, r. Aleotoridae. Col. Genera, l. 9, r. Ots. Col. Families, under Passerines, l. 1, r. Crocirostrata; l. 2, r. Dentirostrata; l. 3, r. Pleni-rostrata; l. 4, r. Coni-rostrata; l. 5, r. Subi-rostrata; l. 6, r. Plani-rostrata; l. 7, r. Tenui- rostrata. Col. Genera, l. 7, r. Monot; l. 13, after Oriolus, infer—Buphaga—Beef-eater; l. 26, r. Trochilus, and also in next column.


Page 9, col. Genera, after Vultur, infer—Gypaetus, and after Falco, Secretarius—Secretary. Col. Sub-genera, dele l. 3 and l. 9. Under Chelonia and Families, l. 2, r. Fluvialidae. Under Saurops, col. Genera, l. 3, r. Tupinambis; l. 4, Uropodus; l. 5, Lophyrus; l. 7, r. Gnaa; l. 10, r. Chameleo; l. 13, Anouis; l. 16, Chalcides; after Sepis, add—Bipes and Chlorops.

Page 10, under Battrachia and Families, for Anoura r. Ecaudata; and for Deloura r. Caudata. Under Pisces, col. Orders, l. 3, r. Chthiopternata, Trematom- nei, and Ophichthoidies.

Page 11, r. Trematomnei, in the same column, r. Chthiopternata. Under Telebranchiata, l. 4, for fins, add—which are joined. Under Genera, r. Lepadogalaxis. Ovoides, Moon-fish.


Page 15, under Genera, r. Anolomus, Ompolk, Macropoterotus, Hypoptumus, Cheilodactylus, Gasteroplistenus, Serra Salmo, Sun-fish, Synodus, Stylophorus.

Page 16, r. Ophichthoidies. Under Genera, Murero- blenna, Ocytopodes, Leucosia, Galathea, Peneus, Phronima; l. 11, for nervules r. nerves; l. 12, for coiled r. coiled.

Page 16, Testacea. Col. Genera, r. Ozłożus. Under Octopoda, r. distinct and small; jaws wanting, or formed in pincers, claws, or as a sucker.

For Suctaria r. Acarides.

Aceras.
Trombidium.
Hydracra.
Leptus.
Atoma.

Under Polyopoda, Families, dele much, and infer—My- riopoda for Longiormia; and in l. ult. dele body of an oval figure, and infer—Quadriormia or Otiorhicma.

Page 17, r. Hexapoda. Under Genera, r. Bombylius, Stomoxys, Rhingia, Stratiomyia; after Cera, Mudas, Cer- echus.

Page 18, col. 1, l. 1, r. croffed; and again, l. 2, under Families, r. Frontirostra and Planifennata. Under Genera, r. Pronectops, Cerops, Aleyrodes.


Page 27, under Sub-orders, r. Apoda; under Genera, after Thalia, infer—Botryllus; r. Anodonte; r. Pho- lis, and dele Cytharioid.


Page 27, dele, in l. 1, able to change from one place to another. Under Genera, after Hydra, infer—Corynna, Crüllatella, Pedicellaria; r. Pennatula, Vierio-viüio, Volvox-volvox.

CLAUDIO, refer to Gælee’ Claude, and dele Gallie.
CLAUSENBURG. See Colosvá.
CLAY, in Geography, a county of Kentucky, containing 2398 inhabitants, of whom 141 were slaves in 1810.
CLAY-STONE. See Mineralogy, Addenda.
CLEAR CREEK, in Geography, a township of Fairfield county, in Ohio, containing 1126 inhabitants.
CLEARFIELD, a county of Pennsylvania, containing a town of the same name, which in 1810 had 875 inhabitants.
—Alfo, a township of Butler county, in Pennsylvania, containing 288 inhabitants.
CLEARING, denotes a method adopted by the city bankers for exchanging the drafts on each other’s houses, and settling the differences. In pursuance of this method, at half-past three o’clock in the afternoon, a clerk from each banker attends at the clearing-house, where he brings all the drafts on the other bankers which have been paid into his house during the course of the day; and he deposits them in their proper drawers (a drawer being here allotted to each banker) :—he then credits their accounts separately with the
articles which they have against him as found in his drawer. Balances are then struck from all the accounts, and the claims transferred from one to another, until they are too wound up and cancelled, that each clerk has only to settle with two or three others, and their balances must be immediately paid either in cash or Bank of England notes. Such drafts as are paid into a banker's too late for clearing, are sent to the houses on which they are drawn to be marked, which is understood as an engagement that they will be paid the next day. Kelly'sCambilt.

CLEAVELAND, in Geography, a town of Cayhogue county, in Ohio, having, in 1810, 547 inhabitants. CLERGY, col. 5, l. 44. By 41 Geo. III. c. 63, no person ordained a priest, or deacon, or being a minister of the church of Scotland, shall be capable of being elected to serve in parliament as a member of the house of commons. Such person's election shall be void; and if after his election he shall be ordained a priest, &c. he shall vacate his seat; and if he sit or vote as a member of the house, he shall forfeit 500l. for every day in which he shall sit or vote; provided such profession be commenced within twelve calendar months after such penalty shall be incurred. L. 54, after canon law, add.—But now by 43 Geo. III. c. 84, certain provisions of 21 Hen VIII. are repealed, and other provisions made in lieu thereof; and it is enacted, that after the passing of this act (7th July 1803) (spiritual persons against whom no action shall have been brought under the recited act are indemified; and contrasts which would have been good after passing this act are valid notwithstanding that act; and proceeding may be fixed under certain conditions. And any spiritual person may take to farm to himself or to any person or persons, to his use, by lease, grant, words, or otherwise, for term of life or of years, or at will, any meafetion, manor, or dwelling-house, with or without orchards, gardens, and other appurtenances, although not in any city, borough, or town, notwithstanding the said first recited act or any other.

And it shall also be lawful for any spiritual person, having or holding any donation, perpetual curacy, or parochial chapelry, not having sufficient glebe or demesne lands annexed to or in right of, or by reason of his benefice or cure, or chapelry, or for any stipendiary curate or beneficed spiritual person, with the consent in writing of the bishop of the diocese, to take to farm to himself, or to any person to his use for a limited number of years, any farm or farms, lands, tenements, or hereditaments, which may under all the circumstances appear to such bishop proper to be taken by such spiritual person, for the convenience and accommodation of his hospitality only, without being subject to any pains, penalties, or forfeitures, under the said first recited act or any other: provided that nothing herein contained shall extend to authorize any non-residence of such spiritual person.

CLERMONT, a county of America, l. 5, r. 1810, 9965. CLIFFORD, a township of Luzerne county, in Pennsylvania, having 675 inhabitants. CLINTON, l. 12, r. 1810, 8002; l. 13, of whom 29 are slaves. CLINTON, col. 2, l. 21, after Hallowell, add—containing 1030 inhabitants.—Also, a county of Ohio, containing 2674 inhabitants.—Also, a township of Knox county, in Ohio, including 714 inhabitants.—Also, a town of Georgia, in Jones' county, containing 6023 inhabitants, of whom 13 are slaves. CLITHEROE. In 1811 this borough contained 299 houses, and 1767 persons; viz. 826 males, and 941 females.

CLITOMACHUS, l. 2, for Carthage r. Athens. CLOCK. In col. 53, l. 18 from bottom, we have referred to Pyrometer for the description of Troughton's new instrument, by which he tries the compensation of his tabular pendulums; but on application both then and recently made to him for permission to describe it, we were informed that this instrument has not yet been completely finished, and consequently not described by him. We can, however, now give our readers some idea of its principle and construction without a drawing. The pendulum is suspended vertically in an enclosed box of wood, made fast to a wall, and heated with lamps placed within; then a horizontal metallic bar, about thirty inches long, has one of its ends inserted through the side of the box into a hole made in the centre of cleftion of the ball, while the middle of it is supported by a short bearing-piece driven into the wall, and projecting a few inches therefrom: on the remote end of this bar, a micro-meter-screw is fixed, that adjusts a delicate spirit-level, borne by it; so that whenever the interior end of this horizontal bar is depressed by the elongation of the pendulum, the bubble runs to the exterior end of its tube, and indicates the quantity of elongation by its run, as measured by the micro-meter during its re-adjustment; and on the contrary, when a contraction takes place in the pendulum, the bubble runs to the interior end; but when it remains stationary, on the application of heat to the pendulum, it is considered that the compensation is perfectly adjusted. Two thermometers are placed at a distance from each other in the box, and are viewed through slips of glass inserted in the front of the box near the top and bottom, to shew that the heat is equally diffused; and thus the expansion of any simple rod may be taken, while the apparatus is removed sufficiently from the heat applied within the box, while the least quantity of expansion may be ascertained, without danger of error, by means of the micrometrical level. It is hardly necessary to remark, that when a simple rod has its expansion thus ascertained in different degrees of temperature, its inferior end must rest on the inner end of the horizontal bar, while its superior end must be pressed upwards against a pin in the wall instead of being suspended; in which case, a counterpoise must be placed on the horizontal bar near the level, to hold the vertical rod up to its bearing. The peculiar advantage of trying the final adjustment of a pendulum of Troughton's construction for compensation after it has been brought to time, is, that the spring by which the pendulum is suspended is included in the determination of the total result of all the contrary expansions; which cannot be ascertained of any other method, except that which results from actual experience, in observing the variations of rate at opposite eonons of the year, which is a tedious method, accomplished only at the expense of much observation and loss of time after each new adjustment.

CLOCK-MAKING, col. 2, l. 13 from bottom, for radii r. diameters.

CLOWES, l. 2, for fifteen r. sixteenth.

CLUNCH. This is also a name given to Stourbridge clay, which lies at a great depth in the earth, under the bed of coal: it is a grey clay, of a sandy nature, and better adapted for making large crucibles and fire-brick than perhaps any in Europe. Parke's Eff. v. i.

CLUPEA ALOSA, col. 2, l. 39, for it is not of r. it is one of.

CLYSTERS, in Farriery, are of great use in allaying many acute complaints to which horses are subject; and Mr. Clark recommends for this purpose simple clysters of warm water or thin water-gruel. The ingredient which he
COBALT, col. 7, l. 6 from bottom, for or r. on.

COBALT, in Chemistry, the name of a metal. Some circumstances omitted in their proper place require to be mentioned here.

The specific gravity of pure cobalt, according to Taffet, is 8.5384; according to Lampadius it is 8.7. It melts at about 135° of Wedgwood's scale, and is not capable of being volatilized by any degree of heat we can excite. Like iron, it is attracted by the magnet, and according to Wenzel is capable of being converted into a magnet, precisely similar in its properties to the common magnetic needle.

There are two oxys of cobalt, the protoxyd or blue, and the peroxoyd or black oxyd.

The protoxyd dissolves in acids without effervescence, and seems to form the basis of most of the salts of cobalt. According to Rothoff, it is composed of

| Cobalt | 100 |
| Oxygen | 27.36 |

Proust found the proportion of oxygen considerably less, that is to say, only 19.8 with 100 of the metal; and Klaproth still less, or about 18.0. If, with Dr. Thomson, we consider Rothoff's analysis most entitled to confidence, the weight of the atom of cobalt will be 29.25.

When the protoxyd of cobalt, newly precipitated from an acid, is dried by heating it in the open air, it assumes a flesh-brown colour, which gradually deepens till it becomes black. This is the protoxyd of cobalt. It dissolves with effervescence in muriatic acid, and a great quantity of chlorine is evolved. From the experiments of Rothoff, it appears that this oxyd is composed of

| Cobalt | 29.25 |
| Oxygen | 27.36 |

Hence it appears to be composed of two atoms cobalt, and three of oxygen; and on this supposition, the weight of its atom will be 59.75.

COCALICO. Add—containing 4024 inhabitants.

COCALM, r. Lee Maynas.

COCCINELLA, l. 39, add—These insects are commonly known under the name of lady-birds. The C. 7-punctata, or that of a 7-spotted body, makes its appearance in the advanced state of spring and middle of summer, and in every field and garden. One of the most beautiful of the English species is C. 18-punctata of Linnaeus, which is little more than half the size of the common red head, and is of a bright yellow colour, with numerous (generally 18) black specks.

COCCIUM, l. 4, r. Ribbeshelter.

COCCOLITE. See Mineralogy, Addenda.

COCHIN-CHINA, col. 8, l. 11 from bottom, for winged r. wing. Col. 10, l. 12, for men r. women.

COCKBURY, l. 2, for Grafton r. Coos. Add—It contains 142 inhabitants.

COCKE, a county of East Tennessee, containing 5154 inhabitants, of whom 436 are slaves.

Cockermouth, l. 49, r. 2964; l. 41, r. 602.

CODORUS. Add—It contains 1975 inhabitants.

COELACHE, in Botany, from κοιλαχῳ, empty, and όκη, a buxus, alluding to the inflated glumes.—Brown Prod. N. Holl. v. 1. 187.—Cladis and order, Triandria DIGITATA. Nat. Ord. Gramina.

Eff. Ch. Calyx of two nearly equal, very blunt, tumid valves, two-flowered. Florets of two valves, without awns; the uppermost filacked, female. Neclayr of two scales. Stigmas feathery. Seed unconnected, cylindrical, acute at each end.

1. C. pulchella. Found by Sir J. Banks, in the tropical part of New Holland. A little smooth slender graft, resembling a diminutive Briza, very remarkable for the smaller, or imperfect, fleret being female, not male.

COFFEE, col. 13, l. 1, r. 49, and 98; l. 15, r. 100.

COLCHESTER, col. 14, l. 29, r. 43.

COHASSET, l. 3, r. 994.

COINAGE, col. 2, l. 4 from bottom, Plate III. fig. 1.

Elecampan.

COIT'S GORE, in Geography, a town of Franklin county, in Vermont, having 193 inhabitants.

COITSVILLE, a township of Ohio, in the county of Trumbull, having 429 inhabitants.

COKE, Sir Edward, l. 3, r. Micham.

COLBERT, JOHN BAPTIST, l. 16, r. XIV.

COLCHESTER. In 1811, the borough of Colchester contained 2111 houses, and 12,544 persons; 5400 being males, and 7144 females: 480 families employed in agriculture, and 1152 in trade and manufactures.

COLCHESTER, in America, l. 7, add—containing, in 1810, 2697
COL

2697 inhabitants, of whom 7 are slaves; 1. 10, add—containing 257 inhabitants.

COLCHICUM, col. 2, add—See Phil. Trans. for 1817, pt. ii. p. 262; and for Meadow v. Saffron.

COLDINGHAM. In 1811 the parish contained 462 houses, and 24,244 per sons; 1774 being males, and 1250 females.

COLDSTREAM. In 1811, the parish contained 397 houses, and 2384 persons; 1103 being males, and 1281 females.

COLEBROOK, l. 2, for Grafton r. Coos; l. 6, add—containing, in 1810, 325 inhabitants; l. 10, add—In 1810, it contained 1243 inhabitants.

COLEBROOKA, in Botany, so named, by the writer of this, in honour of Henry Thomas Colebrooke, c.f., chief judge in the courts for the natives of Bengal, a practical and accomplished botanist.—Sm. Exot. Bot. v. 2. 111.—Clas and order, Didynamia Gymnosperma. Nat. Ord. Vitice, Jaff.


1. C. oppositifolia. Opposite-leaved Colebrokea. Sm. as above, t. 115.—Leaves opposite.—Found by Dr. Buchanan, by road fides in Nepal. A downy, slightly aromatic, fibrous, with thalke, elliptic-lanceolate, serrate leaves, and terminal, aggregate, whorled spikes, of immemorial minute white flowers.

2. C. ternifolia. Three-leaved Colebrokea. Roxb. Corom. v. 3. 40. t. 245.—Leaves three or four in a whorl.

—Native of Myfro. The leaves are narrower and more drooping; the spikes much thinner than in the foregoing. Dr. Roxburgh lays the germs are four, sometimes all perfumed; the flowers aggregate, with many common bracttes.

COLEFORD. In 1811, this tything in Newland parish contained 253 houses, and 1551 persons; 849 being males, and 702 females.

COLERAIN, l. 2, add—containing 834 inhabitants; l. 20, add—Allo, a township of Bedford county, in Pennsylvania, containing 1847 inhabitants.—Allo, a township of Belmont county, in Pennsylvania, containing 471 inhabitants.

—Allo, a town of Rof county, in Ohio, having 846 inhabitants.

COLERAINE, l. 3, r. and in 1810, 2016 inhabitants.

COLESHILL. In 1811, this parish contained 390 houses, and 1639 persons; viz. 780 males, and 850 females; 119 being employed in agriculture, and 196 in trade and manufactures.

COLICA, or Colic, in Ferrvry, a difeae to which brute animals are subject; for which Mr. Taplin recommends a ball made of the following ingredients; viz. 1 oz. of pulvized aniseeds; 1 oz. of mithridate; ginger and grains of paradise, of each, in powder, 2 drs.; oil of aniseed and oil of juniper, of each, 1 dr.; and fryup q. f.: the ball to be given, according to the state of the diseae, every two, four, or six hours. In some cases, a mixture of ginger, pepper, aniseeds, &c. 1 oz. of each, with the addition of a little brandy or gin, will give relief. In flatulent colics, a ball made of 6 drs. or 1 oz. of Venice turpentine, purified opium from 1 to 1½ dr., 1 dr. of oil of aniseed, and 2 drs. of powdered ginger, may be administered every two, three, or four hours, according to the urgency of the symptoms.

COLLEMA, in Botany, γōλυκης, a glutinous substance. The name appears to have originated with Hill, and is adopted by Hoffmann and Acharius. The latter has only admitted this genus in two his last publications.—Ach. Lichenogr. 129. t. 14. f. 8—11. Syn. 302. Sm. in Engl. Bot. 2284. (Pameliae, f. 6; Arch. Meth. 221.)—Clas and order, Cryptogamia Alg. Nat. Ord. Lichenes. Eff. Ch. Shields orbicular, horizontal, nearly fylline, superficial, with a gelatinous ascyfie border. Acharius reckons up sixty-four species. These are the gelatinous Lichens of former authors. (See Lichenes, f. 1.) They are all more or less pulpy, olive-green, or blackish; their fronds various in form and direction. Twenty-three Britifhe species are figured in Engl. Bot.

COLLEMORE'S RIDGE, in Geography, a township of America, in the district of Maine, and county of Lincoln, having 40 inhabitants.

COLLETON, a district of South Carolina, containing 26,359 inhabitants, of whom 5238 are slaves.

COLLISION, col. 9, three half lines, for Z r. E.

COLNE. By the return of 1811, this township contained 990 houses, and 5336 persons; viz. 2531 males, and 2805 females; 58 families being employed in agriculture, and 928 in trade and manufactures.

COLNAYSAY, l. 21. By the last act 786, and the number of houses 138.

COLOUR, col. 12, l. 11, for cold r. colour. Col. 22, l. 18, for tube r. tub.


COUBER, l. ult. r. See Hydrus.

COUGO, in Zoology. See Galeopithecus.

COLUMB, St. In 1811, the parish of St. Columb major contained 410 houses, and 2070 persons; viz. 968 males, and 1082 females; 223 being employed in agriculture, and 108 in trade, &c. : and the parish of St. Columb minor contained 229 houses, and 1126 persons; viz. 550 males, and 576 females; 147 families being employed in agriculture, and 72 in trade, &c.

COLUMBIA, a military order, l. 2, r. 1379. Add—See Dove.

COLUMBIA, l. ult. r. in 1810, 32,390 inhabitants, of whom 879 are slaves; l. 8, add—It contains 12,422 inhabitants, including 5980 slaves; l. 11, add—It contains 518 inhabitants; l. 31, add—It contains 2507 inhabitants.—Allo, a township of Cayugha, in Ohio, having 250 inhabitants.

COLUMBIANA. Add—It contains 17 townships, and 10,878 inhabitants.—Allo, a town of Kentucky, in Adair county, containing 175 inhabitants, of whom 45 are slaves.—Allo, a district of America, containing 24,023 inhabitants, of whom 5395 are slaves.

COLUMBIUM, Columbic Acid, in Chemistry. See Tantalus.

COLUMBO, l. 6, r. Trincomalee.

COLUMBUS, in Geography, a county of North Carolina, containing 3022 inhabitants, of whom 703 are slaves.

COLUMNA, l. 10, for elliptic r. epileptic.

CULFORD, 1. pen. del. arms; l. ult. r. 343 and 1774.

COMBINATION, col. 2, l. 8, dele &c; l. 38, for 61 r. 61.

2. 3

COMBUSTION, Theory of, in Chemistry. See Acid, and Acification.

COMEPHORUS, in Ichthyology, a genus of the apodes, the
the characters of which are, head large, with depressed
snout; mouth large, with small teeth; body elongated,
comprefled, the second dorsal fin surrounded with several
long naked rays.
This fish is a genus of Cepede, and referred by Pallas to
the genus of Callionymus among the jugular fishes. It is a
native of the lake Baikal; and from its conformation feems
to be capable of fweeming up and down, and of springing out
of the water like the flying-fish. See Callionymus Baikalen-
sis of Gmelin's Linnaean fytem.
COMIMPHORA, in Botany, from comm, gum, and phyte,
to bear, Jacq. Hort. Schnebr. v. 2, 66, t. 249, a dioecious
oantocladous thraub, of which the male only is known, found
in Madagascar, and faid to produce that kind of elastic
gum, of which Fourcroy has given an analysis. More in-
formation on this subject is very defirable.
COMMON PRAYER, l. 15, add—2 & 3 Edw. VI.
COMPAGNIE ECOUSOISE. See GENDARMES, &c.
COMPASS, col. 6, l. 37 and 38, r. See MAGNETICAL
DECLINATION, and MAGNETICAL VARIATION.
COMPENSATION, col. 18, l. 39 from the bottom,
for but broader r. and narrower.
COMPOSTELLA, l. 2, after capital, infert—(see CORUNNA).
COMPOUNDS, in Chemistry, are divided into primary
and secondary.
Primary compounds, according to Dr. Thomson, are
thofe formed by the union of combifible with the four
supporters of combination, oxygen, chlorine, iodine, and
fluorine, and with curagen. Dr. Thomson also includes
under this division certain compounds of combifibles with
one another, and with oxygen.
Secondary compounds are thofe formed by the union
of two or more primary compounds. These include the four
claffes of fiabtions, termed hydrates, faltis, hydrofphate-
s, and foaps.
COMREE, in Geography, a township of Berks county,
in Pennsylvania, containing 2017 inhabitants.
CONCORD, l. 10, infert—and had, in 1810, 2396.
At the clofe, add.—Alfo, a town of Grafton county, in
New Hampshire, containing 1126 inhabitants. At the
clofe of the next article, add—containing 677 inhabitants;
3:4 from the bottom, after upwards, add—By the census of
1810, the number of inhabitants was 1633.
CONCORD, in Delaware county, add—containing 1061
inhabitants.—Alfo, a township of Miami county, in Ohio,
having 679 inhabitants.—Alfo, a town of Rofa county, in
Ohio, containing 1277 inhabitants.
CONCORDIA. Add.—Alfo, a county and parifh of
the territory of Orleans, containing 2895 inhabitants, of
whom 1581 are flavfs.
CONEMAUGH, a township of Indiana county, in
Pennsylvania, containing 1167 inhabitants.—Alfo, a town-
ship of Somerset county, in the fame flate, having 381
inhabitants.
CONESTOGA. Add—containing 1506 inhabitants.
CONEWAGO, a township of Adams county, in Pennsyl-
vania, containing 531 inhabitants.
CONEWANGO, a township of Warren county, in
Pennsylvania, having 448 inhabitants.
CONELTON, 2 half lines, r. at 944, the inhabitants
4616, of whom 2023 are males, and 2593 females.
CONGOON, a port of Larifian, in Perflia, containing
6000 or 7000 inhabitants, and having an excellent road-
field, where a frigate may ride fafiely in the most tempeftuof
weather, and good water and fire-wood be procured.
CONIC SECTIONS, Lemmas. Def. l. 1, r. A E;
1, D and B; 2, A B. Cor. l. 1, r. A E in D; l. 3,
and D and in B: l. 51, DB and D'E.
CONNECTICUT. At the clofe, add—See UNITED
STATES.
CONNELSVILLE, l. 2, for Washington r. Fayette;
1, r. 93 inhabitants.
CONNIOTT, a township of Pennsylvania, in the county
of Crawford, having 285 inhabitants.
CONON, thron mon r. father; l. 2, after Athens, r.
who died in the year B.C. 393.
CONOPLEA, in Botany, Perf. Syn. Fung. 234, an
obfcur genus of Fungi, confifting of compact, rigid, perma-
nent fubftances, generally black or brown, intermixed
with powder. Four species are defcribed, found on rotten
wood, branches, or leaves.
CONOSTYLIS, from the conical form of the flyle.
Br. Prod. Nov. Holl. v. 1, 360. Pursh 224.—Clafs and
order, Hexanaria Monogynia. Nat. Ord. Hemiiniozoeis,
Brown.
ENT. Ch. Corolla superior, in fix deep equal segments,
woolly with branched hairs, permanent. Anthers erect.
Style conical, separable into three parts. Stigma fimple.
Capsule of three cells, burbling at the top, with a triangular
central receptacle, and many feeds.
Roots perennial, fibrous. Stem fcarce any. Leaves
sword-shaped, equitant, rough or fhrilly at the edges. Stalk
many-fawed, capititate or corymbose, often woolly.
Four species are natives of the south coast of New Hol-
land; and 039, C. americana, of the pine-barrens of New
Jersey and Carolina, bearing flowers of a golden yellow,
in July. The genus is almost entirely superior in this species.
Pursh.
CONSTRUCTION of Boats. The plate referred to
under this article has been fuperfeded by Plate XIV. of
Naval Architecture; and for the defcription of the latter,
as far as it relates to Boats, the reader is referred to the
article WHOLE-MOULDING.
CONVOCATION, col. 3, l. 36, after representatives,
add—The fummons to the convocation must not be con-
found with that which we now mention, though the con-
venient parts are the fame; and by modern ufage the affently
of both is fupposed to have been on the fame day. But
the one may be fufly distinguished from the other by this
difference; viz. that the convocation is provincial, and fum-
moned by the metropolis of Canterbury and York;
whence the clause, commonly denounced preeminenter,
(from its firft word,) in the writ to each bishop proceeds
from the crown, and enjoins the attendance of the clergy at
the national council of parliament.
CONWAY, col. 3, at the clofe—Population in 1811
was 1953; the number of houses 218.
CONWAY, in America, l. 8, r. 1080. Col. 4, l. 1, r. 1784.
COOLING Powers of the Gales. It is difficult to
afcertain the precise conducting powers of gafeous fubftances,
as the cooling of hot bodies in gales is influfed by a
variety of circumstances besides their conducting properties.
Count Rumford found, that a thermometer cooled nearly
time times as falt in water as in air of the fame tempera-
ture. The fame philofopher also faid, that rarification
much diminishes the conducting power of air, and that hot
bodies cool more foon of all in a Torrefelian vacuum. This
fubjeét, however, has been investigated more lately with greater
precision by Leftie and Dalton. Mr. Leftie afcertained,
that the conducting power of all gases is diminished by rare-
faction. He has endeavoured to deduce from his experi-
ments,
ments, that the conducting power of air is nearly proportional to the fifth root of its density. Mr. Dalton, however, has rendered it probable, that it varies nearly as the cube root of its density. Vapours of all kinds, and every thing that has a tendency to dilate air, diminish their conducting powers. The conducting powers of common air, oxygen, and azote, as might be expected, are nearly equal. The conducting power of carbolic acid is rather inferior to that of air, but bodies cool in hydrogen more than twice as fast as in common air; and Mr. Leffel has endeavoured to shew, that the actual conducting power of hydrogen is no less than four times greater than that of common air.

Mr. Dalton's experiments were made with a strong phial filled with the gas to be examined, into which he introduced a delicate thermometer through a perforated cube, and observed the time it took to cool 15° or 20°. The following table exhibits the result of his experiments:

<table>
<thead>
<tr>
<th>Gas</th>
<th>Time of cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic acid</td>
<td>112&quot;</td>
</tr>
<tr>
<td>Sulphured hydrogen</td>
<td>110° +</td>
</tr>
<tr>
<td>Nitrous oxyd</td>
<td>100&quot;</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>90&quot;</td>
</tr>
<tr>
<td>Common air</td>
<td>70°</td>
</tr>
<tr>
<td>Oxygen</td>
<td>40°</td>
</tr>
<tr>
<td>Azote</td>
<td></td>
</tr>
<tr>
<td>Nitrous gas</td>
<td></td>
</tr>
<tr>
<td>Gas from pit-coal</td>
<td></td>
</tr>
<tr>
<td>Hydrogen gas</td>
<td></td>
</tr>
</tbody>
</table>

COOLSPRING, in Geography, a township of Pennsylvania, in the county of Mercer, having 521 inhabitants.

COOS, in Ancient Geography. Add—See Cos.

Coos, in Geography. Add—Coos is a county of New Hampshire, containing 24 townships, and 3991 inhabitants.

COPAL. Add—See Vateria.

COPPER, in Chemistry, the name of a metal. Some circumstances omitted in our account of this metal require to be inferred here.

There are two oxyds of copper, the protoxyd of an orange or red colour, and the peroxyd or black oxyd.

The protoxyd was observed by Proult; but Chenevix, who found it native in Cornwall, first accurately described its properties. It may be formed by mixing together 57.5 parts of black oxyd of copper, and 50 parts of copper in a flake of powder, formed by precipitating it from muratic acid by an iron plate. This mixture is to be triturated in a phial, and put with muratic acid into a well-rounded phial. Potash dropped into this solution precipitates the oxyd of copper of an orange colour. It may be also formed with much less trouble by adding excess of copper to the muratic acid, and letting the whole remain till the green colour disappears, and the solution becomes dark brown and opaque. In this state, dirty-white crystals like sand are deposited. If potash be added to the brown solution, or a solution of the crystals above-mentioned, the protoxyd is precipitated in abundance. According to Berzelius, this oxyd is composed of

\[
\begin{align*}
\text{Copper} & = 100 \\
\text{Oxygen} & = 12.5
\end{align*}
\]

Hence the weight of the atom of copper will be 80.

The peroxyd or black oxyd of copper has been already described. It is composed, according to Proult and Berzelius, of

\[
\begin{align*}
\text{Copper} & = 100 \\
\text{Oxygen} & = 25
\end{align*}
\]

Hence the quantity of oxygen in these two oxyds is as one to two; or the protoxyd may be considered as composed of one atom copper and one of oxygen, and the peroxyd of one atom copper and two of oxygen. From these determinations, the composition and weights of the atoms of the different salts of copper may be accurately estimated.


Eff. Ch. Calyx none. Petals five or six, deciduous. Nectaries as many, hooded. Follicles membranous, stalked, beaked, with many seeds.

1. C. trifolia. Three-leaved Coptis. Pursh n. 1.—Leaves ternate, obovate. See HELLEBORUS, n. 3.

2. C. aphlenfola. Fern-leaved Coptis. Pursh n. 2.—Leaves twice ternate, pinimatif.—Found by Mr. Menzies, on the west coast of North America, and by Thunberg in Japan, this being actually Thalictrum japonicum of that author, and of Wildl. Sp. Pl. v. 2. 1303! The flowers are greenish.

CORACHIE, in Geography, a good sea-port in the country of Seind; which see.

CORAL, Chemical Properties of. See VERMES.

CORALLORHIZA, in Botany, an old name, alluding to the branching coral-like form of the root.—Hall. Hift. v. 2. 159. t. 44. Brown in At. Hort. Kew. v. 5. 209. See CYMBIDIUM.


We do not doubt the propriety of separating this plant, and another of American origin, (see Pursh 393, n. 4.) from CYMBIDIUM; but we have some nearly allied Orchideae from Nepaul, which require to be examined before the limits of Corallorrhiza can be clearly defined.

CORDILLERAS. Add.—The great body of the Cordilleras, as it extends from Quito northward, approaching the gulf of Mexico, and entering the kingdom of New Granada, is divided into three chains, which are almost parallel, and of which the two lateral branches are covered with sand-flume, and other secondary formations, to a very considerable height. The eastern chain divides the valley of the river Magdalena from the great plains that are drained by the Orinoco and its branches. Inclosed by a circle of mountains belonging to this chain is the high valley of Bogota, the bottom of which is no less than 7460 feet above the level of the sea. The waters of this valley are collected by the single stream of Rio de Bogota, which finds its way through the mountains to the S.W. of the town of Santa Fé; the stream where it leaves the valley is about 144 feet wide; it then enters into a rocky channel not more than 40 feet wide, apparently formed, says M. Humboldt, by an earthquake. From this crevice, the river precipitates itself at two bounds to the depth of 574 feet; and after this fall pursues its course to the Magdalena, about 50 miles, still descending with great rapidity, and at the rate of 150 feet to a mile. The natural bridges of Icononzo are on the western declivity of this ridge. The central chain is the highest of the three, and often attains the limits of perpetual snow, and greatly furfades it in the collossal suns of Guaneas, Baragan, and Quindiu. The western chain separates the valley of Cauca from the province of Choco, and the coasts of the South sea. This is lower than the others, and rises so much as it approaches the isthmus of Panama, that its course can hardly be ascertained. In our ordinary
ordinary maps, there is no trace of the highest or central chain; and Mr. Arrowsmith's map of America, in 1802, makes the valley of Magdalena occupy the whole interval between the eastern and western chains. The most difficult passage of the Andes is that by the mountain Quindiu. It lies through a thick uninhabited forest, which cannot be traversed in the finest season, in less than ten or twelve days. The summit of the pass is at the prodigious height of 11,499 feet above the level of the sea, and the passage from ten to sixteen inches in breadth. Humboldt's Researches, etc., by F. M. Williams, 1814.

CORDYLINE, in Botany, an old name of Van Royen's, from xopkw, a club or staff, sufficient enough to the Dracaena and {Punica} to which it was originally applied, and which we presume are included in the genus which now bears it.—Comm. in Jull. 41. Brown Prod. Nov. Holl. v. 1. 286.


The stem is shrubby. Leaves lanceolate, finely ribbed, elongated. Panicle terminal, of numerous, many-flowered, alternate spikes, with two unequal-"bracteas under each flower.

1. C. canisfolia. Br. n. 1.—Leaves flaked, pointed. Chilfers divided. Outer bracteas acute, twice as large as the inner, which hardly equal the partial flacks.—Found by Mr. Brown, in the tropical part of New Holland.

See DRACENA, of which our first and second species belong to this genus.

CORMECASTLE, l. 29, r. after return—of 1811 was 161, and of inhabitants 741.

CORINTH, a township of America, l. 2, r. 1876.

CORINTHIAN ORDER, l. 8, for convex r. concave. CORN, col. 3, l. 18 from the bottom, del l. 18 to l. 14.

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CORN, Opacities of. Opacity of the cornea is one of the world consequences of obliterative chronic ophtalmie. The slight, recent, and superficial form of the disease is usually known under the name of nebula; and it is proceeded by and attended with chronic ophtalmie. The iris and pupil are discernible through a sort of cloudiness, and the patient is not entirely deprived of the power of vision. The veins of the conjunctiva are greatly relaxed, turgid, irregular, and knotty, which change first affects their trunks, and then gradually extends to their ramifications near the union of the cornea with the telerotica, and ultimately to their most minute branches returning from the delicate layer of the conjunctiva, spread over the front of the cornea. When this happens, a milky albuminous secretion begins to be superficially effused in the interstices between the red flakes, and the specks thus produced may cover only a part or the whole of the cornea.

The opacity of the cornea sometimes occurring in violent ophtalmies is essentially different from the nebula, and arises from a deep extravasation of coagulating lymph in the cellular texture of the cornea, or from an absence between its layers. In the treatment of the nebula, the curative indications are to refire the varicose veins to their natural diameters; and if that be impracticable, to cut off all communication between the trunks of the most prominent veins of the conjunctiva and those on the cornea. The first object is performed by using Janin's ophtalmic ointment, or the ung. hydrarg- nitrat, together with affringent collyria. The second defedraterum is fulfilled by the excision of the falciformis of varicose veins, just at the base of the opacity, with a pair of dissecting scissors and forceps. With respect to the deeper and more oblitimate opacities, which are frequently called allugu and leucoma, they are consequences of severe acute ophtalmie, though sometimes the effects of an ulcer or wound of the cornea, when they are commonly known only by the latter appellation.

The recent allugu may sometimes be disfigured by the same treatment, which is applicable to violent ophtalmie; and when the inflammation has been subdued, the ung. hydrarg. nitrat. is the best local remedy for promoting the absorption of the extravasated opaque lymph. The eye may also be frequently washed with a collyrium, composed of two scruples of the muriate of ammonia, and four grains of verdigras, in eight ounces of lime-water. The treatment must be continued three or four months before the cafe is to be abandoned as hopeless. With respect to the leucoma arising from a cicatrix, Scarpa fets it down as absolutely incurable.

CORNISH, l. 5, r. 1810, and 1606. Add—Alfo, a town of York county, in the district of Maine, having 974 inhabitants.

CORNWALL, a town of America, in the district of Maine, and county of Somerset, having 504 inhabitants.

CORNWALL, col. 8, l. 31, r. 1811; l. 32, r. 37971, and 216,667.

CORNWALL, in America, l. 3, r. 1279; l. 8, add containing 1622 inhabitants.

CORO, l. 7, after persons, add. The little commerce that is carried on in males, goats, hides, sheep-skins, cheefe, &c. obtained from the interior of the country, and more particularly from Carora. At the close, r. N. lat. 18° 8' from Paris.

CORSHAM, l. 17, add. By the return of 1811, the number of houses was 478, and that of inhabitants 2395.

CORTLANDTS, a county of New York, having 8890 inhabitants.

CORUNDUM. See Mineralogy, Addenda, and Adamantine Sær.

CORUNNA. Add. See Constantina.

CORVUS, col. 2, l. 20, add. The African or Captian, described by Le Vaillant, is, according to Dr. Shaw, the only variety worth of notice.

CORNWEN, l. ult. r. 51 Geo. III. 288 houses, and 1417 inhabitants.


Eff. Ch. Calyx ringent; upper lip vaulted, very large; lower in two linear segments, combined with the linear petals. Lip dilated, concave. Anther terminal, of one cell, and two connected valves, permanent. Nodes of pollen four. Curious little smooth plants, each with a single bulb, one roundish radical leaf, and a large, deep red, solitary flower. Nearly related to Limperanthes nigricans; see that article.


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fue of the Andes, a longitudinal valley separates the Cordilleras into two parallel chains; the bottom of this valley is 9843 feet above the level of the ocean, so that Chimborazo and Cotopaxi appear no higher than the Col du Géant, as measured by Saulliere. The summit of the mountain of Chimborazo is 21,430 feet above the level of the sea, and therefore a good part is above the circle of perpetual congelation, which, in the latitude almost under the line, is somewhat higher than the summit of Mont Blanc. Humboldt's Researches. See Volcano.

COTTAGE, col. 13, l. 15 from the bottom, for feed r. reed.

COVENTRY, by the return in 1811, this city contained 3448 houses, and 17,293 persons; viz. 8197 males, and 9296 females; 123 families being employed in agriculture, and 3207 in trade, manufactories, and handicraft.

COVENTRY, in America, l. 4, add—containing 1938 inhabitants; l. 6, r. 2928; l. 8, r. 162; l. 12, add—In 1810 it contained 178 persons; l. 13, r. having 1608 inhabitants.

COUGHING, in Physiology. See Lungs.

COUNSEL, col. 2, l. 5, r. the king's premier, &c.

COURONNE des Tifes, an apparatus constructed by professor Volta, in which he arranges the component parts of the galvanic pile in a different form. (See Galvanism.)

This apparatus consists of a set of small glass plates, placed side by side, one another, and containing water or some saltness solution. Metallic arcs are then procured, having one end composed of zinc, and the other of silver or copper: these arcs are inserted into the glass plates in an uniform order; each glass having the zinc leg of one arc, and the copper or silver leg of another arc immersed in the fluid. The zinc and copper legs are not in contact, and they are always to be disdised in the same situation with respect to each other: i.e., one is always to be at the right-hand, and the other at the left. The pile and this apparatus operate in the same manner, and their operation is referred by the professor to his new principle (see Voltaism), by which he conceived different metals, when placed in contact, to destroy the electric equilibrium, or, in his phrase, to become movers of electricity, producing that electric motion which is supposed to be the primary and essential cause of the galvanic action.

COURT, University, col. 2, l. 4, r. 14th.

COURUPITA for Courapita.

COWBRIDGE. In 1811, the parish contained 158 houses, and 850 persons; 425 being males, and 425 females.

COW-TAIL RIVER. See Wau-ca-hatcho.

CRACKS, col. 4, l. 15, for bone r. cone.

CRAFTSBURY. In Geography, a town of Orleans county, in the state of Vermont.

CRAIN. In 1811, the burg and parish of Crain contained 316 houses, and 1600 persons; viz. 673 being males, and 927 females.

CRANBERRY. Add—Also, a town of Butler county, in Pennsylvania, having 543 inhabitants.

CRANBORNE. In 1811, the parish of Cranborne contained 144 houses, and 816 persons; viz. 429 being males, and 387 females.

CRANBROOK. Add—The parish of Cranbrook, by the return of 1811, has 511 houses, and 2994 persons.

CRAVEN, l. 4 and 5, r. 12, 676, and 5050.

CRAWFORD, a county of Pennsylvania, containing fourteen townships, and 6178 inhabitants.

CRAFFORD. In 1811, the parish contained 233 houses, and 1553 persons; viz. 759 being males, and 784 females.

CREAM,
CRO

CREAM. *Chemical Analysis of.* See Milk.

CREDITON. *Chemical Analysis of.* See Milk.

CREDITON, l. 3 from the end, r. and the hundred contains, by the return of 1811, 2130 houses, and 10,548 inhabitants; l. 5, after extent, add—But the borough of Crediton contains only 425 houses, and 1846 inhabitants.

CROKHERE, col. 2, l. 4, for 41 r. 51 l. 5, r. of houses was 589, and of persons 3021, of whom 1346 are males, and 1765 females; 281 families employed in agriculture, and 308 in trade, &c.

CRIADERA, in Botany, from its perforated structure, Perf. Syn. Fung. 189; one of those beautiful, though minute, genera of *Pungi,* whose *head* is formed of reticulated fibres, enclosing the powdery *feels.* Person reckons up eleven species.

CRICKHOWEL. In 1811, the parish contained 137 houses, and 611 inhabitants. In the hundred of Crickhowel is a Roman encampment, called the Gaer, situated at the extremity of the vale, on a rising ground. The dimensions are much the same with those of Caer-Bannau (see Bannium), and it is nearly of a square form. It lies on the Via Julia, which passed in this direction from Caerleon to Caermarthen. We are informed that the old practice of fusing carols in the church at cock-crowing, or the earliest dawn of the morning, on Christmas-day, is still continued in the church at Crickhowel; but it merits any other appellation than that of a religious rite.

CRICKLADE, l. 14, r. 51 l. 15, r. 1939, and 2095; l. 16, 10,403; l. 17, 4804, and 5599; 1483 families chiefly, &c.; l. 18, r. 411.

CRIADRIA, in Botany, from the wings or *crests* of the aggregate capsules, by which alone it is distinguished from *Seida* (see that article).—Cavan. Ec. t. 5. 10. Pursh 453. Sims in Curr. Mag. 1675. We can hardly ascribe to the establishment of this genus, its character being entirely artificial, and unaccompanied by any thing discriminative in the habit. The only species mentioned are, 1. *C. glaucescens,* Cavan. Ec. t. 348. 2. *C. multifidus,* which is our *Seida meroformis,* the last species but one in that article. 3. *C. cocinea,* Pursh n. 1. Curr. Mag. t. 1675, a native of the dry plains of the Mifouri, perennial and hardy in our gardens, adorned with beautiful scarlet flowers. 4. *C. botanisefolia,* Cavan. as above, 11, which is Malacochites botanica folio, &c.; Feuill. Voy. p. 3. 40. t. 27.

CROMER. At the close, add—the parish contains, by the returns of 1811, 170 houses, and 848 inhabitants.

CROSBY, a township of Hamilton county, in Ohio, having 981 inhabitants.

CROSS-CREEK. Add—containing 1847 inhabitants—Alto, a township of Ohio, in Jefferson county, having 1152 inhabitants.

CROSS-WORT. Add—and *Valentia.*

CROTALUS, col. 3, l. 19, r. to have them come, &c.

CROTONEOPSIS, in Botany, from *kronos,* Croton, and *opsis,* appearance; but the principle of the name is incorrect, infasmuch as the Greek *kronos* is our *Ritinus,* to which the genus in question bears no resemblance; and if the Croton of modern botanists be intended, such a comparative appellation is contrary to rule.—Michaux Boreal.—Amer. v. 2. 183. Willd. Sp. Pl. v. 4. 350. Pursh 206. Cliffs and order, *Monodia Pentandria.* Nat. Ord. 1.

Eff. Ch. Male, Calyx in five deep segments. Petals five. Female, Cal. and Cor. like the male. Stigmas divided.

Cupule inferior, not burfting, with one seed.

1. *C. argentea.* Silverly Crotoneops. Pursh n. 1. (C. linearis; Michaux 188. t. 46. Willd. n. 1. C. elliptica; Willd. n. 2.)—Native of North America, in sandy ground near the coast, in the Illinois country and on the Mifouri,

CRY

flowering in July. *Pursh.* A slender annual herb a span high, with opposite or alternate entire leaves, variable in breadth, and loose *flowers* of minute white *flowers.* The pubescent calyx consists of fringed silky scales, as in Croton.

CROUPADE, r. See Ballotaede.

CROW'S Nest, in Naval Language, is a kind of box, sufficient to hold a man; generally a cask, fixed near the main-head, to protect the observer from cold, and enable him to look out for whales, or open pieces of water.

CROYDON. The parish of Croydon, in 1811, contained 1594 houses, and 7801 inhabitants; 5616 being males, and 1485 females; 397 families employed in agriculture, and 662 in trade, &c.

Croydon. Add—and in 1810, 802 inhabitants.

CROYDON Canal, l. 5, r. Surrey.

CUCIBROSTRA, *Cross-bill,* in Ornithology, a genus of birds of the order Pheiferes; the characters of which are, beak thick and forked; mandibles, when at rest, inerribly curved; neither small, rounded, situated at the base of the beak; tongue entire. Mr. Stephens, the compiler of Dr. Shaw's Zoology, mentions and describes two species; one of which, or common cross-bill, with a variable red body, quills and tail-feathers brown, beak externally olive-green, and tail forked; the *Loxia curvirostra* of Linnaeus; and the cross-bill with a dull crimson body, wings black, with two white feathers, secondary quills white at the tips, and tail black, the *Loxia leucotera* of Gmelin, and white-winged cross-bill of Latham and Pennant.

CRUSTA, Animal, Chemical Properties of. See VERMES.

CRYPHIA, in Botany, *cypris,* *clandestine,* alluding to the concealed corolla.—Br. Prodr. Nov. HOLL. v. 1. 502. A genus, of which there is perhaps but one certain species, a small thyme-leaved herb, with solitary axillary flowers, found on the south coast of New Holland, intermediate between *Chlodia* and *Prostanthera;* see those articles. The ringent corolla is shut up in the closed two-lipped calyx. Possibly the flowers were not fully evolved, owing to the climate or season.

CRYPTOCARYA, Brown Prodr. Nov. HOLL. v. 1. 502, a genus of the order of *Laurine,* resembling the Cinnamon-tree in habit, as well as inoreforebence, but differing from *Laurus* in having only two cells in each other, and from the whole order in having the nut concealed, (whence the name,) in the enlarged tube of the calyx, become closed above it at the top. *C. glaucescens* and *obovata* are natives of Port Jackson; *C. triflinervis* of the tropical part of New Holland.

CRYPTOSTEMMA, *xerophyton,* concealed, and *segoa,* a crown, the sealy crown of the feeds being involved in wool.


2. *C. hypochondriacum.* Divided-rayed Cryptostemma. Ait. n. 2. (Arctostis hypochondriaca; see sp. 1. &c. Willd. Sp. Pl. v. 3. 2428.)—Radiant flowers in three or five deep segments. Leaves lyrate, downy.

3. *C. rumicatum.* Dandelion-leaved Cryptostemma. Ait. n. 3.—Radiant florets in three or five deep segments. Leaves runcinate; toothed; downy beneath.

All the species are natives of the Cape of Good Hope.
CRY

rather tender annuals in our gardens, of no striking appearance.


Eff. Ch. Calyx-leaves and petals linear, spreading. Flower recurved. Lip crest, felliie, dilated, undivided; concave at the base, concealing the very short column. Anther parallel to the stigma, subtended at each side by a lobe of the column.

Bulbs clustered. Leaves few, radical, stalked, flat. Flowers in a terminal spike, dull red, scented.

1. \textit{C. longifolia}. (Malacca subulata; Labill. Nov. Holl. v. 2. 62. p. 212.) found at Port Jackson, as well as on the south coast;

2. \textit{C. ovata}; and 3. \textit{C. cretica}; are the only described species.

CRYSTAL, col. 5, l. 19, for changed r. charged.

CRYSTALLOGraphy is the science which treats of the form and structure of crystals. (See Crystal.) The beautiful symmetrical forms, which frequently occur in the deep recesses of mines or the fissures of alpine rocks, cannot fail to strike the most common observer with surprise. Amidst the almost infinite variety which they present, it will be found, on a more attentive examination, that there are certain definite forms which some minerals most frequently assume, and which are rarely, if ever, seen in other minerals. Hence we might at first be led to infer, that crystallization depends on the definite action of some general law, by which the constituent parts of each mineral species are invariably arranged in the same form. When, however, it is farther discovered that, besides the prevailing forms peculiar to certain minerals, the same species are not unfrequently crystallized in a variety of different forms, and that minerals of different species often present crystalline forms of the same form, we must retract our first conclusion, and shall be more disposed to believe that the mineral kingdom has not yet emerged from a chaotic state, or that the reign of order is subject to the invasion of disturbing forces, the extent of which we have no means of ascertaining.

The labours of a few enlightened and indefatigable philosophers have recently removed, in a great degree, the obscurity in which this department of science was involved, and have demonstrated that the laws by which the particles of the minutest crystal are arranged act with unerring precision, and are not less regular than those which govern the motions of the planets or the solar system.

Under the article Crystal (which see), some account is given of the discoveries of Romé de Liége, Bergman, and Häüy. The latter has ably demonstrated that all the varieties of crystalline forms are reducible to a few simple primitive forms, one of which may be regarded as the nucleus of each crystal, however complicated its form may be. The constituent particles, or what Häüy denominates the \textit{integrant molecules}, of all crystals, may be conceived as arranged in rows, and a number of these rows as forming thin laminae or plates. When these laminae are parallel with all the faces or planes of a crystal, they may be removed without changing the form of the crystal; but if the laminae divide in any other direction than that which is parallel to the faces, a change of form will be produced by every division, until at last we obtain a nucleus which is divisible in a direction parallel to its sides.

In the former case, the primitive form is the form of the crystal itself. Thus, if a cubic crystal be divisible only by laminae parallel to its six sides, we may continue diminishing the magnitude of the crystal, as long as mechanical division is possible without any change of form.

When the laminae of a crystal divide in any other direction than parallel to its faces, it is called a secondary or derivative crystal.

The primitive forms of all crystals which have been hitherto examined are fix.

1. The parallelopiped, bounded by six planes, the opposite planes being parallel. This includes the cube, and varieties of the rectangular prism, the oblique angular prism, and the rhombohedron.

2. The octahedron. This is a double four-sided pyramid. When the triangular faces are equilateral, it is called a regular octahedron. (Plate VII. fig. 27, Cry stallography.) There are, besides this, other varieties of the primitive octahedron, in which the pyramids are longer or shorter than the regular one, or have a rhombohedral base, or a rectangular base, longer in one direction than the other.

3. The regular tetrahedron (Plate VII. fig. 13.) is bounded by four equilateral triangles.

4. The regular hexahedral prism, or equiangular six-sided prism, fig. 5.

5. Rhombohedral dodecahedron, bounded by twelve equal rhombs, fig. 12.

6. The pyramidal dodecahedron, confiding of two six-sided pyramids joined base to base, fig. 14.

The primitive forms which most frequently occur are, the parallelopiped and the octahedron. The tetrahedron and dodecahedron are very rare as primitive forms, though common as the secondary forms of crystals.

The division of secondary crystals by sections in the direction of the lamina is, in some minerals, effected with facility; in others, the joints are indiffusely and require the crystal to be heated and plunged into cold water to make them visible. The direction of the lamina is frequently rendered obvious by turning a mineral slowly round in the furnace, when the reflections from the internal parts will shew its structure. Where no joints are discoverable, Häüy determines their direction and the form of the primitive nucleus by conjecture, from the appearances offered by the secondary crystal.

The actual mechanical division of an hexahedral crystal of calcareous spar, and the extraction of the primitive, is represented in Plate II. figs. 17, 18, 19, 20, Crystallography, and is described under the article Crystal; but the references are erroneously made to Plate I. figs. 1, 2, 3, 4, 5.

The primitive nucleus is represented fig. 21, E A, O T, G H, A K. The discovery of it in this crystal was first made by the abbé Häüy in looking over the cabinet of M. Defiance, a hexahedral prism of calcareous spar having fallen from the group to which it was attached. M. Defiance made him a present of it. One of the corners being off from the base, he attempted to detach similar corners from the other angles, and after some time he succeeded in bringing to view its rhombohedral nucleus. This first suggested to him the theory of the structure of crystals. The situation of the primitive form, in another variety of calcareous spar, called the dog-tooth spar, may be seen Plate II. figs. 22 and 23. This is described under the article Crystal, with the mode of extracting the nucleus; but the reference is erroneously made to Plate I. figs. 6 and 7.

The angles of the primitive rhomb are invariably $105^\circ 5'$ and $75^\circ 55'$. Rhombohids of calcareous spar, indeed, occur with different angular admeasurements; but these are secondary crystals, and will not split in directions parallel to their faces. One of these, with the primitive nucleus, is represented
The diieAioa parallelopiped, but figure because composed that be a and cubes, the firm conceive graphy, which represents the base of a fix-edided prism, divided by sections parallel to each of its sides: from this division the ultimate form which we can ever obtain must be that of a triangular prism; for by carrying on the division we may conceive the particles to become smaller, but their form will remain the same. We have therefore obtained the form of the integrant molecule. In parallelo-pipeds, the form of the nucleus is also that of the molecule itself.

Thus in the cube, as represented Plate IV. figs. 48 and 49, the divisions parallel to the sides produce a series of smaller cubes, which must be the form of the integrant molecule. In some instances, the primitive forms themselves admit of division by lames not parallel to that of the faces, from which must necessarily result a new form of the integrant molecule.

Plate II. fig. 26, represents a primitive rhomboid of tourmaline A E, O I, G H, A K, which is divisible both in the direction of its fix faces and in that of the short diagonal A O, I A, K A. These latter sections divide the rhomboid into fix tetrahedrons, which are represented surrounding the nucleus. Hairy conceives, that by these divisions, we obtain the form of the integrant molecule, or of the ultimate integrant atom of the crystallized mineral. It has been observed, that no proof can be advanced to confirm this conjecture, except the impossibility of altering the form, how far ever we carry the divisions; and the obvious consequence is, that if these divisions be carried far enough, we must at last reduce the crystall to its integrant particles. It is not, however, necessary to suppose, that the constituent particles themselves have any other form than that of spheres; because all the forms of the integrant molecule, which are the tetrahedron, the triangular prism, and the cube, may be readily conceived to be constructed with four, fix, and eight spherical particles, arranged in their forms by crystalline polarity. It deferves attention, that the forms of the integrant molecule are the most simple which can exist among solids with plane surfaces, being bounded respectively by the smallest possible number of sides, viz. four, five, and fix.

If we conceive the integrant molecules to be arranged in rows, and a number of these rows to be arranged in the same plane, they will form lames of any conceivable size. Now by a succession of plates increasing in size, the magnitude of the primitive crystal will be increased; but if these lames decrease in extent by one or more rows of particles, the result will be a change of form, or the production of a secondary crystall. Now the lames may either decrease on the edges by one or more rows, or may decrease diagonally on the angles by a determinate number of rows; or the decrease may take place in some intermediate direction. These are called by Hairy, decrements on the edges, decrements on the angles, and intermediate decrements. Sometimes decrements take place at once on all the edges, sometimes upon all the angles, and sometimes only upon certain edges and angles. In some instances the decrements are uniform, and the same number of rows decrease from the different edges or angles. Sometimes the law of decrement varies from one edge to another, or from one angle to the other; and this happens chiefly when the nucleus has not a symmetrical form, or when it is a parallelo-pipied, whose faces differ in the respective inclination of their faces, or in the measure of their angles. In certain cases, the decrements on the edges concur with those on the angles to produce the same crystalline form. It happens also, that the same edge, or the same angle, sometimes undergoes different laws of decrement that succeed each other; and, finally, there are a great many cases where the secondary crystal prefers faces parallel to those of the primitive form, and which combine with the faces produced by the decrement, to modify the figure of the crystal.

If, in the midst of such a variety of laws, sometimes acting solitarily, and sometimes in combination upon the same primitive form, the number of ranges subtracted were likewise variable; if, for instance, there were decrements of twenty, thirty, forty, or a greater number of ranges of molecules, of which it is very possible to conceive, the multitude of forms which might exist in each mineral species would be sufficient to appal the imagination, and the study of crystallography would present an immense labyrinth, from which even the affilience of theory could not extricate the learner.

But the force which produces the decrements of range appears to have a very limited action. Generally these subtractions take place by only one or two rows of molecules. None have hitherto been found beyond fix rows; but furnish the facies limited with this simplicity, that were we to confine ourselves to decrements by one, two, three, and four rows, and to exclude those that are mixed or intermediate, we find that the rhomboid is susceptible of 8,508,624 varieties of crystallization. Doubtless many of these varieties do not exist in nature; but there is reason to expect that discoveries in the field of inquiry will be made for many years to come.

The tetrahedron and the triangular prism, when they occur as integrant molecules, are always arranged in such a manner in the interior of crystals, that, taking them in groups of two, four, fix, eight, they compose parallelo-pipeds. These parallelo-pipeds are, by Hairy, named integrant molecules. They are always substituted in the place of tetrahedrons and triangular prisms in considering the decrements where they produce the secondary forms.

Decrements of the Edges.—The most simple case of change of form produced by the superposition of decreasing lames, is that which supposes ranges of molecules to be taken away on all the edges of a parallelo-piped, in a direction parallel to the edges. Yet this case, so simple in appearance, may give rise to forms of confiderable complexity. Thus the rhomboidal dodecahedron (Plate II. fig. 27, or Plate III. fig. 28. Crysrallography) may be formed in this way from a cubic nucleus. If the integrant molecule of this species be a cube, it follows that the primitive crystal E A, O I, and E' A', O' I', is formed by a congeries of cubes. Suppose these cubes of such a size, that an edge of the primitive crystall is composed of a row of seventeen cubes, placed side by side, as represented fig. 29. I O, O E: of course each face of the primitive crystall will be a congeries of 289 squares, consisting of so many integrant molecules; and the primitive crystall or cube will be a congeries of 4913 cubes. Let us suppose that a square surface or plate, of the thickness of one integrant molecule, be applied to every face of cube; that is, instead of being of the same size as the face of that crystall it is less by a single row of molecules all round; so that the sides, instead of containing seventeen little cubes, contain only fifteen each (see fig. 29.); of course this square will contain only 225 little cubes, instead of the 289 that form the surface of the primitive crystall. Upon each of these first plates applied to every face,
face, let another plate be applied similar to the first, but less than it by a row of integrant molecules; so that each side contains only thirteen squares, and the whole only 169 squares. Let six other plates be applied in succession to each of the faces, decreasing by a row of little cubes all round; so that the sides consist of eleven, nine, seven, five, three, and one squares respectively. It is obvious, that by this process we have raised upon each of six faces of the cube a four-sided pyramid, the faces of which, instead of being smooth, will, by their constant diminution of bulk, represent the steps of stairs. If, however, we conceive the molecules to be extremely small, and the number of decreasing laminae to be increased, the steps of the stairs may be so small as to be imperceptible to the eye, in which case the surfaces of the pyramids will appear smooth.

These pyramids having each four faces constitute twenty-four triangular faces, so that the cube is converted into a new crystal. Instead, however, of having twenty-four faces, the decrements having been equal on each edge, the triangular faces in each adjacent pyramid will be in the same plane, and form together a rhomb, which will be evident from the inspection of figs. 28 and 29; the cube will therefore be converted into a rhomboidal dodecahedron. The cubic nucleus I', O', O, E, fig. 29, is represented with the pyramids raised on three of its faces. When complete, it will have the form represented in Plate II. fig. 27. If the decrement had taken place by two ranges on each of the lamina, when applied to the cube the pyramids would have been lower; and their adjacent faces being no longer in the same plane, the secondary crystal would have terminated in twenty-four distinct triangles.

In the example given (fig. 29) it will be seen, that as each of the laminae decreases by one row on each of its edges, viz. one on I'O, and another on the inferior row I'O', and the same on the other edges, it is obvious that the pyramid decreases by two rows in breadth for every row in height; therefore the height will be equal to half the breadth at the base.

The terms decrement in breadth, and decrement in height, are thus explained by Haidy. Decrements in breadth are those in which the thickness or height of each plate or lamina is only equal to one integrant molecule; and the result of the decrement is by one, two, three, or more ranges in the direction of the breadth. Decrement in height implies a decrement of one row in breadth on each of the successive plates; but each of these rows may have the thickness or height of two, three, or more molecules. In the latter case, the decrement is said to take place by two, three, or more ranges in height.

These two kinds of decrement are often combined together, of which we have an example in iron pyrites with twelve pentagonal faces. (Plate III. fig. 32.) This variety has a cube for the nucleus, as represented fig. 31; and may be conceived to be formed, as represented fig. 32, by decrements of two ranges in breadth in one direction, and by decrements of two ranges in height in the other. The decrements in breadth by two ranges tend to produce a more inclined face than the decrements by two ranges in height; the consequence resulting is, that the crystal will not terminate in pyramidal points, but in wedges, as is seen at $q$, fig. 32. The structure of this crystal is more particularly described under the article Crystal; but for Plate I. Nos. 14, 15, 16. r. Plate II. figs. 30, 31, 32. Crystallography.

Another example of decrements on the edges is deferring particular attention: it is afforded by that peculiar kind of crystal of calcareous spar, commonly called dog-tooth spar, or which Haidy denominates the metaflatic crystal. (Plate II. fig. 22.) In this crystal, the edges E O, O I, I K, where the two opposite pyramids join, coincide with the edges of the primitive nucleus, as may be seen in fig. 23. The decrements set out from these edges, and do not take place on the other six edges of the nucleus. Now it is easy to conceive, that the edges of the plates, laid upon the primitive nucleus, form as many triangles, E O I, I O E, &c. resting upon the edges from which they set out; and as there are six in number, there will be twelve triangles, six above and six below; and these will all be scalene, in conformity of the obliquity of the edges from which they set out. With respect to the other edges of the plates of superposition, so far from experiencing any decrement they will increase; because they must always remain contiguous to the axis of the crystal, which is an imaginary line drawn from s to s. It is from calculation combined with observation, that we must determine the law of decrement on which this dodecahedral form depends. If we suppose a decrement by one range, it may be demonstrated, that the two faces produced on each side of the edge from which the decrement takes place will be in the same plane, and parallel to the axis of the primary crystal, conditions which do not apply to the present form. The most simple hypothesis is that which supposes a decrement by two ranges in breadth. This will be more clear from inspecting Plate III. fig. 33: it represents the upper pyramid of the crystal, placed on the upper planes of the primitive nucleus, which being partly visible, admits us to perceive more clearly the progressive effects of the decrement by two ranges.

Each edge of the nucleus, as K I, I O, O E, is divided into ten; from whence it follows, that each face is an assembly of one hundred small rhombs, which are the exterior planes of so many molecules. This construction requires only eight plates of superposition for each face of the nucleus; and these plates being joined to each other, three and three on the edges, which correspond with the upper edges of the nucleus, form decreasing envelopes, covering each other in succession; the last of which is composed of eight little rhombs. If we consider the position of the line E s, which represents an edge of this pyramid, as it appears to the eye, and E s', such as it really exists, we may observe that the geometrical summit of the pyramid s is placed a little above the true summit s'; but this difference is imperceptible, on account of the extreme minuteness of the molecules: and for the same reason, the channels or steps upon the pyramid are not visible. There are darts, however, in which the channels may be perceived by the naked eye.

For determining the form of secondary crystals by calculation, it is only necessary to take the decrements at their commencement, in order to have as many planes, which, if we conceive them to be extended until they meet, would form a complete polyhedral crystal; and in this manner we only consider the initial effects of decrements mathematically, a method more simple and expeditious than that of reasoning. It is useful, however, to explain in detail the structure of a crystal, in such a manner as may enable us to arrange a number of small solids similar to primitive molecules to form a nucleus, in an order conformable to that of nature, and thus to imitate the process of crystallization. We shall give another example from that variety of calcareous spar, called by Haidy equiaceous.

This variety, the secondary crystal, is a rhomboid, much more obtuse than the nucleus, the greater angle being $114^\circ 18' 56''$. It is represented (Plate III. fig. 34) surrounding the nucleus. To extract the latter at once, it is only
only necessary to make sections cutting through the oblique diagonals of the different faces of the secondary rhomboid.

One of the sections, for instance, that paffes through the diagonals drawn from \( a \) to \( t \), and from \( a \) to \( u \), and which cuts off the solid angles \( a, b, d, f \), of the nucleus. But there are six lateral solid angles \( a, b, c, y, z \), and \( t, m, u \). We have, therefore, six sections to make, inclined three and three towards each summit; and because the upper solid angles alternate with the inferior, the sections which cut them off prefer the same alternation, and crofs in such a manner as to present the six rhomboidal faces of the nucleus.

To conceive the structure of this secondary rhomboid, let us refer to the rhomboidal dodecahedron (Plate III. fig. 29.) before described. We have seen that by a decrement of one range in breadth on all the edges, there reffulted two triangular faces on each edge, which being in the fame plane formed a rhomb, the short diagonal of which is \( I _0 \).

Let us suppose, that the nucleus was the primitive rhomb of carbonate of lime \( (a b, d f, f g, 34.) \), and that the lamine of superposition due by one range of little rhomboids similar to the nucleus; but the decrements to take place only on the edges \( a b, b f, f c, c a, a m, \) which meet at the summit \( a \), and on the opposite edges, which meet at the opposite point \( d' \). Then instead of twelve rhombs there will only be six, of which the shorter diagonals will coincide with the edges \( b d, d f, f x, g c, \) &c. The other parts of the lamine of superposition, that is, those which are situated near the lower edges, \( b d, d f, f x, g c, \) &c. will not undergo any decrement, but will suffer variations that will tend to prolong the faces produced by these decrements, until they interfect each other. From hence it refults, that the lamina, instead of preferring the figure of a rhomb, as would have been the cafe if the decrement had taken place on all the edges, will, as they are further and further removed from the nucleus, pass successively from the figure of a pentagon to that of a triangle.

(Plate III. fig. 35, \( a, b, c, f, d, \) is the face of the fame nucleus or rhomb as in fig. 34, and what is said of this face may eafily be applied to the others. Suppose this face divided into \( 8 \) rhombs, which repreffent the faces of so many molecules, or \( 729 \) in the whole. The firft lamine of superposition, which we apply to the face \( a b, b d, f, \) will be \( B, G, \) in which \( U I, Z, d, \) repreffent the upper face, and \( C U, B, X Z, b, \) the faces of the two upper edges. We muft place this lamine in such a manner on the face \( a b, b d, f, \) that the point \( b \)' shall unite with the point \( b, \) the point \( A^1 \) with the point \( A, \) and the point \( B^1 \) with the point \( B. \) We shall perceive immediately, that the two upper ranges of the face \( a b, d f, \) fig. 35, \( A, \) that is, those included between \( a b, A, b, \) on one side, and \( a f, B, b, \) on the other, will remain uncovered, the neceffary reffult of a decrement by one range of molecules. The lamine \( B \) is a pentagon reffulting from the subtraction of the three little rhombi neceffary to complete the rhomb. This subtraction was required, that the lamine by its figure might aid the effect of the decrement, as will be afterwards explained.

The two ranges of rhomboids on each side of the lines \( D d', E d', \) are added, that the nucleus may be covered and continue to increase on the edges \( b d, f d, A, \) fig. 35, which correspond with these lines. These two ranges being fufficient to fill up the void, it is not neceffary to add similar ranges towards the adjacent edges of the lamine of superposition, applied on the neighbouring faces. The operation will indicate of itself what is required in these kinds of additions.

The fig. C, 35. represents the second lamine of superposition, which is to be applied to the former in such a manner, that the points \( d', D, E, d, \) shall unite with those which are marked with the fame letters in fig. B. As the cryftal will receive another increment towards the edges, which correspond with \( F, D, C, d', \) we may conceive that instead of one range added on each side \( D d', E, d', \) it will be neceffary to add two on each of the two lines \( E d', C d', \) fig. C, 35.

We muft place in the fame manner, in succession, the two laminae represented \( D \) and \( E, \) fig. 34; obferving that the letters marked with an accent in each figure shall coincide with the fame letters not accented in the foregoing figure. Beyond the feries which answers to fig. \( E, \) the lamine of superposition will ceafe to envelope the lower edges of the cryftal, and will be reduced to fimple triangles, which may be perceived on examining the figures \( E, F, G, H,\) whose position will be determined according to the conditions before stated.

The number of rhomboids which compofe the lamine being now progreffively decreafing, is reduced at last to a fingle rhomboid \( d' \) (fig. D, 35.), which being applied on that which is designated by the fame letter in fig. \( H, \) will form the summit of one of the lateral solid angles of the secondary rhomboid. It will now be seen why the laminae of superposition take fucceffively pentagonal and triangular faces as they recede from the nucleus. For example, every lamina, detached from the cryftal (fig. 34.) by a fection which paffes any where between the angle \( z, \) and the middle of the lines \( Z, I, Z, u, \) is neceffarily triangular, and has the fame structure as \( P' R', \) fig. 35; namely, it is really furred at its bafe, but the ridges are imperceptible on account of their extreme minutenefs.

Decrements of the Angles.—To explain the formation of secondary cryftals, in many instances it is neceffary to admit that the decrements take place on the folid angles. The formation of the regular octahedron formed on the cube is repreffented Plate III. fig. 35. Crystallography, and an account of it given under the article Crystal, but the reference is erroneously to Plate I. fig. 20.

The effect of decrement on the angles by one range of molecules in breadth is explained in the article Crystal, and a reference made to Plate I. fig. 21, for which see Plate II. fig. 21, Misellaneous, O I, U O; where the face of a cubic nucleus is repreffented as divided into a number of feries of figures; and fig. 23, A, B, C, D, E, F, G, H, I, in the fame plate, repreffent a fucceffive feries of plates, or lamine, placed on the cubic nucleus, each decreafing by one row on the angles. These are defcribed under the article Crystal, but referred to Plate I. fig. 23: by applying that description to the proper figures as here given, the reader will be able to comprehend this cafe of decrement, where a regular octahedron is formed on a cubic nucleus. The arrangement of the integrant molecules on one of the triangular faces of the octahedron is repreffented Plate IV. fig. 37. Crystallography.

If the decrements on the angles of a cube were to flop before they terminated in a point, there would remain faces parallel with that of the cube, which will be evident from inspecting Plate III. fig. 36. The cryftal would then have fourteen faces, eight thole of the octahedron, and fix thole of the cube. Nothing is more common than to find fuch cryftals both in iron pyrites and in galena.

As another example of decrements on the angles, let us take the rhomboid (Plate IV. fig. 38.), which differs fome what from the cube. If the plates applied fucceffively upon all the faces of this rhomboid fuffer decrements only at the angles contiguous to the summit A and O, and that of
thee decrements take place by two ranges, then instead of twenty-four faces, only six would be formed; and if we conceive these prolonged till they meet each other, they would conjoinly form a very obtuse rhomboid (Plate IV. fig. 45.), encircling the nucleus. The summits A, O', coincide with the summits of the nucleus, from which the decrements commenced, and each of the faces A e i o corresponds with one of the faces of the nucleus; so that the diagonal which passes through the points e i is parallel with the diagonal E I of the nucleus, but somewhat more elevated. This kind of crystal is found among the secondary crystals of olivine iron-ore.

As a further illustration of the different variations of which the decrements, whether of the superior or inferior angle, are susceptible, let G g be any rhomboid whatever (Plate IV. fig. 45.), the summits of which are S, S'. Let S g\(\prime\), G g' be a quadrilateral figure formed by cutting through the rhomboid G g in the direction of a plane, formed by the two oblique diagonals G g', S g', fig. 45., and the edges S G, G g'. This quadrilateral figure, termed by Haüy the principal section of the rhomboid, is divided in the figure into a number of small quadrilaterals representing the principal section of as many molecules. Let S G, G g', fig. 47., be the face of the rhomboid, fig. 45., marked with the same letters, and subdivided into the bafes of the molecules of which it is composed. If we supposing that the angle e g' undergoes a decrement by a single row of molecules, the small rhomboid represented by e o n z g' will be wanting; hence it is obvious, that the edges of that plate will have the direction e z, and that the distance between the angle e g', from which the decrement sets out, and the edge o z, will be measured by the semi-diagonal of a molecule, or e g'. If the decrement took place by two ranges, the edge g, the first plate of superposition, will correspond with e d, and the distance between it and the angle e g' will be measured by the diagonal molecule g n. Hence we may conclude, that in the decrements on the angles, the distance between one plate and the succeeding one, which is the same as between the point of departure and the edge of the first lamina, is equivalent to as many semi-diagonals of a molecule as there are ranges taken away, as will be further evident by inspecting fig. 37. But in decrements on the edges, the distance between two consecutive plates is equal to the breadth of as many molecules as are taken away.

This being understood, let us suppose a decrement of two rows upon the angle g'. In that case, the quadrilateral n c p, fig. 46, being a section made in the first plate of superposition, the decreasing edge of this plate will coincide with the little edge e n, since g n is the same diagonal as in fig. 47; therefore if we draw the slanting line g' e b, it will coincide with the face produced by the decrement. But g' d being, in this case, parallel to the axis S, S', as may be demonstrated geometrically, hence it follows that the secondary faces constitute the faces of a prism. If the decrements went on more rapidly, the faces of the secondary crystal would have different angles of inclination to the axis, as will be evident from inspecting Plate IV. fig. 46. If the decrement were by four ranges, for instance, the edge of the first plate of superposition would coincide with the line y g; then the line g q S' indicates the position of the face produced by the decrement. What has been stated, where the plane is parallel to the axis, holds true with respect to all possible varieties of the primitive rhomboid.

**Mixed Decrements** are those in which the number of ranges taken away in breadth and height give ratios, the two terms of which lapen unity. As, for example, decrements by two ranges of molecules in breadth, and three in height, or by three ranges in breadth and two in height, &c. It is easy to see, that the theory may with facility be reduced to that of decrements, in which there is only one row of molecules taken away in one of the two directions.

**Intermediate Decrements.**—These will be best explained by references to the figures.

Let A A', Plate IV. fig. 48, be a parallelipiped of any kind, which undergoes a decrement by two ranges on the edge E O I of its base A E O I. It is obvious, that the edges of the plates of superposition will have the directions b c, r s, parallel to the diagonal E I, and so situated that these will be upon the sides O E, O I, two rows of molecules comprehended between the angle O and the line b c, and likewise between b c and r s. But as it has already been said, the plates applied upon the adjacent faces I O, A K, A E, A H, undergo likewise auxiliary decrements, which continue the effect of the decrement upon the angle E O I. But such, in this case, are the effects of these decrements, that the edges of the plates applied upon I O, A K have the directions c g, s t, and those of the plates applied upon E O, A H, the directions b g, r t; for since the lower edge of the first plate applied upon E O I coincides with b c, and the height of this plate corresponds to that of a single molecule, a little attention will satisfy us, that the plane b e g, which, on one part, coincides likewise with b c, and, on the other, separates from the base A E, O I by a quantity measured by O g, the height of a single molecule, is necessarily parallel to the face produced by the decrement. The fame holds with the plane r I s. From this it follows, that if we suppose the part situated above r I s, we shall have a solid on which the face r I s will represent the effect of the decrement which we are considering.

Now the direction c g, s t, of the plates applied upon the face I O, A K, (and the same may be said of the face E O, A H,) in consequence of the auxiliary decrements, are neither parallel to the edge, nor to the diagonal of the face, but intermediate between the one and the other. This want of parallelism will become still greater, if we suppose the decrements upon the angle of the base E O I to take place by one or four ranges. This is the kind of decrement to which the name of intermediate has been given. It is obvious, that it may take place in an infinite number of different directions, according as it deviates more or less from its two limits, the parallelism with the edge and the diagonal of the face.

In cases similar to those of Plate IV. fig. 48, we avoid the complication introduced by these intermediate decrements, by supposing them comprehended under the principal decrement. But certain crystals exist in which all the three decrements round the same solid angle are intermediate. In such a case, the simplicity of the three is chosen as the principal decrement, and the other two considered as auxiliary. Fig. 49. represents a case of this kind: c n, which is the edge of the first of the plates applied upon A E, O I, is so situated, that on the side of O I there are three molecules subtracted, while on the side O E there is only one: n p, which is the edge of the first plate applied upon I O, A K, indicates three molecules subtracted from O I, and two from O A': c p, which is the edge of the first plate applied upon E O, A H, shews the subtraction of two molecules on O A', and only one on O E.

It is easy to see, that the decrements take place relatively to the different faces situated round the angle O, as if the molecules that compose the different plates of superposition were united invariably several together, compose other molecules of a higher order, and as if the subtraction took place by single ranges of these compound molecules. Thus there will...
will be on the base AE, OI, a decrement of triple molecules by two ranges in height, since on one part, the quadrilateral figure \( \epsilon ONz \), which represents the base of a compound molecule, is equivalent to the bases of three simple molecules; and on the other, the line \( OP \), which corresponds to the height of a superposition, is equivalent to the height of two simple molecules. It is easy to conceive likewise, that the decrement relative to the face EO, A'K, takes place by two ranges in height of double molecules, because \( \epsilon OPx \) contains the bases of two simple molecules, and \( ON \) is equal to the length of three simple molecules. In the decrement which takes place upon IO, A'K, there is a subtraction of one row of molecules, triple in one direction, and double in the other.

Among these three decrements, the one which it appears natural to adopt as the principal is the second which takes place upon the face EO, A'H; because it is the one whose direction deviates least from that of the diagonal EA', or because it takes place by double molecules, which is a more simple decrement than the other two.

To give some further examples of intermediate decrements, let us suppose OI, I'O, one of the faces of cubic nucleus (see Plate IV. fig. 50. Crystallography); and that the decrement took place on the angles by the subtraction of double molecules: in this case, the edges of the lamina of superposition will be in the direction of the lines \( dn, km, a, b, \epsilon, &c. \)

Let \( E'I', \) fig. 51, be a cubic nucleus, and suppose the decrements are made parallel to the lines \( km, l, k, lr \), always by subtraction of double molecules, but in such a manner, that there shall be three ranges taken away in the direction of the breadth, and one of that in the height: in this case, the decrements will be both intermediate and mixed. Suppose also that the edges of the superposition, situated around one solid angle, \( O \), had directions which crossed, so that with respect to the face OI, I'O, the greatest number of the faces of the molecules should be taken away on the sides OI', but on the face EO, OI', it should be on the side O'O', and with respect to face EA, IO, it should be on the side EO; the effect of these different decrements would produce three faces round each solid angle, which would be situated in an inclined manner with respect to the faces of the nucleus; and because the cube has eight solid angles, the secondary crystal would have twenty-four faces, which would tend to unite four and four, and form the summit of a pyramid round each face of the nucleus. But if we suppose the decrement to cease before these are completed, there will remain six faces parallel to those of the nucleus, and we shall have a polyhedral crystal of thirty faces, as represented fig. 52. The angles \( km, lr \), corresponding with those of the nucleus, are rhombs; and the faces \( m, l, r, a \), are equal and similar trapeziums. This form is that of one of the varieties of iron pyrites.

Suppose intermediate decrements on the two lateral angles of a rhomboid \( G'O' \), Plate IV. fig. 47, and that these decrements take place by ranges of double molecules, parallel to the faces \( um, s, t, u' \). It is evident, that these decrements will produce above each rhomb of the primitive nucleus \( S, G, G' \), two faces, which, commencing at the angles \( G \), will converge towards each other, and come in contact in a line situated above the diagonal \( S \), but inclined to that diagonal; so that the complete result of the decrement will be the formation of twelve faces, disposed six and six towards each summit. Plate IV. fig. 53, represents one of these folids, with its nucleus inscribed. It is a variety of calcareous spar which some-times occurs. The lines \( a, b, d \) show the direction of a fracture parallel to the face \( G'' \), \( C'' \), of the primitive nucleus. It appears from this figure, that the nucleus does not touch the secondary crystal, except by its lateral angles, which are situated in the edges \( BS, ED, C'T, &c. \), while in the dodecahedron of Bergmann, represented in Plate II. fig. 22, and called by Haüy metabasitic calcareous spar, the lateral edges of the nucleus coincide with those edges of the secondary crystal that confine the common basis of the two pyramids, as is evident from inspecting Plate II. fig. 23.

Hitherto immediate decrements have been observed only in a small number of infinities, but they lead to forms as simple as the other, and give some curious results, which deserve to be studied in a mathematical point of view, without any reference to crystallography.

**Compound Secondary Forms.**—Simple secondary forms are those which proceed from a single law of decrement, the effect of which covers and conceals the nucleus, which only touches the secondary crystal by certain angles or edges. Compound secondary forms are those which are produced by several simultaneous laws of decrement, or by one law which has not reached its limit: so that faces remain parallel to the original faces of the nucleus, which further modify the faces of the crystal.

Suppose, for instance, the law which produces the octahedron from the cube (Plate III. fig. 36.) should concur with that from which results the dodecahedron with pentagonal faces. (Plate III. fig. 31.) The first of these laws would produce eight faces, which would have for centres the eight angles of the cubic nucleus. Each of these faces, as, for instance, that whose centre coincides with the solid angle \( O, \) fig. 31, will be parallel to the equilateral triangle, whose sides pass through the points \( p, t, i, \) fig. 34: in like manner, the centre that coincides with the front \( O' \) will be parallel to the equilateral triangle, whose sides pass through the points \( s, n, p, \) Plate IV. fig. 54. But the second law produces faces situated as the pentagon, cut by the sides of the triangles \( p, t, i, \) fig. 34. Now the section of these triangles upon the pentagon \( t, O, \) \( O'n, \) fig. 31, reduces the pentagon to an isosceles triangle, which has the line \( in \) for the base: the two other sides are those which pass through the points \( t, n. \) The same takes place with the other pentagons. Hence it follows, that the secondary crystal produced would be an icosahedron, bounded by eight equilateral triangles, and twelve isosceles triangles. (See Plate IV. fig. 54.) This icosahedron occurs in iron pyrites; it is different in its form from the regular icosahedron of geometers: the latter form does not exist among crystals, and cannot be produced by any law of decrement. The same remark applies to the dodecahedron, bounded by twelve regular and equal pentagons.

Another illustration of a compound secondary form is offered in the regular fix-sided prism of calcareous spar. (Plate II. fig. 17.) From the manner of dissecting this prism, (see CRYSTAL,) it is easy to conceive that the rhombohedral nucleus, fig. 21, has a fix of its solid angles \( E, O, L, K, G, H, \) situated in the middle of the lateral faces of the prism: it follows, that these angles are the points from which the decrements set out from the three plane angles of the rhomb \( E O I, E O A', I O A', \) which form the solid angle \( O \); but it is only necessary to consider the decrements on one of them, supposing the same decrement extends on the two adjacent planes that form the solid angle. Let us then refer all the decrements to the fix angles \( E O I, E H G, I K G, H K G, O I K, H G O, \) the first of which are turned towards the summit \( A, \)
and the three left to the summit \( A' \). If we suppose a decrement by two ranges of rhomboidal molecules on these different angles, fix faces will be produced parallel to the axis, as has been already observed.

The plates of superposition, at the same time that they undergo a decrement towards the inferior angles, will extend by their superior parts, so as to remain always contiguous to the axis, the length of which will progressively be augmented. The small faces produced by the decrements on the angles will gradually increase till they touch each other; we shall then have the solid represented \( AA, fig. 2o, \)

where each of these small faces, as \( 000 \), is marked with the same letters as the angle to which it belongs, and which is now situated in the middle of the triangle, because it constitutes the point from which the decrements set out. As new plates are applied, the points or line \( oo \) rise up, and the point \( O \) links down; so that at a certain period we shall have the solid represented \( fig. 19, \) where the faces produced by the decrements become pentagons \( ooO, Oo. \)

Let us now suppose a second decrement to concur with the first, and to take place by a single range upon the superior angle \( E A I \) and the inferior angle \( H A K, \) and also on the other faces of the rhomb which form the solid angles \( A \) and \( A' \); the effect of this will be to produce two faces perpendicular to the axis; and when it has reached the point at which these faces cut the six faces parallel to the axis which are produced by the first decrement, the secondary solid will be completed, and will be a regular fix-fided prism. (Plate II. fig. 17.) It has been already said, that the result is general, whatever be the form of the primitive rhomboid. It may now be seen why, in the mechanical division of the prism, the section \( pp, oo, \) has the sides \( pp, oo, \) parallel to each other, and to the diagonal of the nucleus \( E F, fig. 21. \) Since the two decrements taking place, one upon the angle \( E O I, \) the other upon the angle \( E A I, \) the plates of superposition ought to have the edges formed by the decrements parallel to the same diagonal, or to \( E I. \)

In the case we have been considering, and which is the most common, the axis of the secondary crystal is longer than that of the nucleus; but if we suppose the two decrements to commence at the same time, then the axis of the prism being equal to that of the nucleus, both the lateral angles and the summits of the nucleus would touch the prism, the one on the sides, and the other the faces. If the decrement were to commence on the superior angles prior to the lateral decrements, the summits of the nucleus would then be contiguous to the bases of the prism, whilst its lateral angles would be wholly within the prism, between its planes and axis. This is the case with certain crystallinos, in which the prism is very short, and resembles an hexagonal plate.

Another remarkable example is offered in that variety of calcareous spar, called by Halyi analagous. (See Plate IV. fig. 55.) It is composed of twenty-four trapezoidal faces, of which six are vertical faces, as \( d a b \), \( d a d b, \) and twelve others, disposed fix and six, as \( d e p a, \) and \( c e p a b, \) \&c. and six terminal faces, as \( p a e. \) The vertical trapezoids result from the same law that produces the hexahedral prism (Plate II. fig. 17.); the second result from the law which produces the metallic crystal, fig. 22. In comparing fig. 55 with fig. 21, we may see that the vertical faces cut those of the metallic crystal, so as to intersect the lateral solid angles \( E O I, K, \&c. \) figs. 22 and 23; and, lastly, the terminal faces result from a decrement similar to what produced the equiax crystal. (Plate III. fig. 34.)

Fig. 55. \( A, B, C, D, \) represents the different trapezoidal faces of this crystal. Various relations of proporation between their sides and angles are given by Halyi, Mineralogie, tom. i. p. 85, 86.

It is a character common to all the primitive forms to be divisible, parallel to their faces. In the parallelepiped, where this division is not joined with some other in a different direction, it leads us obviously to the form of molecule similar to that of the primitive crystal. In the regular fix-fided prism, it gives us for a molecule the triangular prism, as has been before observed. (See Plate V. fig. 56.) In the octahedrons, it appears to produce two kinds of molecules, tetrahedrons and octahedrons. Halyi, in this case, conceives that the tetrahedron is the integrant molecule, and that the octahedrons are empty spaces between them. The difficulty is removed, by conceiving the molecules to be an assemblage of spherical particles, as we have before observed. The dodecahedron, with itsolcal triangular faces, cannot have molecules extracted, without dividing it in directions different from those which are parallel to the face. The cutting-planes must pass through the axis, and through the edges contiguous to the summits, from whence will result irregular tetrahedrons. Some other primitive forms divide also in directions which are not parallel to the faces, as we have seen in the case of the tourmaline. See Plate III. fig. 26.

Thus, besides parallelepipeds, there are two other forms which form molecules alike, namely, the tetrahedron and the triangular prism; but it depends particular attention, that the tetrahedral and prismatic molecules are always arranged in such a manner in the interior of crystals, that, taking them in groups of two, four, six, or eight, they compose parallelepipeds, so that the ranges subtracted by decrements are no other than these parallelepipeds; and we may consider such decrements as taking place by one or more ranges of rhomboidal molecules. If, for example, we take the regular fix-fided prism (Plate V. fig. 56.), suppose one base of this prism divided by sections parallel to its sides into small triangles, which form the bases of the integral molecule; it is evident that any two adjoining triangles, \( A pi, A O i, \) compose a rhomb, and by their union the two little triangular prisms to which these bases belong would form by their union a rhomboidal prism or parallelopiped. It is obvious, therefore, that we may conceive the larger prism to be composed of similar rhombics. Now, if we conceive a series of plates piled upon the hexagon \( A, B, C, D, F, G, \) and which undergo, for example, on their different edges, a subtraction of one range of thefe parallelepipeds, these edges will successively correspond with the lines of the hexagon \( 1m n r b, k u x s y z e, \&c. \) from which we see that the quantity by which each plate decreases is a sum of parallelepipeds, or prisms with rhomboidal bases; and if the decrement attains its limit, we shall have a right fix-fided pyramid, which will have for its base the hexagon \( A, B, C, D, F, G. \) These parallelepipeds, composed of tetrahedrons or triangular prisms, are called by Halyi \( subtrahentes molecules; \) and as far as the theory of crystals is concerned, we may conceive all crystals to be composed of parallelepipeds.

Plate V. fig. 58. refers to a particular case described in a note by Halyi (tom. i. p. 96.) to explain the vacuities on the edges \( b, c, f, m, \) but being of less importance, we proceed to state the observations of M. Halyi on some apparent anomalies in crystallization.

In common crystals, the faces adjacent to each other always form families, and never re-entering angles; but certain cryshalline forms exist, which present the latter angles. Let \( B d, \) Plate V. fig. 6c, represent an oblique prism with rhomboidal
rhomboidal bafes, situated in such a manner, that the faces A D, a d, and C D, c d, are vertical, and B, D, are the acute angles of the base, and that these proceed in an ascending direction from A to C. Let us suppose also, that the prism is cut into two equal parts by a plane which passes through the diagonals drawn from B to D, and from b to d, and that one half remained fixed, whilst the other is reversed without being separated from the former. The crystal will then be presented under the aspect seen in fig. 61. Where the triangle B, d', c, which was one of the halves of the inferior base, fig. 60, is now situated in the upper part, fig. 61, and forms a palient angle or projecting edge with the triangle A B D. Whilft the triangle B D C, fig. 61, which was one of the halves of the superior base, fig. 60, is transported into the lower part, fig. 61, and forms a re-entering angle with the triangle a b d, we may easily conceive that the plane of junction D B, b d, of the two halves of a rhomboid is situated like a plane drawn, formed by a decrement on one range or other of the edges A a, C c, fig. 62, and thus the manner in which these halves join is in strict relation with the structure.

Now if we imagine a secondary form, which has for its nucleus a similar prism to the above, and if we suppose that it has been cut in the direction of the plane D B, b d, and that one of the halves has been reversed as in fig. 61, the arrangement may be such, that there will still be a re-entering angle at one termination, and a palient angle at the other, resulting from the mutual incidences of the faces produced by the decrements.

In certain cases, the plane of junction on which the two halves of the crystals are joined is situated parallel to one of the faces of the nucleus, and the arrangement does not admit of presenting a re-entering angle opposite to a palient one.

These crystals which are here described are called by Hauy *hemiplies*, or half reversed. Romé de Lisle has called such crystals marles.

Another accident extremely common is the manner in which crystals in groups are inferred into each other. This kind of penetration is subject to many diversities; but on accurate examination, we shall find that they are subject to certain laws always analogous to those of structure, and that these crystals, instead of being precipitated confusedly on each other, have a certain kind of arrangement. In illustration of this, let Plate V. fig. 62. be a cube, and M N a such triangular facet, produced by a decrement of one range round the angle A: let us suppose a second cube modified in the same manner, and attached to the former by a facet resulting from a similar decrement; we shall have the combination represented fig. 63.

We may also conceive that one of these cubes, for instance the lower one, is increased in all its dimensions, except in those places where the other forms an obstacle to its progression. As the increment continues increasing, it will more and more envelope the upper crystal, and may finish by covering it entirely. We observe crystals sunk into each other at different degrees of depth, but always in such a manner, that their plane of junction has a position analogous to planes resulting from decrement; so that both follow their common progress to this plane, which serves as their respective limit. Cubes of flor spar inserted into each other have the laminae of each extended without interruption, until they are stopped by the common plane of junction.

The example here stated relates to a very simple and regular law of decrement. But frequently the laws which determine the plane of junction are more or less complicated, and there are a few which are rather extraordinary. When two prisms cross towards the middle of their axis, there are two planes of junction which unite crossing each other, as in the mineral called fluorite, and these planes have positions analogous to those which would be determined by the known laws of decrement.

In the preceding theory of crystallography it has been constantly supposed, that the laminae composing crystals of the same species proceed from a common nucleus, undergoing decrements subject to certain laws, on which the forms of these secondary crystals depend. But this, says Hauy, is only a conception adopted to make us more easily perceive the mutual relations of the forms we are treating of.

Properly speaking, a crystal taken as a whole is only a regular group of similar molecules. It does not commence by a nucleus of a size proportioned to what it afterwards acquires, or that which we can extract from it by mechanical division; and the laminae which cover this nucleus are not applied successively over each other in which the theory considers them. The proof of this is, that among crystals of different sizes that are often attached to the same support, those which can only be distinguished from the microscopes are as complete as the largest; from whence it follows that they have the same structure, that is to say, they have already within them a small nucleus proportioned to their diameter, and enveloped by the requisite number of decreasing laminae to form the faces of the secondary crystal. We must therefore conceive, that from the first commencement a crystal similar to the rhomboidal dodecahedron is already a small dodecahedron, and contains a cubical nucleus proportionally small, and that this kind of embryo continues to increase without changing its form by the addition of new laminae on all the sides, so that the nucleus increases on its part, always preserving the same relation with the entire crystal.

We shall render this idea distinct by a construction which refers to the dodecahedron, and represented by a plane figure. What is said of this figure may easily be applied to a solid, since we can always conceive a plane figure to be a section made in a solid: let t s, a d', Plate V. fig. 59. A, be an assemblage of small squares, in which the square B N, D G, composed of forty-nine squares, represents a section of the nucleus, and the extreme square f p b f c s, &c. the slips formed by the laminae of superposition. We may conceive that the assemblage commenced by the square B N, D G, and that different piles of small squares are afterwards applied on each of the sides of the central square; for instance, on the side B N, the five squares comprehended between f and d, afterwards the three squares contained between c and s, and then the square s. This progression corresponds with what would take place if the dodecahedron commenced with a cube proportioned to its volume, and which afterwards increased by an addition of laminae constantly decreasing.

But we may also suppose, that the assemblage of molecules commenced as represented Plate V. fig. 59. C, in which the square B N, D G, is only composed of nine molecules, and had on each side of it only a single square, s t, t s. If we refer this assemblage in imagination to the solid, of which it is a section, we shall easily perceive that this solid had for its nucleus a cube composed of twenty-seven molecules, and that each face composed of nine squares had placed on the middle one a little cube, so that the decrement of one range is already seen in the initial dodecahedron.

By the addition of new squares, this assemblage will become that of B, fig. 59, in which the central square B N, D G, is formed of twenty-five small squares, and supports on each of its sides a range of three squares, besides the terminal squares s t, t s. Here we have already two laminae of superposition instead of one only. Lastly, by a further
The instrument by which the angles of crystals are measured is called a goniometer. For a description of Dr. Wollaston's reflecting goniometer, see Goniometer. A more simple instrument was employed by Haüy. (See Plate VI. fig. 53. Crystallography.) It consists of a semi-circle of brass divided into degrees. At the centre is fixed a pin, upon which slide the two arms A B, G F. The last of these, by means of a screw, may be fixed in any position, so that the distance between the end G and the centre may correspond with the face of the crystal to be measured. The other arm A B is drawn up till the distance between B and the centre corresponds as nearly as possible with the size of the other face of the crystal. It is then turned round till the angle of the crystal to be measured corresponds exactly with the angle B C G; the arm A B then cuts the semi-circle in the angle, which corresponds with that of the crystal. This instrument is found to be not sufficiently accurate for delicate observations, but it is truly surprising that Haüy was enabled by it to approximate so nearly to the correct dimensions of the various crystals which he has described. The instrument for determining the electricity of crystals (Plate VI. fig. 92.) is described in the article Mineralogy, Addenda.

On the Notation of Crystals.—To facilitate and abbreviate the description of the structure of secondary crystals, Haüy has invented symbols which denote the particular laws of decrement, that produce the various forms that may occur. This mode of notation will be easily understood by a reference to the figures in Plates V. and VI. Crystallography. Let Plate V. fig. 64. represent any oblique parallelopiped, the faces of which have angles of different measures; let it be the primitive form of some mineral, as selenite. The vowels are to represent the solid angles. The four first, A, E, I, O, are placed at the four angles of the upper base, following the order of the alphabet. The confonants are chosen to designate the edges. The six first are placed on the middle of the edges of the upper base, and upon the two longitudinal edges of the lateral faces, B C, D F, G H. The letters P, M, T, which are the initials of the syllables of the word Primitives, are placed in the middle of the upper base, and of the two lateral planes or faces exhibited to view.

Each of the solid angles, or of the six edges marked by letters, is susceptible of undergoing particular laws of decrement, on account of the irregular form of the parallelopiped. For this reason, they are marked each with a different letter. But as the laws of decrement act with the greatest possible symmetry, every thing which takes place with respect to the angles and edges that undergo distinct decrements, takes place also on the angles and edges that are diametrically opposite, and are perfectly equal, but which are not visible, or are not marked. Thus in fig. 66. the edges A I, E J, A E, and E F, and the solid angles I and J, O and P, are equal. It is, therefore, only necessary to mark the number of solid angles or edges that have different decrements, because these are understood to include all those which take place on analogous edges or angles.

In some cases, it is necessary to indicate the analogous edges and angles; this is done by similar small letters: the angles analogous by A E, I O, are represented by a r, i o, and the same with the edges. But it is seldom necessary to mark these small letters in the figure; it is sufficient to introduce them into the symbol of the crystal, because the place which every one should occupy in the figure may easily be conceived.

To indicate the effects of decrements by one, two, three, or more ranges in breadth, the figures 1, 2, 3; 4, &c. are employed in a manner to be immediately explained; and to indicate the effects of decrements by two, three, &c. ranges in height, the fractions 3, 1, 4, &c. are employed.

The three letters P, M, T, serve to distinguish either the form of the nucleus without any modification when they alone constitute the symbol of the crystal, or the faces parallel to those of the nucleus in the figure where the decrements do not reach their limit; and these letters are combined in the symbol of the crystal with those which relate to the angles or edges that have undergone decrements.

Let us suppose that one of the solid angles O, fig. 64., is intersected by a single additional face. The decrement which produces this face may take place either on the upper base P, or on the plane I, which is on the left of the observer, or on the face M, which is on the right. In the first place, the figure marking the decrement is placed above the letter O; in the second case, the figure is placed on the left-hand, a little above the letter; and in the third case, it is placed on the right-hand. Thus O denotes the effect of a decrement by two ranges in breadth, parallel to the diagonal of the base P, that passes through I, E; O indicates the effect of a decrement by three ranges in breadth, parallel to the diagonal of the face M, which passes through the angle E; and O indicates the effect of a decrement by four ranges in breadth, parallel to the diagonal of the face T, that passes through the angle O.

When the decrement takes place on one of the three other solid angles A, E, the observer is supposed to move round the crystal till he is opposite to that angle, or to turn round the crystal till the solid angles E, A, I, are exactly opposite to him; and it is relative to that position that the decrement is said to take place to the right or the left.

For example, if we are speaking of the solid angle A, the sign A will represent a decrement by two ranges on the surface A E, i r, fig. 66. or opposite to T; and A will represent the effect of a decrement by three ranges upon the face A I r, opposite to M.

As to the decrements on the edges, those which take place towards the boundary of the upper base B, C, F, D, are expressed by a letter placed above or below the letter as the effects occur above or below the terminal edge, supposing them to set off from the edge to which they are referred, whilst those which take place on the lateral edges are conducted by an exponent placed on the right or the left of the letter, according as they occur in one direction or the other.

Thus O expresses a decrement by two ranges proceeding from D towards C: O, a decrement by two ranges proceeding from C towards D; O, a decrement by two ranges descending upon the face M: H, a decrement by three ranges, proceeding from H towards G: and G, a decrement of four ranges proceeding from G towards the edge opposite to H, or A r, fig. 66. When it is necessary to denote by a small letter, such as d, a decrement upon the edge u r, fig. 66. opposite to the edge denoted by the capital letter D, fig. 64.
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D, fig. 64, we must suppose the faces of the crystals reversed. Hence, \(d\) will express a decrement by two ranges upon the other base, just as \(D\) expresses a similar decrement on the base \(P\). For the same reason, \(c\) will express a decrement by three ranges proceeding from \(r\), to \(E\), to \(O\).

If the same solid angle, or the same face, undergo several succeffive decrements on the same side, or different decrements which take place on different sides, the letter pointing out the angle or edge is repeated as often as the decrements, varying the figure each time, to make it correspond with the particular decrements denoted. Thus, \(D\), \(D\), will denote two decrements upon the edge \(D\), one of two ranges on the base \(P\); and another of three ranges upon the face \(M\); and \(H\), \(H\), \(H\), will denote two decrements, one by two ranges on the left, the other by four on the right of the edge \(H\).

Mixed decrements are marked according to the same principles, employing the fractions \(\frac{3}{4}\), \(\frac{1}{2}\), which represent them; the numerator referring to decrements in breadth, and the denominator to decrements in height.

The intermediate decrements are thus described. Let \(A\), \(E\), \(I\), \(O\), (Plate V, fig. 67.) be the same face as in fig. 66., but divided into rows or ranges; let us suppose a decrement by one range of double molecules, according to the lines parallel to \(x\); so that \(O\) measures the double length of a molecule, and \(O\times\frac{1}{2}\) that of a single molecule.

This kind of decrement is thus expressed, \((O, D, F, \ldots)\) the parentheses indicate that the decrement is intermediate;

\(O\), that it takes place by one range on the solid angle marked by that letter in fig. 64.; \(D\), that there is one length of a molecule taken away along the edge \(D\); and \(F\), that two lengths are taken away along the edge \(F\).

The written language to denote the symbols, that they may be easily expressed when dictated, would be thus; for \(O, O, o, O\) read, \(O\) under two, \(O\) above four. And the symbol \((O, D, F, \ldots)\) read, in a parenthesis, \(O\) under one, \(D\) one, \(F\) two.

The order in which these letters must be placed to denote a secondary crystal remains to be explained. If the alphabetical order was adopted, there would result a degree of confusion in the picture which the formula presents. It is more natural to conform to the order that would direct an observer in the description of the crystal, that is, to begin with the prism or middle part, and to indicate its different faces as they present themselves successively to the eye; then to pass to the faces of the summit or the pyramid.

Suppose (Plate VI. fig. 68.) that variety of sapphire which Hauy calls binary, viz. where there are two decrements by two rows each. The primitive form is represented fig. 64. and 66. In this form of the crystal, the face \(l\) results from a decrement by two ranges on the edge \(G\), fig. 64. going towards \(H\); the face \(M\), fig. 66. corresponding with \(M\), fig. 64.; the face \(T\), fig. 68., is parallel to \(T\), fig. 64.; the pentagon \(x\) comes by a decrement of two ranges on the angle, corresponding with the angle \(I\), fig. 64., and parallel to the diagonal \(A\). O. As this decrement does not reach its limit, the summit exhibits a second pentagon \(P\), parallel to the base \(F\), fig. 64. All this description may be exhibited by five letters in symbolic language: thus \(G M T\)

\(\top\) denoting a decrement by two ranges on the edge \(G\), and a decrement by two ranges on the angle \(I\), fig. 68. It is customary, in order to prevent any ambiguity, to place under the different letters that compose the symbol those that correspond to them in the figure. Thus in the binary felspar, fig. 68. \(G M T\) the letters in the line below those of the symbol enable us to compare the symbol with the figure, and thus to decipher the meaning with facility; however, complicated it may be.

Where the primitive form has great simplicity, as in the cube and rectangular prism, when the opposite angles are equal, one letter will denote them both, and when the opposite edges are equiangular, the same letter will denote either: for every thing that denotes one of them, takes place also in the other. If, for instance, we suppose fig. 64. to become more symmetrical, and that certain solid angles which were before unequal are become equal, they should be marked with the same letter. If, for instance, the primitive form be a rectangular prism, which has oblique-angled parallelograms for its bases, one side of which is longer than the other, fig. 69.; in this case, we have the angle \(O\) = \(A\), \(I\) = \(E\); we may substitute in each case the second letter for the first, as is done fig. 69.

If we review the different kinds of parallelograms we shall find them acquire different degrees of simplicity, which occasions new equalities in the angles and edges, and new subtiltations of letters. The oblique prism with rhomboidal bases is represented fig. 70. The rectangular prism with rectangular bases fig. 71. The rectangular prism with rhomboid bases fig. 72. The rectangular prism with square bases fig. 73.

The cube is represented fig. 74.; here only the superior base is marked, because what takes place with respect to this may be applied indifferently to any of the other faces.

The same mode is employed in writing the symbols for these regular forms, only the letters that have the same name and the same figure are not repeated. An example will render this method evident. Fig. 75. represents the most common variety of the chrysoberyl, or cymophane, (see Chysoberyl.); the nucleus of which is a rectangular parallelopiped, such as represented fig. 71. The symbol of the secondary crystal, fig. 75. will be \(M T^1 G^1 B^2 A^2 A\). This variety is called by Hauy annular cymophane.

To understand this expression better, let us mark each angle and edge with a particular letter, as in fig. 76. In this case, the symbol would become \(M T^2 G^2 H^1 B^2 F^2 E^2 O^2\); but if we compare fig. 71. with fig. 76., we shall see that \(H = G\), \(F = B\), \(O = A\); hence if we substitute instead of their first letters their equal values, we get \(M T G B B^2 A^2 A\), which becomes the same as the one before given, when the useless repetition of \(B\) is suppressed.

From the preceding statement, it is evident that we must not confound such symbols as \(G G^2\) with \(G^2 G\); the first symbol indicates the decrements which take place on the face \(T\), fig. 71., and on the edge opposite to it, going from the edges \(G\) towards those that correspond with them behind the parallelopiped. The second symbol indicates the decrements which take place upon the face \(M\), and which meet each other in the middle of that face.

If these two decrements took place simultaneously, these symbols would be \(G^2 G\).
In the preceding symbols, each letter, such as on G or G, can only be applied to a single edge situated to the right or left, as the letter is itself; but G G applies differently to the one edge or the other: hence it is needless to repeat the letter.

If we take Plate VI. fig. 77, as another example, and suppose fig. 70, to represent its primitive form, we shall have for the symbol of the variety of crystal here represented, 

\[ G^3 M B B E \]

If we place in this symbol, G indicates two distinct faces formed on each side of each edge G, but it is not necessary to place two letters under that symbol, because all the faces situated in the same manner being distinguished by the same letter in the figure; it is sufficient to point out that the symbol G applies to the faces marked with the letter G, and this requires only to write the letter G under the symbol.

From the same principles it follows, that the rhomboidal dodecahedron derived from the cube, fig. 74, is expressed by the symbol B B. The octahedron derived from the cube is thus expressed A A.

The rhomboid, supposing it placed in the most natural aspect, so that the two solid angles, composed of three similar flat angles, are in the same vertical line, has properly speaking, no base, but merely bifurcites, which are the extremities of its axis. Its angles and edges are marked as in Plate VI. fig. 78.

If all the lateral angles were indicated by letters, those that are nearest the summit A would have the letter E, and those which are nearest the inferior summit the letter e. As the rhomboid has six faces equal and similar, it is only necessary to consider the decrements relative to one of these faces; as, for example, that marked P, fig. 78, because all the others are mere repetitions of this. The decrements which set out from the superior angle A, or the superior edge B, will have the figure indicating the number of ranges placed below A and B. Those which set out from the lateral angles E, will have their figures situated at the side and towards the top of the letter. Those decrements which set out from the inferior angle e, or the inferior edge D, will have the figure placed above the letter e or D.

Suppose, for example, that fig. 79, represents the variety of calcareous spar, called analogie by Häüy, its symbol would be \( e^2 D B \), the interpretation of which will be easy. What has been said of the rhomboid may be applied to the other primitive forms, of which we shall give examples: fig. 80, represents the octahedron with equilateral triangles; fig. 82, the regular octahedron. In placing the figures that accompany the letters in the symbols in fig. 80, the figure denoting the decrement is placed below the letter A or B, to represent decrements setting out from the angle A, or the edge B. The figure is placed above for those which set out from the edge D, and at the side for those which set out from the angle E.

If we want to denote a decrement by one range upon all the angles of the regular octahedron, fig. 82, we have only to write A A. To indicate a decrement by one range on all the edges we write B B. The first of these decrements produces a cube, the second a rhomboidal dodecahedron. In some mineral species, as in the nitrate of potash, the primitive octahedron, which is composed of eight isosceles triangles, similar four and four to each, ought to have the position represented as in fig. 83, that the secondary crystal may have the most natural attitude. The edges which join the two pyramids ought to have two of them a vertical direction, as F, F; and two an horizontal direction, as B. By comparing fig. 83, with fig. 84, in which the letters are placed as if all the edges and angles had different functions, it will be easy to conceive the arrangement of the letters adopted in fig. 83; for in the present case we have E=A, D=B, G=F.

The tetrahedron being always regular when it becomes a primitive form, it will be expressed as in fig. 85, and the decrements marked as in the octahedron.

In the regular four-sided prism, fig. 86, the figures are written precisely in the manner already described for the four-sided prism. But it happens sometimes, that three of the solid angles taken alternately are replaced by faces, whilst the intermediate angles remain untouched. In that case, the prism is distinguished as in fig. 87. In the rhomboidal dodecahedron, fig. 88, each solid angle composed of three planes may be distinguished from the opposite rhomboid; hence it is only necessary to give letters to one face, as may be seen in the fig. A A, E E, B B, P. Where the parts of crystals opposite to those which undergo certain decrements remain untouched, it is easy to mark this peculiarity by zeros. This case belongs chiefly to the tourmaline. One variety of the tourmaline is represented fig. 90, and the primitive form fig. 89. The prism, which is nine-sided, has fixed its faces, namely s s, produced by the subtraction of one range upon the edges D D, fig. 89, and the three others, as l, by the subtraction of two ranges only on three angles e. The inferior summit has simply three faces parallel to those of the nucleus; while on the superior summit the three edges B, fig. 89, are replaced each by a facet n n, fig. 90, in consequence of a decrement which has not reached its limit. This crystal is represented by the following symbol:

\[ D e E P B b \]

\[ E b \]

indicates, the one that the angles E, fig. 89, opposite to e, undergo no decrement; the other, that the edges parallel to B remain also untouched. If these edges underwent a different law of decrement, for instance, that which produced a subtraction by two ranges, the symbol would be:

\[ D e E P B b ; \]

hence it may be understood, that the decrements represented by a capital letter, accompanied with a figure, do not always include similar decrements represented by a small letter of the same name. Thus B does not implicitly imply b, or vice versa; it is only when the second letter is not introduced into the symbol with a different figure, or a zero, that we imply that the same decrements take place on the analogous sides or angles.

In the symbol \( D e E P B b \), by B is implied a decrement by one range, which takes place only on the edges contiguous to the superior summit A, fig. 89: b indicates a decrement by two ranges, which only takes place on the edges contiguous to the inferior summit. The quantities \( e \) and \( E \) indicate two ranges on the angles e only, and that no decrement whatever takes place upon the opposite angles E.
The preceding illustrations of M. Hauy’s mode of de-
noting the structure of crystals by symbols, are given in
detail to enable the student to make a figure of a crystal
from the symbol representing the laws of its formation.
Shorter rules for enabling the student merely to read and
understand this mode of notation will suffice.
1. The letters P, M, T, denote the faces of the nucleus or
primitive crystal, or indicate that the faces are parallel to
the faces of the primitive crystal marked with the same letters.
2. Every vowel in the symbol indicates a solid angle,
marked with the same letter as in the nucleus. Every con-
sonant indicates the edge which has the same letter in the figure.
3. Each letter contained in the symbol is understood with
the figure belonging to it to represent all the same letters,
and the angles or edges which have the same function.
4. Every number joined to a letter indicates a decrement
setting out from the angle or the edge denoted by that
letter. If the number be a whole one, it indicates the
ranges in breadth, supposing each plate to have only the
thicknes of one molecule. If the number be a fraction, the
numerator indicates the number of ranges subtracted in
breadth, and the denominator the number of ranges sub-
tracted in height.
5. The number is placed above the letter to shew that
the decrement ascends, or below it to shew that it descends,
setting out from the angle or edge marked by the letter.
If it be placed either on the right or left hand of the letter,
it indicates a decrement to the right or left of the edge or
angle marked by the letter.
6. When a letter is twice repeated with the same number
placed on different sides, as 4 G G , the two edges or two angles which it marks should be
considered in the figure in the same relative positions.
Thus, 2 G G indicates the effect of decrement by two
ranges on the edge G situated at the left, and of a similar
decrement on the edge G situated at the right.
7. When a letter has the same number both on the right
and left side, as 3 G 3 , it applies equally to all the edges G.
The same applies to the letters which denote the angles.
8. The parentheses, as, for example, ( O D , F ) indi-
cates an intermediate decrement. The letter O indicates
that an ascending decrement of three ranges takes place on
the angle O ; D , that one molecule is subtracted along the
edge D ; and F 2 , that two molecules are subtracted on the
edge F .
9. Every small letter in the symbol indicates the angle or
the edge diametrically opposite to that which has the same
capital letter in the figure, where the small letter is omitted as
superfluous. The letter e is, however, never omitted in
the rhomboid; it indicates, according to the principle, the
letter opposite to E.
10. When the large and small letters of the same name
are introduced into the symbol with different numbers attached to them, the two opposite edges or angles denoted by
these letters are considered to undergo exclusively the
law of decrement, indicated by the number attached to the
letter.
11. Every letter, whether large or small, marked by a
number having a zero attached to it, as E, indicates that the
decrement denoted by that number does not take place on
the angle or edge which the letter represents.

The above account of the theory of crystallization, and
the notation of crystals, may suffice with what has been
before given under the article Crystal, to convey ample
information of the abbe Hauy’s ingenious system, so far as
relates to the structure of crystals, and the symbolic mode
of describing the decrements by which the secondary crystals
are formed. The figures in Plates II, III, IV, V, VI,
Crystallography, which we have described, are copied from
Hauy’s Traite de Mineralogie, tom. i., and contain what he has
given in illustration of the theory of crystallization. The
application of geometry and analysis, to determine the laws
of decrement from the measurement of the angles, which has
been so ably made in the above-named work by this illustri-
ous crystallographer, would require for its explanation a
more ample space than would be consistent with the present
article, which is intended to supply what was defective in
the explanation of the plates under the article Crystal, and
to correct the references that were there erroneously given.
(See Crystal.) We omitted to state, that Plate II, fig. 25,
represents the secondary rhomb, fig. 24, with the three
superior edges, and the three inferior ones cut off or truncated
r, r, r ; by cutting other laminae parallel to each of the faces r, r, &c. we shall at length extract the
primitive nucleus A, E, O, I, fig. 24.

C SHATRIYA, or CHATTERIE, denotes in India a
man of the second or military cast. See Cast.

CUCKFIELD. In 1811, the parish of Cuckfield
contained 300 houses, and 2088 perons ; viz. 1065 males,
and 1023 females : 251 families being employed in agricultu-
role, and 123 in trade, &c.

CUCKOW-SPIT. Add—This cuckow-spit en-
compasses the larva of a species of cicada, which is denomi-
nated C. fumaria, or cuckow-spit cicada, from the circumstance
of its larva being constantly found enveloped in a mass of
white froth adhering to the leaves and stems of vegetables.
This froth, called cuckow-spit, is found during the ad-
vanced state of summer, and is the production of the in-
cluded larva, which, from the time of its hatching from
the egg deposited by the parent insect, continues occasion-
ally to suck the juices of the item on which it resides, and to dis-
charge them from its vent in the form of very minute
bubbles, till it covers itself with a large mass of froth, and
it is sometimes so overcharged with moisture that a drop
may be seen hanging from its under surface. Shaw’s Zool-
ology, vol. vi.

CUCULUS, I. 4. add—Dr. Leach, however, observes
that this property does not belong to this kind of feet,
which can be considered merely as simple feet, having two
toes before and two behind. Col. 2, 1. 21, after insects,
add—and on larvae or caterpillars; 1. 35, add—for the
natural history of this bird, see Dr. Jenner’s curious paper
in the Phil. Trans. for 1788, pt. ii.

CUD-BEAR. See LICHEN Tartaricus.

CULLUMIA, in Botany, dedicated by Mr. Brown, to
the honour of the late sir John Cullum, bart., an elegant
and accomplished scholar and botanist; as well as of his
brother the present sir Thomas Cullum, bart. F.L.S.
a very excellent British botanist, one of the most ardent
cultivators of this lovely science, whose friendship alone can
be more valued than his various and extensive information.—Br. in
Ait. Hort. Kew. v. 5. 137.—Clafs and order, Polygnia-
Common calyx of one leaf, covered with imbricated scales.
1. C. ciliaris. Fringed Cullumia. Ait. n. 1. (Berckheya
ciliaris ; Willid. Sp. Pl. v. 3. 2273.) Gorteria ciliaris ; Linn.
Sp. Pl. 1884. Carlina folis imbricatis, &c.; 151. t. 54.
f. 1.)—Leaves ovate, smooth, imbricated, fringed with a
double row of bristles, and tipped with a reflexed spine.

n. 2. (Berckheya fruticosa; Willid. ibid. excluding Commic-

in't
C U R

jin's syn.)—Leaves ovato-lanceolate, smooth, recurved, fringed with prickles.

3. C. squarrosa. Recurved awl-leaved Cullumia. Ait. n. 3. (Berkheya squarrosa; Willd. 2272. "Rohria squar-rosa; Thunb. in Äst. Soc. Nat. Scrib. Hafn. v. 3. part 1. 100. t. 5").—Leaves awl-shaped, recurved or spreading, fringed with prickles; furrowed beneath; nearly smooth like the branches. These are green-house shrubs, with yellow radiant flowers, all natives of the Cape of Good Hope.

C U L L U M P T O N. By the return of 1811, the parish contains 696 houses, and 2971 inhabitants.

C U L P E P P E R, l. 3, r. 1810, 18,697, and 8312.

C U L R O S S. In 1811, the burgh and parish contained 279 houses, and 1611 persons; viz. 725 males, and 886 females; 78 families being employed in agriculture, and 173 in trade, manufactures, and handicraft.

C U M A N A, l. 4, r. Worcesters.

C U M B E R L A N D, l. 23. r. and by the return of 1811, 24,022 houses, and 133,344 inhabitants.

C U M B E R L A N D, in Maine, l. 7, r. 24 townships; l. 9, r. 1810, is 42,831.

C U M B E R L A N D, in New Jersey, l. 5, r. 12,678, and 42.

C U M B E R L A N D, a county of Pennsylvania, l. ad. r. 26,757, and 307.

C U M B E R L A N D, a county of Virginia, l. 3 and 4, r. 9992, and 6102.

C U M B E R L A N D, a county of N. Carolina, l. 2, r. 9382, and 2796.

C U M B E R L A N D, a county of Kentucky, l. 1 and 2, r. 6935, and 922.

C U M B E R L A N D, in Rhode Island, l. 2, r. 2140.

C U M B E R L A N D, in Pennsylvania, r. 1591. And at the close, after Bedford, add—containing 570 inhabitants.

C U M M I N G T O N, l. 3, r. 1809.

C U R C U L I O, l. 17, add—Mr. Marsham, in his "Entomologia Britannica," enumerates no fewer than 234 British species; l. 27, add—The larva, when properly fried and boiled, is considered as one of the best dialects in the West Indies. P. 3, C. Granarius, add—See Weevil. P. 5, col. 2, Nucum, add—The various changes which the nut-maggot paffes through, from its introduction into the nut in August or to its escape, are worthy of attention. Dr. Darwin, in his "Botanical Garden," thus beautifully describes the egress of this insect from the cavity of the nut: "So sleeps in silence the curculio, shut
In the dark chambers of the cavernd nut;
Erodes with ivory beak the vaulted shell,
And quits upon filmy wings its narrow cell."

C U R D, Chemical Properties of. See Milk.

C U R I A C L A U D E N D A, a writ that lies against him who should fence and inclose the ground, but refuses or defers to do it.

C U R I A Aduifare sult, a deliberation which the court sometimes takes, before judgment is given in a cause, with regard to which there seems to be any point of difficulty.

C U R R I E, James, M.D., in Biography, distingushed both as a physician and a writer, was the fon of an eftab-lished minister at Kirkpatrick-Fleming, in Dumfriesshire, in which parish he was born in the year 1756. Originally de signified for commerce, he was educated with that view; but upon a change of his defination, he commenced, in 1776, a course of medical study at Edinburgh: and having graduated in that university, settled, in 1781, at Liverpool, where he soon rose to eminence in his profession and in his literary character. His first performance as a writer was an elegant tribute to the memory of his intimate friend, Dr. Bell of Manchefter, published in 1785 in the first volume of the Manchefter Transactons. His paper on Tetanus, &c. was published in the Memoirs of the London Medical Society, vol. iii. In 1792 he was elected a member of the Royal Society; and his curious paper on the lamentable effects of a shipwreck was printed in the Phil. Trans. for that year. Disapproving of the war between this country and France in confluence of the revolution, he was sup-posed to be the author of an interesting pamphlet, which appeared in 1793 under the title of "A Letter, Commercial and Political, addref fed to the Right Honourable William Pitt, by Jafper Wilfon." In 1797 his medical reputa-tion was much advanced by a treatife in 8vo., entitled "Medical Reports on the Effects of Water, cold and warm, as a Remedy in Febrile Difeaſes," by which the practice of effufion of cold water in fevers, fugges ted by Dr. Wright's narrative in the London Journal, was much extended. With a view to the relief of the dif turbed family of the rufic poet, Robert Burns, with whom he became acquainted in 1792, he published in 1800 an edition of his works, with an account of his life, &c. in 4 vols. 8vo. It is with real regret we farther report, that Dr. Currie's health began to decline in 1824, and that his friends and patients in Liverpool were deprived of the pleafure of his society, and advice by his removal, towards the clofe of the year, to Clifton and Bath. His diforder, which was of the pulmonary kind, somewhat abated in con-quence of the change of his situation, and at the com- mencement of the following year he began to profecute in his profeflion with encouraging prospects of success. But it again re cured with alarming symptoms, and he was under a neccessity of removing to Sidmouth, where his valuable life terminated on the 31st of August, 1805, in the 50th year of his age. The caufe of literature and fience, and the interefts of humanity and benevolence, suffered great loss by his death.

C U R V O, in Geography, a township of America, in the district of Maine, and county of Somerset, containing 275 inhabitants.

C U S E R U N D, a town of Mekran in Persia, situated in a fertile valley, about 21 miles broad, with a river running through it. It contains 500 huts, and a large mud fort. Wheat, rice, and dates, are abundant; and the town belongs to an in dependent chief, whose revenue is about 1000 rupees a year.

C U S H I N G, l. 3, r. 532.

C U T I S, Chemical Properties of. See INTEGUMENTS.

C Y A N O G E N, in Chemsfry, the name given by M. Gay Lussac to the recently-discovered basis of the pruffic acid, and which he has demonstrated to be a compound of carbon and azote. The name is derived from κυανος, blue. Cyanogen may be obtained by exposing dry pruflic mercury in a small retort, to a heat rather under rednes. The salt blackens, and a gaseous fluid is extracted in abundance, which muft be collected over mercury. This gas is cyanogen. It is colourfefs, and polifhes the mechanical properties of common air. Its smell is quite peculiar, and very strong and disagreeable. Its specific gravity, as ascertained by Gay Lussac, is 1.8064. It is inflammable, and burns with a purplish-blue flame. It is not decomposed by exposure to a red heat. Water dissolves 44 times its volume, and alcohol 23 times its volume of this gas. It reddens tincture of lnutus. Phosphorus, sulphur, and iodine, may be volatilized in it without alteration. Potaffium burns in it, and abfors it. For complete combufion, it requires twice its volume of oxygen gas; and the products are twice its volume of carbonic acid, and its own volume of azotic gas. Hence it is obviously
obviously composed of two atoms or volumes of carbon, and one atom or volume of azote, or per cent. of

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<tr>
<td>Carbon</td>
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<td>70.0</td>
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<td>Azote</td>
<td>-</td>
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See Atomic Theory, Table III.

Cyanogen is capable of combining with chlorine, and forming an acid which has been named chlorocyanic acid. It also combines with hydrogen, forming hydrocyanic acid; with sulphur, forming sulphiocyanic acid; and with iron, forming ferrocyanic acid: of each of which acids we shall here give a brief account.

Chlorocyanic Acid. — This is the oxyprussic acid of Berthollet, who first demonstrated its existence. Its properties were afterwards more thoroughly investigated, and its true composition pointed out by M. Gay Lussac, who gave it the above name. The acid was formed by M. Gay Lussac by diffusing a current of chlorine gas through a solution of hydrocyanic acid (prussic acid, see below) in water, till the liquid was discoloured indigo dissolved in sulphuric acid. To separate the excess of chlorine, the mixture was agitated with mercury. The chlorocyanic acid was subsequently separated by an ingenious process. A glass cylinder, filled two-thirds with mercury, was filled to the brim with the above mixture, and then inverted into a basins of mercury. The apparatus was put under the receiver of an air-pump, and the exhaustion carried on till the whole of the mercury and liquid was displaced, and the cylinder filled with chlorocyanic acid in a state of vapour. On letting the air again into the receiver the vapour was condensed into a liquid, and thus collected upon the surface of the mercury in the cylinder. Chlorocyanic acid thus obtained is a colourless liquid, having a strong and peculiar odour, which excites such irritation as to induce a flow of tears. It reddens litmus, is not inflammable, and does not detonate when mixed with hydrogen or oxygen. Its solution in water does not precipitate nitrate of silver, nor barytes water. The alkalies absorb it rapidly, but it requires an excess of them to destroy its odour completely. It throws down iron from its solution of a green colour. But some of its compounds appear of a very permanent nature. Gay Lussac has shown that this acid is a compound of one atom or volume of cyanogen, and one atom or volume of chlorine, united together without change of bulk. Hence it will be composed per cent. of

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<td>Cyanogen</td>
<td>-</td>
<td>41.93</td>
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<td>Chlorine</td>
<td>-</td>
<td>58.07</td>
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And its specific gravity in a state of vapour will be 2.152.

Hydrocyanic Acid. — This was formerly denominated Prussic Acid; which see. Hydrocyanic acid may be prepared in the manner pointed out in the above article; but the method more lately recommended by Gay Lussac consists in decomposing the prussiate of mercury by means of muriatic acid in a retort with heat. The products are to be passed through a tube two feet long, the first one-third of which length is to be filled with fragments of marble, to retain the muriatic acid that may come over, and the remaining two-thirds with dry muriate of lime. A small receiver covered with ice is to be adapted to the end of this tube in which the hydrocyanic acid may be collected on application of a moderate heat to the retort. The properties of this acid are correctly described under Prussic Acid. It is a most virulent poison. From Gay Lussac's experiments, it appears to be composed of one atom or volume of cyanogen, and one atom or volume of hydrogen, united together without condensation. Hence it is composed per cent. of

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<tr>
<td>Cyanogen</td>
<td>-</td>
<td>96.3</td>
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<tr>
<td>Hydrogen</td>
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<td>3.7</td>
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And the specific gravity of its vapour will be .9367.

Hydrocyanic acid cannot be preferred for any length of time without undergoing decomposition, ammonia is formed, and a quantity of chary matter is deposited. Iodine volatile in this acid suffers no change. Oxygen decomposing it with combustion. Chlorine displaces the hydrogen, and forms chlorocyanic acid. Neither azote, hydrogen, carbon, boron, silica, nor phosphoruses, have any known action upon it. Sulphur decomposes it, appearing to displace the hydrogen and combine with the cyanogen, and thus forming sulphiocyanic acid. Potassium, iodum, potash, soda, and barytes, combine with the cyanogen and liberate the hydrogen. The vapour of hydrocyanic acid is decomposed when passed through red-hot iron or platina; also when passed through the peroxide of copper. The peroxid of manganee completely absorbs the vapour of hydrocyanic acid in a few hours, water is formed, but cyanogen is not evolved. When the red oxygen of mercury is heated in hydrocyanic acid vapour, so much heat is evolved from the violent action that takes place that the compound is destroyed. If heat be not applied, the vapour is absorbed by the oxyd, and when the compound is afterwards submitted to heat, water is diffregenaged, and the cyanide, or prussiate of mercury, as it was formerly termed, is left behind. See further under Prussic Acid.

Sulphiocyanic Acid. — This is the sulphuretted chyazic acid of Mr. Porrett, who discovered it in 1808. It may be formed by dissolving one part of sulphuret of potash in water, and boiling in this solution three or four parts of prussian blue, added at intervals. Sulphuret of iron is formed, and a colourless liquid containing a considerable quantity of sulphiocyanic acid combined with potash. This liquid is then to be rendered decidedly acid by sulphuric acid, and the mixture kept at the boiling point for some time. When cold, a little peroxid of manganee is to be added, which will give to the solution a fine crimson colour. This crimson liquid is to be filtered, and a solution composed of two parts of the perfulphate of copper and three of the protufulphate of iron is to be added, till the crimson colour disappears. A copious white precipitate, composed of sulphiocyanic acid and protuoxid of copper, takes place. The copper may be separated by boiling with a solution of potash, and the sulphiocyanate of potash thus formed afterwards decomposed by sulphuric acid; the sulphiocyanic acid may be then obtained by distillation in a retort. If any sulphuric acid adheres to it, this is to be separated by a little carbonate of barytes.

Sulphiocyanic acid thus formed is a transparent colourless liquid, having an odour as strong, and somewhat resembling acetic acid. Its specific gravity when most concentrated was 1.022. According to Mr. Porrett's analysis, it is composed of

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<td>Sulphur</td>
<td>-</td>
<td>65.2</td>
</tr>
<tr>
<td>Hydrocyanic acid</td>
<td>-</td>
<td>34.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

Dr. Thomson seems inclined to consider this acid as composed of 3 M.
posed of cyanogen and sulphur, but it is probable that Mr. Porrett's view of its composition will hereafter be found correct.

The *fulphocyanate* of potash, soda, ammonia, barytes, flint, lime, and magnesia, are all deliquecent salts soluble in alcohol. The *fulphocyanate* of soda, lime, barytes, and flint, are capable of crystallizing, the others are not. The *fulphocyanate* of alumina is not deliquecent, and readily crystallizes. The *fulphocyanate* of the protosyd of iron is colourless, and very soluble. The *fulphocyanate* of the peroxysyd of this metal is of a beautiful crimson colour, deliquecent, and does not crystallize, and this is one of the most striking characteristics of this acid. The *fulphocyanate* of the peroxysyd of copper is a white powder insoluble in water and most acids. The other salts are not remarkable, and consequently posefles little interest. The following is a short account of some of the salts formed by this acid.

**Ferrocyanic Acid; the Ferreutted Gleyacic Acid of Mr. Porrett its Discoverer.**—This is the acid which combines with different bases, and forms what were formerly denominated *triple prusslates*, iron being supposrd to form part of their base, whereas Mr. Porrett has demonstrated that this metal forms a con*l*uent of the acid itself. This acid may be obtained by the following simple process:—

Dissolve in cold water any quantity of the *triple prusslate* of baryte, and form for every ten grains of the salt add about 2.5 grains of real fulphuric acid, agitate the mixture and let it abide some time. The baryte will be precipitated in union with the fulphuric acid, and leave the ferrocyanic acid in solution in the water. When obtained, it has a pale lemon colour, and is deliquescent of smell. It is decomposed by a gentle heat and exposure to a strong light, hydrocyanic acid being formed, and the white *triple prusslate* of iron deposited. When combined with the different bases, it forms at once the salts formerly termed *triple prusslates*. It displaces acetic acid from all its combinations without heat, and displaces all other acids when it forms insoluble compounds with the bases to which they were united. Mr. Porrett, from his analysis, concludes that this acid is composed of

\[
\begin{align*}
\text{Hydrocyanic acid} & \quad 63.79 \\
\text{Black oxyd of iron} & \quad 36.21 \\
\text{Total} & \quad 100.00
\end{align*}
\]

Dr. Thomson, however, from analogy, is disposed to consider it as a compound of cyanogen and iron, but it is probable that Mr. Porrett's views are correct. Most of the *fulphocyanates* have been already described under the different bases, by the old name of the *triple prusslates*, see Iron and Prussian Blue.

**CYTHODES, in Botany, a cup-like, alluding to the shape of the nectary.**—Labill. Nov. Holl. v. 1. 57.


Eff. Ch. Calyx five-cleft, with numerous scales at the base. Corolla funneld-shaped; tube scarcely longer than the calyx, naked and smooth within; limb spreading. Filaments within the tube. Drupa pulpy. Nut with five or ten cells.

*Stem* shrubby, erect, branched, sometimes almost arborescent. *Leaves* stiituated at the back. *Flowers* axillary, erect, or febragdrooping, small. *Nuts* a five-toothed cup-shaped disk, beneath the germ. Mr. Brown differs from Labillardiere in his ideas of the species which properly belong to this genus. He defines six New Holland species. 1. *C. gunacus*, Labill. t. 81; 2. *C. fruticosa*, 3. *C. dealbata*. All these have some degree of hairiness on the corolla. 4. *C. parvifolia*; 5. *C. oxycoccus* (Stephelia oxycoccus, Labill. t. 69); and 6. *C. abietina* (Stephelia abietina, Labill. t. 68). These have a smooth corolla. *Arabia aerocera*, Garn., t. 94, belongs to this second fection, and Mr. Brown has seen three Southsea species in Sir Joseph Banks's herbarium.

The present genus stands between *Melicurus* and *Lisanthe*; see those articles.

**CYTHODES, a cup.**—Perf. Syn. Fung. 256, a genus of rather small Fungi, to which some botanists have given a still more expressive name, *Nidularia* (see Sowerby, Fung. t. 29). The whole plant consists of a leathery cup, containing several ventricous bodies, supposed to contain the seeds, and all together resembling a bird's nest with eggs. *Peronoo* has seven species.


Eff. Ch. Calyx five-cleft, unequal; intruded at the bafe. Corolla papilionaceous; stamens furrowed lengthwise; wings with a transverse plait. Stamens deciduous. Stigma biserate at one side. Legume compressed, with many seeds.


Of the remaining species we have no account.

**CYNODON, from *wod4, a dog, and *on*, a tooth, a genus founded by some authors on the Panicum Dactylon of Linnaeus, a graps known in molt of the temperate or warm parts of the globe, to which Mr. Brown adds two tropical New Holland species. See his Prodr. v. 1. 187. This genus is closely related to the Chloris of Swartz. See *Panicum*, at the end of sect. 1. of that article.

**CYTHEANEA, in Geography, a town of Kentucky, inarrison County, containing 369 inhabitants, of whom 116 are slaves.**

**CYRSTYLLIS, in Botany, from *wod5, curved, or convex, and *cya, the eye, or column.**—Brown Prodr. Nov. Holl. v. 1. 322. Claws and order, *Cynandra Monandra*. Nat. Ord. *Orchideae*.

Eff. Ch. Calyx ringent, pointlets. Petals spreading, nearly equal to the lower calyx-leaves. Lip dissimilar, direct, flat, obtuse, undivided, with two calliotes at the base. Anther a terminal permanent lid; the cells close together. Maffe of pollen two in each cell, powdery, compressed.

1. *C. reniformis*.—Gathered by Mr. Brown, at Port Jackson, New South Wales. Habit like *Acianthus*, (see that article,) to which this plant is perhaps too near akin. Leaf kidney-shaped, many-ribbed. Flowers generally turned, or, in one sense, reversed. *Malaxis bifolia* (see that article, n. 11.) is thought by Mr. Brown to approach this plant in structure of flowers, though different in habit. We have already observed how imperfectly that species, with our Cordifolia and Locelli, answer to *Malaxis.*

**CYSANTHAE,**
CYSTANTHE, from κυστής, a bladder, and ῥύς, a flower, expressing the appearance of the corolla.—Brown Prodr. Nov. Holl. v. i. 555.—Clafs and order, Pentandria Monogynia. Nat. Ord. Eparidræae, Br.

Eff. Ch. Calyx leafy. Corolla closed, like a lid, splitting transversely; the torn base permanent. Stamens inserted into the receptacle, permanent, Neptuniferous scales none. Capsule with many seeds; receptacles pendulous from the top of the central column.

1. C. sprengeliana.—Native of Van Diemen’s island. A shrub, resembling Sprengelia, Ponceletia, and Cosmeya, except the branches being marked with annular scars after the fall of the leaves. A short-leaved variety grows on the mountain tops, but on their shady sides the plant bears more elongated, spreading, recurved leaves.

CYSTITIS. Inflammation of the bladder is rarely a primary disease, but generally comes on as a consequence of some other affection in the neighbouring parts; or of lithotomy, accidental injuries, &c. The symptoms attending it are, tension and pain over the pubes, with a frequent desire to make water, difficulty in voiding it, or a total retention, with tenesmus and fever.

The treatment recommended for NEPHRITIS is here also applicable. In particular, venesection, leeches to the hypogastric region, the warm bath, aperient medicines, and emollient clysters, must be employed. When the bladder and peritoneum inflame after wounds, or the surgical operation of lithotomy, blisters are often of great service; but bleeding should be first practised. In chronic inflammation and thickening of the bladder, the symptoms and pain may be allayed with anodyne emollient clysters, which are far better than injections into that organ itself. Opium, cicuta, hyoscyamus, the uva ursi, &c. with a perpetual blister, may also be tried.

CYSTOTOMY, CYSTOTOMIA, from κυστής, the bladder, and τομή, to cut, the operation of cutting into the bladder. See LITHOTOMY.

Vol. XI.

DAGESTAN, l. 2, after Asia, infert—almost entirely mountainous, as its name implies.

DAGOTTI. See Gauthier.

DALIBARDA, in Botany, a genus originally dedicated by Kalm and Linnaeus to M. Dalibard, author of the Flore Parisiensis Prodromus, classed in the Linnean method.—Linn. Gen. ed. 5. 217. Sp. Pl. ed. i. 491.—It was afterwards reduced to Rubus, but is since restored by Michaux and others. (See the two species under Rubus, n. 54 and 55.) The specific names of Michaux are inadmissible, for several reasons.

DALTON, col. 2, l. 15, after government, dele to houfes in l. 18; and infert—in 1811, the parish of Dalton in Furnefs contained four townships; viz. Dalton having 156 houfes, and 643 inhabitants; Hawcoat having 107 houfes, and 583 inhabitants; Ireleth with 75 houfes, and 445 inhabitants; and Yarleside with 68 houfes, and 403 inhabitants.

DALTON, in America, l. 3, r. 779; l. 7, for Grafton r. Coos; l. 8, for 62 r. 235.

DALTONIA, in Botany, so named in juft commemoration of the Rev. James Dalton, F.L.S., an eminent British botanist.—Hook. and Tayl. Mufc. Brit. So. t. 3.—However defirous we may be to admit this genus, it affords a fresh proof in support of the opinion we have always maintained, that the inner fringes of Mollis give, in general, no found generic characters. Nothing can be lefs exclusively allied than the two suppos’d species, either in habit or character. They are, Neckera spalchnoides, Engl. Bot. t. 2564; and N. heteromalla, Hedw. Crypt. v. 3. t. 15; Engl. Bot. t. 1180. The teeth of their inner fringe, it seems, want the slight connecting base, more or lefs visible in several species of Neckera (see that article), and are attached, scarce visibly, to the teeth of the outer fringe.


DANGAN. See SUMSUM.

DAMPIERA, in Botany, dedicated by Mr. Brown, to the memory of William Dampier, the famous navigator, who first brought one of the species, D. incana, Br. n. 7, from the west coast of New Holland, along with several other specimens preserved at Oxford, the earliest botanical tribute from that remote country.—Br. Prodr. Nov. Holl. v. i. 587.—Clafs and order, Pentandria Monogynia. Nat. Ord. Goodeniaceae, Br.

Eff. Ch. Corolla two-lipped; tube split at one side; segments of the upper lip auricled at their inner margin. Anthers clofely combined. Cover of the stigma naked at the edge. Nut inferior, crustaceous, with a solitary kernel. Dry, downy, perennial herbi, or shrubs, with undivided, alternate, often toothed, coriaceous leaves. Flowers blue or purple. Calyx small, or none. Stamens permanent, sheathing the style.

Thirteen species, from various parts of New Holland, are described, among which is D. fricta, Goodenia fricta; Sm. Tr. of L. Soc. v. 2. 349. Willd. Sp. Pl. v. i. 955.

DANA. Add—containing 625 portions.

DANBURY, l. 3, r. 345; l. 8, r. 3636.

DANBY, l. 2, r. 1730.

DANTHONIA, in Botany, so named by M. De Candolle, after M. Danthon, a French botanist, is a genus separated by that eminent writer, in his Flore Franaise, v. 3. 321, from Avens, on account of the three awns to the outer valve of the corolla, and, as far as we can perceive, for no other reason. He is however followed by Mr. Brown, Prodr. 3 M 2.
Prod. Nov. Holl. v. 1. 176, who defines eight New Holland species, and mentions having gathered ten or more in Southern Africa; but with a hint that this genus is too near to *Avena*, which it almost entirely resembles. The term being acknowledged very treacherous in grusses, we would presume to offer another hint, that Anisopogon (we wish to lay nothing of Diplopogon and Amphipogon, see those articles,) may possibly require revision.

DANVERS, I. uhl. r. 5127.

DANVILLE, l. 6, r. 432 and 166; l. 9, r. 2240.

DAOURIAN. See Neitkrinskel.

DARABGERD. Add—Although a great part be in ruins, it is said to contain between 15,000 and 20,000 inhabitants. It is beautifully situated on an extensive plain, and surrounded with groves of orange and almond trees, the juice of which is exported to every part of Persia. Its tobacco is highly esteemed for its mildness.

DARBY. Add—The former containing 966, and the latter 1085 inhabitants.

DARIEN. Add—It contains 107 inhabitants, of whom 10 are females.

DARK-RAYS, l. 17, r. see Heat and Rays of Heat.

DARLINGTON, l. 6 from bottom, after Darlington, infert—ward, confiding of three divisions, contained 7184 houes, and 39,001 persons; 18,725 being males, and 20,276 females: and the township of Darlington contained 818 houes, and 5059 persons; 2351 being males, and 2708 females.

DARLINGTON, in Carolina. Add—It contained, in 1810, 9874 inhabitants, of whom 2731 are females.

DARRYFIELD. Add—See Deerfield.

DARTAN, in Rural Economy, a kind of scabs or ulcers to which lambs are subject, and which extending to the mouth often prove fatal. The remedy proposed is washing the fores with vinegar, and applying a false made with equal parts of tar and hog's-lard.

DARTFORD, col. 1, l. ult. r. 1811; col. 2, l. 1, r. 526 and 3177.

DARTMOUTH, l. 31, after houes, infert—in the parishes of St. Petrox, St. Saviour, and Townfall, which form the borough of Clifton Dartmouth Hardness, was 364 houes, and that of inhabitants 3595.

DARTMOUTH, in America, l. 9, for 2660 r. 3219.


1. D. bromeliifolius. Br. n. 1. Terr. Aufr. 76. t. 8.—Found on the shores of King George's found, New Holland. Herb one and a half or two feet high, somewhat shrubby, with rigid, simple, sharply and finely toothed leaves. Flowers in a dense, globular, bristly head. The figure seems to exhibit three seeds.

DATOLITE. See Mineralogy, Addenda.

DAVENTRY, l. 2, r. Faviley l. 4 and 5, infert—51 Geo. III., 534 houes, and 2758 inhabitants.

DAVID'S, Sr. col. 2, l. 3, infert after act—51 Geo. III. In 1811, the number of houes for the parih, containing four hamlets, was 437, and that of inhabitants 1816.

DAVIDSON, l. 2, infert—Weft Tenn妃ee; l. 6, r. 15,608, and 6305.

DAUM, or Dam, a copper coin in India, equal in value to the fourth part of a rupee.

DAUPHIN, in America, l. 6, for nine r. fifteen; l. 8, for 22,270 r. 31,883, of whom, in 1810, 26 were slaves.

DAWLISH. Add—By the returns in 1811, the parish of Dawlish contained 328 houes, and 1882 persons.

DAWSONIA, in Botany, a new and most curious genus of Mosses, dedicated, by Mr. Brown, to our valued friend Mr. Dawson Turner, an eminent English botanist, particularly distinguishing himself by his cryptogamic writings. —Br. Tr. of Linn. Soc. v. 10, 316.—Clas and order, Cryptogamia Musci. Nat. Ord. Musci.

Eff. Ch. Fringe a tuft of very numerous, straight, equal hairs, originating from the central column, as well as from the mouth of the calyptra. Outer veil of entangled hairs; inner rough at the summit. Capsule flat at one side.

1. D. polytrichoides. Br. t. 23. l. 1.—Found by Mr. Brown, on the shady banks of rivers, at the foot of the mountains, near Port Jackson, New South Wales. This moss exactly resembles some of our larger species of Polytrichum, (see that article,) while the figure of the calyptra approaches Buschmania. The fringe is totally unlike every thing previously known. The leaves are linear, flat, fringed with sharp teeth.

DAYTON. Add—It contains 1746 perons.

DEAL, col. 3, l. 14, r. 7351, and 1340.

DEAN, Michael. In 1811 the parish contained 121 houes, and 559 perons; viz. 270 males, and 265 females: 31 families being employed in agriculture, and 77 in trade, &c.

DEBENHAM, l. ult. r. 167 and 1224.

DECADIA, in Botany, a tree of Amboina and Cochinchina, so named by Loureiro on account of its ten petals. —Loureiro. Cochinch. 315. (Arbor alumnifera; Rumph. Amb. v. 3. 160. t. 100. Loureiro moreover cites Bobu; Burn. Zeyl. 26, which is also Laurus ferrata, floribus fipicatis, ex foliorum alis proveniuntibus; ibid. 139. t. 62; Eugenioidei; Linn. Zeyl. 192: but this does not agree with the plant of Rumphius.)—Clas and order, Leofandria Monogynia, according to Loureiro, but by his description it belongs to Polyandria. Nat. Ord. Gutiferis affinis. It seems nearly allied to Elcocarpus.

Gen. Ch. Col. Perianth of three permanent, roundish, hairy, keeled, spreading, unequal leaves. Cor. Petals ten, nearly ovate, somewhat serrated, erect, longer than the calyx; the outer ones larger. Stam. Filaments about 30, almost as long as the petals, into whose baiies they are infected; anthers two-lobed, roundish, permanent. Pyll. German roundish, superior; fylle thread-shaped, the length of the filaments; stigma rather thick. Peric. Drupa ovate, rugged, small. Seed an ovate nut, of three cells.


1. D. alumnifera, called in Cochinchina Cay Deung fe, is the only species. This is a middling-sized tree, with a smooth bark and spreading branches. Leaves alternate, filaked, lanceolate, serrated, smooth, of a bright green.

Flowes
DEE

Flowers in small, nearly simple, clusters, about the ends of the branches, white minute. Rumphius relates that the bark and leaves, which may be preferred dry for the purpose, are of great use, instead of alum, in dyeing, to improve and fix the red colours afforded by several Indian woods and roots.

DECAGON. Add.—See Dodecagon.

DECANDRIA, in Botany, from δέκα, ten, and ανή, a man, the tenth clas of the sexual or artificial system of Linnaeus, containing such plants as have ten separate or distinct stamens, in the same flower with the pistil. Hence it admits several papilionaceous plants so circumstanced, notwithstanding their natural affinity to others which belong to the seventeenth class, Diadelphia, the latter containing only such as have some form of union or combination in their filaments, and those filaments are moreover of a peculiarly flat membranaceous structure, altogether different from those of proper decandrous flowers. (See Diadelphus.) The tenth class is divided into five orders, and comprises various natural tribes or families, many of which have allies in other parts of the system, and several of the genera have species whose parts of structur are irregular in number.


A genus of elegant shrubs, found on the south coast of New Holland, with scattered upright leaves, and terminal drooping spikes of red flowers. Berries violet.

1. D. difficilis, (Cyathodes difficilis); Labill. Nov. Holl. v. 64, 1, and 2. D. thymifolia, are all the species mentioned.

DEDDINGTON. In 1811, the parish contained 252 houses, and 1256 persons; 635 being males, and 621 females.

DEEDHAM. In 1811, the parish contained 264 houses, and 1,432 persons; 697 being males, and 735 females.

DEEPING-MARKET. In 1811, the parish contained 166 houses, and 899 persons; 426 being males, and 473 females.

DEER, in America, l. 2, r. 674. Add.—Alfo, a township of Weftmoreland county, in Pennsylvania, having 2380 inhabitants.

' DEER Creek, a town of Ohio, in the county of Pickaway, having 853 inhabitants.

DEER, Ill, col. 2, l. 1, r. 1857.

DEERFIELD, l. 10, r. 1252; l. 16, r. 1851. Add.—Alfo, a town of Ohio, in Portage county, having 394 inhabitants.—Alfo, a town of Ohio, in Rens county, having 625 persons.—Alfo, a town of Ohio, in Warren county, having 1181 persons.

DEERING, l. 32, r. 1363.


DELAGOA, col. 2, l. 8, r. Kaffers.

DELAWARE. Add.—See United States.

DELAWARE County, l. 4, r. 14734.—In New York, l. 2, r. 20, 303 inhabitants, 55 in 1810 being slaves.

DELAWARE Township, l. 2, r. 472. Add.—Alfo, a township in Mercer county, in Pennsylvania, having 218 inhabitants.—Alfo, a county of Ohio, containing seven townships, and 2000 inhabitants.—Alfo, a township of the same county, having 200 inhabitants.

DELI, a river of Persia, in Shirvan, which has its source in the Legean hills, and dilemogues into the Caflian sea, about 20 miles S. of the Samur.

DELMER, a township of Tioga county, in Pennsylvania, having 884 inhabitants.

DELOS, col. 6, l. 21, r. ruin.

DEMBEA, col. 2, l. 16, r. Gorgora.

DE MURIS, John, for Muri, John De.

DENBIGH, col. 2, l. 45 and 46, r. 617 and 2714.

DENBIGHSHIRE, col. 2, l. 22, r. 13,078 houses, inhabited by 64,240 persons; 31,129 being males, and 33,111 females; of whom 3447 families are employed in trade and manufactures, and 7973 in agriculture.

DENMARK, a town of America, in the district of Maine, and county of Oxford, containing 436 inhabitants.

DENNIS, l. 4, r. 1739.

DEPTFORD, col. 3, l. 24, r. 1811, 19,833; l. 25, r. 3463.

DEPTFORD, in America, l. 2, add—containing 2978 inhabitants.

DERAGUZ, a district of Khorassan, which, as well as that of Cotchung, is situated between Meshed and Merv. Cotchung is governed by an independent chiefman, who can bring into the field 12,000 men, and who resides in the town of Cotchung, 23 furlongs from Meshed. The district of Deraguz touches on the W. the dependencies of Kast; on the N. the country of the Turkomans of Tek, sometimes called Attok; and on the E. a branch of the Alhind. Koh. It is the property of Lahli Ali Khan, whose subjects are reckoned the bravest and most polite of the natives of Khorassan; and the soil which they inhabit is so fruitful, that dry grain yields a hundred, and rice four hundred fold.

DERBANE, a beautiful little river which rises in the lake of Louisiana, and has its principal source in N. lat. 32° 30'. W. long. 93° 30', and pursues nearly an easter course of 60 miles, entering Ouachita from the west. It is navigable about one-half of its course for large boats. Its water, which is very pure, is supplied from numerous fprings by many creeks, that are bordered by fine land.

DERBY, col. 6, l. 5 from the bottom, r. 2644, and 13,043.

DERBY, in America, in the census of 1810, probably called Derby by mistake. It has 114 inhabitants.—L. 11r. 2051. Add.—Alfo, a township of Ohio, in Madison county, having 257 inhabitants.—Alfo, a township of Ohio, in the county of Pickaway, having 475 inhabitants.

DERBY. See DARBY.

DERBYSHIRE, l. 12 and 13, r. 35,658, and 185,487.

DEREHAM, East, l. 4 and 5, r. 551 houses, and 2888 inhabitants.

DEREM, a village in the hundred of Clackclove, having 58 houses, and 428 inhabitants.

DERLEY. See Derby.

DEREY, in America, l. 4, r. 2431; l. 5, 1341; l. 7, 2283; l. 8, 2380.

DESERT,
DESSERT ISLAND, Mount. Add.—Mount Defect contains 1,047 inhabitants. See Eden.

DESMANTHUS, in Botany, so called by the late professor Wilder, who first separated the genus we are about to describe from Mimosa; see that article, and Acacia of the present volume. This name seems to be composed of brown, a bandage, and when a flower; alluding perhaps to the strap-like filaments of the neutral flowers, common to every species.—Willd. Sp. Pl. v. 4. 1044. Ait. Hort. Kew. v. 5. 457.—Clas and order, Polygonia Monococia; or rather perhaps Decandria Monogynia. Nat. Ord. Lomentaceae, Linn. Leguminosae. Jaff.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, with five teeth. Cor. of one petal, funnel-shaped, regular, more or less deeply five-cleft, sometimes of five petals. Stam. Filaments ten, rarely but five, capillary, equal, very long; anthers incumbent, oblong. Pet. Germen superior, ovate-oblong; style thread-shaped, the length of the filaments; stigma dilated, abrupt. Peric. Legume oblong, compressed, of two flat valves, and one cell, separated into several by transverse opposite striae in the valves. Seeds numerous, oblong, flaked. Several flowers, below the perfect ones, are neuter, having dilated lanceolate flaments, without anthers, no efficient pistil, and sometimes no corolla.


Obf. Although the definition of this genus is not to flinking as could be wished, it seems to us tolerably natural, being distinguished from Acacia by the definite number of its flaments, always twice as many as the divisions of the corolla, and by the presence of several neuter flowers, in the lower part of each tuft, or spike, known by their dilated, strap-shaped flaments, destitute of anthers, and more or less different in colour from the perfect flowers. We are neverthelbaw aware, that generic characters founded on such anomalies or imperfections, are always the least solid; these neutral flowers, apparently created for no end, being doubtless liable to become, according to circumstances, perfect in one organ of impregnation or the other. The habit of the genus before us is pretty uniform, having doubly pinnate leaves, with numerous, oblong, obtuse, crowded leaflets; axillary, solitary, flaked, oblong spikes, of crowded fistel-like flowers; and flat, generally broad, elliptic-oblong, smooth legumes, whose transverse striae make them resemble the jointed fruit of what now remains as Mimosa, but their valves do not split at those striae. As only ten species of Desmanthus are described, we shall give the whole. They are all of tropical origin; partly herbaceous, and sometimes annual, with felvise leaves; partly shrubby.

Sec. 1. Without thorns.

1. D. lacufris. Lake Desmanthus. Willd. n. 1. (Mimosa lacustris; Humb. and Bonpl. Pl. equinocst. t. 16.)—Thorns none. First division of the leaves of three pair; second of many pair. Spikes ovate. Stalks bracteated. Stem round, creeping. Native of marlhes in South America. Root perennial. Stem herbaceous. First divisions of the leaves an inch and a half long. Leaflets numerous, linear, obtuse at each end. Spikes barren in their lower part, each supported by a flalk longer than the foliages, furnished with two or three ovato-lanceolate dichotous bractees. Legume oblong, pointed, with from four to five seeds. Very narrowly related to the following. Willdenow.

2. D. natans. Floating Desmanthus; or Aquatic Sensitive. Willd. n. 2. Ait. n. 1. Andr. Repol. t. 629. (Mimosa natans; Vahl Symb. v. 3. 102. Roxb. Coro-
Stem prostrate, compressed. Stamens five.—Gathered in stagnant waters at Vera Cruz by Dr. Houltoun, who sent seeds to Miller. The latter records that the *flamen*, though naturally floating, grew more erect when the plant was cultivated on dry ground. The *rostr* is annual, according to Willdenow, Alton, and Linnæus, who had this species in the flowe of Upsal. *Stems* herbaceous, smooth, a little zigzag, a foot or two in length, floating or decumbent, slightly branched. *Leaves* needle-like, longer than those of *D. natans*. *Stipulas* acute, obliquely and broadly ovate. *Spikes* as large as Common Clover, yellow, recurved, on *flails* nearly as long as the leaves, bearing two, three, or four, ovate, flattened *bracteas*. *Stamens* but five, those of many of the flowers changed to long lanceolate petal-like leaves, which give the flowers a double appearance, and render them truly so, according to the analogy of flowers in general. Hence the specific name given by Linnæus; but this circumstance is common to the whole genus of *Desmanthus*, as above described. In this and similar cases it seems best to retain the original name, as indicating the first known species, and therefore the history of the genus. *Legume* is drawn by Houltoun elliptic-oblong, slightly curved, with a furrow, or double edge, along the back. *Seeds* numerous, ovate. The *leaves* are needle-like in this and the three preceding.


Thorns none. First division of the leaves of two pair; second of eight or ten pair of linear obtuse leaves. *Spikes* capitate, of a few decandrous flowers. *Legumae* linear. *Stem* prostrate. —*Found by Humboldt and Bonpland, in South America. Roset* woody, perennial. *Stems* several, from a spæn to a foot long, diffuse, smooth; branched and round at the bottom; obliquely quadrangular above. *Spikes* flaked, without *bracteas*. *Legume* an inch and a half long, pointed, with many seeds. *Akin* to the following, as to the shape of the *spike* and of the *legume*, though easily distinguishable by the specific characters. *Willdenow.*

6. *D. diffusus*. Prostrate Desmanthus. Willd. n. 6. Ait. n. 3. (Mimosa perambucana; Linn. Sp. Pl. 1502. *M. inermis* decumbens, foliiis duplicato-pinnatis, spicis cernuis, floribus pentandris, inferioribus calicatis; Linn. Hort. Ups. 145. n. 4. *M. americana* pigræa, foliis longis angulis, allium olentibus; Pluk. Amag. 252. t. 307. f. 3.)—Thorns none. First division of the leaves of four or five pair; second of twelve pair. *Spikes* capitate, of a few pentandrous flowers. *Legume* linear. *Stem* prostrate.—*Native of South America. Stem* shrubby. *Willdenow*, who had examined dried specimens, says this species is extremely similar to the following, but differs in having more coarsely five primary divisions in the *leaves*, a *prolimate *flamen*, and only five *flamines*. We have never seen the present species, which probably has not appeared in the gardens since Miller's time, but we venture to transfer the synonym of *Zanoni* to the next, on account of the upright flex of his plant. Hence the Linnæan specific name *perambucana*, taken from *Zanoni*, becomes peculiarly unsuitable, and is fortunately changed by Willdenow.

7. *D. virgatus*. Upright Angular Desmanthus. Willd. n. 7. Ait. n. 4. (Mimosa virgata; Linn. Sp. Pl. 1502. Jacq. Hort. Ind. v. t. 34. t. 80. *M. purpurea* of *Perambuco*, detta Mimosa italica; *Zanoni*. l. 151. t. 60. *M. inermis*, foliis duplicato-pinnatis, spicis lineariis glabris; *Linn. Hort. Cliff. 209.*—Thorns none. First division of the leaves of four pair; second of twelve pair. *Spikes* capitate, of a few decandrous flowers. *Legume* linear. *Stem* erect, angular.—*Native of South America, where Jacquin observed it in various places; and not of the East Indies, Burmann's *M. virgata* being properly our *D. natans*, at least according to the synonyms of Plukkenet and Rheedes, cited by that author. The late professor Jacquin sent seeds of this present species to Kew, in 1774, where it flowers in the flowe in July and August. His plant is certainly that of Linnæus, mentioned in the *Hortus Cliffortianus* as of American origin, but confounded with several other things in his *Pl. Zeylanicus*, 216, n. 505. *D. virgatus* has an erect shrubby *flamen*, with wand-like *bracteas*, angular when young, but less so as they become older. *Stipulas* bristle-shaped, with a round auriere. Common *flawflaks* with a round depreessed gland between the first pair of subdivisions. *Legflas* linear, obtuse, fringed, glaucous beneath. *Flower-flakes* the length of the leaves, erect, with small deciduous *bracteas* near the top. *Heads* slightly drooping while young, pale or whitish. Several of the lower-most *flowers* furnished with ten linear, very narrow, almost thread-shaped, abortive filaments, in the place of *flamines*. *Anthers* of the upper *flowers* roundish, yellow. *Legumae* about five from each head, almost erect, full two inches long, linear, not one-eighth of an inch broad, acute, thick-edged, smooth. *Seeds* very numerous, elliptic-oblong, obliquely disposed in a central row. Miller's remark, cited by Willdenow, after Linn. Mant. 2. 503, does not belong to this species, and is excluded by Linnæus himself in his MSS. Probably it may relate to *D. plenus*.

8. *D. punctatus*. Spotted-flaked Desmanthus. Willd. n. 8. Ait. n. 5. (Mimosa punctata; Linn. Sp. Pl. 1502. *M. trutceens* media inermis, foliis compressis falcatis et umbellatis, pedunculo longifimo; Browne Jam. 255. Aecephyromene mitis prima; Comm. Hort. v. t. 61. t. 31.)—Thorns none. First division of the leaves of four or five pair; second of many. *Spikes* ovate. *Flower-flakes* bracteated at the bafe. *Legume* oblong, obtuse, wavy.—*Native of Jamaica*, from whence it was introduced very early into the European Thames. Our specimen was sent by Dr. Browne to Linnæus. The *flamen* is beprinkled with small callous points. *Branches* angular. *Leaves* a spæn long, with a gland on the common *flawflaks* between the first pair of wings. *Legflas* about twenty pair, senitive, linear-oblong, smooth, obtuse with a small point. *Flower-flakes* scarcely so long as the leaves, each bearing, near the bafe, two large ovate, or heart-shaped, *bracteas*. *Spikes* drooping, ovate, of numerous, crowded, pale *flowers*, the lower ones with thin lanceolate *petals*, in the place of the ten *flamines* of the more abundant upper ones. *Legumes* about three from each *spike*, *flaked*, horizontal, compressed, oblong, obtuse at each end, with a small terminal point; their length an inch and a half; breadth one-third of an inch. They betray an inclination to split across, like the true *Mimosa*. *Seeds* about twelve, ovate. This species does indeed, as *Willdenow* observes, much resemble *D. plenus*; but is nevertheless much too different to be confounded therewith.

Sect. 2. Thorny.

owing to the smallness of the tree, of little use. Miller cultivated this plant at Chelsea in 1739, and it is marked by Mr. Aiton, as flowering in the fiover about June and July. A low, irregular, rigid frur, with a grey bark, and zigzag branches, whose short, alternate, lateral shoots spread horizontally, and each finally becomes tipped with a hard sharp thorn. These branches bear very fine and delicate foliage, whose very minute oblong leaflets are smooth above, hairy at the back, and appear to be sensitive; their common flulk also is hairy. Spike axillary, flalked, an inch or two long, swelling upward, obtufe, dense, and many-flowered. Perfect flowers numerous, yellow, with ten fiamens, whose anthers are ovate, of two cells, and tipped with a small round gland. The lower flowers, fleshy, are pale rose-coloured, abortive, having ten linear, obtufe, strap-like leaves instead of fiamens. Legume falcate, linear, compressed, but not flat, about three inches long, and one-fourth of an inch broad, fmooth, obtufe. Seeds ten to fifteen, oblong, yellow.

10. D. divergens. Spreading-branched Defmannthus. Wild. n. 10. ("Ergett Dimmo ; Bruce's Travels, v. 5: 34, with a plate.") — "Branches becoming foliary spines. First division of the leaves of eight pair; second of many. Spikes in pairs, cylindrical, pendulous. Legume twisted."—Native of Abyssinia? A frur, six feet high, with diverications furrowed branches, bespangled with white warts. First divisions of the leaves from fix to nine pair. Lcflits numerous, linear, angular at the base, and fringed at the edges. Thorns rigid, straight, awl-shaped, sometimes in pairs. Legume linear, contorted. Wildenow, who made this description from a living specimen, says the gardeners call this species Mimosa divericata. But what is so denominated in Donn's Hort. Cont. ed. 5: 240, comes from Carolina, and, as far as we can discover, does not occur in Hort. Kew. Bruce's figure above quoted was thought by Wildenow to answer exactly to his own garden frur, except the want of thorns; but as these occur on the older branches only, they might be overlooked. We have not seen specimens of either Bruce's or Wildenow's plant.

DEI'OTO. Add.—The civil distrit of Detroit, which is one of the divisions of the territory of Michigan, contains, by the census of 1810, 2227 inhabitants, of whom 17 were slaves.

DEVAUXIA, in Botany, so named by Mr. Brown, in honour of M. Devaux, author of a dissertation on the natural family of Jumé, in the Journal de Botanique. M. Labillardiere had previously published this same genus under the appellation of Centrolepis, from which, the centre, and =e, a scale; which, giving an erroneous idea of the structure of the flower, it was found necessary to change.—Brown Prodr. Nov. Holl. v. 1: 252. (Centrolepis; Labill. Nov. Holl. v. 1: 7.)—Close and order, Monardia Polygynia. Nat. Ord. Reflections, Brown.

Gen. Ch. Col. Sheath of two concave, keeled, permanent, alternate valves, clasping each other at the base, containing an indefinite number of flowers. Cor. of two oblong, membranous valves, sometimes accompanied by small accessory scales. Stem. Filament one, capillary, drooping, rather longer than the largest valve of the corolla; anther simple, oval. Pfil. Germens several, from three to twelve, ovate-oblong, superior, inserted into one side of a central oblong receptacle, and all turned one way; styles as many, thread-shaped, either distinct at the bottom or combined, spreading or deflexed at the summit; stigma linear, downy. Peric. Capsules as many as the germs, membranous, oval, of one valve and one cell, burbling along one side. Seed solitary, obovate, pendulous.


This genus, of which we have already spoken as akin to Alepyrum, (see that article,) consists of small herbaceous plants, growing in tufts, and resembling the lesser species of Scirpus. The roots are fibrous and tufted. Stem none. Leaves radical, bristle-shaped, half sheathing at the base. Flower-flarks radical, thread-shaped, undivided, naked. Seed solitary, terminal, its valves either awned or not. Nine speciferes are described by Mr. Brown, as follows.

Sec. 1. Receptacle sealy. Styles five or seven, distinct. Sheath pollenless; lower valve hispid; upper smooth. Leaves nearly as tall as the flower-florks.—Gathered by Mr. Brown, in Van Diemen's island.

2. D. Paterfani. Paterfani's Devauxia. (Centrolepis aemula; Rudge Tr. of Linn. Soc. v. 10: 284, t. 12. f. 2.) — Receptacle sealy. Styles eight or nine, distinct. Sheath pointed, many-flowered; upper valve nearly smooth; lower hispid. Adult flower-florks hairy, as well as the leaves, which are only one-third as tall.—Gathered by Col. Paterfani and Mr. Brown, near Port Jackson, New South Wales. Leaves very narrow, an inch long. Flower-florks above two inches high. Seed tumid, scarcely rising above the flowers.

3. D. frigida. Britty Devauxia.—Receptacle sealy. Styles from five to seven, distinct. Seed pollenless; both valves hispid. Adult flower-florks smooth, thrice as long as the finely hispid leaves.—Found by Mr. Brown, on the southern coast of New Holland.

Sec. 2. Receptacle without scales. Sheaths bispsi. Styles sealy.

4. D. tenior. Slender Devauxia.—Receptacle naked. Styles four or five, combined at the base. Seed almost pollenless, bristle as well as the leaves. Flower-florks lightly hairy.—Found in the island of Van Diemen, by Mr. Brown.

5. D. Billardierii. Labillardiere's Devauxia. (Centrolepis saecularis; Labill. Nov. Holl. v. 1: 7; t. 1. C. cupidigera; Rudge Tr. of Linn. Soc. v. 10: 283, t. 12. f. 1.)—Receptacle naked. Styles two or three, combined at the base. Sheath seealy; bristles nearly as long as the valves. Leaves rather hairy. Stalks smooth.—Native of Port Jackson, as well as of Van Diemen's island. Brown, Labillardiere. The numerous bristle-shaped leaves are about an inch and a half long, erect; those which clasp the base of each flower-flork, which is half as tall again, are toothed at their inner margin towards the base. Valves of the sheath twice as well as the flowers. Corolla toothed, obtuse.

6. D. esentrica. Prominent-flowered Devauxia.—Receptacle naked. Styles from seven to ten, distinct. Sheath pollenless, brily, not quite so long as the flowers. Stalks and leaves downy.—Gathered by Mr. Brown, in the tropical part of New Holland.

Sec. 3. Receptacle without scales. Sheaths smooth.

7. D. Bankfield. Bankfield Devauxia.—Receptacle naked. Styles from eight to ten. Seed pollenless, very smooth, many-flowered, membranous at the edges. Stalks three or four times the length of the leaves.—Gathered by Sir Joseph Banks, in the tropical part of New Holland.

8. D. papsila. Little Devauxia.—Receptacle naked. Styles fix or seven. Seed pollenless, very smooth, membranous at the edges, with but few flowers. Stalks and leaves
leaves both smooth, and nearly equal in length.—Observed by Mr. Brown, in the tropical part of New Holland.


Mr. Rudge, very commendably anxious to retain, if possible, Labillardiere's original generic name, has, by taking *calyces* for a *prickle*, as it undoubtedly means a *point*, or *sharp spike*, made *Centropis* to express a *prickly scale*, alluding to the hairy *leaves* of some species. But this is not apposite, the scales, or glumes of the *flower*, to which the original name applied, being, in no sense, pointed, or prickly; nor do we see that the same name can be forced into any appropriate meaning, the *scales* being acknowledged on all hands not to be central.

DEVIZES, col. 2, l. penul. r. 606, and 3750.

DEVONSHIRE, col. 6, l. 11 and 12, r. 62,318, and 383,308.

DEW. To this article we shall subjoin some appropriate remarks, selected from an "Essay on Dew," &c., by the ingenious Dr. Wells, lately (sic. 1819) republished in an edition of his works, to which is prefixed a Memoir of his life written by himself. To this author it occurred in 1784, that the formation of dew is attended with the production of cold. The fame opinion was announced in 1788 by Mr. Wilfon of Glaifgow (vol. i. Edinb. Traln.), and alfo by Mr. Six of Canterbury (Phil. Trans. for 1788, and in a posthumous work printed at Canterbury in 1794.) All these writers at firft concurred in regarding the cold which accompanies dew as an effect of the formation of that fluid. Dr. Wells, however, upon mature consideration of the subjeft, was led to fufpect that this opinion was erroneous; and his fufpicion was afterwards justified by a variety of observations and experiments. Although Dr. Wells agrees, in general, with Arifotle and other writers, and maintains that dew appears only on calm and ferene nights, yet this opinion is not universally true; for he frequently found a small quantity of dew on grafs, both on windy nights, if the sky was clear or nearly fo, and on cloudy nights, if there was no wind; but he never perceived dew on nights both cloudy and windy. Dew, he fays, probably begins, in this country, to appear upon grafs, shaded from the fun, during calm and temperate weather, foon after the heat of the atmosphere has declined; and it continues to form, in shaded places, after fun-fife; the interval between fun-fife and its ceafing to form being coniderably shorter than that between its firft appearance in the afternoon and fun-fife. If the weather be favourable, however, more dew forms a little before, and in shaded places a little after fun-fife, than at any other time; whereas Muifchenbroeck afferts, that dew does not form after the fun has rifen. Our author also maintains, in opposition to the opinion of M. Prieur, that dew, after it has once commenced, continues during the whole night, if the weather remain flill and ferene. During nights that are equally clear and calm, whether they be longer or shorter, dew often appears in very unequal quantities; the quantity of moifure in the atmosphere serving to increase the production of dew; and, accordingly, in equally clear and calm nights, dew is more abundant foon after rain than during a long continuance of dry weather: it is also more abundant in Europe, and in fome parts of Asia and Africa, with fouthery and weffery winds, than with thofe which blow from the north and the efl. Another circumstance upon which the quantity of dew depends, is the diminution of the weight of the atmosphere; for though the falling of the mercury in the barometer is commonly attended with wind or clouds, both unfavourable to the production of dew, yet the greatest dew obferved by our author occurred while the barometer was rifen. M. De Luc alfo has obferved, that a light rain may be foretold when dew is uncommonly abundant in relation to the climate and feafon. We have already obferved, that dew is commonly more plentiful in spring and autumn than in summer, a fact which our author alfo has noticed; it is always very copious on clear and calm nights which are followed by miffy or foggy mornings; and on a clear morning which precedes a fudden night. Heat of the atmosphere, if other circumstances are favourable, occasions a great formation of dew; and upon the fupposition of the fame clearnefs and allottedness of the atmosphere, more dew is formed between midnight and fun-fife than between fun-fife and midnight; the cold of the atmosphere being greater in the latter than in the former part of the night. Our author's experiments ferve to shew, that various differences with regard to situation, mechanical state, and real nature of bodies, have a very coniderable influence upon the production of dew. As to situation he obferves, that whatever diminishes the view of the sky, as foon from the expofed body, diminishes the quantity of dew that is produced; thence the quantity is greater when the expofure to the sky is more complete. There are other circumftances, regarding fution, which ferve to augment or diminish the quantity of dew that is produced, when the fubftances that are used for indicating it are the fame.

It is obferved farther, that when other circumstances are similar, a difference in the mechanical state of bodies has an effect with regard to the quantity of dew which they attract; and hence it is, that fine raw filk, fine unwrought cotton, and flax, were found to attract more dew than the wool employed by our author in his experiments; the fibres of wool being thicker than thofe of the other fubftances mentioned. Bright metals also attract dew much less powerfully than other bodies: this fact was obferved by Muifchenbroeck and Dufay; but they erroneously afferted, that dew never appears on the upper surface of bright metals. There are others, and our author in particular, who have known dew to be formed on gold, filver, copper, tin, plaffia, iron, flleet, zinc, and lead. This inaptitude of metals to attract dew is communicated to bodies of a very different nature, which touch or are near to them. With wool, fays our author, laid upon a metal, will acquire much less dew than an equal quantity laid upon grafs in the immediate vicinity. It is maintained, that the upper surfaces of metals are most readily and mop copiously dewed on those nights and in thofe parts of the night, during which other fubftances are the moft readily and the moft copiously dewed. All metals, our author remarks, do not refit the formation of dew with the fame force. "I faw," he fays, "for example, plataina one night distinctly dewed, while gold, fliver, copper, and tin; though similarly situated, were entirely dry; and I have alfo feveral times seen three four metals free from dew, while iron, flleet, zinc, and lead, were covered with it."

Our author proceeds to investigate and aflertain the degree of cold connected with the formation of dew. Mr. Wilfon, he thinks, is the firft philofopher who ever fuspected the exifence of fuch a conjunction; though dew is often fproken of as cold by our popular writers. Hero- dotus mentions it as poifonifying this quality; Cicero and Virgil apply to it the epithet of "gelidus;" Milton that of "chill;" and Collins that of "cold." With thermometers adapted to the purpose, he has, in ferene and fit nights, examined the temperature of dewed griffs, and con-
Dew.

The next subject to which Dr. Wells directs his attention is the theory of dew. According to Aristotle among the ancients, and many philosophical writers among the moderns, dew is a species of rain, formed in the lower atmosphere, in consequence of its moisture being condensed by the cold of the night into minute drops. But opinions of this kind have been found erroneous, by the consideration of a fact first noticed by Erigena in 1733; viz. that bodies a little elevated in the air often become moist with dew, while similar bodies, lying on the ground, remain dry, though necessarily, from their position, as liable to be wetted, by whatever falls from the heavens, as the former. It was soon afterwards observed by Moscowbrook, that metals will be free from dew, while other bodies attract it copiously: hence Dufay concluded, that dew is an electrical phenomenon, since it leaves untouched the bodies which conduct electricity, whilst it appears upon those which cannot transmit that influence. Against this hypothesis several objections have been urged, however plausibly it has been supported. It has been alleged that charcoal, which next to the metals is the best solid conductor of electricity, attracts dew very powerfully; and dew, as we have seen above, frequently forms upon metals themselves. It has also been urged against this hypothesis, that dew forms in different parts of the night, in quantities disproportional to the degrees of electricity found in the atmosphere at the same time. Thus, it is commonly more copious in the morning than in the evening, though the air is observed to be, in the latter season, more highly electrically than in the former. But another argument applies alike to all the theories which have hitherto been made public on the cause of dew; and this is, that none of them include the important fact, that its production is attended with cold. Mr. Wilfon and Mr. Six have indeed maintained, that the formation of this fluid is the cause of the cold that accompanies it. Dr. Wells once held the same opinion; but finding that bodies would sometimes become colder than the air without being dewed, and that when dew was formed, its quantity, and the degree of cold which appeared with it, were very far from being always in the same proportion to each other, he first doubted its truth, and at length became convinced that it was erroneous; and by further inquiry he was led to conclude, that dew is the production of a preceding cold in the substances upon which it appears; and that it has precisely the same immediate cause as the presence of moisture upon the outside of a glass or metallic vessel, when a liquid considerably colder than the air has been poured into it shortly before. This fact is applied by our author, to the explanation of several atmospheric appearances.

"I. The variety in the quantities of dew, which were found by me upon bodies of the same kind, exposed to the air during the same time of the night, but in different situations, is now seen to have been occasioned by the diversity of temperature, which existed among them.

"II. Agreeably to the opinion of Mr. Wilfon and Mr. Six, the cold connected with dew ought always to be proportional to the quantity of that fluid; but this is contradicted by experience. On the other hand, if it be granted, that dew is water precipitated from the atmosphere, by the cold of the body on which it appears, the same degree of cold, in the precipitating body, may be attended with much, with little, or with no dew, according to the existing state of the air in regard to moisture; all of which circumstances are found actually to take place.

"III. The
III. The formation of dew, indeed, not only does not produce cold, but like every other precipitation of water from the atmosphere, produces heat.

IV. In very calm nights, a portion of air, which comes in contact with cold grases, will not, when the surface is level, immediately quit it, more especially, as this air has become specifically heavier than the higher, from a diminution of its heat, but will proceed horizontally, and be applied successively to different parts of the same surface. The air, therefore, which makes this progress, must at length have no moisture to be precipitated, unless the cold of the grases which it touches should increase. Hence in great measure is to be explained, why, on such nights as have been just mentioned, more dew was acquired by substances placed on the raised board, than by others of the same kind on the grases, though it began to form much sooner in the latter than in the former situation, tho' on the raised board having received air, which had previously deposited less of its moisture.

A reason is now also afforded, why a slight agitation of the atmosphere, when very pregnant with moisture, should increase the quantity of dew; since fresh parcels of air will hence be more frequently brought into contact with the cold surface of the earth, than if the atmosphere were entirely calm.

V. Dew, in agreement with the immediate cause which has been assigned by me for its production, can never be formed, in temperate climates, upon the naked parts of a living and healthy human body, during the night; since their heat is never less in this season, in such climates, than that of the atmosphere. I have, in fact, never perceived dew on any naked part of my own body at night, though my attention was much occupied, for three years, with every thing relative to this fluid, and though I had been, during that period, much exposed to the night air. On the other hand, in very hot countries, the uncovered parts of a human body may sometimes, from being considerably colder than the air, condense the watery vapour of the atmosphere, and hence be covered with a real dew, even in the day-time.

VI. Hygrometers formed of animal or vegetable substances, when exposed to a clear sky at night, will become colder than the atmosphere; and hence, by attracting dew, or, according to an observation of Sauflure, by merely cooling the air contiguous to them, mark a degree of moisture, beyond what the atmosphere actually contains. This furnishes to explain an observation made by M. De Luc, that in serene and calm weather, the humidity of the air, as determined by an hygrometer, increases about, and after sun-fet, with a greater rapidity, than can be attributed to a diminution of the general heat of the atmosphere.

Having established the fact, that bodies become colder than the neighbouring air, before they are dewed, and applied this fact to the explication of many atmospheric appearances, we shall now proceed with the author to complete the investigation of his theory with respect to the cause of dew; and hence he avails himself of the discoveries on heat and its radiation, that have been made by professor Leflie, Dr. Herschel, and count Rumford. (See Heat.)

"The experience of most persons," says Dr. Wells, "reflecting the communication of heat among bodies in the open air, is confined to what happens during the day; at which time, those that are situated near to one another are always found to posse the same temperature, unless some very evident reason for the contrary should exist. To many, therefore, it may appear incredible, that a perfectly dry body, placed in contact, on all sides, with other bodies of the same temperature with itself, shall afterwards, without undergoing any chemical change, become much colder than they are, and shall remain so for many hours; yet these circumstances are found to occur in substances attractive of dew, when laid on the surface of the earth, in a still and serene night, and are in perfect agreement with the doctrine of heat, now universally admitted to be just.

"To render this more easy of apprehension, let a small body which radiates heat freely, and posse the temperature, in common with the atmosphere, higher than 32°, be placed, while the air is clear and still, on a slow conductor of heat lying on the surface of a large open plain, and let a fragment of ice be supposed to exist at any height in the atmosphere; the consequences must be, that the small body will, from its situation, quickly become colder than the neighbouring air. For, while it radiates its own heat upwards, it cannot receive a sufficient quantity from the ice to compensate this loss; little also can be conveyed to it from the earth, as a bad conductor is interposed between them; and there is no solid, or fluid except the air, to communicate it laterally either by radiation or conduction. This small body, therefore, unless it shall receive from the air, nearly as much heat as it has emitted, which, considering the little that can be communicated from one part of the atmosphere to another, in its present calm state, must be regarded as impossible, will become colder than the air, and condense the watery vapour of the contiguous parts of it, if they should contain a sufficient quantity to admit of this effect. But events similar to these occur, when dew appears in an open and level grass field, during a still and serene night. The upper parts of the grases radiate their heat into regions of empty space, which consequently send back no heat in return; its lower parts, from the smallness of their conducting power, transmit little of the earth's heat to the upper parts, which at the same time receiving only a small quantity from the atmosphere, and none from any other lateral body, must remain colder than the air, and condense into dew its watery vapour, if this be sufficiently abundant, in respect to the decreased temperature of the grases.

"This subject may be further illustrated by a reference to what happens in the experiment, which has been used to prove the reflection of cold.

"In the simplest form of this experiment, a small body, the bulb of a thermometer, posse the temperature of the atmosphere, is placed before a larger cold body, rendered equal in effect to one still larger, by means of a concave metallic mirror. In this situation, the small body radiates heat to the larger, without receiving an equivalent from it, and, in consequence, becomes colder than the air through which its heat is sent, notwithstanding that it is continually gaining some heat, both from the air which surrounds it, and from the walls and contents of the apartment, in which the experiment is made. Dew, therefore, would as readily form upon the thermometer in this experiment, as it would upon one suspended in the open air at night, under a clear sky, provided that the two instruments were equally colder than the atmosphere, and that this was in both cafes equally near to being replete with moisture.

"Regarding now as established, that bodies situated on or near to the surface of the earth become, under certain circumstances, colder than the neighbouring air, by radiating more heat to the heavens, than they receive in every way, I shall in the first place offer a few remarks on the extent and use of this occurrence, and shall afterwards apply the knowledge of it to the explication of several more of the appearances described in the former part of this Essay. and
DEW.

of some others, which have not hitherto been mentioned by me.

"Radiation of heat by the earth to the heavens must exist at all times; but, if the sun be at some height above the horizon, the degree of which is hitherto undetermined, and probably varies according to season, and several other circumstances, the heat emitted by it to the earth will overbalance, even in places shaded from its direct beams, that which the earth radiates upwards.

"In a calm and serene night, however, when concomitantly little impediment exists to the escape, by radiation, of the earth's heat to the heavens, and when so heat can be radiated by the fun to the place of observation, an immense degree of cold would occur on the ground, if the following circumstances did not combine to lessen it. 1. The incapacity of all bodies to prevent, entirely, the palling of heat, by conduction, from the earth to substances placed upon them.

2. The heat radiated to these substances by lateral objects.

3. The heat communicated to the same substances by the air.

4. The heat which is evolved, during the condensation of the watery vapour of the atmosphere into dew.

"The extent of the effect of all these checks upon the production of cold, by the nightly radiation of heat from bodies on the surface of the earth, cannot, in the present state of our knowledge, be properly estimated; but facts shew that, notwithstanding their operation, the cold originating in this source must be often very considerable.

"I shall add, with the greatest diffidence, a few words upon a final cause of the radiation of heat from the earth at night, and upon some of the circumstances which modify its action, though fully conscious of the danger of error, which is always incurred in the attempt to appreciate the works of our Creator.

"The heat which is radiated by the sun to the earth, if suffered to accumulate, would quickly destroy the present constitution of our globe. This evil is prevented by the radiation of heat by the earth to the heavens, during the night, when it receives from them little or no heat in return. But, through the wise economy of means, which is witnessed in all the operations of Nature, the prevention of this evil is made the source of great positive good. For the surface of the earth, having thus become colder than the neighbouring air, condenses a part of the watery vapour of the atmosphere into dew, the utility of which is too manifest to require my speaking of it. I may remark, however, that this fluid appears chiefly where it is most wanted, on herbage, and low plants, avoiding, in great measure, rocks, bare earth, and considerable masses of water. Its production too, by another wise arrangement, tends to prevent the injury, that might arise from its own cause; since the precipitation of water, upon the tender parts of plants, must lessen the cold in them, which occasions it. I shall observe in the last place, that the appearance of dew is not confined to any one part of the night, but occurs during its whole course, from means the most simple and efficacious. For after one part of the air has deposited its moisture, on the colder surface of the earth, it is removed, in consequence of that agitation in the atmosphere which exists during its elevated states, and gives place to another having its quantity of water diminished; and, again, as the night proceeds, a portion of air, which had before deposited all the moisture, which circumstances at that time permitted, is rendered fit, by the general increase of the cold of the atmosphere, to give out a fresh parcel, when it comes anew into contact with the ground.

"The first fact, which I shall here attempt to explain, is the prevention, either wholly or in part, of cold, from radiation, in substances on the ground, by the interposition of any solid body between them and the sky. This evidently appears to arise in the following manner. The lower body radiates its heat upwards, as if no other intervened between it and the sky; but the loss, which it hence suffers, is more or less compensated by what is radiated to it, from the body above, the under surface of which possesse always the same, or very nearly the same temperature as the air.

"No direct experiments can be made to ascertain the manner, in which clouds prevent, or occasion to be small, the appearance of a cold at night, upon the surface of the earth, greater than that of the atmosphere; but it may, I think, be firmly concluded, from what has been said in the preceding article, that they produce this effect, almost entirely, by radiating heat to the earth, in return for that which they intercept in its progress from the earth towards the heavens. For although, upon the sky becoming suddenly cloudy during a calm night, a naked thermometer, suspended in the air, commonly rises two or three degrees, little of this rise is to be attributed to the heat evolved by the condensation of watery vapour in the atmosphere, as was supposed by Mr. Wilton; since, in consequence of the cooling of that part of the cold indicated by the thermometer, which was owing to its own radiation to a clear sky, the temperature of the atmosphere may seem to increase 2°, or more, notwithstanding that it has received no real addition. Besides, the heat which is extricated by the condensation of vapour, during the formation of a cloud, must soon be diffused; whereas the effect of greatly lessening, or preventing altogether, the appearance of a superior cold on the earth to that of the air, will be produced by a cloudy sky, during the whole of a long night.

"Dense clouds, near the earth, must possess the same heat as the lower atmosphere, and will therefore tend to the earth as much, or nearly as much, heat as they receive from it by radiation. But similarly dense clouds, if very high, though they equally intercept the communication of the earth with the sky, yet being, from their elevated situation, colder than the earth, will radiate to it less heat than they receive from it, and may, consequently, admit of bodies on its surface becoming several degrees colder than the air. In the first part of this Effay, an example was given of a body on the ground becoming at night 5° colder than the air, though the whole sky was thickly covered with high clouds.

"Islands, and parts of continents close to the sea, being, by their situation, subject to a cloudy sky, will, from the smaller quantity of heat lost by them through radiation to the heavens at night, in addition to the reasons commonly assigned, be less cold in winter, than countries considerably distant from any ocean.

"Fogs, like clouds, will arrest heat, which is radiated upwards by the earth, and, if they be very dense, and of considerable perpendicular extent, may remit to it as much as they receive. Accordingly, Mr. Wilton found no difference at night, in very foggy weather, between the temperature of the surface of snow, and that of the air.

"In mists and low fogs it was found by professor Leslie, that the diminution of the sun's heat is small, when compared with what occurs, when the sky is obscured by a dense body of clouds; and it will, I presume, be readily granted, that the dense flate of the atmosphere, which allows the heat of the sun to pass copiously, will also give a ready transit to heat radiated by the earth."

From previous reasoning, the author concludes, therefore, that "fogs do not in any instance furnish a real exception to
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depressions in the earth are artificially made, for the purpose of increasing the cold, which appears in serene nights. On this subject, however, it is to be observed, that if the depressed or hollow places be deep, in proportion to their horizontal extent, a contrary effect must follow; as a cave will occur more or less similar to that which existed in some experiments formerly related by me, in which a small portion of grass was surrounded by a hollow cylinder.

"An observation closely connected with the preceding, namely, that in clear and still nights, frosts are less frequent upon hills, than in neighbouring plains, has excited more attention, chiefly from its contradicting what is commonly regarded an established fact, that the cold of the atmosphere always increases with the distance from the earth. This inferior cold of hills is evidently a circumstance of the same kind, with that ascertained by Mr. Pictet and Mr. Six, respecting the increasing warmth, in clear and calm nights at all seasons of the year, of the different strata of the atmosphere, in proportion as these are more elevated above the earth. As the greater cold of the lower air is the less complicated fact, I shall attempt to explain it in the first place. Mr. Pictet, indeed, furnishes an explanation himself, by ascribing it to the evaporation of moisture from the ground. But to shew that this is not just, it need only be mentioned, that the appearance never occurs in any considerable degree, except upon such nights as are attended with some dew, and that its great degrees are commonly attended with a copious formation of that fluid; since it cannot be thought, that the same stratum of air will deposit moisture on the ground, from an insufficiency of heat, at the very time it is receiving moisture from the ground, in the state of pellicul vapour, as this presupposes, that it is not yet replete with water."

Aristotle and Plutarch, and of late Mr. Jefferson, (Notes on Virginia,) have observed that dew is much more copious on hills than it is upon plains. In order to account for this fact, we may allow, at first, that the surface of the ground is in both situations equally colder than the air contiguous to it; yet, "as the production of dew must be in proportion to the whole depression of the temperature of the air which furnishes it, below what its heat had been in the preceding day, and as one part of this depression, the general cooling of the atmosphere, is much more considerable on the plain than on the hill, moisture must necessarily be deposited more copiously in the former than in the latter place. If the greater agitation of the atmosphere, and the less quantity of moisture, during clear weather, in its higher region than in the lower, be added, it may readily be inferred, that dew shall sometimes be altogether wanting on a hill, though abundant on a plain at its foot, agreeably to what has been actually observed by Mr. Jefferson."

"The leaves of trees often remain dry throughout the night, while those of grass are covered with dew. As this is a familiar fact to the inhabitants of the hill, I shall in accounting for it do little more, than enumerate the circumstances on which it depends.

"1. The atmosphere is several degrees warmer near the upper parts of trees on dewy nights, than close to the ground. 2. The air in the higher situation is more agitated, than that in the lower. 3. The air at a little distance from the ground, from being nearer to one of its sources of moisture, will on a calm evening contain more of it, than that which surrounds the leaves of elevated trees. 4. Only the leaves of the very tops of trees are fully exposed to the sky. 5. The declension of the leaves from an horizontal position will occasion the air, which has been cooled by them, to slide quickly away, and be succeeded by warmer parcels. 6. The
6. The length of the branches of the trees, the tenderness of their twigs, and the pliancy of the footstalks of their leaves, will cause in the leaves an almost perpetual motion, even in the air that may be denominated calm. I have hence frequently heard, during the stillness of night, a fluttering noise in the trees, which formed one of the boundaries of the ordinary place of my observations, while the air below seemed without motion.

"Nearly in the same manner is to be explained, why shrubs and bushes also receive dew more readily than lofty trees.

"Bright metals, exposed to a clear sky in a calm night, will be less dewed, on their upper surface than other solid bodies; since all bodies will, in such a situation, lose the smallest quantity of heat by radiation to the heavens, at the same time that they are capable of receiving, by conduction, at least as much heat as any others from the atmosphere, and more than any others from the warmer solid substances, which they happen to touch.

"If the exposed pieces of metal be not very small, another reason will contribute somewhat to their being later and less dewed than other solid substances. For, in consequence of their great conducting power, dew cannot form upon them, unless their whole mass is sufficiently cold to condense the watery vapour of the atmosphere; while the same fluid will appear on a bad conductor of heat, though the parts a very little beneath the surface are warmer than the air."

It appears from the discoveries of professor Leflie, that the metals differ in their capacities of radiating heat; and hence will arise a difference among themselves with regard to their attraction of dew. Gold, silver, copper, and tin, as we have already said, reflect the formation of dew more strongly, than other substances of the same class; but these metals, according to Mr. Leflie, radiate heat the most sparingly. On the other hand, lead, iron, and steel, which, according to the same author, radiate heat more copiously than the former metals, were found by Dr. Wells to acquire dew more readily. The fame observations may probably be applicable to platina and zinc. In the article "Dew," we have already taken some notice of the opinion of those who maintain, that it rifies from the earth at night. The first trace of this opinion, according to Dr. Wells, occurs in the Hist. Acad. Sci. for 1687, Gersten advanced it anew in 1733. It was embraced by Muelichenbrock and Dufay; though the former soon admitted that dew sometimes falls. Mr. Whitter of New England has adopted the same opinion. We refer those who wish to see the arguments for and against this opinion fully stated to Wells' "Effay."

Agreeably to another opinion on the origin of dew, that which is found upon growing vegetables, is said to be the condensed vapour of the plants on which it appears. "But this seems," says our author, "to be erroneous for several reasons. 1. Dew forms as copiously upon dead as upon living vegetable substances. 2. The transpired humour of plants will be carried away by the air which passes over them, when they are not sufficiently cold to condense the watery vapour contained in it; unless, which is almost never the case if mist does not already exist, the general mists of the atmosphere be incapable of receiving moisture in a pellicul form. Accordingly, on cloudy nights, when the air, consequently, never can be cooled more than a little below the point of repletion with moisture, by bodies in contact with it, the dew is never observed upon any plants, that are elevated a few feet above the ground. 3. If a plant has become, by radiating its heat to the heavens, so cold, as to be enabled to bring the air in contact with it below the point of repletion with moisture, that which forms upon it, from its own transpiration, will not then, indeed, evaporate. But other moisture will, at the same time, be communicated to it by the atmosphere; and when the difference in the copiousness of these two sources is considered, it may, I think, be safely concluded, that almost the whole of the dew, which will afterwards form on the plant, must be derived from the air; more especially when the coldness of a clear night, and the general inactivity of plants in the absence of light, both lessening their transpiration, are taken into account."

"An experiment, however, has been appealed to in proof, that the dew of plants actually does originate from fluid transpired by them; that, namely, in which a plant, shut up in an air-tight cafe, becomes covered with moisture. But this experiment, if attentively examined, will be found to have little weight. First, the inclosed plant being exempt from the cold, which its own radiation would have produced in its natural situation, on a dewy night, will transpire a greater quantity of fluid, than a similar plant exposed at the same time to the open air. Again, the small quantity of air, contained in the cafe, might be replenished with moisture, after which, the whole of what is further emitted by the plant will necessarily assume the form of a fluid, whatever may be the condition of the external atmosphere; whereas, during even the clearest night, only a part of the smaller quantity of moisture, emitted by the exposed plant, will be condensed on its surface. In the last place, notwithstanding the circumstances which favour the appearance of moisture upon inclosed plants from their own transpiration, still the quantity observed on them is said to be for, I have made no experiment myself respecting this matter, much less considerable, than what is seen upon plants of the same kind, exposed to the air for the same time, during a calm and serene night." For several appearances connected with dew, we are under a necessity of referring to the third part of Dr. Wells' "Effay."

DEWAN, or DIAN, a term which has various significations in India. It denotes a place of assembly, a native minister of the revenue department, and chief judge of civil causes within his jurisdiction, and receiver general of a province. The term is also used to designate the principal revenue servant under an European collector, and even of a Zemindar. By this title, the East India company are receivers of the revenues of Bengal, under a grant from the Great Mogul. Accordingly Dewanu denotes the office or jurisdiction of a Dewan.

DEWEYSBURG, in Geography, a town of Caledonia county, in Vermont, having 200 inhabitants.

DEZFOUL, a town of Perfa, in Kuziflan, or Chufitan, 28 miles W. of Shufter, containing nearly as many inhabitants as that city, and situated on the eastern bank of the Abzal, on a beautiful and spacious plain. Its only ornament is an elegant bridge of twenty-two arches, erected by command of Sapor, notorious for destroying as well as famous for building cities. The bridge is 450 paces in length, 20 in breadth, and about 40 in height. The piers are made of large stones, and the arches and upper parts of burnt brick.

DIAL. Work of a Clock, col. 2, l. 24, for Plate XXIII. r. Plate XVIII.

DIALlage. See Mineralogy, Addenda.

DIAMOND, col. 4, l. 43, add—With a small portion of oxygen, as for Humphrey Davy has lately discovered.

DIAMOND. See Diamond, and Mineralogy, Addenda.

DIANA, col. 3, l. 20 from the bottom, for 27 r. 30.

DIANELLA, in Botany, a poetical name, in honour of the sylvan goddess Diana, to whom Commerford its author thought so beautiful an inhabitant of the woods peculiarly appropriate.
from *Saccharum*, (see that article,) by the flowers being all sessile, on a permanent, not jointed, *flato*.

D. *acinaeformis* was found by Br. J. Banks, in the tropical part of New Holland, and Mr. Brown has an East Indian species:

**DINAS-MAWDDY.** In 1811, the hundred of Tallybont and Mawddwy contained 834 houses, and 4287 persons; 1964 being males, and 2323 females: 531 families employed in agriculture, and 200 in trade, &c.

**DINGAAS.** Add— *See SCIND.**

**DINGWALL.** In 1811, the burgh and parish contained 278 houses, and 1500 persons; 647 being males, and 853 females: 158 families employed in agriculture, and 153 in trade and manufactures.

**DINWIDIE.** 1. 4 and 5. r. 12,524 inhabitants, of whom 7442 are whites.

**DIOPSIDE.** See *Mineralogy, Addenda.**


1. D. *cardinum.* Br. n. 1.—Native of the tropical part of New Holland. Banks. A little gassy bog plant, with a leafy stem, and axillary as well as terminal tufts of flowers. Akin to *Scelonia* and *Carex*; see those articles.


1. D. *tetraphyllus.* Br. n. 1. Banks l.c. ined. in Bibl. Linn.—Native of the tropical part of New Holland. A tree, with an irregular spreading head, of round downy branches. Leaves four on a whorl, stalked, large, oblong, entire; cloven, and marked with two glands, at the base. Flowers numerous, large, and handsome, yellow, with long prominent *flamats* and *flatoes*, in dense terminal panicles. Ripe fruit not known.


Eff. Ch. Sheath of two leaves. Three inner segments of the corolla small; upper one vaulted. Stamens distinct; two of them converging under the vaulted segment.
of the corolla; the third imperfect. Stigma two-lipped, in three deep segments. Seeds depresse.

1. D. Morea. Labill. as above, t. 15. Br. n. 1. (Morea diandra; Vahl Enum. v. 2. 154.)—Native of the south coast of New Holland, flowering in May. The flowers are very short-lived, white; their inner segments variegated. This plant differs from Patersonia, (see that article,) chiefly in the irregularity of its flower.


Eff. Ch. Calyx of two lax, membranous, awned valves, single-flowered. Corolla of two valves, outer with three awns, of which the middle one is twisted, unlike the rest; inner with two awns.

1. D. Jactaeus. Setaceous Dippedogon.—Gathered by Mr. Brown, on the southern coast of New Holland. A graft perfectly resembling Amphiagon lagaroides, (see that supplementary article,) in habit and of appearance, the spike being capitated, and the outermost flowers like wide white absciss, asling of a kind of ionic or vonculum. Brown.

DIP-MICROMETER, and METECTION, instruments invented by Dr. Wollaston, to correct the variation of the real dip from that given in the tables, arising principally from the difference between the temperature of the sea and that of the atmosphere.

DIPIDIUM, in Botany, from δίπλος and δίπλος, alluding to the two separate flowers, or sp., by which the maffes of pollen attach themselves to the stigma.—Brown Prodr. Nov. Holl. v. 1. 330.—Cliffs and order, Cynandra Monandra. Nat. Ord. Orchidace.

Eff. Ch. Calyx-leaves and petals uniform, spreading, lip three-lobed; disk bearded; base with a short spur. Column semi-cylindrical. Anther a terminal deciduous lid. Masses of pollen solitary in each cell, with an inner lobe, each attached by a separate thread to the gland of the stigma.

Leaflets smooth herbae, growing on the ground, with a thick, branching root. Base of the stem sheathed with imbricated scales, more distant on its upper part, where they become broader. Flowers numerous, in a simple clump, purple, very handsome. Two species are mentioned.


DIPSAEE, 1. 3, after cotyledon, insert—two.


1. D. turbinatus. Wood-oil Dipterocarpus. Roxb. as above, t. 213.—Native of various countries easterly of Bengal, flowering early in the hot season, and famous for its liquid balsam, much used for painting houses and ships. This is copiously procured by wounding the trunk, and lighting a fire near the part. The tree is very large. Leaves alternate, falcate, ovate, acute, wavy or serrated, smooth, from four to twelve inches long. Flowers in simple, axillary clusters, large, white, with yellow anthers. Wings of the calyx in fruit erect, oblong, three inches in length.

DISCHARGED WORK. See Paste-Work and Discharging of Colour.

DISS, l. 6, r. 348, and 2592.

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DISTHENES. See Mineralogy, Addenda.

DISTILLATION, col. 7, l. 22, &c. for Wetter r. Welt.

DISTILLED WATERS, col. 2, l. 3 from bottom, for macerated water r. macerated in water.

DISTILLER, col. 2, l. 12 from bottom, r. 24 Geo. II. c. 40. Col. 3, l. 10, r. 14 Geo. III. c. 73. Col. 5, l. 24, r. 43 Geo. III. c. 81.

DIXFIELD, l. 2, for Cumberland r. Oxford. Add—it contains 403 inhabitants.

DIXMONT. Add—Also, a town of Maine, in the county of Hancock, having 337 inhabitants.

DIXVILLE, a township of Coos county, in New Hampshire, having 12 inhabitants.

DOAB, or Dooab, denotes in India any tract of country included between two rivers.

DOCKING, in the Mange. See Curtailing.

DODDBROOKE, l. ult. r. 112, and 942.

DODECAGON. The demonstration annexed is misplaced, and belongs to Dicagon.

DOEMIA, in Botany, Brown Tr. of the Wern Soc. v. 1. 50. (Daemia; Ait. Hort. Kew. v. 2. 76.) a genus of the Afclepiadace, differing from Sarcostemma, (see that article,) in having the outer crown of the flamin in ten deep segments. It consists of Cynandra extensum, Jacc. Br. 3. rar. t. 54. (to which C. bicolor, Andr. Rep. t. 562. is very nearly related,) and Afclepias cordata, Forr. Egypt. Arab. 49.

DOLGELLY, col. 2, l. 21 and 22 from bottom, r. 537 and 5064.

DOLOMITE. See Mineralogy, Addenda.

DONCASTER, col. 2, l. 26 from bottom, r. 1438 and 6935.

DONEGAL, in America, l. 1, r. four; l. 3, r. 3156 and 2147; l. 4, 1327. Add—And one in Butler county, having 671 inhabitants.

DONIA, in Botany, so named by Mr. Brown, in memory of the late Mr. George Don, of Forfar, a most acute and indefatigable Scottish botanist.—Br. in Ait. Hort. Kew. v. 5. 82. Pursh 559.—Cliffs and order, Syngenesia Polygynia-sperma. Nat. Ord. Compositae. Linn. Corymbosae, Jaff.


1. D. glutinoa. Glutinous Donia. Ait. n. 1. (After glutinosus; Cavan. Ic. v. 2. p. 53. t. 168. Doronnum glutinosum; Willd. Sp. Pl. v. 5. 2115.)—Leaves ovate-oblong, sharply serrated, glutinous, as well as the upright-scaled calyx.—Native of Mexico. A green-house fibrous, raised from Spanish feeds by Mr. Lambert, flowering in August and September. The leaves are felie. Flowers terminal, solitary, two inches broad, yellow, with many rays.

herbaceous. Leaves much narrower than the foregoing. Flowers yellow, with a balamic scent.

DONNINGTON, l. 19, r. 1811; l. 20, r. 316; l. 21, r. 1528.

DOODIA, in Botany, named after Mr. Samuel Doody, F.R.S. one of the earliest and best British Cryptogamists. He was an apothecary in London, and died in 1706.—Brown Prodr. Nov. Holl. v. 1. 151. Ait. Hort. Kew. v. 5. 523.—We fear this genus cannot be separated from Woodwardia; see that article.

DOOSHAK, in Geography, the present capital, and the residence of the prince of Sind, in N. lat. 31° 8'. Long. 63° 10', eight or nine miles from the river Hermand. See Zarang.

DORAK. See Felahi.

DORCHESTER, col. 4, l. 29, r. 1811; l. 20, r. 3020 and 15,980.

DORCHESTER, in America, l. 10, r. 18,108 and 5032.

DORCHESTER townships, l. 2, r. 537; l. utl. r. 2930.

DORCHESTER, a town, or rather a village, formerly a city, of Oxfordshire, between Benfon and Oxford. By the returns of 1811, the parish contained 148 houses, and 754 persons; 358 being males, and 396 females: 93 families employed in agriculture, and 47 in trade, manufactures, and handicraft.

DORKING, l. 29, r. 1811—589—3529.

DORSET, l. 4, r. 1294.

DORSETSHIRE, l. 15 and 16, r. 23,210 and 124,693.

DOVER, col. 9, l. 21, r. 9674 and 17,800.

DOVER, in America, l. 3, r. 543; l. 11, r. 2228; l. 26, r. 1882; l. utl. r. 1882 inhabitants. Add—Alto, a township in the district of Ohio, in the county of Tuscarawas, containing 461 inhabitants.

DOUGLAS, in America, l. 5, r. 1142; l. 11, r. 687.

Add—Alto, a township of Bucks county, in Pennsylvania, having 660 inhabitants.

DOWNE. Add—containing 1501 inhabitants.

DOWHANN, l. 25 and 26, r. 1811—361—1771.

DOWNTON, l. 24, r. 543—2624.


Some flowers are fix-cleft, as Labillardiére observed in his D. verticillatum, found in New Caledonia. Mr. Brown, who met with four species in New Holland, remarks, that Forster's Eparis longifolia and rosinariifolia, Prodr. 13, natives of New Zealand, belong to this genus.

DRACUT, l. 2, after county, r. and state of Massachusetts; l. utl. r. 1301.

DRAG. See Drowning.

DRAMATIC Music of the Greeks, col. 2, l. 5 from the clofe, r. maft.

DRAYTON. Add—The part of this parish that lies in Salop county contained, by the return in 1811, 599 houses, and 3370 persons; the other part, formerly denominated Tivelt, now Drayton-in-Hales, situated in the hundred of North Pirehill, in the county of Stafford, consists of three townships, having 104 houses, and 607 inhabitants.

DRESDEN, in America. Add—It contains 1095 inhabitants.

DRESSING, in Rural Economy, and the Mange, de—Vol. XXXIX.
petal, in four deep linear segments, at length separating more or less completely, slightly dilated and concave at their funnics. Nectary four scales at the base of the germen. 

Filaments four, very short, inflected into the base of the cavity of each petal, and another linear-oblong. 

Germen superior, very small, of two single-feeder cells; style cylindrical, rigid, erect, about the length of the corolla; stigma undivided. 

Peric. Follicle woody, obliquely turbinate, two of two shallow cells; the partition unconnected, deeply cleft, a nema tranversely, clastic. 

Seeds solitary, compressed, oblong, with a lateral crescent-shaped membranous wing. 

Common receptacle flat, befit by oblong scales or bristles, rarely wanting.

Eff. Chl. Corolla of one petal, four-cleft, bearing the flammers in the hollows of the segments. Nectary four scales at the base of the germen. Follicle woody, of two single-feeder cells, with a close moveable partition. Common calyx imbricated, many-flowered. 

Receptacle flat.

This genus confits of New Holland thubs, mostly of humble growth; their branches, if any, either scattered or umbellate. 

Leaves scattered, pinnatifid or cut, alike in young or old plants. 

Flowers solitary, sessile, terminal, rarely lateral, encased with crowded leaves, of which the innermost are sometimes dimidiated, or as it were imperfect, and accompanied at the base with close-pressed bracts, some of them occasionally furnished with a terminal appendage. 

Style for the most part hardly longer than the corolla, and not forced into a curve as in Bankia.

We follow Mr. Brown’s names and numbers throughout.


—Leaves wedge-shaped, deeply and sharply serrated. 

Calyx-scales flirait, the outermost nearly smooth. 

Tips of the corolla smooth. 

Stigma obtuse, slightly club-shaped. 

Native of Lewin’s land, growing on stony hills. 

Mr. Menzies admired us with a specimen from King George’s found. 

This shrub flowers at Kew most part of the year. 

The branches sometimes bear a few long, loose, spreading hairs. 

Leaves sessile, rigid, an inch and a half or two inches long, finely reticulated on both sides, the minute intericles of the veins curiously depressed beneath. 

Flowers terminal, in a close cylindrical head, resembling some Thistle or Sarracena, shorter than the crowded surrounding leaves. 

Calyx brown, of many sharp imbricated scales, the inner ones gradually long and hairy. 

Corolla thrice as long, yellow, externally hairy, except at the tips lodging the stamens, which are white, keeled, obtuse, minutely haired. 

Mr. Brown observes that the scales of the receptacle, separating the flowers, are sometimes wanting.


Leaves wedge-shaped, deeply serrated, pinnate, flaked. 

All the calyx-scales even and silky. 

Tips of the corolla bearded. 

Stigma slender, awl-shaped, acute. 

—Found by Mr. Brown, on stony hills in Lewin’s land. 

He notices some variety: one with leaves scarcely an inch and a half long, whose three terminal teeth are all nearly equal; another, which may possibly be a distinct species, with leaves two inches long, whose dilated extremity has the middle tooth short, the adjoining finites broader.


Leaves pinnatifid; lobes triangular, flat, divaricated, straight, pinnate-pointed; reticulated with naked veins beneath; the terminal one longer than the next. Branches, and tips of the corolla, smooth. 

Style downy at the base. 

Stigma awl-shaped, flaked. 

—Found by Mr. Brown, on rocky hills in Lewin’s land. 

Mr. Good sent this species to Kew in 1803, but it has not yet flowered there, nor have we seen a specimen.


Leaves pinnatifid; lobes triangular-awl-shaped, divaricated, falcate and recurved, pinnate-pointed; reticulated with naked veins beneath; the terminal one shorter than the next. 

Branches downy. 

Tips of the corolla, as well as the style, longitudinally smooth. 

Stigma club-shaped, without furrows. 

—Found by Mr. Brown, in the same country as the last.


Leaves linear, elongated, deeply pinnatifid; lobes unequally triangular, pointed, flat; downy beneath. 

Calyx-scales hairy; the innermost linear-oblong, reflexed. 

Receptacle chaffy. 

—Discovered by Mr. Menzies, near King George’s found. 

Mr. Brown met with it likewise, in barren ground near the coast of Lewin’s land. 

This truly beautiful species was sent to Kew, by Mr. Good, in 1803, and it is marked by Mr. Aiton as flowering there most part of the year. 

The leaves are falked, from four to six inches long, and barely one-third of an inch broad, cut to the middle, into numerous, close, regular segments, whose upper margin is direct, lower curved; the under side finely downy, snow-white, turning rufily with age, or long keeping. 

Stem branched, downy. 

Flowers terminal, two or three inches in diameter, embofomed in leaves. 

Calyx-scales purplish-brown, fringed and naked on the inside. 

Flowers of a tawn yellow, clothed with long thin hairs to the very point. 

Style yellow, fvvant and smooth. 

Stigma cylindrical, furrowed. 

Follicles small; tapering and hairy at the base; rounded at the margin; gaping widely, overtopped by the linear scales of the receptacle.


Leaves linear, elongated, deeply pinnatifid; lobes equally triangular, pointed, flat; downy beneath. 

Calyx-scales downy; inner ones linear, pointed. 

Receptacle chaffy. 

Stem firmly branched. 

—Gathered by Mr. Brown at Lewin’s land, in low stony ground.


Leaves linear, elongated, deeply pinnatifid; lobes equally triangular, pointed, flat; downy beneath; slightly revolute at the margin. Inner calyx-scales with feathery tips. 

Receptacle without scales. 

—Discovered by Mr. Brown, on the rocky sides of hills, in Lewin’s land. 

Sent to Kew by Mr. Good, in 1803, but has never blossomed there.


Leaves linear, pinnatifid, longer than the downy recumbent stem; lobes triangular, obtuse; downy beneath; thickened and recurved at the edges. 

Outer calyx-scales ovate; inner linear-oblong. 

—Gathered by Mr. Brown in Lewin’s land, in dry open situations near the shore. 

This also was sent to Kew, at the same time as the last, but has never yet produced flowers.


—Leaves linear, pinnatifid, about as long as the smooth stem; lobes unequally triangular, acute, pointed; white and mealy beneath; recurved at the margin. 

Calyx-scales linear-lanceolate, smooth, fringed. 

Corolla hairy from top to bottom, much shorter than the style. 

—Gathered by Mr. Menzies at King George’s found; by Labillardiere and Brown in rocky places near the coast of Lewin’s land, flowering in December. 

The stem is usually from one to three inches high, greatly overtopped by the very long, narrow, erect leaves, which are not quite so deeply pinnatifid as most of the foregoings; each lobe has two or three prominent ribs beneath, and is clothed on that side with a snow-white mealy pubescence, unaltered by time in our original specimens. 

Flowers solitary, fleshy among the leaves,
leaves, smaller than those of *D. formosa*, with a purplish-brown *calyx*, and yellow, or tawny *corolla*. *Style* purplish, angular, smooth. *Stigma* small, pyramidal, obtuse, not well represented in the plate; at least not in our English edition. This *flowers* at Kew from July to September. Mr. Brown notices a variety in which the lobes of the *leaves* are somewhat disfigured, finger-ribbed, and the *stigma* hardly thicker than the *style*.


—Leaves linear, pinnatifid, very long, acute; *downy beneath*; tapering and entire at the base; *lobes* triangular, acces- sorily recurved, recurved at the margin. *Calyx*-scales linear, awl-pointed, smooth, fringed. *Corolla* woolly at the base; *downy upwards*; rather hairy at the tips; *stem* downy.—*Discovered* by Mr. Brown, on rocky hills in Lew- in's Land. The pubescence of the backs of the leaves is greyish, not white. This plant was raised at Kew in 1805, but has not yet borne any *flowers*.


—Leaves linear, elongated, pinnatifid, rather abrupt; *snow-white beneath*; entire at the base, and tapering into a foot-flake; *lobes* triangular, recurved, disfigured, recurved at the margin. *Calyx* as long as the flowers, *downy*; *outer scales* ovato-lanceolate. *Corolla* almost as long as the *style*; *woolly at the base*; *smooth upwards*; slightly hairy at the tips. *Stem* smooth.— *Gathered* by Mr. Brown, in heathy ground at Lewin's Land. *It flowers* at Kew from March to May.


—Leaves deeply pinnatifid, longer than the *downy stem*; *lobes* linear, acute, pointed, *revolute, dilated* at the base. *Calyx*-scales *downy, ovate*.—*Gathered* by Mr. Brown, in Lewin's Land, on the *flanks* of hills.


—Leaves deeply pinnatifid, longer than the *downy stem*; *lobes* linear, obtuse, slightly pointed, three-ribbed, somewhat *revolute*, scarcely dilated at the base.—*Gathered* near King George's *found* by Mr. Menzies, to whom we are obliged for a specimen, without flowers, with which Mr. Brown likewise was unacquainted; but the resemblance of the plant to the *laff-described*, induced him to consider it as belonging to the present genus. The *short stem* is clothed with dense, soft, *woolly pubescence*. *Leaves* reflexing a *Cycas* in texture, as well as form, though only 3 feet high; the early *ones* smaller, with very broad rounded *lobes*, clothed beneath with white *woolly down*; the pubescence of the more *full-grown leaf* only, in our specimen, is become *woolly*.


**DUBASH**, a name applied at Madras to the fame person who is denominated Banian in Bengal: it signifies a person who can speak two languages.

**DUBLIN**, in America, l. 4, r. 184; l. 8, r. 2194; l. 10, r. 970. Add—*Alfo*, a township of Bedford county, in Pennsylvania, having 820 inhabitants.

**DUBOISIA**, in Botany, in memory of Mr. Dubois, a botanist of the time of Dillenius, who appears, by Ray's

**DUBLIN**, in America, l. 4, r. 184; l. 8, r. 2194; l. 10, r. 970. Add—*Alfo*, a township of Bedford county, in Pennsylvania, having 820 inhabitants.

**DUBUQUES**, in Botany, in memory of Mr. Dubois, a botanist of the time of Dillenius, who appears, by Ray's *Synopsis*, ed. 3. 17, to have had a garden at Mitcham in Surrey, and whose son, or brother, Charles, was an affiduous cryptogamist. His copy of Buxbaum is in our hands. —Br. Prodr. Nov. Holl. v. i. 448.—*Clas and order*, *Dip- dyna Angiospermae*. Nat. Ord. Luride, Linn. Solanaceae, Brown.


**DUBBIDU.** See DUBBU.

**DUCHESENA**, in Botany, a genus announced at the end of our article *Fragaria*, and since published in Tr. of Linn. Soc. v. 10. 371. It was suppos'd to differ essentially from *Fragaria* and *Potentilla*, (with both which the *calyx* agrees, and with the latter more particularly the *habit*,) in having the compound *berry* of a *Rubus*. Some garden *specimens* have led us to fepulchre an error in botanists who have described the ripe *fruit*, which in those *specimens* was certainly that of *Fragaria*, a succulent *receptacle* fluided with *dry seeds*. Whether the latter becomes pulpy at any more advanced period, remains to be proved. Meanwhile this plant flanks as *F. indica*, in Alt. Hort. Kew. v. i. 273.

**DUCU CREEK**, in Geography, a hundred of Kent county, in Delaware, containing 3092 inhabitants, of whom 167 are *flaves*.

**DUDLEY**, l. 3621 houses, and 13,925 inhabitants. Add—*Dudley* is partly in Old hundreds, Staffordshire, in which *Dudley* is locally situated.

**DUDLEY**, in America, l. 2, r. 1220.

**DUEL.** At the close, add—*Duellng*, says a late excellent writer, in the modern sense of the word, exclusive of casual frays and finge combats during war, was unknown before the 16th century. But we find one anecdote, which seems to illustrate its derivation from the judicial combat. The dukes of Lancaster and Brunswick, having some differences, agreed to decide them by duel before John, king of France. The lists were prepared with the solemnity of a real trial by battle; but the king interfered to prevent the engagement. The barbarous practice of wearing swords as a part of domestic drefs, which tended very much to the frequency of duelling, was not introduced till the latter part of the 15th century. Our author says, that he can find only one print in Montfaucon's *Monuments* of the French Monarchy where a sword is worn without armour before the reign of Charles VIII; though a few as early as the reign of Charles VI. have short daggers in their griddles. Hallam's State of Europe during the Middle Ages, vol. ii. ch. 9, part i. p. 441. London, 1818.

**DUREN.** See DEUREN.

**DUFOUREA**, in Botany, so named in honour of a French botanist.—Achar. Syn. 246. "Lichenogr. 103. t. 11. f. 2." A genus of the order of *Lichenes*, composed of *L. Flanneus*, Linn. Suppl. 451. Hoffm. Pl. Lich. t. 3. f. 1.; *L. madreporiformis*, Wulf. in Jacqu. Coll. v. 3. t. 3. f. 25; and three other species. The *frond* is tubular, branched, membranous; *fronds* terminal, with a border from the *frond*. We must shelter ourselves under the doubt, expressed by the author himself, respecting this genus.

**DUKE'S COUNTY**, l. 5, r. 3290.

**DULVERTON**, l. 11, r. 204 and 1035.

**DULWICH.** Add—See CANTERBURY and PECKHAM.
DUN

DUMBARTON. By the return of 1811, the burgh and parish of Dumbarton contained 363 houses, and 3121 persons; 1,373 being males, and 1,748 females: 93 families employed in agriculture, and 524 in trade and manufactures. The shire of Dumbarton contained 3213 houses, and 24,189 persons; 11,369 being males, and 12,820 females: 1,123 families employed in agriculture, and 2,689 in trade, manufactures, and handicraft.

DUMFRIES. In 1811, the burgh and parish contained 1445 houses, and 9262 persons; 4103 being males, and 5159 females.

DUMFRIESSHIRE. By the return of 1811, this county contained 11,660 houses, and 62,960 persons; 29,347 being males, and 33,613 females: 3862 families employed in agriculture, and 4435 in trade, manufactures, and handicraft.

DUNMORE, l. 2, for Graffon r. Coos; add—containing 7 inhabitants.

DUNMORESTOWN, l. 3, r. 1704.

DUNBAR, in Scotland. The burgh and parish, in 1811, contained 664 houses, and 3965 persons; 1661 being males, and 2304 females: 263 families employed in agriculture, and 305 in trade and manufactures.

DUNBAR, a township of Fayette county, in Pennsylvania, containing 2066 persons, of whom, in 1810, 7 were slaves.

DUNBARTON, l. 3, r. 1256.

DUNDEE, col. 2, l. 7 from the bottom, r. 1811—29,614, and add—the number of houses 2482.

DUNFERMLINE, col. 2, l. 41, r. 1811—11,649; add—and the number of houses in the burgh and parish 1810.

DUNKARD, a township of Greene county, in Pennsylvania, having 1055 inhabitants.

DUNKELD. The town and parish, in 1811, contained 126 houses, and 1360 persons; 651 being males, and 709 females. The parish of Little Dunkeld contained 637 houses, and 2982 persons; 1448 being males, and 1534 females.

DUNMOW, Great, col. 2, l. 14 and 15, r. 1811—397—2013.—Little, l. 4, add—The number of houses, in 1811, was 45, and of persons 264.

DUNNET. In 1811, the parish contained 311 houses, and 1398 persons; 698 being males, and 700 females.

DUNSE. In 1811, the parish contained 462 houses, and 2424 persons; 1174 being males, and 1250 females.

DUNSTABLE. l. 6, r. 1049; l. 9, r. 475.

DUNSTABLE. In 1811, the parish contained 296 houses, and 1616 persons; 690 being males, and 926 females.

DUODENUM. See Intestines.

DUPLIN, l. 4, r. 1769—2416.

DURAND, a township of Coos county, in New Hampshire, having 62 inhabitants.

DURBÄR, denotes in India the court, hall of audience, or levee.

DURHAM, col. 2, l. 9, r. 29,363—177,625; l. 10, r. 83,671 and 93,954.

DURHAM CITY, l. 10, r. 932, and 6763.

DURHAM, in America, l. 4, r. 1772; l. 9, r. 1449; l. 11, for New Haven r. Middlesex; l. 15, r. 1101; l. 17, r. 404.

DURSELEY, l. 15, for town r. parish, 489; l. 16, r. 2820—365 families.

DUTCHESS COUNTY, l. 7, r. in 1810, was 51,363—1262.

DUXBOROUGH, or DUXBURY, l. 5, r. 2201.

DUXBURY, l. 3, r. 326.

DYEBERRY, a township of Wayne county, in Pennsylvania, having 318 inhabitants.

DYSART, l. 15, infert.—The borough and parish, by the return of 1811, contained 777 houses, and 5506 persons. The town of Dysart contained 136 houses, and 1578 persons: the lower, &c.


1. D. littoralis. A tropical New Holland herb, smooth, very diminutive, with alternate entire leaves, and axillary tufts of white flowers, twenty of which would hardly make the bulk of a pin's head. One only in each tuft is furnished with stamens.

EAGLE, in Geography, a township of Adams county, in Ohio, containing 801 inhabitants.—Allo, a township of St. Clair, in the Illinois territory, having 384 inhabitants.

EAGLE, Bold, a township of Centre county, in Pennsylvania, having 1146 inhabitants.—Allo, a township of Lycoming county, in the same state, having 246 inhabitants.

EAGLE ISLAND. Add—Allo, an island in the district of Maine, and county of Hancock, having 9 inhabitants.

EAR, Difficult of. See Deafness, Tympanum, Tube, Eufachian, and Otaelpa, the latter of which articles will be found in the Addenda.

EARN, in Geography, a township of Lancaster county, in Pennsylvania, containing 4218 inhabitants.—Allo, a township
township of Berks county, in the same state, having 794
inhabitants.

EARTH, col. 19, l. 12 from bottom, for 7935 r. 39711, and
for 7882 r. 3941.

EARTHEN WARE. See Delf and Pottery.

EASTBOURNE, l. 13, after parish, infert—which con-
tains 120 houses, and 720 inhabitants.

EAST DISTRICT, a township of Berks county, in Penn-
sylvania, having 805 inhabitants.

EASTHAM, l. 9, r. 752.

EASTON, col. 2, l. 1, r. 1657.

EASTON, l. 5, r. 1557.

EAST PORT. Add—It contained, in 1810, 1511 in-
habitants.

EAST TOWN, l. 2, r. 587.

EAST WHITELAND, l. 2, r. 779.

EATON, l. penult. r. 535.

EATONTOWN, a town of Putnam county, in Georgia,
having 73 inhabitants.

ÉCHENIES, l. 4, add—Or, according to Dr. Shaw,
head furnished above with a flat, ovate, transversely falcated
shield, gill-membrane six-rayed, and body without scales.

ECLIPSI. Obliquity of, col. 2, l. 6 from bottom,
add—And he found the obliquity of the ecliptic at the
summer solstice to be 23° 27' 51" 35', and at the winter sol-
stice 23° 27' 47" 37'. The difference he conceives to depend
upon refraction. At the observation of the summer solstice
in 1812 with the new mural circle, he found the obliquity of
the ecliptic to be 23° 27' 52" 45'; and from that of the winter
solstice he deduced it 23° 27' 47" 35'.

ECTROSIA, in Botany, from excessive, an abortion, allud-
ing to the number of abortive florets.—Brown Prod. Nov.
Holl. v. i. 185.—A genus of grasses, allied to Eleusine,
(see that article,) and to Chloris or Swartz, all whose charac-
ters require investigation.

EDDINGTON, in Geography, a town of America, in
Maine and county of Hancock, having 205 inhabitants.

EDDYSTONE, col. 2, l. 1, for 8vo. r. folio.

EDEN, in America, l. 4, add—containing 657 inhabi-
tants; l. 5, add—containing 224 inhabitants.

EDESSA. Add—Edessa, at present denominated Orfa,
after having been the residence of the Courtneys, counts of
Edessa, and having been taken by Zenghi or Zangi, was facked
by the Moguls in the 13th century, and by Timur in the 8th
year of the Hegira. It is now subject to the grand feignor,
and the residence of a pacha of two tails. It is situated in a
barren country, 67 miles from Bir, and 232 from Diar-
beik. It is surrounded by a double wall, and defended by a
cidetale. The houses are well built, and the inhabitants,
composed of Turks, Arabs, Armenians, Jews, and Nettorians,
are said to amount to about 25,000 souls. The chief orna-
tments of this city are a mosque, consecrated to Abraham,
and the cathedral of the Armenians, now decayed.

EDGARTON, l. 7, r. 1365.

EDGCOMB, l. 3, r. 1288; l. 9, r. 12,423 and 5107.

EDGEFIELD. Add—It contains 23,160 inhabitants,
of whom 8576 are slaves.

EDGEMONT, l. 2, r. 611.

EDINBURGH, col. 7, l. 7, add—By the parliamentary
return of 1817, the city and burgh of Edinburgh contained
7110 houses, and 102,987 inhabitants; 43,982 being males,
and 59,005 females. The fluire of Edinburgh contained
8679 houses, and 45,620 inhabitants; 21,022 being males,
and 24,598 females.

EDINGTON. In 1811 the parish contained 85 houses,
and 417 persons; 195 being males, and 222 females.

EDISTO, r. Pen Pon.
part happens with all new remedies. The disappointment to which this necessarily led soon brought it into disrepute, and latterly it has been treated with unmerited neglect. There can be no doubt, however, that when judiciously applied, it is a remedy possessing very considerable powers.

It is not our intention to detail here all the difficulties to which electricity and galvanism are applicable, as the remedy, when proper, will be found, for the most part, to be recommended in the different articles treating professedly of such diseases. Our object is merely to describe the best and most approved methods of applying electricity, and to state a few remarkable facts which have been lately observed respecting its use.

Electricity may be applied in the form of shocks, sparks, or of a continued stream or current. The first of these forms was generally had recourse to by the older electricians, but it has been long since laid aside, except in particular cases of great general, or local debility. In such cases, the shock must be proportioned to the degree of the disease, but the size of the jar employed seldom or never ought to exceed a quart. The second form, or that of sparks from the chief conductor, is an excellent mode of applying electricity in many instances. It is, however, much less used than formerly. Sparks may be applied by the medium of balls of brais or other metal, and their strength is determined by the magnitude of the prime conductor, of the balls, and of the machine in general, and by the distance at which the balls are removed from the patient's body. The nearer the balls, the less powerful and more frequent are the sparks, and vice versa. The third method of applying electricity is in the form of a continued stream or current, and this perhaps is the most generally useful and important form of the whole. This method requires a very powerful apparatus. The current is directed through the different parts of the body by means of a simple apparatus placed in contact, or nearly so, with the body, and connected with the prime conductor. Besides these three forms of administering electricity, there is a fourth, which may be considered as intermediate in its nature between the two last; this is the application of what is termed the electrical aura. It is effected nearly like the last, only the electric fluid is permitted to pass off from points of metal or wood placed at some distance from the body, or sometimes instead of points, the edges of hollow metallic or wooden cylinders, more or less sharp, are employed in a similar manner.

Of these different methods of applying electricity, the two last are undoubtedly in all ordinary cases preferable to the others. They are equally, if not more, beneficial in most instances, if properly applied; and besides have the great advantage of exciting no dread or alarm in the patient, a circumstance which often operates powerfully in deterring timid individuals from having recourse to this remedy, besides being productive of actual injury. These methods, however, as we before observed, require a powerful apparatus, so that the electrician may be enabled to send a very copious stream of the fluid through the whole or any part of the body, if required, as it is chiefly upon this circumstance that the good effects of these modes of applying electricity depend. We would not, however, be under the impression that the good effects of these modes of applying electricity depend. We would not, however, be under the impression that these modes of applying electricity exclusively of all others. The application of shocks, and particularly sparks, is often of great use when judiciously employed. Even the alarm they excite may not be without its use in particular cases; but such cases are rare, and the application of the remedy with advantage in these forms requires great judgment and practical knowledge on the part of the medical electrician.

For the phenomena of that modification of electricity termed galvanism, and its general effects upon the animal economy, we refer our readers to Voltaism, where they will find these subjects discussed; we shall therefore chiefly confine our attention here to the exhibition of galvanism as a remedy. The general principles of the employment of galvanism differ in no respect from those of the application of electricity, nor do the effects of this form of electricity upon the animal economy differ perhaps in any respect whatever from those produced by common electricity; from the mode, however, in which this variety of the electric energy is excited and brought into action, a little difference in the mode of applying it is necessary. The application of galvanism in the form of shocks and sparks is out of the question. It is always applied in the form of a continued or interrupted stream, or sometimes in the form of aura; hence the conductors generally require to be in contact with the skin of the patient, which should be kept moist. The greater the surface of the conductor in contact with the skin within certain limits, ceteris paribus, the greater the effect produced, and vice versa. The interrupted stream, or that produced by the frequent removal and re-application of the conductor in contact with the skin, or by otherwise breaking the chain of communication, approaches in its nature more to that of the electric shock than the continued stream, a circumstance which should be kept in mind by the operator. Indeed with an apparatus composed of small plates, the stream requires to be occasionally interrupted, otherwise the effects will be very much diminished. See Voltaism, last section.

With respect to the magnitude of the battery proper for medical purposes, no very general rule can be given. The greater the number of plates, especially when of small size, the more do the effects produced upon the animal economy resemble those produced by common electricity. Large plates are best adapted for keeping up the continued stream, which is double the first modes of exhibiting galvanism, and of enduring its specific operation, if it extorts any. A medical galvanist can seldom require a battery composed of more than fifty or sixty pairs of plates, from four to fix inches square, and a greater or less proportion of these must be employed according to the energy of action in the battery, and the circumstances of his patient. Dr. Wilton Philip states, that few patients can bear, for any length of time, more than from eight to sixteen pairs of plates fourteen inches square, when administered as described below. The same author, however, remarks, that patients can often bear double this number, for a short time, before any disagreeable sensation is produced.

Dr. Wilton Philip has lately attempted to show that the galvanic battery may be subsituted for the nervous energy in animals. His experiments on this subject are extremely interesting, and their results led him to employ galvanism as a remedy in several diseases to which it was never previously applied. These therefore remain to be briefly noticed.

_Asthma and Dyspnœa._—Dr. Philip states, that he has employed galvanism in many cases of habitual asthma, and almost uniformly with relief. The good effects began to appear usually from five to fifteen minutes after the application of the remedy. His battery consisted of thirty plates fourteen inches square, more or less of which were employed according to the degree of sensation produced; and his rule was to begin with a low power, and gradually increase it by moving one of the wires from one division of the trough to another. His method of exhibiting it in this disease was to apply two thin plates of metal, about two or three inches in diameter, moistened with water, one to the nape of the neck, and the other to the pit of the ro-
mach, or a little lower, which plates were connected with the wires leading to the opposite ends of the battery. He directs that the wires should be constantly moved upon the metallic plates, particularly the negative wire, otherwise the cuticle is apt to be injured where they rest. The relief seemed much the same whether the positive wire was applied to the nape of the neck, or the pit of the stomach. The different effects, therefore, ascribed by some to positive and negative electricity seem doubtful. When relief was obtained, nothing appeared to be gained by continuing the operation longer.

The galvanism was seldom used more than once a day, except in some severe cases. About a sixth part of those on whom it was tried received a permanent cure. It gave decided relief in all cases, and only failed to give considerable relief in about one-tenth of the whole number of cases.

Similar good effects are stated by Dr. Philip to have been experienced in dyfpepsia, provided no inflammatory symptoms were present. Dr. Philip, however, seems to doubt if it will be found useful in phthisic asthma.

In *Dyspepsia*, likewise, Dr. Philip thinks it will prove an excellent remedy; also in porosis of the liver and bilary ducts; and a recent writer states, that he has found it very advantageous in chronic hepatis, *confiption*, 

See an Experimental Enquiry into the Laws of the Vital Functions, by Dr. A. P. Wilton Philip.

**ELECTROPHORUS**, col. 2, l. 19 from bottom, for hair-skin r. hair-skin.

**ELEGANCE**, col. 2, l. 4 from bottom, for are r. rive.

**ELEGY**, l. 2 from bottom, r. Gray's.

**ELEMENTS**, in *Physic*, col. 2, l. 27, for mercury r. earth.

**ELEOCHARIS**, in *Botany*, l. 45, a marth, and *scapes*, an ornament or favourite, from its general place of growth. Brown Prodr. Nov. Holl. v. 1. 224. — A genus separated from Scirpus by Mr. Brown; near akin to *Deichromena*, in character, but very different in habit; see those articles.

Though the definition is not without exceptions, the genus is thought a natural one by its learned author, embracing Scirpus palustris, geniculatus, mutatus, and acteolus of Linnaeus with several others. There are eight New Holland species.

**ELEPHAS**, col. 10, l. 21 from bottom, for thirteen r. three.

**ELETTARIA**, in *Botany*, so called by Dr. Maton, V.P.L.S., from the Malabar name Elettari, or Ela-tarti, which has always been appropriated to this very plant. If any names of barbarous origin may be retained, and many are now established, even by Linnaeus himself, who in the vigour of his judgment and authority protected against them, the above may well be admitted, for the following reasons. It exclusively belongs to a very important plant, constituting, as far as we know, a genus by itself, and it is perfectly unquestionable both in form and construction, as well as free from all ambiguity. Were this name nevertheless to be finally rejected, we should gladly subtilitate in its stead that of Matonida, in honour of our learned and valued friend, who has first clearly established the genus. — Maton Tr. of Linn. Soc. v. 10. 254. Rheede Hort. Mal. v. 11. 9. — Clas and Order, Monandria Monogynia. Nat. Ord. Scitamineae, Linn. Canne Jull.

Gen. Ch. Cal. Perianthis superor, of one leaf, tubular, cylindrical, elongated, minutely and irregularly toothed at the margin, permanent. Cor. of one petal; tube longer than the calyx, cylindrical, slender, curved; outer limb in three equal, oblong, recurved segments, not half the length of the tube; inner a somewhat obovate, large, notched, crenate, undivided lip, with a short claw. Stam. Filament one, rather longer than the claw, stout, erect, with a lanceolate, acute, horizontal lobe, about its own length, on each side at the base, the filament simply notched, without any crest or extension beyond the anther, which consists of two oblong, dilated, marginal lobes, about half the length of the filament, attached by their backs, their extremities on a level with the top of the filament. Fil. Germen inferior, nearly globose; style thread-shaped, lying close to the filament, between the lobes of the anther; stigma funnel-shaped, small, erect, nearly on a level with the top of the filament. Peric. Capsule fully, elliptic-oblong, or somewhat ovate, triangular, fringed, of three cells, and three coriaceous valves. Seeds numerous, roundish, somewhat angular, rough, each with a fine, membranous, evanescent tunic. Recept. central, shorter than the capsule when dry, winged with three longitudinal membranes, originally connected with the central ridge of each valve.

Eff. Ch. Anther of two distinct lobes. Filament with two transverse lobes at the base; emarginate and simple at the summit. Outer limb of the corolla in three oblong lobes; inner a single lisp. Capsule of three cells and three valves, with a central receptacle. Seeds rough, tunicated.


Native of the mountainous parts of Malabar, on lofty cloudy hills, flowering when the rainy season begins, in April and May, ripening feed in October and November. White, Roxburg. Root perennial, tuberous, with many fibres. Leafy stems from six to twelve feet high, erect, flat, bright, green, not red or brownish, at the base. Leaves elliptic-lanceolate, pointed, from nine inches to two and a half feet long, and from one to five inches broad, spreading, dark green, smooth, entire, palmate, and more or less toothed beneath. Stipula emarginate, rounded, smooth. Petals entire, lateral, several from the tuberous base of each stem near the root, a span long, much branched, many-flowered, spreading horizontally on the ground, jointed, smooth. Bracteas alternate, ovate-oblong, acute, at the base of each partial stalk, withering; partial ones solitary, tubular, closely embracing the germex and calyx, almost as long as the latter, and resembling it in shape, but deciduous. Outer limb of the corolla green; lip white, veined with crimson. Capsule when fresh flat, smooth, nearly globose, but becoming bluntly triangular, coriaceous, and pale brown, when dry. Seeds blackish, gratefully aromatic and pungent, with a flavour of Camphor, esteemed more agreeable and useful in food and medicine, than any others of this tribe. (See Cardamom, excluding what regards Cardamomum majus, &c.)

This subject will be found explained under our supplementary article Amomum. Mr. White, who has given a most accurate and correct history of this plant and its cultivation, under the name of Amomum Cardamomum, in Tr. of Linn. Soc. v. 10, above quoted, speaks of its seeds as "one of the most valuable articles of modern luxury, regarded as a necessary of life, by most of the inhabitants of Afi
Afa—a grateful and fabulious accasy of diet—whose general adaption by the civilized nations of the other quarters of the world is prevented only by its limited importation." This is certainly a new idea to us Europeans, who value this drug merely as a grateful and wholesome fire-bringer, on which account it becomes an article of commerce, having supplanted all its relatives in the apothecary's shop. Its general use in Afa, indeed, renders the plant a very important and profitable object of cultivation, though the harvest, occurring at the most unhealthy season, is not attended by serious dangers. Fevers, fluxes, the bite of innumerable minute leeches, and the instantly fatal sting of the whip-snap, are mentioned as not uncommon mishaps, to which is added the caustic quality of a shrubby plant, whose botanical characters have not been ascertained, but whose leaves produce dangerous, and sometimes fatal, ulcerations of the skin. The profit of the Cardamom farms, however, is so considerable, as to overcome all difficulties in their cultivation, and Mr. White thinks they might easily be greatly extended.

2. E. major. Greater Oblong Cardamom. (Cardamomum major;) Dale Pharm. 276. Bout. Nat. 127, the fruit only? C. majus officinarum; Buh. Pin. 413. C. majus vulgare; Ger. Em. 1542. Cluf. Exot. 1817. Lob. t. v. 2. 204. C. medium; Matth. Valgr. t. 1. 25. Camer. Epit. 11. f. 2. Barrel. 1c. obf. 1395. t. 971, the longest fruit. C. cum filiquis five theica longis; Buh. Nat. v. 2. 205. Enfalin; Herm. Muf. Zeyl. 66. Zingiber Enfalin; Goertn. t. 12. f. 5.)—Capsula lanceolate-oblong, acutely triangular, with flat sides. Calyx three-lobed.—Native of Java, according to Dale, who remarks that this kind of Cardamom was, even in his time, rare, used, some substituting it for Grains of Paradie, others the Amomum verum. (See Amomum.) Specimens of this species are indeed, at present, only to be found in the cabinets of collectors. We are perfused they must belong to the same genus as the Malabar Cardamom. They appear to have a similar panined inflorescence, and the structure of the fruits, with its central receptacle, coriaceous fluted valves, and angular rough or rugged feeds, are the same in this as in the last. These feeds, however, are of a brighter, or reddish hue, and very inferior in favour, far less powerful and less agreeable. The shape of the capsule is essentially different, being usuallly thrice as long, and much more acutely and strikingly triangular, flattened at the sides, and more evidently curved. It is similarly crowned with a long, cylindrical, permanent calyx, decidedly three-lobed, whereas that of the former is only crenate, or jagged. This part is unfortunately often rubbed off by those who collect the fruits for sale. If Bontius be right, there is so wide a difference between these two plants in the situation of their flowers, as would almost overturn their generic identity. He gives, under the title of Cardamomum major, a figure with large, terminal, finely racemose inflorescence, which he compares to that of a Hyacinth, describing the plant as taller than a man, with very large leaves, flowers white with a purple limb, and the whole very beautiful. Two capsules, unlike our plant, though by no means very like it, being represented cylindrical, not triangular, and described as long as the finger, accompany the above figure. We cannot, on mature consideration, think the synonym of Bontius rightly applied. Nevertheless, he speaks of the qualities as agreeing with his C. minus, supposed to be our Amomum Cardamomum, or Amomum verum of old writers, not the preceding Elettaria Cardamomum. Clafius, Gerard, &c. rather copy the fruit from Bontius than from nature, and seem to take the calyx for the stalk.

ELEVATION. Angle of, for A R B r. R A B
(Plate I. Mechanics, fig. 3.)

ELGIN, l. alt. By the return of 1811, the number of houses in the burgh and parish was 562, and of inhabitants 4602.

ELHAM, l. 3 from bottom, infer after London—and the parish contains 174 houses, and 962 inhabitants.

ELIZABETH, a township of Miami county, in Ohio, having 730 inhabitants.

ELIZABETH, Cape, l. 7, r. 1415; l. 14, r. 1874; and l. 15, r. 1734.

ELIZABETH-town, col. 2, l. 1, after New York, infer—and contained, in 1810, 2977 inhabitants, of whom 222 were slaves; l. 6, r. 2368. Add—Allo, a town of Kentucky, in Hardin county, containing 181 inhabitants, of whom 47 are slaves.

ELK LICK, a township of Somerset county, in Pennsylvania, having 1118 inhabitants.

ELKLAND, a township of Lycoming county, in Pennsylvania, having 91 inhabitants.

ELK RUN, a township of Columbiana county, in Ohio, containing 787 inhabitants.

ELLESMERE, col. 2, l. 7 and 8, r. 1064 and 5630.

ELLIOTT, l. 2, r. 1344 inhabitants.

ELLIOT, a town of York county, in the district of Maine, containing 1650 inhabitants.

ELLSWORTH. Add—and containing 614 inhabitants.—Allo, a town of Grafton county, in New Hampshire, having 142 inhabitants.—Allo, a township of Trumbull county, in Ohio, having 202 inhabitants.

ELMHAM, North. Add—By the return of 1811, the parish contains 127 houses, and 856 persons.

ELMINA, l. 8 from bottom, for kaffe r. braffo.

ELMORE, l. 2, r. 157.

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ELOCUTION. Add to the references—Action, Articulation, Passion, Pronunciation.

ELSENBOROUGH, a town in Salem county, in New Jersey, having 517 inhabitants.

ELTHAM, l. 3, r. 285 houses, and 1813 inhabitants.

ELWUND, Mount, a range of mountains in Irak, in Perisa, most probably the mount Oroentes of Diodorus, about twelve miles in length. Near its summit, which is tipped with continual snow, and seldom obscured by clouds, is a beautiful valley, perfumed by a thousand sweet-scented flowers. This mountain is famous in the East for its mines, waters, and vegetable productions. The natives of Hamada, which is situated at the foot of this mountain, believe that some of its gracles have the power of tranfmuting the bafel metals into gold, as well as of curing any dillemper to which the human frame is exposed; and the Indians suppose that it contains the philosopher's stone.

ELY, col. 2, l. 4, after includes, infer—5977 houses, occupied by 32,443 inhabitants, &c. Col. 4, l. 43, r. 4249; l. 44, r. 928.

ELY, or Ely. In 1811 this parish contained 157 houses, and 886 persons; viz. 365 males, and 521 females.

EMBANKMENT, col. 25, l. 14 from bottom, infer—In 1809 about 6000 acres of land were obtained by an embankment of the sea upon Cartmell lands, in Lancashire. The embankment at Tre-Madoc, in Carnarvonshire, was completed in 1811.

EMDEN, in Geography, a township in the district of Maine, and county of Somerset, having 351 inhabitants.

EMERY,
EMERY, l. 11, after Tennant, infert.—(Phil. Trans. for 1802, p. 401.)

EMETIN, in Chemistry, a name given by MM. Majendie and Pelletier to a substance extracted by them from ipecacuanha, and so called because it constitutes the principle to which that root owes its emetic qualities. Emetin may be obtained by digesting ipecacuanha in sulphuric ether, and afterwards in alcohol. The alcoholic solution is then to be evaporated to dryness, redissolved in water, and acetate of lead dropped into the solution. The copious precipitate thus obtained being well washed and diffused through water is then to be exposed to the action of sulphuretted hydrogen. The lead is thus precipitated while the emetin remains dissolved in water; and the liquid being filtered and evaporated to dryness, the emetin will be obtained in a state of purity.

Emetin thus obtained exists in the form of brownish transparent scales. Its taste is bitter and a little acrid, but not disagreeable. It has no smell. At the temperature of boiling water it is not changed. When exposed to a higher heat it does not melt, but swells, becomes black, and is converted into water, carbonic acid gas, a little oil, and acetic acid, but yields no trace of ammonia, which indicates that it does not contain azote. A very spongy and light coal remains. When exposed to the air, emetin undergoes no change, except the air be very damp, when it deliquesces. It diffuses readily in water and alcohol, but not in sulphuric ether. It does not crystallize.

Sulphuric and nitric acids, when concentrated, decompose it. Murcuric and phosphoric acids diffuse it without alteration, and it may be separated from them by saturation with an alkali. Acetic acid is one of the best solvents of it. Gallic acid and infusion of galls precipitate it immediately, as do solutions of most of the metallic salts.

Half a grain of this substance occasions violent vomiting, followed by sleep, and the animal awakes in a state of health. A larger quantity, as twelve grains, or even six grains, produces violent vomiting and sleep, followed by death, which appears to take place in consequence of the severe inflammation of the lungs and intestinal canal, produced by large doses of this solution.

ENAMEL of the Teeth, Chemical Properties of. See TEETH.


Procumbent shrubs, very much branched, with alternate fleshy leaves, and axillar, solitary, fefuline flowers, without bracteas. There are two New Holland species.

ENDIAN. Add.—It lies in N. lat. 30° 18', 20 miles from Zeitzoon, occupies both banks of the Tab, and is nearly two miles in circuit. It trades with Bafiora and Behaban, and its population is between 4000 and 5000 souls.

ENDIANDRA, in Botany, Br. Prodr. Nov. Holl. v. 1. 402, a triandrous genus, perhaps hardly distinct from Ginnosmaönium, which Mr. Brown separates from Laurus of Linnaeus; and also very near his CRYPTOCARYA, see that article.

ENFIELD, l. 4, after parliament, infert—in 1811, 1115 houfes, and 6630 inhabitants. The town has only 524 houses, and 3055 inhabitants, and is one of the four quarters into which the parish is divided.

ENFIELD, in America, l. 7, r. 1846; l. 10, r. 1291.

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ENFILADE, col. 5, l. 34, f. 3. 4. Col. 6, l. 20, infert—(fig. 5.)

ENGINE, col. 9, l. 6, for levell'd r. bevelled.

ENGLAND, New. Add.—See AMERICA and UNITED STATES.

ENGURI, a river of Mingrelia, which rises in the mountains of the Abgazians, and flows close to the forrests of Rugh, between Illani and Anaklie, into the Euxine. Near its source it divides into two branches; and as they never again unite, the right branch retains the name of Enguri; but the left is called Scharifikali, under which denomination it crosses the whole of Mingrelia from N. to S. and falls into the Phasis, seven versts above the city of Potti.

ENOSBURGH, a town of Franklin county, in Vermont, containing 704 inhabitants.

ENUNCIACTIVE ORGANS, dele the reference.

EPHRATA, or DUNKARD-Town, infert.—(which see).


Eff. Ch. Calyx and petals equal, spreading. Lip thick, undivided, with two fasciculated thread-shaped processes at the base; and an appendage attached to the bottom of the column, below the claw of the lip. Anther parallel to the stigma, with a petal-like lobe at each side.

1. E. grandiflorum.—Gathered by Mr. Brown, on the south coast of New Holland. Flowers handsome, blue, resembling those of a THYMEMILE; see that article.

EPIDERMIS. Add.—See INTEGUMENTS.

EPIDOTE. See MINERALOGY, Addenda.

EPICLUS. See DECLUTITION and LARYNX.

EPITHYME, for Epitheos r. CUSCUTA.

EPING, l. pennul., r. 334 and 1874.

Epping, in America, l. 3, r. 1182.

EPSON, l. 4, r. 1811—397 houses, 2515 inhabitants.

EPSON, in America, l. 4, r. 1810, and 1156.

EPWORTH, l. 1, for Lindley r. Manley, western; l. 4, r. 274; l. 5, r. 1502.

EQUAL ALTITUDE, Infl. by the Earl of Illy, col. 1, l. 10 from bottom, for five pairs r. two pairs.

EQUATION-MECHANISM, col. 2, l. 33, for received r. viewed.

EQUATION, Contrivances by the Rev. William Pearson, col. 1, l. 15 from bottom, for was represented r. is represented. Col. 10, l. 24, for with r. within. Col. 11, l. 22, for arcs r. areas.

EQUATORIAL, Explication and Use of the Tables, col. 1, l. 19 from bottom, for (like Table 1.) r. (like Table V.)

EQUATORIAL-Micrometer, col. 2, l. 12, for fgg. r. fgg. 4.

EQUES, in Ichthyology, Knight-fish. See CHETODON lanceolatus. This is a native of the American seas; in length about twelve inches.

ERATOSTHENES, col. 2, l. 9 from bottom, r. Bib. ERBILLE, in Geography, a town of Peria, which is probably that Arbelo so famous for the final victory obtained by Alexander over Darius, and the capital of the province of Adiabene, is now reduced to a wretched mud town, with a population not exceeding 3000 souls. N. lat. 36° 14'.


Eff. Ch. Calyx in five deep segments; changed and membranous in the fruit. Corus... Stigma undivided. Drupes dry, with four cells, and four seeds.

Two rough-like shrubs, E. opposifolia and alternifolia, found on the inhospitable south coast of New Holland. Their leaves are semicircular. Flowers solitary, stalked.

3 P.

ERIACHNE,
ERK


Stigmas feathery.

A genus of tropical grasses, akin to Aria, generally downy, their leaves narrow, flowers panicked. Mr. Brown describes ten New Holland species, none of them in any other author. In fix of them, the outer valve of the corolla has a terminal awn.

ERIE, l. 2, r. 3758; after Erie, add—borough, containing 394 inhabitants, of whom, in 1810, 16 were slaves.


Eff. Ch. Calyx ringer; lower leaves flaked, under the lip. Petals smaller, crept. Lip flaked; dilk downy, without glands. Column femicylindrical; simple at the top. Anther terminal, permanent, pointtles; cells close together. Malefs of pollen four in each.

1. E. autumnalis. Br. n. 1. (Epipactis ceculata; Labill. Nov. Holl. v. 2. 61t. f. 2.)—Native of the calf and southern parts of New Holland. Bulb globular. Leaf radical, enclosed in a sheath, with the bale of the flatk, which is four or five inches high, naked, bearing from one to three white or purplish flowers. Akin to Caladenia.

ERIVAN. Add—By various siege, the last of which was in the year 1808 by the Russians, this town is reduced to a ruinous condition. It has been repeatedly taken both by the Turks and Perians, and has remained in the possession of the latter from the peace of Nadir Shah in 1748. This city, which gives name to a province bounded on the N. and W. by the Moflian hills, on the S. by the Araxes, and on the E. by the districts of Kabaunga and Karadung, is situated on the banks of the river Zengui, and defended by a fortress, of an elliptical form, upwards of 6000 yards in circumference. The N.W. side of the town is built on a precipice, overshadowing the river 100 toises in height; but is surrounded by the fort which is encompassed by two strong walls, flanked with towers.

ERKOM, in Ornithology, a bird of Abyssinia, which belongs to a large tribe, differing principally in the beak and horn. The horn is sometimes seen upon the back, and sometimes upon the forehead, above the root of the beak. In the calf part of Abyssinia, it is called Alba Gumbus; in the language of Tigré; but on the western side of the Tacaçê, it is called Erkoom. Its graceful note gives occasion to the name of its sexes. By naturalists, this bird is called the Indian crow or raven. The colour of the eye is a dark brown, or rather of a reddish call; the eye-lusses are large; its length from the tip of the beak to the extremity of the tail is three feet ten inches; the length of the beak is ten inches, and the length of the horn three and a half inches. The colour of this bird is footy-black; the large feathers of the wing are ten in number, milk-white both without and within; the tip of his wings reaches nearly to his tail; and at his neck he has those protuberances like the turkey-cock, which are light blue, but turn red upon his being chafed, or when the hen is laying. He seems to prefer running on the ground to flying; but when he is roused, he flies to a considerale distance. Its smell is rank, and he is said to live in Abyssinia upon dead carcasses; but this Mr. Bruce conceives to be a mistake, as he never follows the army like birds of prey. His food seemed to be the green beetles that are found upon the tops of the tuff, and in order to obtain them, he frequents fields of this grain.

EROLI, l. 2, for Grafton r. Coos. Add—and in 1810, contained 58 inhabitants.


ERVING'S GORE, in Geography, a town of Hampshire county, in Massachusetts, having 160 inhabitants.


ERZERUM, l. 11, after church, add—Mr. M'Kinnell estimates the whole number of inhabitants at 105,000, of whom are Armenians, and the rest Turks, with the exception of 200 or 300 Greeks. Here are nearly 40 mosques, four of which are hansome, a Greek church, a large Armenian chapel, and at a distance from the city three celebrated monasteries. The bazzars are extensive. In winter the cold is intense; but the air being pure, and the water good, the natives are stout and healthy. N. lat. 39° 57'; E. long. 46° 51'. The pachale of Erzerum is the most considerable in Armenia; it is divided into twelve districts, and governed by a pacha of three tills, who refides at Erzerum.

ESCAPEMENT, Ispocrinal for a Pendulum, col. 2. 14 from the bottom, for CN r. 1. 13, for ND r. N.Q.—Eefcapement by Alex. Cumming, col. 1. 10 from the bottom, for D r. H.

ESKIMAUX BAY, r. Labrador.

ESOX, col. 5. l. 23, after reprinted, insert—curving. ESSEX, l. 5 from bottom, r. 42.829 and 253-273.

ESSEX, in America, l. 7. r. 8.; l. 8, r. by the census of 1810, 71,888 inhabitants.

ESSEX, in Virginia, l. ult. r. 9376 inhabitants, of whom, in 1810, 5659 were slaves.

ESSEX, in New Jersey, l. 4, for 3 r. 9.; l. 5, r. 25984 and 1129.

ESSEX, in New York, add—containing 9477 inhabitants.

ESSEX, in Vermont, add—containing 14 townships, and 307 inhabitants.

ESTLE, a township, &c. l. 2, r. 957.

ESTLE, a county of Kentucky, containing 2082 inhabitants, of whom, in 1810, 133 were slaves.

ETHER, in Chemistry. The specific gravity of sulphuric ether, as recently determined by M. Theodore de Sauffrre, is .7153 at 68°; and it boils in vacuo at — 26°, and not at 20°, as it is given in the Cyclopaedia. The specific gravity of the vapour of sulphuric ether, according to Mr. Dalton, is 2.25; according to M. Gay Lussac, whose experiments were made with great care, it is 2.586, that of air being 1. M. Theodore de Sauffrre has lately published an analysis of sulphuric ether: according to this ingenious chemist, it is composed of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>14.40</td>
</tr>
<tr>
<td>Carbon</td>
<td>67.98</td>
</tr>
<tr>
<td>Oxygen</td>
<td>17.62</td>
</tr>
<tr>
<td></td>
<td>[100.00]</td>
</tr>
</tbody>
</table>

Which proportions are nearly equivalent to

<table>
<thead>
<tr>
<th>Substance</th>
<th>Equivalent Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olefin gas</td>
<td>80.05</td>
</tr>
<tr>
<td>Water</td>
<td>19.95</td>
</tr>
</tbody>
</table>

Dr.
Dr. Thomson, however, seems to doubt the perfect accuracy of this analysis, and supposes rather that it is a compound of four atoms of olefiant gas and one atom of water, which supposition nearly agrees with the specific gravity of the vapour of ether above-mentioned, as determined by M. Gay Lussac. Thus the fp. gr. of olefiant gas being .974.

Two volumes of it will weigh 1.948
The fp. gr. of the vapour of \[
\text{water is } \frac{1.948}{2} = 0.974\]

which certainly differs but little from 2.586, the true fp. gr. according to M. Gay Lussac.

Nitrif Ether.—The properties of this singular subflance have been lately investigated by Thenard. This eminent chemist found the following to be the best mode of preparing it. Equal parts of alcohol and nitric acid, of the fp. gr. 1.283, were put into a retort, to the beak of which was luted a glass tube, which was plunged to the bottom of a long narrow glass jar, half filled with a saturated aqueous solution of common salt. From the top of this jar passed another tube, which went to the bottom of another similar jar, filled with the same solution. In this manner, five other similar jars were connected with each other, and from the last a tube passed to a water-trough, to receive the gaseous products in proper vessels. Each of these jars was surrounded with a mixture of snow and salt, to keep it as cool as possible. A moderate heat was then applied to the retort, which produced to violent an effervescence, that it became necessary to moderate it by withdrawing the fire, and applying cold water to the outside of the retort. At the end of the operation, the ether was found floating on the surface of the solution in the different jars, but more especially in the first. It was separated, and to remove the nitrous and acetic acids with which it was contaminated, it was agitated in a close phial with a sufficient quantity of chalk. Thus purified, it possesses the following properties.

It has a slightly yellow colour, and a very strong ethereal odour. Its taste is likewise strong and peculiar. It is rather heavier than alcohol. It is much more volatile than sulphuric ether, the heat of the hand being sufficient to make it boil; hence it produces a very considerable degree of cold by its evaporation. It is lighter than water, and requires about forty-eight parts of that fluid to dilute it. The solution has an agreeable odour, like that of apples. It is soluble in alcohol in every proportion. It is very inflammable. When kept for some time, both nitrous and acetic acids are formed in it. The same acids also are produced if it be heated, or even agitated with water. It has also the property of absorbing these acids very readily, and acquiring the property of reddening vegetable bleeks. Its vapour is much more elatite than that of sulphuric ether.

According to Thenard, it is composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>8.54</td>
<td>-</td>
</tr>
<tr>
<td>Carbon</td>
<td>28.45</td>
<td>-</td>
</tr>
<tr>
<td>Oxygen</td>
<td>48.52</td>
<td>-</td>
</tr>
<tr>
<td>Azote</td>
<td>14.49</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

But Dr. Thomson does not seem to place much reliance on the accuracy of this analysis.

Muriatic Ether.—Since the article Ether was written for the Cyclopaedia, this species of ether has been examined with great care by Gehlen, and still more recently by Thenard, which latter chemist has given the following as the best mode of preparing it.

A retort is to be nearly filled with a mixture of equal bulks of muriatic acid and alcohol, both as strong as possible. To prevent the effects of the violent chullition which would otherwise take place on the application of heat, a few grains of sand are to be introduced into the retort. From the beak of the retort a tube passes into a glass jar, twice the size of the retort, and furnished with three mouths. This jar should be half filled with water of the temperature of about 70°. Into the second mouth a short tube of safety is to be luted; and into the third, a tube which passes into a water-trough to receive the gas. On the application of heat, the ether escapes in the form of gas. This gas is colourless, does not affect vegetable colours nor lime-water. Its fp. gr. is 2.193, that of air being 1. At the temperature of 64° water dissolves its own bulk of it. At the temperature of 52°, it becomes liquid ether.

Muriatic ether in its liquid state is colourless like water, very liquid, has no action on vegetable bleeks, and has the same smell and taste as in the gaseous state. At the temperature of 41°, Thenard ascertained its fp. gr. to be .874. It is much more volatile than alcohol, or even sulphuric ether. None of the usual tests indicate the preence of muriatic acid in it. When burnt, however, a considerable proportion of this acid is diffegaded, a fact first observed by Gehlen, and since fully confirmed by Thenard. From Thenard's analysis, it appears that this singular compound is composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muriatic acid</td>
<td>29.44</td>
<td>-</td>
</tr>
<tr>
<td>Carbon</td>
<td>36.01</td>
<td>-</td>
</tr>
<tr>
<td>Oxygen</td>
<td>23.31</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>10.64</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

Dr. Thomson is disposed to consider it as a compound of one volume of olefiant gas, and one volume of muriatic acid gas, condensed into one volume; or, what is the same thing, of four atoms olefiant gas, and one atom of muriatic acid. On this supposition, its constituents will be

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five atoms hydrogen</td>
<td>6.25</td>
<td>-</td>
</tr>
<tr>
<td>Four atoms carbon</td>
<td>30.00</td>
<td>-</td>
</tr>
<tr>
<td>One atom chloride</td>
<td>45.00</td>
<td>-</td>
</tr>
<tr>
<td><strong>And the weight of its atom</strong></td>
<td><strong>81.25</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

Hydriodic Ether.—This ether was discovered by M. Gay Lussac. He formed it by mixing together two volumes of absolute alcohol, and one volume of hydriodic acid of the fp. gr. 1.73, and distilling in a water-bath. Hydriodic ether, after being well washed with water, is perfectly neutral. Its odour is strong, and analogous to that of other ethers. In a few days it acquires a reddish colour, which is instantly removed by mercury or potasa. Its fp. gr. at 72° is 1.9206. It boils at the temperature of 148°. It is not inflammable, but merely gives out purple vapours when put upon burning coals. When passed through a red-hot tube, it is decomposed, an inflammable carburetted gas is obtained, hydriodic acid evolved, and some charcoal deposited. This ether has not been analyzed; but Dr. Thomson is disposed to believe, from analogy, that it has a composition similar to that of muriatic ether, or that

\[ 3 \text{P} \]
it is composed of four atoms olefiant gas, and one atom of hydriodic acid.

Acetic Ether.—The original experiments of Lauraguais and Scheele have been lately repeated by other chemists, and particularly by Thénard. Thénard succeeded in forming this ether, by repeatedly distilling together very concentrated acetic acid and alcohol. No graceful product was evolved. The superfluous acid was neutralized by potash, and the ether finally obtained by a cautious distillation of the resulting liquid from acetic of potash. Acetic ether thus procured is limpid and colourless. Does not redden vegetable blues. Possesses a peculiar taste, quite different from that of alcohol. Its fp. gr. at 44° is .866. It boils at the temperature of 163°. It burns with a yellow-white flame, and acetic acid is evolved during its combustion. At the temperature of 65°, it requires more than seven times its weight of water to dissolve it. It appears from these and other properties to be a compound of acetic acid and alcohol.

Formic Ether.—This was first formed by Gehlen. It may be prepared precisely in the same way as acetic ether, merely sublimating the formic for the acetic acid. Formic ether has an agreeable odour, similar to that of peach blossoms. Its taste is likewise similar, leaving an impression of ants. At a temperature of 65°, its fp. gr. is .9157. It burns with a blue flame, having yellow edges, and at the above temperature is soluble in nine times its weight of water. This ether has not been analysed.

ÉTON, col. 3, l. 25, r. to be seen; l. 57, r. 314 and 2279.


Eff. Ch. Spikelets generally single-flowered; scales imbricated, mostly empty. Stamens twelve or more. Nut cylindrical, crumblative, without bristles at the base; kernel smooth. Tall bog-plants, from the south coast of New Holland. Scales blackish externally; upper ones silky internally. Somewhat allied to Chrysétrix. There are two species.


EUCHILUS, Brown in Ait. Hort. Kew. v. 3. 17, seems to us a Poltenia; see that article.

EUCHLORINE, in Chemistry. See OXYMURIATIC Acid.

EUCLID, in Geography, a township of Cuyahoga, in Ohio, containing 284 inhabitants.

EUCLIDIUM, in Botany, from v. and well, and vailov, to float up, because of the firmly-closed seed-vellum.—Br. in Ait. Hort. Kew. v. 4. 74.—Cliffs and order, Tetradynamia Silicifiu, Linn. Nat. Silphace, Linn. Cruciëfæ, Juss.


1. E. syriacum. Syrian Euclidium. Ait. n. 1. (Añatatica syriaca; Linn. Sp. Pl. 865; Jacq. Añ. 7.)—Pouch rough. Style awl-shaped, twisted. Leaves lanceolate, flaked.—Native of the warmer parts of Europe. What other species may be the same we are not informed.


Eff. Ch. Calyx four-toothed, superior. Petals closely united into a deciduous lid, with four furrows. Stamens in four fets, alternate with the calyx-teeth, combined at the base. Capule of four cells, opening at the top. Seeds numerous.

1. E. tetragonum. Br. as above, t. 3.—In exposed barren places near the shore, about Lucky bay, on the south coast of New Holland, flowering and bearing fruit in January. Br. A fúlbus, three to five feet high, with square, bordered branches. Leaves flaked, ovate-oblong, mostly opposite, coriaceous, four or five inches in length, entire, glaucous, dotted with reniform points. Umbels axillary, flaked, of three or four flowers, whose numerous white flames spread conspicuously after the lid is fallen. We believe this fine plant is living in the green-houf of the Comtesse des Vandes, at Baywater.

EUDIOMETE. See LABORATORY.

EUDIOMETRY. Add.—See LABORATORY.

EVELYN, l. 1. inerf after Surrey.—October 31st; l. 4, for Christchurch r. Bialoi college; l. 5, infert much of his time. At the close of his article, add—For a farther account of the life and writings of this excellent perfon, we refer to the "Memoirs," published from original MSS. in 2 vols. by William Bray, eqq. Lond. 1818.

EVEISHAM, col. 2, l. 10, from the bottom, r. 674 houfes, and 3068 inhabitants.

Evesham, in America, add—In 1810, it contained 3445 inhabitants.


1. E. laurelia. Br. as above, t. 2.—In mountainous woods, and about great rivers, at Port Jackson, flowering in December and January. A slender fréulibus, from five to ten feet high, very smooth. Leaves alternate, on short stalks, obvate-oblong, acute, entire, coriaceous, four or five inches long. Flower-flasks axillary, short, bearing two or three small leaves, and one flower, whose numerous, pale yellow, perfect fíamus spread, in a radiant manner, after the lid is gone, displaying the broad imperfect ones, united with them below, overlapping the fíamus. These superfusious intruders are observed, by Mr. Brown, to be usually eaten away by insects. Berry three-quarters of an inch broad. Seeds oval, wrinkled.

EURYALE, the name of one of the Gorgons, adopted here to express the thorny menacing habit of the plant. It might likewise be underfooted as alluding to the angle area of the leaves.—Salif. in Ann. of Bot. v. 2. 73. Añt. Hort. Kew. v. 3. 295.—Cliffs and order, Polyandra Monogynia. Nat. Ord. Rhoeaceae, Linn. Hydrocharitides, Juss. Nymphæe, Salif.


1. E. ferox. Prickly Euryale, Ait. n. 11. Roxb. Corom. v. 3. 39; t. 244. Annélae lapina; Andr. Repof. t. 618.—Native of lakes and ponds in India, to the east of Calcutta. Roxb. This has the habit of a Nymphæa. The floating peltate leaves, cloven at the base, are from one to four feet wide; purple beneath; their ribs, veins, and stalks, like the flower-stalks, calyx, and fruit, armed copiously with sharp prickles. Flowers comparatively small, purple, with yellow flaments. Fruit about two inches in diameter. Seeds, or nuts, the size of a large pea, each in a loose coloured tunic.
EX P

EXPOSE, col. 2, l. 2, for southern r. northern.

EXPRESS, Physiological. See Emotion, and Gesture.

EXTRACT—Extractive Principle, in Chemistry.

Great confusion exists in different chemical authors respecting these terms. Formerly the term extract was applied to all those substances which were extracted from plants by means of water or spirits; but of late it has been confined by many to a substance which is supposed to exist in many plants, and which may be obtained tolerably pure from the bark of the cinchona officinalis, according to the experiments of Schrader. Other chemists, however, still use the term extract in its original sense; hence Dr. Thomson, to prevent ambiguity, has chosen to distinguish the principle of Schrader by the term extractive. The following are the properties of extractive, according to Dr. Thomson:

1. Soluble in water, and the solution is always coloured. When the water is slowly evaporated, the extractive matter is obtained in a solid state, and transparent; but when the vaporization is rapid, the matter is opaque.

2. The taste of extractive is always strong, but it is very different according to the plant from which it is obtained.

3. It is insoluble in absolute alcohol and in ether, but soluble in alcohol when it contains water.

4. By repeated solutions and evaporations, the extractive matter acquires a deeper colour, and becomes insoluble in water. This change is considered as the consequence of the absorption of the oxygen of the atmosphere, for which the extractive principle has a great affinity. But if the solution be left to itself, exposed to the atmosphere, the extract is totally destroyed in consequence of a purer fraction which speedily commences.

5. When chlorine is poured into a solution containing extractive, a very copious dark yellow precipitate is thrown down, and the liquid retains but a light lemon colour. These flakes are considered as oxygenized extractive; it is now insoluble in water, but hot alcohol dissolves it.

6. The extractive principle unites with alumina, and forms with it an insoluble compound. Accordingly, if sulphate or muriate of alumina be mixed with a solution of extractive, a dark, insoluble precipitate appears, at least when the liquid is boiled; but if an excess of acid be present, the precipitate does not always appear.

7. It is precipitated from water by concentrated sulphuric acid, muriatic acid, and probably by several other acids. When the experiment is made with sulphuric acid, the fumes of vinegar generally become sensible.

8. Alkalis readily unite with extractive, and form compounds insoluble in water.

9. The greater number of metallic oxys form insoluble compounds with extractive. Hence many of them, when thrown into its solution, are capable of separating it from water. Hence also the metallic salts molly precipitate extractive. Muriate of tin polishes this property in an eminent degree. It throws down a brown powder, perfectly insoluble, composed of the oxyd of tin and vegetable matter.

10. If wool, cotton, or thread, be impregnated with alum, and then plunged into a solution of extractive, they are dyed of a fawn-brown colour, and the liquid loses much of its extractive matter. This colour is permanent. The same effect is produced if muriate of tin be employed instead of alum. This effect is still more complete if the cloth is soaked in chlorine, and then dipped into the infusion of the extractive. Hence we see that the extractive matter...
matter requires no other mordant than oxygen to fix it on cloth.

11. When distilled, extractive yields an acid liquid impregnated with ammonia.

It cannot be doubted, continues Dr. Thomson, that there are many different species of extractive matter, though the difficulty of obtaining each separately has prevented chemists from ascertaining their nature with precision. Watery extracts, when obtained by slow evaporation to dryness, always have an acid taste, and redden litmus. They all yield a precipitate while liquid on the addition of ammonia. This precipitate is a compound of lime and insoluble extractive. Lime always causes them to exhale the odour of ammonia. It has been ascertained, that the extractive principle is more abundant in plants that have grown to maturity than in young plants.

All the extracts prepared by apothecaries are compounds of the extractive principle with several others, even as many as eight or more, according to Dr. Thomson. In short, this department of vegetable chemistry is at present in a very confused and imperfect state.

Vol. XIV.

EYE, Physiology of the, col. 6, l. 26 from bottom, for an inch r. one-tenth of an inch.

EYE, Humours of, Chemical Properties of. Some experiments have been made on these fluids, the results of which defer to be briefly mentioned.

Aqueous Humour.—Mr. Chenevix found the fp. gr. of the aqueous humour of the sheep at 60° to be 1.009. This fluid scarcely affects vegetable blues while fresh. On exposure to heat, a slight coagulum is formed. Tannin occasions a precipitate in it, both before and after boiling. Nitrate of silver likewise produces a precipitate, but no other metallic salt. According to Berzelius, 100 parts of it consist of

| Water               | -      | 98.10 |
| Muriates and lactic | -      | 1.15  |
| Soda with animal matter, soluble | - | 0.75 |
| only in water      | -      |       |
| Total              | 100.   |       |

Vitreous Humour.—This possesses very nearly the same properties as the aqueous. Even its fp. gr. is the same, or only a very little heavier. According to Berzelius, it is composed of

| Water               | -      | 98.40 |
| Albumen             | -      | 1.16  |
| Muriates and lactic | -      | 1.42  |
| Soda with animal matter, soluble | - | 0.02 |
| only in water      | -      |       |
| Total              | 100.   |       |

Crystalline Lens.—The fp. gr. of this is 1.100. When fresh it has little taint. It putrefies very rapidly. It is almost completely soluble in water. The solution is partly coagulable by heat, and gives a copious precipitate with tannin both before and after boiling. According to Berzelius, it is composed of

| Water               | 58.0   |
| Peculiar matter     | 35.9   |
| Muriates, lactate, and animal matter soluble in alcohol | 2.4 |
| Animal matter, soluble only in water, with some phosphates | 1.3 |
| Portions of the remaining insoluble cellular membrane | 2.4 |
| Total              | 100.   |

The peculiar matter of the lens possesses all the chemical properties of the colouring matter of the blood, except colour.

The humours of the human eye are composed of the same ingredients as those of the sheep; but they differ in their fp. gr. Thus the fp. gr. of the human aqueous and vitreous humour is 1.0053; that of the crystalline 1.0790. The humours of the eyes of oxen also resemble those of the sheep. The fp. gr. of the aqueous and vitreous humors is 1.0088; that of the crystalline 1.0765. The crystalline of the ox weighed thirty grains. When the whole was pared away, except six grains in the centre, the fp. gr. was found to be 1.194.

Sir H. Davy found the same constituents in the eyes of birds; but the fp. gr. of the vitreous humour of these animals is greater than the fp. gr. of the crystalline.

Pigmentum Nigrum.—This curious substance has been examined by Gmelin. From 500 eyes of oxen and calves he collected 75 grains. Its colour is blackish-brown. It is tafleless, and adheres to the tongue like clay. It is soluble in water, alcohol, ether, oils, lime-water, and acetic acid. It dissolves in potash and ammonia by the affinities of heat, and is again precipitated by acids. Sulphuric acid dissolves it, and becomes black. Muriatic acid also forms an imperfect solution. Nitric acid dissolves it, and changes its colour to reddish-brown. When distilled it yields water, brown oil, and carbonate of ammonia. The residuum consists almost entirely of charcoal.

EYE, col. 2, l. 6, r. In the year 1811, the town and parish consisted of 326 houses, and 1893 inhabitants.

EYMOUTH. Add.—By the return of 1811, the town contained 115 houses, and 962 inhabitants.

EYNSHAM, or Ensham, l. 1st.—In 1811, the number of inhabitants was 1418, and of houses 246.
F.

FAR

FABER, JACOBUS STAPULENSIS. See FEVRE.

FAHRENHEIT, l. 2, Hamburg or Dantzig.

FAIRFAX, l. 3, r. 13,111 inhabitants, of whom 5942 were slaves in 1810. At the close, add—Allo, a town of Maine, in Kennebec, containing 924 inhabitants.

FAIRFIELD, l. 4, r. 17; l. 5, r. 46,950; l. 6, r. 833; l. 17, r. 1725; l. 23, add—divided into 15 townships, containing 11,306 inhabitants. For Kennebec r. Somerset; l. 26, r. 1348; l. 30, r. 1615; l. 36, add—containing 2279 persons; l. 43, r. 1973; l. 47, add—It contains 11,857 inhabitants, of whom 4034 are slaves. Allo, a township in Crawford county, in Pennsylvania, having 441 inhabitants.

—Allo, a township of Butler county, in Ohio, having 1414 inhabitants. —Allo, a township of Columbiana county, in Ohio, having 832 persons. —Allo, a township of Highland county, in Ohio, having 1167 inhabitants.

FAIRFIELD, New. See New, &c.

FAIRFORD. In 1811, the parish contained 295 houses, and 1444 persons; viz. 688 males, and 756 females.

FAIRHAVEN, l. 6, r. 645; add—Allo, a small township of Maine, in Somerset county, having 116 inhabitants.

FAIRLEE. At the close, add—983.

FAIR VIEW, a township of York county, in Pennsylvania, containing 1298 persons.

FALHERZ. See Mineralogy, Addenda.


FALES, a township of Bucks county, in Pennsylvania, having 1649 persons. —Allo, a township of Muskingum county, in Ohio, having 951 inhabitants.

FALMOUTH. At the close, add—By the return of 1811, the town of Falmouth contains 465 houses, and 3933 inhabitants.

FALMOUTH, in America, l. 3, r. 4105. Col. 2, l. 11, r. 2237.

FANNET, a township of Franklin county, in Pennsylvania, containing 1998 inhabitants.

FAQUIER, l. 3 and 4, r. 22,689 inhabitants, of whom 10,361 are slaves.

FAREWALM. In 1811, the parish contained 596 houses, and 3325 persons; viz. 1592 males, and 1733 females.

FARM, col. 5, l. 9 from the bottom, for Led-farms r. Lea-farms.

FASTER, Richard, col. 2, l. 12, for which he exchanged for r. for which he exchanged.

FARMINGTON, l. 7, r. 1039. After Boston, add—

Allo, a town of Strafford county, in New Hampshire, having 1272 inhabitants; l. 15, r. 2748.

FARRIERY, denotes the business or practice of a farrier, which, in its more limited sense, pertains to the shoeing of horses, (see SHOEING,) and the various circumstances attending it; but in its more extensive sense, and as it is often used and understood, it comprehends the whole veterinary art, as it relates to the management of animals in general, including the knowledge and proper treatment of their diseases. See each disease under its appropriate term.

FARRINGDON. In 1811, the parish of Great Farrington contained 327 houses, and 1843 persons; viz. 900 males, and 943 females; 175 families being employed in agriculture, and 131 in trade, manufactures, and handicraft.

FARSETIA, in Botany, a genus, originally founded by Dr. Antonio Tura, of Vicenza, in a quarto dissertatio, (published at Venice in 1765;) reduced by Linneus to Cheiranthus, is reformed by Mr. Brown, in Adv. Hort. Kew. v. 4. 96. It commemorates Philip Farfetti, a noble Venetian, celebrated for his botanical erudition. Mr. Brown gives the following

Eff. Ch. Pouch elliptic-oblong, seffile, compressed, with flatish valves. Cotyledous accumbent. Seeds severally; either bordered, or some of the filaments are toothed. Six species are defined in Hort. Kew.

FARSIStAN, l. 6, after province, add—is divided into the Germafeer and Sirhod, or the warm and cold climates. The former is that tract which extends from the sea to the latitude of Kazeroon, and runs parallel with the gulf, from the banks of the Tan to the confines of Laristan. The Sirhod, denoting boundary, and metaphorically applied to a cold region, comprehends most of the mountainous part of Fars, extending from the latitude of Kazeroon to that of the town of Zedekhah, situated on the bed of a former river, which separates this province from Irak. Fars, &c.

FAVART, l. 23, for retrouve r. retrouvé.

FAVERSHAM, col. 3, l. 30, r. in 1811—672—3872.

FAWN, l. 3, r. 1402.

FAVETTE, l. 4, r. 91 l. 6, 24,714 inhabitants, of whom 58, in 1810, were females. —Allo, a county of Ohio, containing 1851 inhabitants. Col. 2, l. 4, r. 80391; l. 5, r. 2905 l. 9, r. 8041; add—Allo, a township of Alleghany county, in Pennsylvania, containing 2016 inhabitants.

FAYSTON, a town of Chillendon county, in Vermont, having 140 inhabitants.

FEARING, a town of Ohio, in Washington county, having 454 inhabitants.

FEATHERS, dry-pulled, beaded, dele the reference to Bed.

FELAHI,
FER

FERAHI, or DORAK, one of the principal towns of Chuftlian or Kuzftlan, in Persia, founded by Sheikh Soliman when the ancient Dorak, one of the eight cities of Susiana, was abandoned. It is situated on marshy ground, on the banks of two of the branches of the Zerashi, surrouned with mud walls, sixteen feet thick and two miles in circumference, flanked at intervals with towers. The inhabitants, amounting to 8000, live chiefly without the walls in the suburbs. This town is celebrated for the manufacture of the abba, or Arabian cloak, which is transported in great numbers all over Persia and Arabia.

FELSAR. See FELSAR and MINERALOGY, Addenda.

FELUGIA, or ABBAS, in Geography, a town in the pachalic of Badagd, which, under the appellation of Perifabur, is ranked, in the history of the campaigns of Julian, as the head city in Asia. The city was reduced to ashes, and on its ruins a palace was erected by Soliman the Great, pacha of Bagdad. Pilgrims going to Kerbele generally cross the river at this spot, on a bridge of boats.

FENCE, col. 2, l. 20, dele low. Col. 3. dele hedge, last word, and the comma in 1. 2. Col. 21, l. 3, for thus above r. thus formed above; l. 34, 35, for under the plough r. into grafts.

FEREDUN, in Geography, a small district of Irak, in Persia, behind the S.W. ridge of the mountains of Khonfar, peopled with Georgians and Armenians, brought hither by Abbas the Great. The former, amounting to 1000 families, are Mahometans, who never intermarry with either Persians or Armenians. The capital of the district is Paashih.

FERGUSON, a township of Centre county, in Pennsylvania, having 1666 inhabitants.

FERMANAGH, l. 2, r. 1954.

FERMENTATION, VINUS, in Chemistry. The recent observations of chemists enable us to state with greater precision the changes which fugar undergoes during its conversion into alcohol, than could be done when this article was written for the Cyclopaedia.

Sugar is composed, according to Dr. Prout's analysis, of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>6.66</td>
</tr>
<tr>
<td>Carbon</td>
<td>4.00</td>
</tr>
<tr>
<td>Oxygen</td>
<td>5.33</td>
</tr>
</tbody>
</table>

= 100.

which correspond with 1 atom of each element.

Alcohol, according to Dr. Thomson, is a compound of about

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>13.04</td>
</tr>
<tr>
<td>Carbon</td>
<td>52.16</td>
</tr>
<tr>
<td>Oxygen</td>
<td>34.80</td>
</tr>
</tbody>
</table>

= 100.

which correspond with 3 atoms of hydrogen, 2 atoms of carbon, and 1 atom of oxygen; and carbonic acid gas is composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>27.27</td>
</tr>
<tr>
<td>Oxygen</td>
<td>72.72</td>
</tr>
</tbody>
</table>

= 100.

or of 1 atom of carbon and 2 atoms of oxygen.

Hence, if we suppose (for the sake of round numbers) 3 atoms of fugar to be decomposed during the process of fermentation, they will be converted into 1 atom of alcohol and 1 atom of carbonic acid; for

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>3 atoms + 2 atoms + 1 atom</td>
</tr>
<tr>
<td>Carbon</td>
<td>1 atom + 2 atoms</td>
</tr>
</tbody>
</table>

which make together

3 + 3 + 3

or three atoms of fugar.

Now this determination very nearly coincides with the actual experiments of Lavoisier, and the more recent determination of Thenard, respecting the proportional quantities of these two products obtained by the fermentation of fugar. Thus 100 parts of fugar (as deduced by Dr. Thomson from Thenard's experiments) were converted into

<table>
<thead>
<tr>
<th>Compound</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>57.44</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>42.56</td>
</tr>
</tbody>
</table>

= 100.

Whereas the proportions, according to the above calculations, ought to have been

<table>
<thead>
<tr>
<th>Compound</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>51.12</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>48.88</td>
</tr>
</tbody>
</table>

= 100.

A coincidence as near as could have been expected, considering the very difficult nature of the experiment.

With respect to the modus operandi of ferments, we have nothing to add, but that the subject still remains a mystery. See WINE, and YEAST.

FERRABAD, in Geography, a town of Mazendaran, in Persia, situated at the mouth of a river, 3 miles E. of the village of Meshed Sir, which carries on a small trade in rice, salt, and pottery.

FERRISBURGH, a town of Addison county, in Vermont, having 1647 persons.

FERROCYANIC Acid, in Chemistry. See CYANOG. FERRURETTED CHYAS ACID. See CYANOG.

FEVRE, or FABRI, JAMES DE. Add—See FABER, JACOBUS STAPLENSIS.

FEZA, in Geography, a small town of Persia, 18 furlongs from the capital of Fars or Farfllan, having about 4000 inhabitants, on the banks of a small stream, which is totally absorbed in the irrigation of the gardens and fields adjoining the town.

FIBRIN, Chemical Properties of. See BLOOD.

FIBROLITE. See MINERALOGY, Addenda.

FICARIA. Refer to RANUNCULUS Ficaria.

FIDUCIAL EDGE. See Plain Table, and Circle.

FIDUCIAL LINE. See Line.

FIELD-SCABIES, r. FIELD-SCABIOUS.

FIELD-PoRTIFICATION, col. 6, l. 23 from the bottom, for at top r. at top and bottom.

FIFESHIRE, col. 3, l. 32, r. 1811; l. 33, r. 17,578—101,272.

FIGURE, in Heraldry, col. 2, l. 12, for paffove r. paffant.

FIGURED, in Manufactures, last line but three, for the turning r. then turning.

FINLEY, in Geography, a town of Washington county, in Pennsylvania, having 1636 persons.

FIRMAN. Add—In general, it denotes an order or mandate, and is applied to any imperial decree, or royal grant or charter.

FIRMNESS,
FIRMANESS, l. ult. after gold, add—or platina. Col. 2, l. 7, for motion r. notion.
FIROZABAD, an ancient city of Fars, in Persia, founded by Artaxerxes Bæbeon, which became the capital of Firoze Shah, the grandson of Nachivran. Its ruins occupy a large space in a plain about 17 miles in length, and half as wide. Here are the remains of Attaf Kudda, or fire-temple of Firoze Shah.
FIRUZABAD. See the preceding article.
FISCARD, l. ult. r. 250. Col. 2, l. 2, r. 1811—391—1572; l. 14; dele lately and received; l. 15, for Fridays r. Thursdays; l. 22, dele having been recently assailed by the erection of a pier; l. 28, for about fifty r. severally; l. 29, r. from 50 to 100 or more tons burlen; l. 40 and 41, r. at a distance near St. David's is a wall, &c.
F. lanceolata. Lanceolate Fischera. Sprn. n. 3. (Azorella lanceolata; Labill. 74. t. 99.)—Leaves linear-lanceolate, keeled.—Native of Port Jackson, New South Wales, Dr. White; of Levin's land, Labillardiere. Stem shrubby, twelve or eighteen inches high, roughish branches. Leaves scattered, numerous, spreading, entire, smooth, an inch and a half long; tapering at the base. Umbel terminal, flalked, compound, many-flowered.
F. ovata. Ovata Fischera. Sprn. n. 4. (Azorella ovata; Labill. 74. t. 100. Trachymene ovata; Sprn. Umb. 8.)—Leaves elliptic-ovate, triple-ribbed.—From the same countries. Differs from the foregoing chiefly in the broader shorter figure of the leaves, and the more evident combination of their ribs. We suspect Labillardiere has confounded a more lanceolate variety of the present with his real lanceolata.
F. linearis. Linear Fischera. (F. linearifolia; Sprn. n. 2. Azorella linearifolia; Cav. 1. c. v. 5, 57. l. 485.)—Leaves linear-awl-shaped.—Native of Port Jackson, Dr. White. Like the two former in habit, but the small, narrow, heart-like leaves seem to distinguish it, if the foliage of this genus can at all be trusted for specific characters.
We conceive the compound umbels, totally different habit, more oblong less flattened fruit, and other characters above indicated, must keep these plants generically distinct. Both from the original Azorella, (see BOLAN,) and from Mr. Rudige's Trachymene, hereafter described, though the learned Sprengel now refers them to the latter. His T. composita (Azorella composita; Labill. t. 101.) appears not well to accord with either, in character or habit. The fruit is broader than long, tumid and reticulated, not rough, Umbels compound.
FISH, Anatomy of. dele all the references to plates.
Under Kidneys and Urinary Bladder, col. 2, l. 46, dele the paragraph beginning—It may, and ending, place.—Under Brain, col. 4, l. 12, dele after usual, and begin immediately, &c. Under Integuments, col. 2, l. 10 from bottom, r. renewed. Col. 5, dele after skin, l. 3 and l. 4. Under Organs of Vision, col. 5, l. 15, for the refrangibility of the humour r. it. Under Electric Organs, col. 2, l. 15 from bottom, for hexagonal r. pentagonal; l. 14, for one or two r. two or three.
FISHERY, Pilchard, col. 2, l. 24, for 35,000 r. 35,000.
FISHERY, Salmon, col. 3, l. 7, for strikes r. strike; l. 8 from bottom, for killed r. killed.
FISHERY, Whales, col. 2, l. 29, after split, add—wood. Col. 4, l. 17 from bottom, for forty-two r. sixty-six; l. 5 for six harpooners r. one or two harpooners.
FITZBURG, in Geography, a town of Worcester county, in Massachusetts, having 1566 persons.
FITZJAMES, in Botany, a town of Worcester county,
FITZWILLIAM, l. 5, r. 1301.
FIXED BODIES, l. 25, after silver, add—and platina.
FLAG, col. 2, l. 7, since Nov. 1805, the red flag at the main-mast has been the frill in rank after the union flag.
FLAHERTY, l. 7 from bottom, after Scottish r. and Irih; l. 5, dele Irih.
FLAME, col. 8, l. ult. add—This experiment should be cautiously performed.
FLAX-DRESSING, col. 2, l. 2. See a "Notice of a Method of Bleaching Flax in Half an Hour, without the Use of Acids or Alkalies." Anderdon's Bee, vol. x. p. 335.
FLESH, col. 2, l. 25, r. distance.
FLESH-Seed Jelly, col. 2, l. 32, for oils r. soils.
FLEETING, l. 5, r. 8947, and 519.
FLEMINGIA, in Botany, so called in juft commemoration of Dr. John Fleming, the able president of the East India company's medical board at Bengal.—Roxb. Corom. v. 3, 44.—Clafs and order, Diadelpho Decandria. Nat. Ord. Papilionaceae, Linn. Lonicerae, Jaff.
Six species are defined in Hort. Kew. all from the East Indies. F. floribar, Roxb. v. 248, and semiflora, t. 249, have handome axillary spikes of crimson flowers: floribarum, which is Hedysarum floribarum of Linnzeus, has simple leaves; all the rest are ternate.
FLETCHER, l. 2, r. 382.
FLEUR-DE-LIS. See FLOWER-DE-LUCE.
FLEUR-de-Lis, r. FLEUR-de-LiFE.
FLEUR DE LIS. See FLOWER-DE-LUCE.
FLETHER, l. 2, r. 382.
FLEUR-DE-LIS. See FLOWER-DE-LUCE.
FLEUR DE LIS. See FLOWER-DE-LUCE.
FLEUR DE LIS. See FLOWER-DE-LUCE.
FLEMINGIA, in Botany, so called in juft commemoration of Dr. John Fleming, the able president of the East India company's medical board at Bengal.—Roxb. Corom. v. 3, 44.—Clafs and order, Diadelpho Decandria. Nat. Ord. Papilionaceae, Linn. Lonicerae, Jaff.
Eff. Ch. Calyx five-cleft, inferior. Petals five, Nettary cup-shaped, bearing the flaments, with five intermediate barren filaments, opposte to the petals. Capsule wooly, with five valves, and five cells, with as many loose partitions. Seeds winged, two in each cell.
Arbor rualifera, Rumph. Amb. v. 3, 2011. t. 129, is supposed to belong to this genus.
FLOAT-STONE. See MINEROGOGY, Aldenhon.
FLOOR, in Buildings, col. 2, l. 37, for heading points r. heading joints.
FLORAL GAMES, l. 10, add—It is said that Clementina-Haera, countess of Thoulouze, published an edict that assembled all the poets of France with artificial crowns, drenched with flowers, &c. Warton's Hist. of Poetry, vol. i. p. 467.
FLORIDA, col. 2, l. 1, after Appalacchiola, add— and Pearl river, N. by 31° N. lat. and S. by Bayou Iberville, Amite river, and lakes Maurepas and Pouthchatrain; extending over 4850 square miles of surface. Soon after the incorporation of this part of W. Florida into the state of Louisiana, it was divided into the four parishes of Bata Rouge, New Feliciana, St. Helena, and St. Tammany. The rivers are, the Missisipi, the Comite, Amite, Tickfah, 3 Q Tangipoo,
The fiftyveftige well-drilled the general in deprived Militciry be a
See 19, Wilkinfon fourth
florins fdivers
gilders the worth
rent, banks
Gold
Guilder. "
FLOYD,

a town of Berkshire county, in Massachusettts, containing 92 inhabitants.

FLORIN, col. 2. l. 19, after divisions, a florin is a silver coin in Holland, Flanders, and Germany, called also "Guilder," or "Gulden." Accounts are kept in Holland in guilders or florins of 20 frances, each subdivided into 16 pences. A rix-dollar is worth 2 ½ florins, and a pound Flemish is equal to 6 guilders; hence, the rix-dollar being = 32. 4d. Flemish, the gilder is = 32. 4d. Flemish. A gold gilder, with which accounts are kept in the corn-trade, is worth 28 florins. Among the coins are stamped gold guilders at 28 florins, unslamped do. at 26 florins. A gold gilder of 28 florins must weigh 407 Dutch attes, or 301 English grains. In Germany, they have gold florins, or gulden, which are chiefly current in the countries on the banks of the Rhine, passing generally for 2 rix-dollars current, and they are to contain 18½ carats of fine gold, 3½ carats of fine silver, and 1½ carats of copper. The Hanoverian gold florins contain 18½ carats of gold, 3½ carats of silver, and 1½ carats of copper. The gold florin is a gold coin in Hanover, and other parts of Germany; but the gold gilder in Holland is a silver coin. See Table of Coins under Coin and Exchange.

FLOYD, l. 4. p. 3452 and 113.

FLUATES, in Chemistry. See FLORIC Acid.

FLUGEL-MAX, in Military Language, a well-drilled intelligent folder, advanced in front of the line to give the time in the manual and platoon exercises. The term flugel is derived from the German, and signifies a wing; the man having been originally polled in the front of the right wing.

FLUIDS, Animal, Chemical Properties of. The blood is the general source of all other animal fluids, most of which, more or less, resemble it in their properties. The operation by which other fluids are formed from the blood is termed secretion. See Blood and Secretion.

Berzelius divides secreted fluids into two classes; namely, the secretions properly so called, or the fluids intended to fulfil some exterior purpose in the animal economy; and the excretions, which are directly discharged from the body. The fluids of the former class, according to this distinguished chemist, are all alkaline; of the latter, all acid. The excretions are, the urine, the perspirable fluid, and the milk; all the other fluids appear to belong to the former class. The alkaline secreted fluids may be divided into two very distinct species. The former of these contains the fame quantity of water as the blood, so that the charge induced by the nervous influence seems to be confined to that of altering the chemical form of the albuminous materials, without affecting their relative proportions to the water and other substances dissolved in the blood. The bile, spermatic fluid, &c. are of this kind. The latter species consists of fluids, in which the influence of the nervous system has separated a large por-

The above are the results of Dr. Bolck's experiments, with the exception of the fluid from a blister marked *, which is taken from Margueron.

With respect to the nature of the incoagulable matter and salts, they are the same as those constantly found in the serum of the blood; we refer our readers therefore to the chart on this subject under the article Blood.

FLUORIC Acid. FLUORIC Acid. Since this article was written for the Cyclopædia, many important additions have been made to our knowledge respecting fluoric acid, which defer to be mentioned here.

Pure fluoric acid, according to Gay Lussac and Thénard, may be obtained by distilling together in lead vessels a mixture of one part of white fluor spar in a flake of powder, and two parts of concentrated sulphuric acid. The lead receivers must be kept as cool as possible by a mixture of common salt and snow or ice.

FLUORIC Acid thus obtained is, at 32°, a colourless liquid, like water. It remains a fluid between 4° and 66°. Its boiling point has not been determined, but it is low. When exposed to the air it smokes violently, giving out a smell similar to that of acetic acid, but much stronger. It is very speedily diffused in the open air, and can only be preferred in metallic vessels. Those best adapted for the purpose are made of pure silver, with air-tight silver stoppers. This acid, according to Davy's experiments, when as concentrated as possible,
possible, contains no water. In this flate, its specific gravity is 1.2699. When united to a certain portion of water, its specific gravity becomes as high as 1.250. When a drop is let fall into water, a hissing noise is heard, similar to that occasioned by a hot iron. When a few drops of water are let fall into fluoric acid, it enters into ebullition. A large proportion of water may be added without destroying its fuming property. Care must be taken not to breathe the fumes of this acid, as they are very deleterious. When a drop of it falls upon the skin, it acts as a powerful corrosive, and occasions a sore which does not soon heal.

Refecting the nature of this acid, the opinion of the older chemists, and even of Gay Lussac and Thenard, was, that it is composed of an unknown base and oxygen. M. Ampere, however, started the notion that it is analogous to muriatic acid, or a compound of hydrogen, and a supporter of combustion, to which the name of fluorine has been given; and this opinion has been since supported by Sir H. Davy, and though its truth has not been absolutely demonstrated, yet upon the whole perhaps it is the most probable. On this supposition, fluoric acid is a compound of one atom fluorine, and one atom hydrogen. See Simple Bodies.

Fluoric acid combines with all the bases forming fluoates.

Fluate of Ammonia.—This salt may be formed by saturating pure fluoric acid with ammonia. It is neutral when first formed, but becomes acid when evaporated. It does not crystalize, but when heated, flies off in thick white vapours.

Fluate of Potash.—This salt may be formed in the same manner as the last. It has a very sharp taste, crystallizes with difficulty, is very deliquescent, and of course soluble in water. When heated, it undergoes first the aqueous, and afterwards the igneous fusion. Sulphuric acid decomposes it, driving off fluoric acid in vapour.

Fluate of Soda.—This salt may be formed as above. It has much less taste than fluate of potash. It is not altered by exposure to the air, and is rather more soluble in hot than in cold water. On cooling, therefore, it separates in small crystals, or more frequently in the form of a solid and transparent crust on the surface of the water.

Fluate of Lime.—This salt exists abundantly native. It is called Fluor spar (which see), and is the fusible substance from which this acid is always obtained. It is composed, according to Davy’s analysis, of

Fluorine - 20 - 100.
Calcium - 26.25 - 131.25.

Fluate of Borate.—This salt is taletels, insoluble in water, but soluble in excess of fluoric acid, and likewise in nitric and muriatic acid. It is composed of

Fluorine - 20 - 100.
Barium - 87.5 - 437.5.

Fluate of Strontian.—This salt possesses the same properties as fluate of barytes.

Fluate of Magnesia.—This is a taletels powder, insoluble in water, and scarcely soluble in acids.

Fluate of Titania, Fluate of Alumina, and Fluate of Zirconia, are likewise white insoluble powders. The

Fluate of Glaucia is soluble in hot water, and precipitates in small crystals as the water cools.

It is extremely probable, as Dr. Thomson remarks, that the above salts are in reality fluorides, or compounds of fluorine, with the metallic bases of the earths.

The metallic fluates are not upon the whole an interfering class of bodies. The fluates of iron, manganese, zinc, and tin, are white insoluble powders. The fluate of cobalt is of a red colour. The fluate of lead exists in the form of brilliant plates. The fluate of copper, of small blue-coloured soluble crystals. The fluate of mercury of small lamellar yellow crystals. The fluate of silver is very soluble in water, and does not crystallize. It cannot be formed by the direct union of fluoric acid and silver, but it is formed when fluate of mercury is made to act upon silver.

Fluoboric Acid.—Fluorine has the property of combining with boron, and forming an acid which has received the above appellation. It may be formed by mixing together in a retort one part of finely pounded fused boracic acid, and two parts of fluor spar in powder, and twelve parts of sulphuric acid. The heat of a lamp is then to be applied, and the acid comes over in the form of a gas, which must be received over mercury. For this procés we are indebted to Dr. John Davy, but the acid itself was first discovered by Gay Lussac and Thenard in 1808.

Fluoboric acid thus obtained is colourless, and possesses the mechanical properties of common air. Its smell is similar to that of muriatic acid, and its taste is exceedingly acid. It instantaneously gives a red colour to vegetable blues. Its specific gravity, as determined by Dr. Davy, is 2.3709. Water absorbs about 700 times its bulk of this gas, and becomes slightly viscid, like sulphuric acid, and like it requires a high temperature to make it boil. It also changes animal and vegetable substances, and is capable of forming an ether when distilled with alcohol. It combines with the different bases, and forms a class of salts called fluoroborates, which have been little examined. On the supposition that it is a compound of fluorine and boron, which seems to be the most probable opinion, its composition will be

| Fluorine | 20 | 100 | 228.57 |
| Boron | 8.75 | 43.75 | 100. |

Fluosilicic Acid.—Fluorine has also the property of combining with silicon, and forming a powerful acid. This compound was first discovered by Scheele, but it is to Dr. J. Davy that we are principally indebted for the correct account of its properties. It may be formed by putting a mixture of equal parts of pounded fluor spar and glafla into a retort, and pouring over the mixture sulphuric acid sufficient to convert the whole into a paste. Heat is then to be applied, and the acid speedily comes over in the form of a gas, and may be collected over mercury. Fluosilicic acid gas is colourless, and possesses the mechanical properties of common air. Its smell resembles that of muriatic acid. It smokes when allowed to escape into the atmosphere. It instantly reddens vegetable blues. Its specific gravity, according to Dr. Davy, is 3.5735. Water absorbs about 263 times its bulk of it, but at the same time it is partly decomposed, and silica is deposited. When passed through liquid ammonia, the whole of the silicil is deposited in the form of silica: this enabled Dr. Davy to effect its analysis, the result of which appears to shew that it is a compound of one atom silicil and one atom fluorine.

The fluosilicates have not been much examined. The fluosilicate of lime exists abundantly native, and has not hitherto been distinguished from fluor spar. It may, however, be readily recognised by fheating it in metallic vellums with sulphuric acid, when it yields fluosilicic acid gas, while fluor spar does not.

FLORINE. See Fluoric Acid.

FLUROSILIC ACID, FLUOSILICATES. See Fluoric Acid.

FLUTE TRAVERSIERE. See Traversiere.

FLUVANNA, l. 5, r. 4775, of whom 2142 are slaves.

FOAL-BIRTH. See Age of the Horses, and Horse.

FOLKINGHAM, or FALKINGHAM, l. 5 and 6, r. 106 houses, and 659 inhabitants.
FOUN

FOLKSTONE. l. 15. In 1811 this town contained 765 houses, and 3697 persons; viz. 1673 males, and 2024 females; 23 families being employed in agriculture, and 157 in trade and manufactures.

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FOOD, col. 9, l. 1, for animal r. gramineal or gramineous.

FORCE, col. 28, dele the paragraph from l. 3 to l. 6. Col. 38, under Force, l. 1, infrer—6; l. 2, .69. Under Continuation, l. 4, r. 1; under Day's work, l. 4, r. 2. Col. 39, under Performance of Men by Machines,—Continuance, l. 1, 145°; l. 2, 2'. Col. 41, under Work of Metals, l. 1, r.

Cazand: l. 23, r. 72 horses, and burns a chaldron, &c.

FORCEPS, col. 2, l. 30 from bottom, r. Rueff; l. 19, r. Mauriceu Pratique.

FORDINGBRIDGE, l. 11, r. 1811; l. 12, r. 445—

2259: l. 13, r. 281.

FORDOUN. In 1811 this parish contained 513 houses, and 2535 persons; viz. 1197 males, and 1338 females.

FORDYCE, a parish of Banff county, in Scotland, containing 611 houses, and 2767 inhabitants.

FORFAR, l. 21, r. 1811; l. 22, r. 759—5652.

FORFARSHIRE. Add—By the return of 1811, this county had 16,135 houses, occupied by 107,264 persons; 48,151 being males, and 59,113 females; 4980 families employed in agriculture, and 13,616 in trade and manufactures.

FORFICULA, col. 2, under Auricularia, add—The popular dread in which this insect is held, from an apprehension of its entering the cavity of the ear, and piercing the tympanum, is now generally considered as an ancient and vulgar error.

FORMIC Acid, in Chemistry. The distinct nature of this acid appears now to be generally admitted by chemists. In its sensible properties, it approaches the acetic acid. But Sucreus has shown, that it has the property of neutralizing much leas of alkaline bodies than acetic acid. Gehlen also has shown, that the formates of soda and copper, differ altogether from the acetates of the same bases. Berzelius has lately analysed this acid with his usual precision; according to him, it is composed of

Hydrogen 2.84%, which nearly cor—

| 1 atom hydrogen. |

Carbon 30.24%, with

2 atoms carbon. |

Oxygen 67.92%, with

3 atoms oxygen. |

Hence it appears to resemble oxalic acid closely in its composition.

FORRES, l. 4, after Moray, add—or Elgin; l. 12, r. 1811—672; l. 13, r. 2925, and 295 families, &c.

FORTH, col. 2, l. 7, for Camburkenneth, r. Cambuskenneth.

FORTIFICATION, col. 7, l. 4 from bottom, for Four r. Your. FORTIFICATION, Profile of a, l. 14, for 3 toises 18 feet r. 3 toises or 18 feet.

FOSSE, col. 2, l. 44, for thus r. then.

FOSSIL COPAL. Sec Mineralogy, Addenda.

FOSTER, l. 2, r. 2613.

FOtheringhay, l. 28, r. 1587. Col. 2, l. 15 and 16, r. and the whole parish contains 55 houses, and 313 persons.

FOUNDRY—The manner of casting bells, col. 2, l. 6, for . . . r. . . .

FOURTH, col. 2, l. 3, r. FOURTH, Great Sharp.

FOURTH, Great Sharp, r. Great.

FOWEY, col. 2, l. 20 from bottom, r. 1811; after houses—in the borough and parish was 227, containing 1319 inhabitants.

FOWLER, a township of Trumbull county, in Ohio, having 224 inhabitants.

FOX, GEORGE, col. 2, l. 25, r. led people.

FOXBOURGH, l. 4, r. 870.

FOYERS, l. 9, r. molly; l. 11, r. breach; l. 15, r. allotted rents; l. 16, r. ceafeles; l. 17, after wide, infert —a comma.

FRAGUER, col. 2, l. 31, after farther on." FRAISED RAILS, l. 12, for rails r. polis; and in l. 11, for rails r. fraises.

FRAMINGHAM, l. 3, r. 1670.

FRANCE, col. 26, l. 16, add—See French Revolution. Col. 33, l. 5, for fluds r. fluds.

FRANCETOWN, l. 5, r. 1810 and 1451.

FRANCO, col. 5, l. 11 from bottom. N. B. the tails should not have been black.

FRANCONIA, in America, l. 4, r. 358. Add—Alfo, a township of Montgomery county, in Pennsylvania, having 656 inhabitants.

FRANKFORT, l. 3, r. 1493; l. 4, for village r. borough. Col. 2, l. 1, infrer—1253 inhabitants; add—Alfo, a town of Suffolk, in New Jersey, containing 1677 inhabitants. Alfo, a town of Cumberland county, in Pennsylvania, having 807 inhabitants.

FRANKLIN. Add—The following is an authentic copy of Franklin's epitaph, transcribed from his correspondence, in his own hand-writing. "The body of B. Franklin, like the cover of an old book, its contents torn out, and stripped of its lettering and gilding, lies here, food for worms. But the work shall not be wholly lost; for it will, as he believed, appear once more in a new and more perfect (elegant) copy, corrected and amended (refined and corrected, P. C.) by the Author. He was born, Jan. 6, (Jan. 17, original,) 1706. Died 1787.

FRANKLIN, in Geography, l. 3, r. 19; l. 4, r. 16,427; l. 14, r. 23,683; l. 16, containing 159 inhabitants; l. 20, r. containing 5720 inhabitants, of whom 709 are slaves; l. 24, r. 6914; l. 25, r. 1792; l. 26, after Franklin, containing 1699 persons, of whom 407 are slaves; l. 27, r. 16,166—5356; l. 41, r. 10,985—16561, 43; l. 1398; l. 54, r. with 1542 inhabitants; l. 55, for three r. live; after York county, having 7006 inhabitants, in Huntingdon county, with 571, in Franklin county; with 1781, in Fayette county; with 1623, in Greene county, with 1943 inhabitants; l. 58, r. 1161; l. alt. after Ohio, add—with eight townships, and 3484 inhabitants. Alfo, a township of Portage county, in Ohio, having 230 inhabitants. Alfo, a township of Rofs county, in Ohio, having 755 persons. Alfo, a township of Ohio, in Scioto county, having 217 persons. Alfo, a township of Warren county, in Ohio, having 2392 persons. Alfo, a county of New York, containing 2017 inhabitants. Alfo, a town of Somerset county, in New Jersey, containing 2390 inhabitants. Alfo, a town of Bergen county, in New Jersey, having 2839 inhabitants. Alfo, a county of the territory of Missippi, containing 2016 inhabitants, of whom 735 are slaves.

FRANKS, l. 3, r. 114.

FREDERICK, l. col. 2, l. 14, after Urban III. infrer—claim of.

FREDERICK, l. 12, r. 34,437; l. 13, r. 3471. Col. 2, l. 2, r. 25,574 inhabitants, of whom 6117 are slaves.

FREDERICK, a township of Montgomery county, in Pennsylvania, having 828 inhabitants.

FREEHOLD, l. 4, r. 1810—4784; l. 7, r. 1810—3845.

FREEMAN,
FUN

Freeman, a township of Maine, in Somerset county, having 237 inhabitants.

FREEPORT, l. 5, r. 2184.

FREEZING, l. 15; r. 19.

French Creek, in Geography, a township of Mercer county, in Pennsylvania, having 183 inhabitants.

FRICTION, Calculation of the Quantity of, col. 2, l. 22, r. a third part of its own weight.

FRIENDSHIP, in Geography, a town of Maine, in the county of Lincoln, having 480 inhabitants.

Frodsham, l. 11 from the bottom, r. 1811; l. 10, r. 262, and 1344.

Frome, l. 17 from the bottom, r. 1811—1722; l. 16, r. 9493, and del. But this estimate is glaringly defective.

FRUIT-FLIES, col. 2, l. 14, r. these finals.

FRUIT-STONES, l. 5 from the bottom, for cuts r. coats; l. ult. r. these seeds, &c. were carried off.

Fryburg, l. 2, for York r. Oxford; l. 4, r. 1004.

Fungi, Chemical Properties of the. Braconnot has lately detected three different new principles in this class of plants. Two of these are acids, one of which he has denominated boletic acid, the other fungie acid; the third is a principle neither acid nor alkaline, to which he has given the name of fungin. We shall briefly describe here the leading properties of each of these principles.

Boletic Acid.—This was obtained from the juice of the boletus pseudio-ignarius. Its colour is white; it is not altered by exposure to the air, and its crystals are irregular four-sided prisms. Its taste is similar to that of tartar. It is soluble in 180 times its weight of water at a temperature of 68°, and in 45 times its weight of alcohol. The aqueous solution reddens vegetable blues. It combines with the different bases forming boletates, which have been but little examined. The boletate of ammonia crystallizes in flat four-sided prisms, and is soluble in 26 times its weight of water at 68°. The boletate of potash is very soluble in water, and crystallizes with difficulty. The boletate of lime crystallizes in flat four-sided prisms, and is soluble in about 110 times its weight of water at 72°. No one hitherto appears to have repeated the experiments of Braconnot on this acid.

Fungie Acid.—This was extracted from the boletus juglandis, and other fungi. This acid is colourless, does not crystallize, has a very thick taste, and when evaporated to dryness, deliquesces on exposure to the air. The fungate of potash and soda do not crystallize, are very soluble in water, but not in alcohol. The fungate of ammonia crystallizes in regular four-sided prisms. The fungate of lime is not altered by exposure to the air, and is soluble in about 18 times its weight of water at 73°.

Fungin.—This substance approaches woody fibre in its properties, but seems to be sufficiently distinguished from it by various characters, particularly by constituting a nourishing article of food, and by being less soluble in alkaline leys.

Fungus of the Anturum, l. 13, for he r. the.


Eff. Ch. Petals fix, superior, spreading. Filaments shorter than the corolla, obvolute in their lower part. Style triangular, thickened at the base.

F. gigantea, De C. Pl. grafs. (Agave fertilis, Linn.) and F. tuberosa, (A. tuberosa, Willd. Sp. Pl. v. 2. 194.) are the only species.

Furies, col. 3, l. 22, r. those serpents.

Furr, in Heraldry, the 4th paragraph, r. Furrs either conflit of one colour (which is white, but cannot be used in arms fincly), or more than one; and these either two, or more than two.

Furrings, in Architecture. Add.—Joists are furred, by which operation the uneven joists of an old floor are levelled for the reception of the flooring boards.

Furze, col. 4, l. 18, for l. 16. r. 31. 121, the furze being cut only every other year.

Furze-Mill, col. 2, l. 20, for melted cake r. melted coke.

Fusion, col. 2, l. 20 from the bottom, dele all and except gold.

G.

1. 21, after sing, &c. add—It has been affected, however, by an ingenious correspondent, that he finds this so far from the fact, that G hard is easily founded with any of the vowels, either before or after it, whilst the tongue is probably kept at the bottom of the mouth; nor does he believe that the preasure here described is at any time neceffary for the pronunciation of this letter. It does indeed take place in two of the three examples here given, viz. gate, go, and gild; but it is for the formation of the letters t and l. This preasure takes place also with the G soft.

Gadus. Obs. Some species, viz. Molva, Albida, Taun, Lota, Mulca, Tricirratus, and Cimbrus, all bearded, are arranged in the same division, the character of which is without boards.

Gage, in Carpenter, l. 9, for a staff r. the flick; for to strike r. or strike; l. 10, for staff r. fluff; l. 11, for it r. the tooth.

Gainborough, l. 9 from bottom, for quadrangular r. quadrangle.

Galangal, l. 3, add—See Alpinia, Adlenda.

Galapagos, col. 1, l. 5 from bottom, for 68° r. 86° or 89°; dele the paragraph.

Galardia, in Botany, Lamarck Dict. v. 2. 590. Illutr.
GAL

L'Herit. Monogr.) - Cliffs and order, Syngenusa Polyg.-

Eff. Ch. Recept. hemispherical, chaffy. Seed-down of many
chaffy scales. Calyx imbricated, many-leaved, flat.
Radiant flowers deeply three-cleft.

Sm. Exot. Bot. v. 1. 71. 1. 3.) - Scales branched. Leaves
 lanceolate. Scales of the seed-down awned, entire.-Found
in dry landy soil, from Canada to Florida. Annual.

FLOWERS handsome, orange, variegated with red and purple.

We have already announced this genus under the VIRGILIA
now classified. There are two more species, G. minimaria
and ariflata, from N. America.

GALEOPTHETUS, CUTILGO, in Zoology, a genus of
the order Primates, the characters of which are, that it
has no front teeth in the upper jaw; that those in the lower
are six, short, broad, dilated, and perforated; that the
canine teeth are very short, triangular, broad, sharp, and
ferrated; that the grinders are four, truncated and muriated
with conical protuberances; and that it has a flying-kin
surrounding the body, limbs, and tail. For the description
of this genus with appropriate figures, naturalists are
indebted to Dr. Pallas; and it may be found in the Trans-
actions of the Academy of Philadelphia for the year 1788.
The galeopithicus volans, or flying colugo, is the lemur
volans of the Linnean system, and the flying macaco of
Pomian's quadrupeds. It is a native of the Molucca and
Philippine islands, where it feeds principally on fruits, and
almost constantly resides on trees. It has two young ones,
which are said to adhere to its breasts by the mouth and claws.
Its whole length is about three feet, and of the fame breadth
when expanded; the tail is slender, and about a span long.
Its expandile skin, which enables it to fly, is continued on each
side from the neck to the back-foot; thence to the hind-foot,
and again to the tip of the tail. It is covered with fur, like
the body of the animal; the upper side of which is generally
of a deep ash colour; the back, in animals that are full
grown, is crossed transversely with blackish lines, having
towards the edges a tinge of yellow; and the whole under-
side, both of the body and membrane, is of a yellowish colour.
The head is long, the mouth small, and the tongue fleshy,
broad, rounded, and ciliated on each side, and with papilae,
and also slightly bevel with papilae on its surface.

The legs are clothed with a soft yellow down, and on each
foot are five toes, united by a common membrane, and
terminating in very sharp crooked claws. The animal is
called by the Indians caguan, colugo, and gigua. It is
a gregarious animal, flies chiefly in the evening, and its
body is said to be about the size of a cat. M. Geoffroy says
there are two varieties; one of the colour usually
described; the other of a fine cinereous or ferruginous colour,
vivid on the back and paler beneath, and without any
variegations. It is suggested, that these may be merely
sexual differences. Dr. Shaw has availed himself of Pallas's
description and figure in the first vol. of his Zoology, to
which we refer.

GALINSOGEA, in Botany, after the superintendent
of the Madrid garden. " Ruiz and Pav. Prod. 110."
Ait. Hort. Kew. v. 5. 122.-Cliffs and order, Syngenusa

Eff. Ch. Recept. chaffy. Seed of many chaffy
scales. Calyx imbricated.


GAR

2. G. trilobata, ib. t. 282. - Both natives of South
America.

GALLIUM, col. 2. l. 54, for dried r. fresh.
GALLATIN, l. 2. r. 3559, and 664.
GALLIC Acid, in Chemistry. This acid has been
recently analyzed by Berzelius. He found it composed of
Hydrogen - - 5.90
Carbon - - 56.64
Oxygen - - 38.36

According to which analysis, the constitution of gallic
acid is as follows:

3 atoms hydrogen - - 3.75
6 atoms carbon - - 45.
3 atoms oxygen - - 30.

and the weight of its atom will be 78.75

Gallic acid has been found in the following plants, in the
different proportions stated.

Elm - - 7 Sallow - - 8
Oak, cut in winter 8 Mountain-ash - - 8
Horfe-cheefnut - 6 Poplar - - 8
Beech - - 7 Hazel - - 9
Willow (boughs) - 8 Ald - - 10
Elder - - 4 Spanish chestnut - - 10
Plum-tree - - 8 Smooth oak - - 10
Willow (trunk) - 9 Oak, cut in spring 10
Sycamore - - 6 Huntingdon or 10
Birch - - 4 Leicelpher willow 10
Cherry-tree - - 8 Sumach - - 14

GALLICIA, New, l. 3, r. Zacatecas.
GALLIPOLIS, a township of Ohio, in the county of
Galla, containing 448 inhabitants.

GALVANISM, col. 3. l. 25, after inch, inch—a part.
GALVANISM, Medical. See VOLTAISM, and particu-
larily Electricity, Medical.

GALVANOMETER, an apparatus constructed by
Mr. Pepsy, by an alteration in Bell's electrometer,
adapted for measuring very minute quantities of electricity,
and which perhaps could not be rendered reusable by any
other means. This apparatus consists of a glass cylinder,
covered with a lid, which is composed of two circular
plates of brass, attached to a cork that fits into the cylinder.
When the lid is fixed a thin slip of silver, the end of which
hangs down in the body of the cylinder, and has a pair of
gold leaves attached to it; and the whole is so contrived as
to be capable of being moved nearer to, or farther from,
the piece of zinc which stands up from the bottom of the
cylinder. The pieces of zinc are so contrived, that the
parts of them which project upwards from the bottom of the
cylinder may be fixed at different distances from each
other by means of a slide and screw. See a description and
figure of this instrument in Biot's "History of Gal-
vani." 8vo. 1819.

GAMING, col. 3. l. 30, r. 8 Geo. I.
GARDENING, l. 177, r. London.
GARDINER. Add.—containing 1029 persons.
GARDNER, l. 3, r. 815.

GARGLE, a disease of horned cattle, which consists of
an external hard swelling in the dewlap, which afterwards
spreads to the breast and throat. For the cure, profuse
bleeding is recommended; and then an opening is to be
made in the dewlap at the seat of the swelling, into which are
are introduced the leaves of bear's-foot pounded: the opening is then few with two or three stiches, and thus will be produced a running which will cure the diseahe; or a common rowel will answer the purpose.

GARRARD. Add—It contains 8926 inhabitants, of whom, in 1810, 2000 were slaves.

GARUGA, l. 3. r. 178 and 790.

GARUGA, in Botany, a very barbarous Indian name.

—Roxb. Corom. v. 3. 5. Ait. Hort. Kew. v. 3. 37—


Eff. Ch. Calyx bell-shaped, five-cleft, bearing the filaments and the five equal petals. Stigma five-lobed. Drupa with several nuts.


GAS, col. 2, l. 25, after atmosphere, add — will be found under Air, Atmosphere, &c.; delineated under the head of Pneumatics.

GAS, in Chemistry. Great revolutions have taken place in the chemistry of the gases since this article was written for the Cyclopedia. Not only have their number been increased, but the laws of their combination, expansion by heat, &c. have been further investigated, and in many instances found very different from those flated under the above article. Several of these particulars have been already given under the article Atomic Theory, a few others remain to be mentioned here. The following table from Dr. Thomson includes the gases at present known.


d. Chlorine, hydrogen, and cyanogen with a base. Fluoric acid, chloroacetyc acid, hydrocyanic acid, chlorocarbonic acid.

e. Two solid bases. Sulphuret of carbon.

f. Triple or quadruple compounds. Hydriodic ether, chloric ether, sulphuret ether, muriatic ether, alcohol, oil of turpentine.

Combination of Gases with one another. — The important law first observed by Gay Lussac respecting the combination of gaseous bodies, and alluded to in our original article, is now, we believe, nearly universally admitted. This law is, that gaseous bodies always unite with reference to their volumes; that is to say, that either equal volumes of different gases combine together, or one volume of the one, with two, three, or more of the other, and not with any intermediate proportion; and further, that when a gaseous result is obtained by such union, the volume of this is either equal to the united volumes of the two gases, or to half, one-fourth, or some other submultiple of the original volumes.

The combinations of gases with one another have been arranged by Dr. Thomson under the following heads.

1. Gases that unite by mere mixture, such as: Oxygen with nitrous gas, forming nitrous or nitric acid. Ammonia with vapour, forming liquid ammonia— with muriatic acid, forming muriate of ammonia— with fluoric acid, forming fluoborate of ammonia— with fluofuscic acid, forming fluofuscate of ammonia— with carbonic acid, forming carbonate of ammonia— with sulphureous acid, forming sulphilte of ammonia— with sulphuretted hydrogen, forming hydrofulphuret of ammonia.

2. Gases that may be mixed without any flaring combination, though they are capable of uniting in certain circumstances, such as: Oxygen with hydrogen, forming water— with carbonic oxyd, forming carbonic acid— with azote, forming nitric acid— with chlorine, forming chloric acid— with sulphureous acid, forming sulphureous acid— with nitrous oxyd, forming nitric acid. Hydrogen with chlorine, forming muriatic acid— with iodine, forming hydroiodic acid— with cyanogen, forming hydrocyanic acid. Chlorine with carbonic oxyd, forming chloro-carbonic acid.

3. Gases which mutually decompose each other when mixed together, such as: Oxygen with sulphuretted hydrogen. Chlorine with ammonia— with sulphuretted hydrogen— with carburetted hydrogen— with olefiant gas— with sulphuretted hydrogen— with nitrous gas. Sulphuretted hydrogen with nitrous gas—with sulphureous acid.

4. Gases which mix without spontaneous decomposition, but which may be made to decompose each other in particular circumstances, as on the approach of an ignited body, when electric explostions are passed through them, &c. These are more numerous than the preceding, and are as follow: Oxygen with sulphuretted hydrogen— with carburetted hydrogen— olefiant gas— vapour of ether— vapour of alcohol. Nitrous oxyd with hydrogen— with sulphuretted hydrogen— with carburetted hydrogen— with carbonic oxyd— carburetted hydrogen— olefiant gas— vapour of ether— vapour of alcohol— sulphureous acid. Nitric acid with hydrogen, and probably all the preceding combustible gases and vapours— with sulphureous acid. Nitrous gas with hydrogen— with sulphureous acid. Hydrogen with sulphureous acid— with carbonic acid. Vapour of water with carburetted hydrogen— with olefiant gas.

Combination of Gases with Liquids. Gases may be considered with reference to their combination with water and other fluids. With respect to water, by far the most important of all fluids, gases may be divided into two classes; those that are absorbed in a small proportion, and those that are absorbed in a great. Almost all gases belong to the first class. In the following list of this class, the gases are arranged in the order of their absorption, beginning with the least absorbable: azotic gas— hydrogen gas— arlenical hydrogen— carburetted hydrogen— carbonic oxyd— pholphuretted hydrogen— oxygen gas— nitrous gas— olefiant gas— carbone deoxyd— sulphuretted hydrogen.

The following laws seem to be pretty well established respecting the absorption of gases by water.

1. When the pressure, temperature, and purity of the water, are the same, water absorbs a determinate quantity of every individual gas.

2. Water
GAS

2. Water of the same temperature always takes up the same bulk of each gas, whatever be its density.

3. The proportion of any gas absorbed by water depends greatly upon the nature of the gaseous residue.

4. The proportion of gases absorbed by water is considerably influenced by the temperature.

All the very absorbable gases belong to the classes of supporters, acids, or alkalis. The following is a list of such of them that have been hitherto examined, arranged in the order of their absorbability. Chlorine, cyanogen, sulphureous acid, fluoric acid, muriatic acid, fluoric acid, ammoniacal gas.

When water is saturated with the above gases its bulk is augmented. Thus one cubic inch of water saturated with Cubic Inches.

<table>
<thead>
<tr>
<th>Gas</th>
<th>Absorbed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>1.002 +</td>
</tr>
<tr>
<td>Sulphureous acid</td>
<td>1.040</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td>1.500</td>
</tr>
<tr>
<td>Ammoniacal gas</td>
<td>1.666</td>
</tr>
</tbody>
</table>

With respect to the absorption of gases by other fluids little is known. It appears, however, that in general alcohol and oils absorb a much greater proportion of gases than water.

Our limits will not permit us to enter upon this subject so much as its importance demands, we must therefore content ourselves with submitting our readers with the following table of the proportions of different gases absorbed by water, according to the best experiments.

**Table I.** — Gases combining with Water in Small Proportion.

<table>
<thead>
<tr>
<th>Gas</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuretted hydrogen</td>
<td>1.25</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>1.08</td>
</tr>
<tr>
<td>Nitrous oxyd</td>
<td>0.86</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>1.00</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>0.86</td>
</tr>
<tr>
<td>Oxygen gas</td>
<td>0.86</td>
</tr>
<tr>
<td>Phosphuretted hydrogen</td>
<td>0.86</td>
</tr>
<tr>
<td>Carburetted hydrogen</td>
<td>0.86</td>
</tr>
<tr>
<td>Azotic gas</td>
<td>1.53</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>1.56</td>
</tr>
<tr>
<td>Carbonic oxygen</td>
<td>1.56</td>
</tr>
</tbody>
</table>

**Table II.** — Gases combining with Water in large Proportion.

<table>
<thead>
<tr>
<th>Gas</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>1.002</td>
</tr>
<tr>
<td>Cyanogen</td>
<td>1.002</td>
</tr>
<tr>
<td>Sulphureous acid</td>
<td>1.002</td>
</tr>
<tr>
<td>Fluoric acid</td>
<td>1.002</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td>1.002</td>
</tr>
<tr>
<td>Fluoroboric acid</td>
<td>1.002</td>
</tr>
<tr>
<td>Ammoniacal gas</td>
<td>1.002</td>
</tr>
</tbody>
</table>

**GASOMETER.** See Laboratory.

**GASTRIC JUICE.** See Digestion.

**GASTROLOBIUM,** in Botany, Br. in Ait. Hort. Kew. v. 3. 16, a papilionaceous genus, with ten separate flowers, named from the tumid, or bell-like shape. We have had no opportunity of examining it.

**GATES,** l. 4. r. 5965 and 2790.

**GATTON,** l. 3, for 112 r. 99.

GEO


G. rigens, (Gorteria rigens; Linn. Sp. Pl. 1284; Curt. Mag. t. 90.); G. pavonia, (Gorteria pavonia; Andr. Repof. t. 522); and G. fabulata, Br. are the only species; all natives of the Cape of Good Hope. See Gorteria.

GEAUGA, in Geography, a county of Ohio, containing 8 towns, and 2917 inhabitants.

GEDDINGTON, l. dite. This parish consists of 141 houses—r. 651.

GELATINE, in Chemistry. This animal principle has been lately analysed by Gay Lussac and Thenard, according to whom it consists of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>79.14</td>
</tr>
<tr>
<td>Carbon</td>
<td>47.88</td>
</tr>
<tr>
<td>Oxygen</td>
<td>27.207</td>
</tr>
<tr>
<td>Azote</td>
<td>16.998</td>
</tr>
</tbody>
</table>

100.

Gelatine does not exist in the blood, nor in any known animal fluid ready formed, but appears to be produced by the action of boiling. See Blood.


Eff. Ch. Male, Calyx of five leaves. Cor. none. Stam. twelve or more. Female, Cal. and Cor. like the male. Styles none. Stigmas three, jagged. Capule of three cells, three valves, with three seeds.


2. G. lanceolatum. Willd. n. 2.—Leaves obovate-lanceolate, obtuse.—Depart Indian trees, with alternate leaves, the tubular fipula of a Ficus, and axillary flowers.

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GENESEE, l. 5. r. 1810, and 12,588 persons.


GENEVIEVE, l. 7. add—and district. In 1810, it contained 4620 inhabitants, of whom 988 were slaves. This town is famous for its lead-mines, which occupy an extent of country, commencing about 30 miles W. of the Mississipi, and extending W. and N.W. It was the discovery of these lead-mines that gave rise to the famous Mississipi scheme, projected by Law in 1719, which ruined hundreds of families in France, as they were then supposed to be a silver-mines; and though the bubble burst immediately, yet Du Pratz, who wrote thirty-nine years afterwards, perished in the error, and speaks of a silver-mines on the Maremis in his account of Louisiana. The Maremis is now called the Muraraahl, on a branch of which, called the Negro-Fork, the mines of St. Genevieve are situated. These mines have been worked since about the year 1725, and they belong to a number of proprietors mostly held by grants from the Spanish governors, formerly residing about St. Louis. Bradford's Travels, &c.

GEOHORUM, in Botany, from γεω, the earth, and διάφορα, a gift, because, contrary to the nature of most of its nearest allies, this genus grows on the ground, not on trees.—Jacklin in Andr. Repof. 626. Br. in Ait. Hort. Kew. v. 5. 207—Clafs and order, Gynandria Monandria. Nat. Ord. Orchidae.

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GEOLGY.

This, we believe, is now admitted by all those who have had the most extensive range of observation.

The secondary strata are local formations, and some of the upper strata were evidently formed in detached lakes or inland seas. A still more comprehensive view will prove that even all the stratified rocks above the red sandstone and alpine lime-stone are also local formations, which had their origin in detached hollows or seas of great extent, but which were limited to certain portions of the globe. The observation of travellers in different parts of the world incontrovertibly proves that these formations are local. I am even inclined to consider the red sandstone and alpine lime-stone as local formations, but of greater extent than any of the strata above them. If this view of the subject were admitted, geologists would be relieved from the great difficulties under which the science labours at present, and it would go far to establish a simple and perspicuous system, which will at once account both for the similarity and diversity of rock formations in various parts of the world. If the mountains were once much higher than at present, it must be admitted, that before the formation of the secondary strata the valleys and hollows were deeper in a far greater proportion, because to the height of the surrounding mountains we must add the whole depth of the secondary strata which were then wanting. By whatever process the secondary strata were formed, the existence of organic remains in them incontrovertibly proves that they were deposited in succussion, and the regular manner in which they are spread over each other further proves that the greatest part of them were deposited in a fluid medium. As there are incontrovertible proofs that water once covered nearly all the existing continents, it follows, that when the ocean retired, or, which is the same thing in effect, when the dry land emerged from the sea, vast inland lakes or seas would be left at the bottom, of which the secondary strata were formed. As the sea retired farther, the higher grounds being left dry, these inland seas or lakes would become contracted, and a number of smaller lakes would occupy the lowest cavities and depressions, in each of which separate depositions of strata might take place. The lower strata would be the most widely spread, and the upper would constitute detached or laminated formations of greater or less extent, in which there might be a great similarity in some situations, and a great diversity in others. Now fuch is found to be the fact." (Bakewell’s Introduction to Geology, 2 ed. chap. x.)

This view of the subject, we think, receives much support from the position of the mountain ranges in Europe, as may be seen in Mr. Arrowmith’s excellent map, in which the phyleis of the mountain ranges is distinctly marked. These ranges form the borders of numerous bays, which must evidently have once been the boundaries of inland seas when the ocean retired from the present continents.

Though great diversity may prevail in the succussion of the strata in different parts of the world, yet there are certain rock formations that we may regard as universal, without asserting that they were formed at the same epoch in very distant countries; for it is only where organic remains of the same species occur in rocks that we may infer that their formation was contemporaneous. In the present state of our information, we may regard granite as the lowest and most extensive rock, forming the foundation of all other rocks or strata, where we have opportunities of tracing their succussion. With granite we include gneiss, and also mica-flake, which may be regarded as granite in a schistose form, but with one or other of the ingredients nearly wanting, or occurring in a very small proportion. (See Rocks, Granite, Gneiss, and Mica-Slate.)

Clay-slate (see Slate) generally covers the granite, gneiss, or mica-flake, and may be regarded as a universal formation, or, perhaps more correctly, as a general covering of granite, gneiss, and mica-flake. The slate formation contains various anomalous beds of porphyry, compact felspar, lime-stone, hornblende, serpentine, and felspar. (See Porphyry, Felspar, &c.) No observable regularity has yet been discovered in the succussion of these latter rocks in different countries, and some of them may often be observed passing by gradation into each other. They have generally a crystalline structure in the vicinity of granite (see Rocks), and have not been observed to contain organic remains.

The beds of rock which cover slate appear, many of them, to be a coarse kind of slate, with an intermixture of quartz, or other minerals, until at last they lose the character of slate, and become sandstone. This coarse slate, in its passage from slate to sandstone, forms that kind of rock which has been denominated grey wacke or wacke. Various beds of lime-stone occur in the coarser slate. Of these, the most considerable in England is called the mountain lime-stone: it has a fuchrytalline structure; it abounds in organic remains in many parts, and contains metallic veins, principally of lead and zinc. This lime-stone lies below all the principal coal formations in England and Wales. (See Strata.) Between this lime-stone, and a dark grey compact lime-stone called lias, occur the coal strata, with the various beds of sand-stone and slate. The order of succussion of these beds is not similar in different districts. The lias stratum is the most remarkable in England, both for its regularity and extent, and the organic remains which it contains. The fame stratum occurs in Flanders. The strata above the lias are still correctly described by Mr. Farey, whose account we have given in the article STRATA. (See STRATA.) The strata above the lias occur with remarkable regularity over a great part of the eastern side of England, described by Mr. Bakewell, in his Geology, as the 'low district,' extending in a waving line from Dorsetshire to the county of Durham, and delineated in his map. These strata consist of a succussion of beds of roe-stone, or oolite, (fée Roe-stone), and coarse lime-stone, with thick beds of flint and clay, over which occurs the chert. These beds are arranged with great regularity compared with the beds that occur between the lias and the mountain lime-stone; but the order of succussion and thickness, particularly of the oolite, is variable; for in many parts, beds of vaft thickstones occur which are not found in other situations, and in some situations the oolite is entirely wanting, and the green sand, instead of covering it, rests immediately on the lias. See Mr. Bakewell’s section of the strata, Plate III. fig. 2. Geology.

A tabular arrangement of the strata of England, given by Mr. Buckland, professor of mineralogy at Oxford, has recently been published, which we shall present to our readers. At the same time we must observe, that they would be greatly mistaken were they to suppose that the whole of these rock formations had ever been observed in any one situation in England or elsewhere, or that the strata prefer the thickstones here given throughout their whole extent. There is no part of England, we believe, in which all the strata here enumerated could be found, were it possible to perforate through them. The table may be regarded as an approximation to the true order of succussion whenever several of these formations occur in the same district, and the localities annexed will make it both interesting and useful. Perfons who study nature in their closets are disposed to believe, that the thickstones of the strata
GEOLOGY.

Flratum between the chalk near London, and the granite of Devonshire, is much greater than what it really is, taking it for granted that the dip of the flratum is always regularly to the east; but this is not the case. A flratum of any considerable extent has waves and irregularities, by which it is generally spread over a large space compared with its true thickens and supposited angle of inclination. A flratum not more than seventy yards in thickens may extend in the line of its dip ten miles or more, and may appear to have a considerable dip when observed in certain situations; and were we to calculate its thickens from the extent of ground, which it covers, and from the dip, we might infer that it exceeded two thousand yards or more. More accurate observations will convince us, that the numerous fractures or bendings of the flratum in the line of their dip generally spread them over a much wider space than the angle of inclination and thickens would lead us to believe; and the comparison which has been made of sliding a number of books under each other to represent the supposited thickens of the whole flratum of England is utterly inappropriate to the cafe. In sections of particular districts, to represent the arrangement and dip of the flratum, it is impossible to delineate the irregularities and wave of the flratum on a small scale. In the section of England by Mr. Bakewell, (See Plate IIII, fig. 1.) the various flratum from the German ocean to Croydon are represented rising regularly from under each other, like a number of books in a slanting position, it being impracticable to represent on such a small scale all the irregularities of each flratum. In Plate IIII, fig. 2, the section is on a larger scale, and the thickens flratum, d, d, d, d, is represented rising from under the green sand b, b, near Bridport in Dorsetshire, and continued to the valley, M, at Axmouth; whereas had not the flratum been dislocated by a great number of fractures, as represented in the section, the flratum of d would have terminated or cropped out east of the letter L, which represents the situation of the town of Lyme. The aggregate thickens of all the beds of flratum cannot be more than two hundred yards, and the regular inclination is at least one yard in twenty, which would make the lowest bed of flratum crop out about four thousand yards, or two miles and a quarter west of its first appearance near Bridport.

Plate IIII, fig. 6. Geology, represents the waving structure of the beds of flate, provincally called shillet in Devonshire. In some situations, as near Moreton, beds of black lime-flate are interposed, and take the twilled form of the flate. Now in passing from Exeter to Dartmoor over the fractured edges of the flratum, as represented fig. 6, the traveller may cross portions of the same flratum as, a, a, a, repeatedly at a considerable distance from each other, and were he to suppose each of these portions to be a separate flratum, and to calculate accordingly, the thickens of the whole bed of flate, from the red ground on the east, to Dartmoor on the west, he would make it not less than ten miles; whereas in all probability it may not exceed three or four hundred yards. On a smaller scale, the flratum are often extended over a large space by fractures in many of the coal districts; by which a bed of coal is brought near the surface several times in the line of its dip, as represented Plate I. fig. 1. Geology, and described in the article Coal. See Coal, and Veins, Mineral.

It too frequently happens that geological observers measure nature by the standard of their own limited experience in passing through a country, and describe certain rock formations as definite of organic remains, because they have not found them in travelling through a district. The alpine part of Westmoreland and Cumberland near the lakes consists of grey wacke, clay-flate, compact felspar, porphyry, sienite, trap, chinkstone, and granite; a thin bed of flratified lime-flate is interposed, and runs through a space of fifteen miles, containing organic remains of coralloids, though the rocks which cover this lime-flate, to a great depth, and the rocks on which it rests, contain no observable vestiges of organic life. Their relative position in the valley of Long Sleddale in Westmoreland, is represented Plate IIII. fig. 5. Geology. The flate which covers the lime-flate appears to dip at an angle of seventy degrees; but on more attentive examination it will be found, that what might be mistaken for regular flratum are merely the fchistofce laminae of the flate arranged in the direction of the cleavage, the dip of the flate being in reality the same as that of the lime-flate on which it rests. Under the lime-flate occurs a bed of horn-flate, resembling compact felspar, but infusible; this is eighty yards thick, and rests on other beds of shillet, as represented Plate IIII. fig. 5. Geology. This shillet and horn-flate contain no organic remains, and appear to be connected with the granite, which makes its appearance in the adjacent valley at no great distance. The discovery of organic remains under rock formations of great extent which are definite of them is a circumstance of great interest to the geologist wherever it occurs, and proves the necessity of caution in deciding whether certain rocks were formed prior to the existence of organic beings. Baffalt or trap rocks, whose formation is not conformable with the general dip or position of the flratum, and which bear a near similarity to volcanic rocks in appearance and composition, are described under the articles TRAP, ROWLEY-RAGG, WHINSTONE, and VEINS, Mineral; and also the article BASALT, Addenda; which see. Plate IV. fig. 2. Geology, represents the arrangement of a series of columnar and amorphous beds of bafalt placed over regular flratum in an unconfomable position, and interfaced by veins or dykes of bafalt b, b, in which the structure is columnar; but the columns or bafaltic prisms in these dykes are arranged horizontally.

Fig. 4 represents a bafaltic rock on the coast of the county of Antrim, which inclines a bed of chalk that it appears to have broken and enveloped; an effect which seems to require that the bafalt should once have been in a melted flate like lava. The bafalt is represented in the fig. immediately beneath the above, as it occurs in veins in another situation on the same coast, cutting through the chalk, and changing it to a certain distance into crysalline lime-flate or marble. See TRAP and WHINSTONE.

Plate IV, fig. 1. Geology, represents the section of a regular metallic vein, which divides into two, and meets again, leaving an intervening space filled with earthy minerals called rider. The vein is represented as separated from the rock by a thin lining of clay c, which generally accompanies veins. The interfection of metallic veins in the same plate represents two veins containing the same kind of ore, and having the same dip as a, a, a, a, the first, by a vein of a different kind b, which has cut through and displaced the former: in these interferences, the vein b b is supposited to be of posterior formation to the veins a, a, a, a. In the same fig. is shown the displacement of a vein without any interfection of other veins. (See VEINS, Metaltic.) For an account of volcanic rocks, see the articles VOLCANO and VOLCANIC PRODUCTS, and also SYSTEMS of Geology. For an account of the organic remains in rocks, see PETRIFICATIONS, ROCKS, STRATA, and FLATE ROCKS. For an account of the organic remains of extinct species of large quadrupeds in alluvial soil, see MAMMOTH, MASTODON, MEGALONIX, and MEGATHERIUM, Addenda.
A Tabular Arrangement of all the Rock Formations in England.

**CLASS I.**—Primary Rocks.

**Granite Formation.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Rock Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Granite</td>
</tr>
<tr>
<td>2</td>
<td>Gneiss</td>
</tr>
<tr>
<td>3</td>
<td>Mica-flake</td>
</tr>
<tr>
<td>4</td>
<td>Quartz-rock</td>
</tr>
<tr>
<td>5</td>
<td>Marble</td>
</tr>
<tr>
<td>6</td>
<td>Trap</td>
</tr>
<tr>
<td>7</td>
<td>Serpentine</td>
</tr>
<tr>
<td>8</td>
<td>Porphyry</td>
</tr>
<tr>
<td>9</td>
<td>Sienite</td>
</tr>
</tbody>
</table>

Order of succession variable; thickness unknown.

**CLASS II.**—Transition Rocks.

**Grey Wacke Formation.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Rock Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lime-flake</td>
</tr>
<tr>
<td>2.</td>
<td>Trap</td>
</tr>
<tr>
<td>3.</td>
<td>Porphyry</td>
</tr>
<tr>
<td>4.</td>
<td>Grey wacke-flake</td>
</tr>
<tr>
<td>5.</td>
<td>Grey wacke</td>
</tr>
</tbody>
</table>

Order of succession variable; thickness unknown.

**CLASS III.**—Secondary Flatt Rocks.

Structure usually stratified, but the Strata much dislocated and inclined.

**Localities.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Rock Type Describeation</th>
<th>GREATEST OBSERVED</th>
<th>LOCALITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Red, often micaeous sand or sand-flake, containing subordinately conglomerate pebbles from the older rocks</td>
<td>2000 Feet</td>
<td>Van Mountain, Brecon</td>
</tr>
<tr>
<td></td>
<td>Calcareous concretions in beds and inflated masses</td>
<td></td>
<td>Heavytree, Exeter</td>
</tr>
<tr>
<td></td>
<td>Porphyry and trap in beds and masses</td>
<td></td>
<td>Thovertor, near Exeter</td>
</tr>
<tr>
<td></td>
<td>Often a compact coralline marble, alternating with beds of shale, chert, grit-flake, and trap</td>
<td>1782 Feet</td>
<td>Derbyshire, four beds, and three of trap</td>
</tr>
<tr>
<td></td>
<td>Coarse siliceous sand-flake, with pebbles of white quartz</td>
<td>2749 Feet</td>
<td>Croft's Fell, 19 of lime-flake, 50 of grit-flake, 60 of shale</td>
</tr>
<tr>
<td></td>
<td>Mill-flake grit</td>
<td></td>
<td>Yorkshire, and Derbyshire</td>
</tr>
<tr>
<td></td>
<td>Principal coal measures</td>
<td></td>
<td>Newcastle, 82 beds of grit-flake, shale, and coal, of which nine of coal are wrought</td>
</tr>
</tbody>
</table>

Strata often lie horizontally on the edges of the inclined beds of the last formation.

**No. 4.**

Second sand-flake, or grand gypsum, and salt formation

<table>
<thead>
<tr>
<th>Rock Type Describeation</th>
<th>GREATEST OBSERVED</th>
<th>LOCALITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesian lime-flake</td>
<td>300 Feet</td>
<td>Knaresborough, Bolsover, and Sunderland</td>
</tr>
<tr>
<td>New red sand-flake, second sand-flake of Werner</td>
<td></td>
<td>Salop, Lancaster, Staffordshire, Devon, Cambridge, Plains of Cheshire, and Worleshire</td>
</tr>
<tr>
<td>Yellowish, fine-grained, and sometimes of a pink line</td>
<td></td>
<td>400 Feet</td>
</tr>
<tr>
<td>Fine-grained, red siliceous, sometimes with pebbles of quartz, and alternating with red marle, containing salt and gypsum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**No. 5.**
GEOLOGY.

**No. 5.**

<table>
<thead>
<tr>
<th>Formation</th>
<th>Description</th>
<th>Locality</th>
<th>Greatest observed thickness of strata (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oolite formation</td>
<td>Second flet's lime-flone, Fens, Kent and Pr.-flone, Humboldt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lias.—Blue flint marl</td>
<td>Sometimes bituminous, with their beds of blue, grey, and white argillaceous lime-flone</td>
<td>Lynne, Newark, Whitby</td>
<td>893</td>
</tr>
<tr>
<td>Oolite</td>
<td>Rarly oolitic</td>
<td>Radstock, near Bath, and Shepton Mallet</td>
<td></td>
</tr>
<tr>
<td>Inferior balsalt oolite</td>
<td>Contains chert rarely</td>
<td>Dunraven, Glamorganshire</td>
<td></td>
</tr>
<tr>
<td>Fullers' earth</td>
<td>Sand of inferior oolite micaceous</td>
<td>Henton, Somerft</td>
<td></td>
</tr>
<tr>
<td>Great oolite—Durable</td>
<td>Sometimes calcareous</td>
<td>Near Bath</td>
<td></td>
</tr>
<tr>
<td>free-flone</td>
<td>Coarse calcareous, slightly oolite with cherty fragments</td>
<td>Doulting and Ham-Hill, Somerft</td>
<td></td>
</tr>
<tr>
<td>Stonesfield flate</td>
<td>Sterile grey clay, with beds of fullers' earth</td>
<td>Farley Down, near Bath; and Keton, Northamptonshire</td>
<td></td>
</tr>
<tr>
<td>Foreft marble</td>
<td>Composed of oolitic concretions and cherty fragments, united by a calcareous cement</td>
<td>Coly Wetton, near Stamford</td>
<td>30</td>
</tr>
<tr>
<td>Corn braff</td>
<td>Calcareous silexous oolite, sometimes pacling into sand</td>
<td>Henton, near Bath</td>
<td>400</td>
</tr>
<tr>
<td>Kelloway rock</td>
<td>With slate and thin beds of coal</td>
<td>Cleveland Hills, Yorkshire</td>
<td></td>
</tr>
<tr>
<td>Oxford foreft, or Fen</td>
<td>Compact, composed of fragments and shells</td>
<td>Henton, near Bath, and Long Burton, Dorset</td>
<td></td>
</tr>
<tr>
<td>clay</td>
<td></td>
<td>Witch-Wood Forett, Oxon</td>
<td></td>
</tr>
<tr>
<td>Calcareous grit</td>
<td>Siliceous sand and lime</td>
<td>Campsfield, Oxon, Malmbury, and Trowbridge</td>
<td></td>
</tr>
<tr>
<td>Coral rag</td>
<td>Loose earthy lime-flone, full of coralline remains</td>
<td>Vale of Thames, upwards; Oxon; Oofe, Bedford,</td>
<td>200</td>
</tr>
<tr>
<td>Upper oolite</td>
<td></td>
<td>downwards</td>
<td></td>
</tr>
<tr>
<td>Kimmendge clay</td>
<td>Oolitic concretions, and cherty fragments, perihal free-flone</td>
<td>Near Abington, Weymouth; Filey, Yorkshire</td>
<td></td>
</tr>
<tr>
<td>Portland-flone</td>
<td></td>
<td>Heddington near Oxford; Calne, Wilts; Kirkby</td>
<td></td>
</tr>
<tr>
<td>Purbeck-beds</td>
<td>Sometimes bituminous</td>
<td>Heddington, Calne, New Malton</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calceo-silexous free-flone, with beds and nodules of chert</td>
<td>Isle of Purbeck, Dorset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strata of sandy clay and marl, alternating with beds of coarse free-flone</td>
<td>Wilthfirth, Isles of Purbeck and Portland, near Sandwich</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sandwich, Isle of Purbeck</td>
<td></td>
</tr>
</tbody>
</table>

**No. 6.**

<table>
<thead>
<tr>
<th>Formation</th>
<th>Description</th>
<th>Locality</th>
<th>Greatest observed thickness of strata (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron-flone</td>
<td>Contains beds of clay—of ochre</td>
<td>Haslings, Wealds of Suffex</td>
<td>500</td>
</tr>
<tr>
<td>Green flone formation</td>
<td>—of fullers' earth</td>
<td>Summit of Shotover Hill</td>
<td></td>
</tr>
<tr>
<td>Iron-flone</td>
<td>Lead coloured</td>
<td>Woburn, Bedfordshire</td>
<td></td>
</tr>
<tr>
<td>Tetfworth clay</td>
<td>Micaceous sandy, and almost black</td>
<td>Vale of Aylebury and White-horfe, Berkshire</td>
<td>150</td>
</tr>
<tr>
<td>Green flone</td>
<td>Sand and flint-flone, with grains of green earth</td>
<td>Devizes, and White-horfe, Berkshire</td>
<td></td>
</tr>
<tr>
<td>Third flint-flone</td>
<td>Alternating, and pacling into grey flint</td>
<td>Vale of Powefy</td>
<td></td>
</tr>
<tr>
<td>of Werner</td>
<td>Sometimes cemented by calcareous earth</td>
<td>Eastburn, Suffex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Containing beds of chert—specks of mora</td>
<td>Lyme, Dorset</td>
<td></td>
</tr>
</tbody>
</table>

**No. 7.**
In the preceding part of the present article we have stated, that this arrangement of the strata may be taken as an approximation to the truth with certain limitations. It must be observed also, that the trap rocks, No. 9, most frequently occur covering or between many of the lower secondary rocks, precisely similar to what would have been the case had they been formed like volcanic rocks at different and distant epochs. The occurrence of basalt in or over chalk, or any of the formations above the lias, is extremely rare. See Systems of Geology.

GEORGE, St.l. 15, add.—The hundred of St. George's, in Delaware, contains 2880 inhabitants, of whom 314 are slaves.—Also, a town of Maine, in the county of Lincoln, having 1168 inhabitants.

GEORGE-Town, col. 2, l. 14, r. 1998; l. 29, add.—Also, a district of North Carolina, containing 15,679 inhabitants, of whom 13,867 are slaves.

GEORGE, a township of Fayette county, in Pennsylvania, having 2086 inhabitants.

GEORGIA, in America, l. 2, r. 1760.

GERMAN, l. 2, r. 2079.

GERMAN-Town, col. 2, l. 1, r. Macon county, in Kentucky, containing 36, &c.; add.—Also, a town of Ohio, in the county of Montgomery, having 1256 inhabitants.

GERRY, l. 3, r. 839.

GEYSERS, celebrated fountains situated on the side of a hill, about 16 miles to the N. of Skahall, for an account of which we refer to the article UXAMBER.

GEZANGABEEN, or Perian Manna. This substanee has been lately affected by Capt. E. Frederick, of the Bombay Establishment, to be the production of insects. It is obtained, according to the same gentleman, from a small shrub somewhat resembling the broom, on which the insects refuse, by beating the bushes with a flick. When first separated, it is a white ficky substance, not unlike hoar frost, of a very rich sweet taste. It is purified by boiling, and then mixed up with rose-water, flour, and pistachio-nuts into cakes, and in this form constitutes the sweetmeat, called in Perian gezangabeen, and which by the Persians is highly valued. This substance, in its original state, is said to liquify at a temperature of about 69°. The Persians, however, themselves consider this substance as a spontaneous exudation from the tree on which it is found; hence the term gezangabeen, a term meaning literally juice of the gez, which is the Persian name of the tree producing it. Thomson's Animals of Philosophy, vol. xiii. See MANNA.

GHONI, a large market-town of Mingrelia, carrying on some trade, situated between the Arascha and the Hippas.
GLU

GHURZI, a well-built and populous town of Mingreia, on the left bank of the Taghuriz.

GILBERT, col. 2, l. 32, r. 1759.

GILDER, or GUILDER. See Florin.

GLEAD, in Geography, a town of Maine, in the county of Oxford, having 215 inhabitants.

GILES, a county of Virginia, containing 3475 persons, of whom 242 are slaves.

GILL, l. 4, r. 762.

GILLINGHAM, l. 4 and 5, r. 875, and 5135.

GILMONT, l. 4, r. 4338.

GILSON, or GILSOM, l. 2, r. 513.

GIRARDEAU, Cape, a district of Louisiana, containing 3888 inhabitants, of whom 589 are slaves.

GIRVAN, l. 4, r. 762.

GLASGOW, col. 2, l. 11 from the bottom, add.—By the parliamentary returns of 1811, the city and burgh of Glasgow contained 27,543 houses, and 100,749 inhabitants; 45,125 being males, and 45,702 females; of whom 7915 families were employed in trade and manufactures, and 8217 in agriculture.

GLANCE Coal. See Mineralogy, Addenda.

GODALMING, l. 2, r. 2474, and 5343.

GOFFSTOWN, l. 5, r. 2000.

GOLD. See Gold, and Mineralogy, Addenda.

GOLDEN, in Chemistry. A few particulars lately ascertained respecting this metal deserve to be briefly noticed here.

GOLDEN, or GUSBOROUGH, l. 5, r. 1811—435 l. 12, r. 2094.

GLAMORGANSHIRE, last paragraph.—Glamorganshire is divided into ten hundreds, exclusive of the two towns of Cardiff and Swansea, and 118 parishes, which, in 1811, contained 85,057 inhabitants; 41,305 being males, and 43,752 females of whom 7915 families were employed in trade and manufactures, and 8217 in agriculture.

GLASS. Laws relating to, l. 14, add.—By 49 Geo. III. c. 63, the former duties upon crown glass and broad glass were repealed, and new duties were imposed. This act also contains directions and regulations with regard to the construction and use of the annealing arch or oven.

GLASTONBURY, col. 2, l. 42, r. 1811—448 l. 43, r. 2337—121.

GLASTONBURY, in America, l. 2, r. 76; l. 5, r. 2766.

GLOUCESTER, col. 6, l. 6, r. 1811; l. 7, r. 1599—2380; del the next paragraph, and insert—3726 being males, and 4554 females; of whom 1312 families were employed in trade and manufactures, and 12 families in agriculture.

GLOUCESTER, in America, l. 3, r. 5943; l. 21, r. 2319. Col. 2, l. 2, for Woodbury insert—Weymouth; l. 9, r. 19744; l. 10, r. 74; l. 17, after Philadelphia, add—having 555 inhabitants.—Alfo, a town of the same county, having 1726 inhabitants;—l. 25, r. 10,427 inhabitants, of whom 5708 were slaves in 1810.

GLOUCESTER, New, a town of Maine, in the county of Cumberland, having 1640 inhabitants.

GLOUCESTERSHIRE, col. 2, l. 26, insert after amounted to—52,042, of inhabitants 285,514, of whom 133,192 were males, and 152,322 females; 29,985 families were employed in trade and manufactures, and 20,782 in agriculture.

GLOVER, l. 3, r. 378.

GLOUCINA, in Chemistry, the name of an earth. (See GLYCINE.) Dr. Thomson, from the experiments of Berzelius and others, estimates the weight of the atom of glucina at 22.5.

GLUCINUM, the metallic basis of gluicina. When glucina was heated by Sir H. Davy with potash, that metal was converted into potash, and grey metallic particles were observed mixed with the potash, which, when put into water gradually evolved hydrogen gas, and were converted into glucina. This is all we know at present respecting this metal.

GLUTEN, supposed to be the active principle of yeast. See YEAST.

GLUTTON, r. Ursus Gulo.

GLYN, l. 4, r. 3417, of whom, in 1810, 2845 were slaves.

GLYPHIS, in Botany, from ἔγγαρον, to emboss, expressing the appearance of the warty crust.—Achar. in Tr. of Linn. Soc. v. 12. t. 2, 3.—A genus of crustaceous Lichens, of which four species are described and figured, found on the banks of different tropical trees. See CHIODECTON.

Eff. Ch. Watts flatfish, of the subfamily of the crust. Receptacles superficial, numerous, irregular, black, solid, each with a depressed disk, and tumid margin.

The species are, G. labyrinthisca, t. 2. t. 1. Ach. Syn. 107: tricocca, l. 2: cicatricocca, l. 3: favulocca, l. 3 t. 1.

GODALMING, l. 2, r. 672, and 3543.

GOFFSTOWN, l. 5, r. 2000.

GOLD. See Gold, and Mineralogy, Addenda.

GOLD, in Chemistry. A few particulars lately ascertained respecting this metal deserve to be briefly noticed here.

 Sulphur is flated in the Cyclopaedia to exert no action on gold, and this is true in ordinary cales. But if an alkaline hydroxyl are diffused into a solution of gold, a black powder falls to the bottom, which is found to be a fulphurat of gold, and which, according to the experiments of Bucholz and Oberkampf, is composed of

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With respect to the oxyds of gold, there are still very great confusion and uncertainty. According to Berzelius, who is one of the most recent experimentalists on gold, the purple oxyd is a compound of 100 gold + 12,077 oxygen; and the protoxyd of 100 gold + 4,026 oxygen. On this supposition, the weight of an atom of gold, as estimated by Dr. Thomson, will be 248.75, and this determination agrees tolerably well with Oberkampf’s analysis of the fulphurate of gold above-mentioned. Still, however, these results are by no means satisfactory.

GOLDSINNY, r. GOLDFINNY.

GOMPHOSUS, in Ichthyology, a genus of fishes of the Thoracici order, instituted by Count de Cepede from the MSS. of Commeron; the characters of which are, that the jaws are strengthened into a tubular snout, and that the teeth are small, thole in front being larger. There are two species, both natives of the Indian seas, viz. G. carinus, or G., entirely of a blue colour, about the size of a tench, with a blackish cast on the pectoral fins; body arched above, and in a greater degree beneath; snout about one-sixth of the whole fish; upper jaw larger than the lower; the sides of the mouth smooth and blue, head and gill-covers plain, the rest of the body covered with scales, the lateral line through its whole course marked with small streaks like Chinefe characters: and G. variegatus, or variegated with red, yellow, and blue; a beautiful fish, observed by Commeron about the coasts of Otaheite.

GOOCHLAND, l. 4, r. 10,203 inhabitants, of whom 5664 were slaves in 1810.

GOODYERA, in Botany, dedicated by Mr. Brown, to the worthy memory of Mr. John Goodyer, a Hampshire botanist, celebrated in various parts of Gerard’s Herbal, (see ed. 2. 1018, 228, &c.)—Br. in Ait. Hort. Kew. v. 5: 197.
197.—This genus founded on Satyrium repent, Linn. we have not as yet ventured to separate from Neotria; see that article.

GORHAM, l. 4, r. 2632.

GOSHEN, in America, l. 4, r. 692; l. 7, containing 86 inhabitants; l. 8, r. 1273; l. 10, r. 1641. At the close, add—Allo, a town of Cheshire county, in New Hampshire, having 563 inhabitants. —Allo, a town of Lincoln county, in Georgia. See LINCOLN.—Allo, a township of Columbiana county, in Ohio, having 277 inhabitants.—Allo, a town of Ohio, in Tuscarawas county, having 320 inhabitants.

GOSPORT, col. 2, l. 30, r. 1811—7788; l. 31, r. 1439.

GOSPORT, in America, l. 3, r. 72.

GOTHEBOURG, col. 2, l. 5, r. amounted in 1811 to 24,858 persons, &c.

GOULDSBOROUGH. Add—the town contains 471 persons.

GRABS, the name of vessels peculiar to the Malabar coast, generally with two masts, and of 180 tons burthen, but sometimes with three masts, and about 300 tons burthen. They are fo constructed as to draw little water, being very broad in proportion to their length, becoming narrow from the middle to the end, and having a prow projecting like that of a Mediterranean galley; others are constructed with a strong deck fixed with the main-deck of the vessel, from which, however, it is separated by a bulk-head that terminates the forecastle; on the main-deck under the forecastle are mounted two pieces of cannon, of nine or twelve pounders; the cannon of the broad-side are from six to nine pounders.

GRAFTON, l. 4, r. 1365; l. 8, r. 33; l. 9, r. 28,462; l. 12, r. 931; l. 18, r. 946.

GRAIN, as a weight, l. 11, del. bread.

Grains of Paradise. See Amomum and Cardamom.

GRAINGER, l. 6, r. 6397 and 537.

GRAMPOUND, l. penult. r. 601 and 96.

GRANDBY, l. 5, r. 850; l. 8, r. 2696.

GRAND ISLE. Add.—It contains 3445 inhabitants by the census of 1810.

Grand Junction Canal, l. 16 from bottom, for began r. begun.

Grand View, a township of Ohio, in Washington county, having 463 inhabitants.

GRANLEY, a township of Essex county, in Vermont, having 120 inhabitants.

GRANTHAM. In 1811, the borough and parish contained 673 houses, and 3646 persons; viz. 1677 males, and 1969 females: 61 families being employed in agriculture, and 430 in trade and manufactures.

GRANVILLE, l. 2, r. 15576; l. 3, r. 7746; l. 9, r. 1594.

GRANVILLE, a township of Licking, in Ohio, having 674 inhabitants.

GRAPHITE. See Plumbago, and Mineralogy, Addenda.

GRAVESEND, col. 2, l. 3, r. 3119; l. 4, r. 525.

GRAY, l. 3, r. 1310.

GRAYSON, l. 2, r. 4941 inhabitants, of whom 270 were slaves in 1810; add—Allo, a county of Kentucky, containing 2301 inhabitants, of whom 103 were slaves in 1800.

GREEN, l. 4, r. 19536 inhabitants, of whom 367 were slaves; l. 10, r. 12544; l. 14, r. 6663; of whom 1354 were slaves; l. 16, r. 4567 and 1842; l. 19, r. 1277; l. 23, r. 1497; l. 24, for Franklin county, add—Allo, a township in Washington, r. 36, adding after State—with 1708 inhabitants; then add—Allo, a township of Ohio, in Fayette county, with 295 inhabitants. —In Gallia county, with 421. —In Hamilton county, with 916. —In Jefferson county, with 875. —In Rens county, with 1185. —In Scioto county, with 507. —In Trumbull, with 559. —In Columbiana county, with 338 inhabitants; all in the district of Ohio.

GREEN Brier, l. 4, r. 5914 inhabitants, of whom 494 were slaves in 1810.

GREEN Earth. See Mineralogy, Addenda.

GREENE, l. 2, r. 9713 and 655; l. 7, containing, together with Greenborough towns, 11,769 inhabitants, the county having 4992, and the town 244 slaves, included in the above number; l. 12.—By the census of 1810, it contains six townships, and 5870 persons.

GREENE, in Pennsylvania. See GREEN.

GREENE, in Maine. See GREEN.

GREENE, a town of Adams' county, in Ohio, having 393 inhabitants.

GREENFIELD, l. 5, r. 1165; l. 7, r. 980; add—Allo, a township of Bedford county, in Pennsylvania, having 855 inhabitants. —Allo, a township of Ohio, in Fairfield county, having 743 inhabitants.

GREENLAND, in America, l. 3, r. 592.

GREENLAW, col. 2, l. 2. In 1811, it contained 253 houses, and 1260 inhabitants.

GREENOCK, l. 3, after Glasgow, add—The parish, including East, Middle, and West Greenock, contained, in 1811, 1138 houses, and 19,042 persons.

GREENSBOROUGH, in Georgia. See GREEN;

l. 6, r. 5166-

GREENSBURGH. Add.—It contains 132 inhabitants, including 47 slaves.

GREEN-STONE, in Geology, granulite, Werner, a species of granular trap or basalt, composed of hornblende and feldspar, and described in our article Trap. (See Trap.) It has recently been discovered, that the mineral called augite, or pyroxene by Hauy, is a constituent part of many rocks of green-stone, which confirms still further the similarity between volcanic and bafial rocks. See Volcanic Products.

GREENSVILLE, l. 4, r. 6853 inhabitants, of whom 4599 were slaves in 1810.

GREENVILLE, l. 3, r. 13133 and 2353.

GREENUP, a town of Kentucky, containing 2569 persons, of whom 484 were slaves in 1810.

GREENWICH, col. 4, l. 28, for bottom, r. 16947 and 2315.

GREENWICH, in America, l. 3, r. 1225; l. 6, add—containing 2858 persons; l. 9, in 1810, 2528; l. 13, add—In 1810, 858 inhabitants; l. 12, r. 3533. Add—Allo, a township in Berks county, in Pennsylvania, having 1104 inhabitants.

GREENWICH, East, l. 3, r. 1530.

GREENWICH, West, a township in the same county and State, containing 1619 inhabitants.

GREENWOOD, l. 1, r. Northumberland; l. 2, r. 1028; add—Allo, a township in Cumberland county, having 1102 inhabitants.

GREGORY, David, l. ult. It appears by the inscription on his monument in St. Mary's church, Oxford, that he died Oct. 10, A.D. 1708; and not, as the writer of his life in the Biog. Brit, says, in 1710, whence this date is cited. He died at an inn at Maidenhead, in his way to London from Bath, and was buried in this town.

GRENATITE. See Mineralogy, Addenda.
GUADALAJARA, col. 2, l. 39. — The population is estimated at 75,000, but according to Humboldt, 19,500 in 1803, and that of the administration 5,615,500. N. lat. 20° 50'. W. long. 105°.

GUAICUM, Chemical Properties of. — Guaiacum was formerly considered as a resin, though in its properties it differs considerably from resins. Guaiacum always assumes a green colour when exposed to the light in the open air. When heated, it melts and diffuses at the same time a fragrant odour. Its fp. gr. is 1.2289. It is very sparingly soluble in water, but imparts to that fluid a greenish-brown colour, and a fetid, nauseous odour. Alcohol diffuses it with facility, and forms a deep brown coloured solution. Sulphuric ether also diffuses it; but not in such large proportions as alcohol. It is readily soluble in alkaline solutions. Most of the acids also act upon it with considerable energy; thus sulphuric acid diffuses it, and forms a deep red solution. Nitric acid diffuses it completely with effervescence, and when the solution is evaporated, it yields a very large proportion of oxalic acid, but no artificial tannin. Muratic acid acts but slightly on guaiacum. When guaiacum is submitted to defractive distillation, it yields a little acridulous water, a considerable proportion of brown empyreumatic oil, some gaseous products, and a quantity of charcoal is left on the retort nearly equal to one-third of the original weight of the guaiacum.

GUANAJUATO, l. 2, r. Quaratéaro, and between 21° 30' and 22° 30' N. lat., and 100° and 103° W. long., extending from N. to S. 75 miles, from E. to W. 85 miles. Humboldt estimates the population of the administration at 517,300, and of the capital, in N. lat. 21°. W. long. 105°, at 41,000.

GUANARE, at the end, r. Deponts &c.

GUAXACA, l. 5, after distance, add—between 16° and 18° N. lat., 98° and 112° W. long.; from E. to W. 230 miles, from N. to S. 175 miles. — L. 32, after perons—that of the province 534,800. At the clofe—W. long. 96° 25'.

GUERNSEY, a county of Ohio, containing 9 townships, and 3,050 inhabitants.

GUGA, a town of Scind, in the Perian empire, built at the foot of a hill, at the bottom of which runs a small creek in N. lat. 24° 45'. E. long. 68° 7'; and containing 600 inhabitants.

GUILDER, or GILDER. See Florin.

GUILDFORD, lat lines, r. 495 and 2974.

GUILFORD, l. 3, r. 544.

GULLFORD, l. 2, r. 1091; l. 4, r. 1872.

GUM, Chemical Properties of. — The best left for gum in solution, according to the experiments of Dr. Thomfon, is filated potash. When added to a very dilute solution of gum, it produces a white flaky precipitante. Gum arabic is composed, according to

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<td>Carbon</td>
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The varieties of gum are very numerous, and probably differ considerably in their chemical properties, though few of them have been examined. (See Ceratit.) It has been remarked by Mr. Barrow, and probably also by others, that all trees which yield gum have an astringent bark.

GUNPOWDER, col. 2, l. 31 from the bottom, after 1326, add—or, as others say, 1354. (Watton's Chem. Eff. vol. i.)

GUN-SHOT WOUNDS. At the end, add—See Wounds.

GURIEL, r. a small country of Asia.

GURMSYLL, or GURMSSEER, meaning a warm climate, a district of Mekran, which is a narrow tract, about five 3 S days.
GYM

days' journey N.W. of Noosheley, probably the bed of a river, half a mile wide, between two high banks, fertile in grain, and being watered by the Heemruidt, river, needs little cultivation. The inhabitants are notorious robbers, com-
pioned of the outcalls of the surrounding country.

GYMNADENIA, in Botany, Br. in Ait. Hort. Kew. v. 5. 1911, (Orchis conopsea of Linnaeus, &c.), is separated from Orchis, (see that article,) merely because the glands supporting the pollen are, as the name expresses, naked, or not enclosed in any hood; a character which appears to us not effential.

GYMNATRUS, in Ichthyology, a genus of the Thoracii order of fishes; the characters of which are, body very long, comprefsed; teeth numerous, labulate; gill-membrane four or five rayed; and definitive of anal-fin. The species are, G. Astianus, or sliverly G. speckled longitudinally with brown points. A native of the northern seas, and probably frilled described byAstianus, in his "Icones rerum natura-

H.

HACKENSACK, in Geography, a town of Bergen county, in New Jersey, having 1918 inhabitants.

HACKNEY, l. 3 from the bottom, r. given by Mr. Decuyer. By the returns of 1811, the parish of St. John, Hackney, contains 2699 houses, and 16,771 inhabitants; but this, like the other townships in the neighbourhood of London, is daily increafing.

HADDAM, l. 3, r. 2205; l. 5, r. 2537.

HADDINGTON, l. 7, r. 1811—1671, and 4370.

HADDINGTONSHIRE, col. 1, l. 36, r. 1811—5882, and 31,164.

HADLEY, l. 4, r. 509—2502—1811.

HADLEY, l. 5, r. 1247.

HAIGHT, l. alt. r. 1811—215—1118.

HAIR, Chemical Properties of. See INTEGUMENTS, and WOOL.

HALES-OWEN, in Geography. In 1811, the parish contained 1360 houses, and 6888 persons; 3451 being males, and 3437 females; 127 families employed in agriculture, and 1261 in trade, manufactures, and handicraft.

HALESWORTH, l. 4, for township r. parish; r. 342, and 1810.

HALIFAX, col. 2, I. 5 and 6, r. 1811—2151, and 9150; l. 3 from the bottom, r. 703; l. alt. r. 1758; after inhabitants, add—Also, a township of Dauphin county, in Pennsylvania, having 1365 inhabitants. Col. 2, l. 5 and 6, del the numbers; I. 8 and 9, r. 15,620—5624; l. alt. r. 22,133 inhabitants, of whom 5663 were males in 1810.

HALLATON, l. 3, r. 147, and 598.

HALLOWELL, l. alt. r. 2068.

HALSTEAD, l. 5 and 4 from the clofe, r. 1811—722—3279.

HALTON. In 1811, this township contained 151 houses, and 894 persons; 463 being males, and 431 females.

HALTWHISTLE. In 1811, this township contained 142 houses, and 751 persons; 368 being males, and 383 females.

HAM, l. 6, r. 1811—182, and 1267; l. alt. after March, add—The number of houses, in 1811, was 1344, and of inhabitants 8136.

HAMBATO, l. 3, after Quito, add—See RIOBAMBA.

HAMDEN, l. 4, after Wincaslet, add—See Hampden. l. 6, r. 1716.

HAMILTON, in Scotland. This town and parish, in 1811, contained 768 houses, and 6453 persons; 2328 being males, and 3525 females; 243 families employed in agriculture, and 1131 in trade, &c.

HAMILTON, l. 3, r. 780; l. 6, after Northampton, add—The latter having 1644, the second having 1263 inhabitants; l. 8, add—and others, r. 15,258. Add—Also, a township of Ohio, in Trumbull county, having 326 persons. Also, a township of Ohio, in Warren county, having 1238 inhabitants.


HAMLETS, Tower, a particular distirct in the county of Middlesex, commanded by the constable of the Tower, or lieutenant of the Tower-hamlets, for the service and pre-
servation of that royal fort.

The Royal Tower-Hamlets comprehend the militia raised in the distirct of the Tower, which is divided into two bat-
tations, viz. 1st and 2d, officered like other corps belonging to that establishment, and subject to the same regulations.

HAMMERSMITH, l. 3, r. 1811—798—7391.

HAMPDEN. Add—Containing 1279 inhabitants.
HAMPSTEAD, col. 1, l. 8 from the end, r. 1811—842—7580.

HAMPSTEAD, in America, l. ult. r. 1810—738.

HAMPSTON, l. ult. r. 1811—229—1984. — In America, l. 2, r. 1274.

HANIFAH, Abou, in Biography, a celebrated Mahometan doctor of the 8th century, who was the founder of the sect denominated Hamitites, and who was imprisoned at Baghd by the caliph Almanfor, because he would not subscribe to the doctrine of absolute predestination. He was born at Cufa in the year 700, and died in prison in the 76th year of his age. After his death his doctrine acquired so much reputation; and in the year 1092 a maneulium was erected to his memory, and a college for the votaries of his sect. This college according to his will was not to be unmanfully closed with the following anecdote:—Having received from an adversary a rude blow on his face, he said to the person who thus assaulted him, “I could return you outrage for outrage, but I will not; I could accuse you to the caliph, but I will not; I could pray to God to avenge the affront, but I will not: if the day of judgment were now come, I would pray to God that I might enter heaven with you.” D’Herbelot, Bibl. Orient.

HANOVER, col. 3, l. 6, after Pennsylvania, add— with 63 inhabitants; l. 9, add— the former having 1387, and the latter 2461 persons; l. 14, r. 1171; l. 16, add— containing 2135 inhabitants; l. 22, add— having 3843 inhabitants. — Also, a town of Burlington county, New Jersey, having 2576 persons:— l. 25, r. containing 15282 persons, of whom 8454 are slaves.

HANOVER, a township of Ohio, in Columbiana county, having 735 inhabitants. — Also, a township of Ohio, in Licking county, having 651 inhabitants.

HANOVER, New. Add— Also, a county of New Orleans, having 11465 persons, of whom 6442 are slaves.

HANOVER, Upper, a township in Montgomery county, in Pennsylvania, with 725 inhabitants. — Also, a township in Northampton county, in the same slate, having 939 persons.

— Also, a township in Beaver county, in the same slate, having 1090 persons.

HARAN. Add— This is a town of the pachalic of Orfa, inhabited by wandering Arabs, who were led hither by a plentiful supply of water, and situated in N. lat. 36° 52'. E. long. 36° 52', on a flat sandy plain. See CHARRE.

HARBOROUGH, col. 2, l. 30, r. 1811—335—1704.

HARDEN. See HARDIN.

HARDIN, or HARDEN, r. 7330—803; add— Also, a township of Preble county, in Ohio, having 802 inhabitants.

HARDISTON, a town of Suffolk county, in New Jersey, having 1702 persons.

HARDWICK, l. 2, r. 734; l. 4, r. 1657; l. 6, add— containing 2561 persons.

HARDWICKIA, in Botany, so called in honour of a most able and indefatigable botanist and zoologist, Col. Thomas Hardwicke, F. L. S. long resident in the East Indies. Roxb. Corom. v. 3: 6. — Clavis and order, Deca-


Eff. Ch. Calyx none. Petals five, nearly equal. Legume with one seed.

1. H. binata. Roxb. l. 299. — Native of the mountains of the coast of Coromandel. A large and handsome tree, yielding valuable timber. Leaves alternate, flatked, binato; leaflets unequally elliptical, entire, smooth, from one to three inches long. Flowers numerous, rather small, yellowish, in axillary and terminal panicles. Legume lanceolate, an inch and a half long. Seed wedge-shaped, inferted at the summit.

HARDY, l. 2, r. 5525, of whom 749 are slaves.

HAREWOOD, l. 5. r. In 1811, its five townships contained 259 houses, and 1315 persons.

HARFORD, l. 3, r. 21, 258—4431; add— Also, a township of Luzerne County, in Pennsylvania, having 478 inhabitants.

HARLEM, l. 2, r. 939.

HARLOWE, l. 17; r. 1811; l. 18, r. town and Reddenhall; r. 277—1516.

HARLOW. In 1811, the parish contained 256 houses, and 1663 persons; 883 being males, and 181 females: 191 families employed in agriculture, and 102 in trade, manufactures, and handicraft.

HARMONY. Add— It contained, in 1810, 80 persons. — Also, a township of Ohio, in Champaign county, having 595 inhabitants. — Also, a township of Maine, in the county of Somerset, having 351 inhabitants.

HARP, col. 2, l. 10 from the bottom, for lyre r. liar.

HARPER'S FIELD. Add— Also, a township of Genega county, in Ohio, having 490 inhabitants.

HARPSWELL, a township of America, in Maine, and county of Cumberland, having 1190 inhabitants.

HARRAN. See HARAN.

HARRINGTON, l. 3, r. 469; at the close, add— It contains 2187 inhabitants.

HARRISON, l. 6, r. 9938 inhabitants, of whom 458 were slaves in 1810: l. 9, r. 7883, of whom 989 were slaves.

Add— Also, a town of Maine, in Cumberland county, having 439 inhabitants. — Also, a township of Ohio, in Pickaway county, having 291 inhabitants. — Also, a county of Indiana, containing 2338 inhabitants; of whom, in 1810, 15 were slaves. — Also, a township of the said county, the other being Exeter. — Also, another county in the same territory, which, with its township, Washington, contains 1257 persons, including 6 slaves.

HARROW, col. 2, l. 9, insert— The town, with the hamlet of Roxath and Sudbury, contains 283 houses, and 1689 inhabitants.

HARROWGATE, l. penult. add— The township of Bilston and Harrowgate contains 286 houses, and 1583 persons.

HARTFORD, l. 3, r. 1831; l. 6, r. Oxford for Cumberland; l. 7, r. 720; l. 12, r. 191; l. 13, r. 44773; Hartfort City, l. 11, r. 3955. — Add— Hartford, except the city, a township of Hartford county, Connecticut, contains 2048 inhabitants.

HARTFORD, East, l. 4, r. 3240.

HARTLAND, l. 5, r. 2352. — Add— Also, a town of Hartford county, in Connecticut, having 1284 inhabitants.

HARWARD, a town of Worcester county, in Massachusetts, containing 1431 inhabitants.

HARWICH, l. 3 and 4, r. 1811—564—3732.

HARWICK, in America, l. 3, r. 1942.

HARWINTER, l. 2, r. 1718.

HASLEMERE, l. 4, r. 146—756.

HASLINGDEN,
HASLINGDEN, l. 3 and 4, r. 962—5127.
HASSELOQUIST, l. 5, r. 1722. Col. 2, l. 26, r. 1747.
HAI, l. 32, r. 1749.
HASTINGS, l. 4, r. 5268—34,826.
HATFIELD, l. 5, r. 409—2066.
HATFIELD, l. ult. r. 1811—2677—501.
HATFIELD, l. ult. r. 805 inhabitants. Add—Also, a township of Montgomery county, in Pennsylvania, containing 652 inhabitants.
HATHERSHEA, l. ult. r. 1811—1380, and 223.
HAVANT, l. 6, r. 1811; l. 7, r. 357, and 1824.
HAVEN, East, l. 5, r. 1209; l. 5, add—containing 30 inhabitants.
HAVEN, Fair, a town of Rutland county, in Vermont, having 645 inhabitants.
HAVEN, New, col. 2, l. 2, for 14 r. 18; l. 3, r. 1810—37,064 inhabitants, of whom 59 are slaves; l. 17, after in, add—1810, 5772 persons; l. 26, add—For some further particulars, see New Haven and United States.
HAVEN, New, a township of New Haven, which, the city excepted, contains 1105 inhabitants.
HAFORD, l. 2, r. 754.
HAFORDWEST, l. 19, r. and also seven fairs in the year for, &c.; dele on the 7th of July; l. 41 and 42, r. 1811—3535, and 630.
HAFERHILL, l. 5, r. 1811—242—1216. Do. in America, col. 2, l. 15 r. 2682.
HAUVE. See Mineralogy, Addenda.
HAWARDEN, l. 7, r. 1811—832—4436.
HAWICK, col. 2, at the close, add—By the return of 1811, Hawick contained 1603 houses, and 7645 persons.
HAWKE, l. 5 r. 412.
HAWKINS, l. 1, r. Earl Teneuille; l. 4, r. 7643; l. 5, r. 930.
HAWKESHEAD, l. 18 from the bottom, r. 1811—149—676.
HAWLEY, l. 2, r. 1021.
HAY, l. 4, r. The parliamentary return of 1811 states the number of inhabitants to be 1599, and that of houses 231. It has one market on Thursday, and five fairs. A woollen manufacture has latter been established here.
HAYLING, l. 5, r. 1811—110—620.
HAYNES, a township of Centre county, in Pennsylvania, having 1757 inhabitants.
HAYTI, a name given by the natives to the island of St. Domingo (which see). The dimensions are differently stated by different writers. Some say, that it extends 140 or 150 miles in breadth from N. to S., and about 400 miles in length from E. to W. Mr. R. Edwards alligns 400 for the length: Rainford says, that it is more than 450. The abbe Raynal represents it as 250 leagues in length, and 60, in some places 80, in breadth. When the French had this island, a proclamation, announcing its independence, was published, signed by Deffalines, Christophe, and Cherveaux, dated Nov. 29, 1803. The liberated blacks now determined on discarding the appellation which the island had received from Europeans, and reviving the name of Hayti, by which it was designated by the aboriginal inhabitants when first visited by Columbus. On the 11th day of the year 1804, the general and chiefs of the army, in the name of the people of Hayti, signed a formal declaration of independence, and took a solemn oath to renounce France for ever, pledging themselves to each other, to their posterity, and to the universe, to die rather than submit again to her dominion. At the same time, they appointed Deffalines governor for life, with power to enact laws, to make war and peace, and to nominate his successor. One of the first acts of his government was to arrange the return of negroes and mulattoes from the United States of America. He also treated with the British agent for Jamaica, offering to open his ports to slave ships, and to allow the people of Jamaica the exclusive privilege of selling negroes in Hayti; intending these not for slavery, but for military service. Some of the French inhabitants had remained upon the general evacuation of the island, confiding in the favour and mercy of Deffalines. But their confidence was misplaced; for in a few weeks he meditated their destruction, and issued mandates, no less pernicious than cruel, for a general massacre. He then proceeded to the subjugation of the few Spaniards who inhabited the eastern part of the island, and with laying siege to the city of Domingo, which was possessed by a small detachment of French troops. In this siege he was unsuccessful; and after his return from it, he assumed the title of emperor. The empire was divided into fixing military divisions, with a general over each, independent of one another. The generals of division and brigade composed the council of state, and they had a minister of finance, another of war, and a secretary of state. All persons decided their differences by arbitration, military crimes were subjected to special jurisdiction: no predominant religion was admitted, nor was the state to provide for the maintenance of any religious institution. Marriage was declared to be an act purely civil, and divorce in private cases was allowed. A census, taken in 1805, of the inhabitants of the part of the island under the power of Deffalines, the returns were about 380,000, to which some incidental omissions of 10,000 were added, making the whole number 400,000. The regular army consisted of 15,000 men, of whom 1500 were cavalry. Considerable attention was paid to the subject of education. The young Haytiens were generally taught to read and write. Deffalines, whilst he possessed several good qualities, was ferocious and cruel; and at length his atrocious acts of tyranny caused an insurrection of the army, which was followed by his premature death by violence, on the 17th of October, 1806. Christophe, who, since the expulsion of the French, had been second in command, immediately assumed the supreme power. He had been a slave in St. Domingo at the revolution in 1791, and an early friend and faithful adherent of Toussaint, whom he resembled in character. Discarding the pompous title of emperor, he modestly designated himself "chief of the government of Hayti." He made several enactments, and issued proclamations favourable to commerce. Petion, however, soon appeared as a candidate for the sovereign power; the struggle between him and Christophe was fierce, and in a battle fought January 11, 1807, between the two armies, Petion was defeated, and felled himself by his own hand. In a council convened at Cape Francois, a new constitution was published Feb. 17, 1807, in which slavery was for ever abolished in Hayti; and the government was vested in a chief magistrate for life, who appointed his successor. The council of state consisted of nine members, two-thirds of whom were generals; so that the government approached nearly to an oligarchy. The struggle for sovereignty still continued, and was carried on for several years; many battles being fought, in some of which Christophe, and in others Petion was victorious. In the spring of the year 1811, Christophe changed the title of president for that of king, and the royal dignity was established by a constitutional act in his person and family. In July 1816, after Louis XVIII. was restored to the throne, commissioners were sent to St. Domingo, entrusted with the administration of all the affairs of the island, both civil and military. These commissioners addressed letters to Christophe, which gave offence. Although the two governments which rule the northern and southern districts have not established any relations of mutual amity, they have remained in
in a state of perfect tranquillity, and have devoted their attention to the cultivation of their respective territories, and to the civilization and improvement of their people. Schools upon a Lancasterian plan have been established. From the zeal manifested by both chiefs in this noble cause of public instruction, and the progress already made in carrying their wife and benevolent designs into effect, there is great reason to hope, that in a few years the island of Hayti will exhibit a population as generally educated as that of any country on the face of the globe. See History of the Island of St. Domingo, &c. London, 1818.

HEARING, col. 2, 1. ult. infrer after CAR. — (see EAR.)

HEAT, col. 2, 1, 2, infrer after CALORIMETER — in the sequel of this article.

Heat. Many important additions have been made to our knowledge respecting heat and its effects, which our limits will only permit us to mention very briefly here. In doing this, we shall follow the same arrangement as that adopted in the original article, and confine ourselves chiefly to the results.

Capacity for Heat, or Specific Heat. — In the year 1813, a malaria elaborate set of experiments was published by Delaroche and Berard, on the specific heat of the gaseous bodies. The results of former experimentalists respecting this part of the subject were not, as we remarked, very satisfactory; but from the care with which the present experiments were made, philosophers in general appear inclined to admit their accuracy.

<table>
<thead>
<tr>
<th>Specific Heat of the Gases referred to Air.</th>
<th>Specific Heat of the Gases referred to Water.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance</td>
<td>Bulk.</td>
</tr>
<tr>
<td>Air</td>
<td>1.0000</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>0.93</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>1.2583</td>
</tr>
<tr>
<td>Oxygen</td>
<td>0.7675</td>
</tr>
<tr>
<td>Azote</td>
<td>1.0000</td>
</tr>
<tr>
<td>Oxid of azote</td>
<td>1.353</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>1.553</td>
</tr>
<tr>
<td>Carbonic oxyd</td>
<td>1.034</td>
</tr>
<tr>
<td>Aquous va-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the recent experiments of Dulong and Petit it appears, that the capacity of solid bodies follows the same law as that of liquids, that is to say, it increases with the temperatures measured by an air-thermometer. They would be even increasing according to these experimentalists, if we were to employ a mercurial thermometer. See the section Expansion by Heat below. Thus, The mean capacity of iron, from 0° to 100° = 0.192

In the following table, for the other metals they have only given the measures taken at 100°, and at 300°.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mean Capacity between 0° and 100°</th>
<th>Mean Capacity between 0° and 300°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>0.0350</td>
<td>0.0350</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.0927</td>
<td>0.1015</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.0507</td>
<td>0.0549</td>
</tr>
<tr>
<td>Silver</td>
<td>0.0557</td>
<td>0.0611</td>
</tr>
<tr>
<td>Copper</td>
<td>0.0949</td>
<td>0.1013</td>
</tr>
<tr>
<td>Platinum</td>
<td>0.0355</td>
<td>0.0355</td>
</tr>
<tr>
<td>Glaís</td>
<td>0.1770</td>
<td>0.1900</td>
</tr>
</tbody>
</table>

Combustion, Heat produced by. — A great number of laborious experiments were made by the late count Rumford on this subject, the general results of which we shall briefly mention, as they differ in some degree from those of his predecessors. Thus, according to him, 1 lb. of

<table>
<thead>
<tr>
<th>Substance</th>
<th>lbs. 1ce.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive-oil when burnt melted</td>
<td>93.073</td>
</tr>
<tr>
<td>Rape-oil</td>
<td>124.07</td>
</tr>
<tr>
<td>Wax</td>
<td>126.24</td>
</tr>
<tr>
<td>Tallow</td>
<td>115.52</td>
</tr>
<tr>
<td>Alcohol</td>
<td>67.47</td>
</tr>
<tr>
<td>Sulphuric ether</td>
<td>167.07</td>
</tr>
<tr>
<td>Naphtha</td>
<td>97.84</td>
</tr>
</tbody>
</table>

This philosopher likewise extended his experiments to the combustion of woods, with the view of ascertaining which gave out most heat, and under what circumstances. The general results were, that the wood of the lime-tree gives out most heat, and that of the oak the least, during combustion. The extreme limits of his long table, which we regret we cannot give, were, that 1 lb. of lime-wood, highly dried over a chaffing-dish, melted 54.210 lbs. of ice, while 1 lb. of oak, similarly dried, melted only 39.728 lbs.

Expansion of Bodies by Heat. — The law, as recently established by Dulong and Petit, respecting the expansion of the gaseous bodies, has been given under Gas. We confine our attention here, therefore, to the expansion of liquids and solids. The experiments of Dulong and Petit shew, that the expansion of bodies by heat is not uniform, and that the laws of expansion, as laid down by Mr. Dalton, are not to be depended upon. Thus, in the following table of the absolute dilatation of mercury, it will be found that the expansion above the boiling point of water increases as the temperature increases according to the air-thermometer, which from the uniform expansibility of the gaseous is the only one that indicates equal measures of temperature.

<table>
<thead>
<tr>
<th>Temperatures deduced from the Dilatation of Air.</th>
<th>Mean absolute Dilatation of Mercury.</th>
<th>Temperatures indicated by the Dilatation of Mercury supposed uniform.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>0</td>
<td>0°</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>200</td>
<td>204.61</td>
<td>314.15</td>
</tr>
<tr>
<td>300</td>
<td>312.9</td>
<td></td>
</tr>
</tbody>
</table>

**Table II. — Expansion of Glaís.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>100°</td>
<td>312.9</td>
<td>312.9</td>
<td>100°</td>
</tr>
<tr>
<td>200</td>
<td>213.2</td>
<td>372.9</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the above table, on the dilatation of glaís, the third column shews that its expansion is not uniform, but increases, except between 0° and 100°, where it is the same as that of Lavafourier and Laplace. The last column contains the degrees which would be indicated by a thermometer formed of
of a glass plate, whose incrustation in length would serve as a measure of temperatures.

<table>
<thead>
<tr>
<th>Temperature dedicated from the Dilution of Ar.</th>
<th>Temperature indicated by a Thermometer made of a Bichromate of Copper</th>
<th>Temperature indicated by a Thermometer made of a Copper Rod</th>
<th>Temperature indicated by a Thermometer made of a Platinum Rod</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°</td>
<td>100°</td>
<td>100°</td>
<td>100°</td>
</tr>
<tr>
<td>300</td>
<td>372.6</td>
<td>328.8</td>
<td>311.6</td>
</tr>
</tbody>
</table>

When we compare these results with those obtained from gla's, it is seen that the expansibility of solids referred to an air-thermometer is increasing, and that it is unequally so in each of them.

Our readers will observe, that MM. Dulong and Petit used the centigrade thermometer. See further on this subject under Refrigeration.

See an Effay which gained the prize voted by the Academy of Sciences in 1815, entitled Remarks on the Measurement of Temperatures, and on the Laws of the Communication of Heat, by MM. Dulong and Petit.

Animal Heat.—The above determinations of the specific heats of oxygen gas and carbonic acid by Delacroche and Berard, very much diminish the probability of Dr. Crawford's theory of animal heat. But the most formidable objections to this theory reful from the experiments of Mr. Brodie. This gentleman found that when artificial respiration is kept up in the lungs after decapitation, the usual proportion of carbonic acid gas is formed, and the circulation continues nearly as usual, yet that in these animals the heat diminishes more rapidly than in the dead animal in which artificial respiration is not kept up. From these experiments, Mr. Brodie concludes that the production of animal heat is owing to the action of the brain, and not to respiration. See Respiration.

HEATH, in Geography, a town of Hampshire, in Massachusetts, containing 917 inhabitants.

HEAVY Spear. See Mineralogy, Addenda.

HEBRON, l. 2, r. 563; l. 3, r. Oxford for Cumberland; l. 5, add, after Portland—containing 2121 inhabitants; l. 8, r. 2002.

HEIDELBURG, l. 3, r. 3532; l. 6, r. 1433. Add—Alto, a township in Pennsylvania, in Berks county, having 2806 inhabitants.

HEITSBURY, col. 2, at the close, r. the population of the borough and parish, returned in the year 1811, was 1023; the number of houses 198.

HELEN'S, Sr, l. 9, r. 106—658.

HELLAM, a township of Pennsylvania, in York county, having 1410 inhabitants.

HELENIISTS, col. 2, l. 24, r. Hellenism.

HELEMSLEY, l. 5, r. 1811—261; l. 6, r. 1415.

HELSTON, col. 2, l. 2, r. 2907—328.

HEMATIN, in Chemistry, the name given by Cleft to the peculiar matter constituting the colouring matter of the hematoxytan campechianum, or logwood. Hematin may be obtained by digesting, for several hours, logwood-powder in water, of the temperature 125°. The liquid is then to be filtered, evaporated to dryness, and digested for a day in alcohol of the fp. gr. .837. Filter the alcohol, concentrate it by evaporation, then add a little water, evaporate a little further, and leave it to itself. Crystall of hematin are deposited in abundance. Thus prepared, it is in the form of small brilliant crysals, of a reddish-white colour, and a slightly astringent bitter and acrid taste. It is readily soluble in boiling water, and the solutio is of an orange-red colour when warm, which becomes yellow as it cools, but heat again restores the original colour. Acids render it at first yellow, then red; sulphurous acid destroys it altogether. The alkalies and alkaline earths give it a purplish-red colour, and if in excess appear to decompose it. Most of the metallic oxys unite with hematin, and give it a blue colour. Gelatine throws it down in reddish flocks. The other properties of this substance do not appear remarkable.

HEMER-HEMSTED. At the close,Infert—The population of the parish, by the return of 1811, amounted to 3245, and the number of houses to 638.

HEMIQUUS. See Equs.

HEMLOCK, in Geography, a township of Northumberland county, in Pennsylvania, having 879 persons.

HEMPFIELD. Add—The former contains 3431, and the latter 3344 inhabitants.

HENDERSO/N, in Kentucky, l. 2, r. 4544; l. 5, r. 1457. At the close, add—containing 159 persons; of whom 47 were slaves in 1810.

HENLEY upon-Thames, l. 1, r. 1811—522—3177.

HENLEY in Arden, l. 5, r. 1811—242; l. 6, r. 1935.

HENNIKER, a town of Hillsborough county, in New Hampshire, having 1608 inhabitants.

HENRICO, l. 2, r. 9945; l. 3, r. 4846.

HENRY, l. 4, r. 5611 inhabitants, of whom 1755 were slaves in 1810; l. 6, r. 6652 inhabitants, of whom 1103 were slaves.

HEPATIC, in Botany, so named by the earlier botanists and physicians, from a resemblance in the lobes of these to those of the human liver, is referred to a distinct genus from Anemone, (see that supplementary article,) by professor De Candolle, in his Syl. v. 1. 215, merely because the involucrum is placed very near to the flower, (some have thought it an actual perianth), and its leaves undivided. We hesitate to follow our learned friend in this measure, the certain species of Hepatica being scarcely more than one or two, so that nothing is gained as to convenience, nor is the character very decisive. These species are,


2. H. angulata. Angular, or Serrate, Hepatica. Lamarck Dict. v. 1. 160.—Leaves palmate, with five serrated lobes. Cultivated formerly at Paris, but now lost. It is much to be wished that we could learn more concerning this plant.

3. H. integrifolia, with ovate entire leaves and very hairy stalks, found by baron Humboldt in South America, is not clearly an Hepatica.

HÉPATITÉ. See Mineralogy, Addenda.

HERAT. Add—The ancient Aria or Artacaana, capital of Ariana; l. 4, after name, infert—or Herioccod; l. 5, after which, add—gives fertility to the plain, 30 miles long and 15 broad, upon which Herat is situated, and which,
which, though surrounded with lofty mountains, is highly cultivated, and covered with villages and gardens. The Herat, or Hericoord, afterwards runs, &c.; l. 5, for it. Herat embraces an area of four square miles, and, &c.; l. 6, add—This cattle is of a square form, elevated on a mound, flanked with towers at the angles, and built of burnt brick. The city has a gate in each face, and two in that which fronts the north, and from each gate a spacious and well-supplied bazaar leads up towards the centre of the town. It is well supplied with water, every house almost having a fountain independent of those that are public on either side of the bazaar:—l. 23, add—The residence of the prince is a mean building, having a gallery in the centre of the square, which is situated in its front; and the chief mosque, once a noble edifice, enclosing an area of 800 square yards, is falling into decay. Herat is computed to contain 100,000 inhabitants, 10,000 being Patans, and the rest Afghans, a few Jews, and 600 Hindoos, the last-mentioned of whom are highly respected, and they only pose their capital or credit; hence they derive a very considerable influence. The trade of this city, as we have already said, is extensive, and accordingly it is the emporium of the commerce carried on between Cabul, Cashmere, Buchara, Hindooftan, and Peria. From the former, they receive flax, indigo, sugar, chintz, muslin, leather, and Tartary skins, which they export to Mehded, Yazd, Kerman, Ispahan, and Tehran, receiving in return chiefly dollars, tea, china-ware, broad-cloth, coffee, pepper, and sugar-candy; dates and figs and dates from Kerman and carpets from Ghao. The staple commodities of Herat are, silk, coffee, and assafetida, which are exported to Hindooftan. The gardens are full of mulberry-trees, cultivated merely for the sake of the silk-worm, and the adjoining plains produce assafetida. The winters here are very severe, and the cold often injures the crops; but the fertility of the plain is such that it affords an immense produce both of wheat and barley, and almost of every kind of fruit known in Peria. The cattle are small, but not plentiful, and the broad-tail sheep are abundant. The revenue of this city is estimated at one-third of the revenues of Heran. The prince in possession pays a tribute to his Persian majesty of 50,000 rupees a year. N. lat. 34° 12'. E. long. 63° 14'.

HEREFORD. At the close, add—By the return of 1811, Hereford contains 1539 houses, and 7306 inhabitants. HEREFORD, a township of Berks county, in Pennsylvania, having 1140 inhabitants.

HEREFORDSHIRE, col. 2, l. 7 from bottom, r. 1811—18,572—94,073.

HERKIMER, a county of New York, containing 22,046 inhabitants, of whom 64 are slaves.


Eff. Ch. Calyx spreading. Petals three-lobed, like the lip, which has no spur. Anther fixed, nearly terminal.


HERO, North, l. 2, of Grand Isle county; l. 3 and 4, r. 1810—552.

HERO, South, l. 3, r. 826; l. ult. r. 623.

HERMIOT. See Harriot.

HERTFORD, col. 2, l. 13 from the bottom, r. 1811—3900; l. 12, 2038—1862; l. 11, r. 592.

HERTFORD, in America, l. 2, r. 6052—2805.

HERTFORDSHIRE, col. 2, l. 28 and 29, r. 1811—20,545—111,654—55,023—56,401.

HESUS, in Mythology. See Druids.

HEXHAM, l. 4. In the year 1811, Hexham parish, divided into four wards, or townships, comprehended 478 houses, and 3518 persons; and Hexham shire, including four quarters or townships, had 251 houses, and 1328 persons.

HEYNE, CHRISTIAN GOTTLIEB, in Biography, was born at Chemnitz, in September 1729, and ruled from humble life, after struggling with many difficulties, on account of the penury of his condition, to an eminent rank, as a critical scholar and philologist. Although his parents were hardly able to derive a scanty subsistence from their labours, he was sent to school, and made such proficiency in learning, that in his tenth year he was able by teaching others to defray the expences of his own education, and by the affittance of a neighbouring clergyman, he entered himself at a grammar-school; and having acquired a competent knowledge of the Latin and Greek languages, he was sent to the university of Leipzig. Private teaching, however, was his resource for further supplies, and thus furnished he devoted himself to the prosecution of the law; and inductious in his study of the Roman law and history, he was qualified for reading lectures, which were much approved, on the Roman antiquities. Under the patronage and recommendation of count Bruhl, the Saxo minifter, which he obtained by a Latin elegy, he was invited to Drefden, whither he repaired in 1752 with flattering expectations, which were eventually disappointed, so that he was reduced to a state of indigence and distress, without the means of providing either food or lodging. At length necessity compelled him to become a writer, and by one of his performances as a translator of a Greek romance, he acquired that taste for criticism which raised him to that eminence in this department of literature which he afterwards occupied. His next work was an edition of Tibullus, which was followed in 1756 with his first edition of Epictetus. But his prospects, which appeared promising in consequence of his access to the Brulian library, were again precluded by the incursion of the Prufhians into Saxony, which occasioned the sudden removal of count Bruhl from Drefden, and the dispersion of his library. After some changes of situation, he repaired to Drefden in the year 1760; and in the following year married a lady, named Thertha Wels, to whom he had for some time been affectionately attached. In 1763 he was invited to Gottingen to supply the vacant professorship of John Matthias Gfener. The subjects of his first academic lectures were, Horace, the Georgics of Virgil, and some parts of the Tragic writers. In 1766 he explained the Illiad, and afterwards the Greek antiquities. His leisure hours, after his first settlement at Gottingen, he employed as a writer and translator. Having been appointed, in 1763, first librarian to the university, he obtained, in 1770, the title of aulic counsellor, and became secretary to the Royal Society of Sciences, and editor of the Literary Gazette. In 1771, he collected the papers presented to the society for sixteen years, which had been neglected, and published the first volume of the "Commentarii Novi," which was dedicated to the king. The first edition of his Pindar appeared in 1773. His "Catalogue of the Library," begun in 1777, was completed in 1787, and extended to about 150 volumes in folio. But his opus majus, on which he
he bestowed the greatest part of his attention and time, was his edition of Homer, which he began in 1787, and which was presented to the public in 1802. A second edition of his Virgil appeared in 1788; in the revival and improvement of which he derived great assistance from his literary friends, particularly Van Santen in Holland, and Jacob Bryant in England. During the autumn of this year, he made a tour to Switzerland, and formed an acquaintance with several of the most eminent literary characters in that country; and on his return he was offered the place of chief librarian at Dresden, and a professorship at Copenhagen, both of which he declined. The principal object of his attention was the Royal Society of Gottingen, of which he was secretary; and which was enlarged by the admission into the number of its members of several French literati. By means of his reputation and influence, he preferred the society, in 1803, from the miferies incident to a state of war, and from any molestation on the part of the French army. After a tour to Arnitzdt in 1806, on a visit to one of his daughters recently married, his infirmities increased, so that in 1809 he resigned his office as professor of eloquence. In 1810 he was made a knight of the Wellington order of the crown, and died in the month of July 1812. Few persons have been more diligent in the improvement of their time than Heyne, or devoted more time in the day to literary occupations, without excluding himself from domestic and social enjoyments. He was twice married; by his first wife he had one son and two daughters, one of whom was married to George Forster, son of the celebrated Dr. John Reinhold Forster, and on his death to Mr. Huber. By his second wife, who was daughter of George Frederick Brandes, aulic counsellor, he had two sons and four daughters. His works were too numerous for recital within our limits. We refer for an account of them to the General Biogrophy, Appendix.

Vol. XVIII.

HICKMAN, in Geography, a town of Weft Tennessee, containing 2383 persons.

HICKUP, l. 7. add—See Lungs.

HITIANS, the name of a people of North America, who traverse a region extending from the limits of the state of Louisiana to the Rio Gila, and to the eastern declivity of the Californian coast, within a short distance of the shores of the Pacific ocean. In following the herds of buffalo, which change their pasture with the seasons, they resemble the wandering tribes of Tartars and Arabs, who have no settled residence. Encamped where they find water and their prey, they remain as long as they can obtain a supply. The Hitians have domesticated the horse, and vie with the most civilized people in their management of this useful animal, in mounting it and applying its force to the purposes of chase or war. They are the only people, aborigines of this continent, who seem to have acquired the ability to withstand the shock of cavalry furnished with the principles of European tactics.

HIGHAM FERRERS, col. 2, l. 8, r. 1250, and 6627.

HIGHGATE, in America, l. 5, r. 1374.

HIGHWORTH, col. 2, l. wait. r. 1811, contained 480 houses, and 2514 inhabitants.

HILLSBOROUGH, in America, l. 6, r. 49249; l. 11, r. 1592.

HILLCITY, l. 4, r. 1355.

HINEKLEY, col. 2, l. 5 from bottom, r. 1811—6598, and 1697.

HINDON. Add—By the returns of 1811, the borough and parish contained 170 houses, and 781 persons.

HINDSDALE, a town of Berkshire, in Massachusetts, containing 822 inhabitants.

HINESBURGH, a town of Chittenden county, in Vermont, having 1258 persons.

HINGHAM, l. 3 and 4, r. 241—1657.

HINGHAM, l. 1, r. Plymouth for Suffolk; l. 7, r. 2382.

HINSDALE, l. 4, r. 740.

HIRAN, l. 2, r. Oxford for York, and 336; add—Allo, a township of Ohio, in Portage county, having 171 inhabitants.

HIRUNDO. At the close, for Swallow r. Migration.

HITCHIN, l. ult. r. 1811, the hundred of Hitchin and Pilton contained 1520 houses, and 7732 inhabitants.

HOCKSTETT. Add—See Battle.

HOKING, a town of Fairfield county, in Ohio, having 1078 inhabitants.

HODSON, a township of Portage county, in Ohio, having 793 inhabitants.

HOLDEN, l. 3, r. 1072.

HORDERNESS, l. 4, r. 335.

HOLLAND, in America, l. 3, r. 420. Add—Allo, a township of Orleans county, in Vermont, having 126 inhabitants.

HOLLES, l. 4, r. 1529.

HOLLISTON, l. ult. r. 1810—989.

HOLLOW SPAR. See Mineralogy, Addenda.

HOLLY, Mount, in Geography, a town of Rutland county, in Vermont, having 922 inhabitants.

HOLOCENTRUS, in Ichthyology, a genus of the Tho- racic order of fishes; the characters of which are, habit of the genus Pecra; gill-covers scaly, serrated, and aculeated; and scales, in most species, hard and rough. The species enumerated and described by Dr. Shaw are as follow: viz.

1. With forked or lined tail.

SACO. Silvery-red H. with longitudinal yellow lines on each side, very beautiful, about a foot long, resembling a carp, but of a more square form, and becoming suddenly slender near the tail, eyes large and gold-coloured, scales large, and dentilicated at the edges. Native of the Indian, American, and Mediterranean seas, and held in high estimation for the table.

CHRAETER. Brownish H. with four longitudinal black lines on each side, silver abdomen and naked head; the perca character of Gmelin's Linnaeus. Native of the Danube, and of its tributary streams, esteemed for food.

RADULA. H. with the body lineated with white specks; P. radula of Gmelin's Linnaeus. Native of India.

GATERINA. Bluish H. with black specks and scattered spots; Sciencia gaterina of Gmelin's Linnaeus. Native of the Arabian seas, varying in size and colours.


QUINQUILINEATUS. Yellowish H. with brownish back, and body marked on each side by five longitudinal blue lines. Native of Japan.

BENGALENSIS. Subfuscous H., silvery beneath, and marked on each side of the upper part by five longitudinal blueish bands, margined with black. Native of Bengal.

TIGRINUS. White H. with the body tranverse bands, and fins spotted with black. Native of the Indian seas, and esteemed for the table.

DECUSATUS. White, with brown back, and body marked by
by two longitudinal and seven transverse brown bars. Native of the American seas.

**Striatus.** Subluteous H. with brownish back, body marked by transverse brown bands, dorsofin ramentose behind, and marked by a black spot. Native of unknown regions.

**Argentinus.** Brownish H. with silvery sides. Native of regions unknown.

**Niger.** Black H. with extremely minute scales: found about the coast of Cornwall.

**Acerinus.** With fourteen soft and seventeen spiny rays in the dorsofin; perca acerina of Gmel. Linn. Native of the Euxine sea, and esteemed as food.

**Ceruleocrensit.** Blueish H. with all the fins yellow. Native of the Indian seas.

2. With undivided or rounded tails.

**Variegatus.** Red H. with seven transverse black lines, and the head and abdomen varied with blue streaks; perca marina of Linn. Gmel. Native of the Mediterranean and northern seas.

**Cottoides.** With all the fins marked by two speckled lines. Native of the Indian seas.


**Forskalii.** Red H. with four broad transverse whitish bands; perca falcata of Linn. Gmel. Native of the Red sea.

**Tauvinus.** Linear-oblong H. with blackish fimbrious spots; perca tauvina of Linn. Gmel. Native of the Arabian seas.

**Ongo.** Brown H. with the body marked transversely by elongated spots, and the dorsofin, anal, and caudal fins spotted with yellow. A native of Japan.

**Auratus.** Gold-yellow H. with red specks. Native of the East Indies.

**Quadrilineatus.** Silvery H. with brownish back, and body marked above by four longitudinal black lines on each side. Native of the East Indies.

**Fasciatius.** Green-yellowish H. with transverse brown bands divided beneath. Native of a region unknown.

**Punctatus.** Yellow H. sprinkled over with black spots and red points. Native of the Brazilian seas.

**Calcarifer.** Subargentous H. with brownish back, large scales, and spotted gill-covers. Native of Japan.

**Surnamensis.** Brownish H. with subluteous clouds, red head, and anterior gill-covers pimple-ciliated. Native of Surinam.

**Afer.** Oblong-ovate brown H. with small scales and short tail. Native of the coasts of Guinea, in high estimation for food.

**Japanicus.** Red H. with small scales, and blue and yellow irides. Native of Japan.

**Merra.** White H. spotted on all parts with brown. Native of the Japanese seas.

**Testudineus.** Subluteous H. with slightly branching brown bands, blue-striped gill-covers, and blackish fins. Native of the northern seas.

**Marginatus.** Blueish H. with brownish back, red fins, and dorsofin edged on the fore-part with black. Native place unknown.

**Sonnerathii.** Yellowish H. with three transverse silvery bands, edged with brown. Native of the Indian seas.

**Lanceolatus.** Silvery H. transversely banded with brown, and with the dorsofin, anal, and caudal fins subluteous. Native of the East Indies.

**Ceruleopunctatus.** Blueish H. with pale yellow clouds, and deep-brown fins spotted with blue. Native country unknown.

natives of New South Wales. Our *P. elliptica*, L. Tr. v. 9. 305 may be doubtful.

**Houghton-Le-Spring**, in Geography, a township in a parish of the same name, and in Eaglesfield Ward, in the county of Durham. In 1811, it contained 221 houses, and 1356 persons: viz. 663 males, and 693 females; 44 families being employed in agriculture, and 68 in trade and manufacture. The parish includes 18 townships.

**Howard**, a township of Centre county, in Pennsylvania, having 761 inhabitants.

**Howden.** In 1811, this township contained 344 houses, and 1812 persons; viz. 830 males, and 982 females. **Howell,** a township of Monmouth county, in New Jersey, having 2780 inhabitants.

**Hubbardston.** See Hubbardston.

**Hubbard,** a township of Ohio, in Trumbull county, having 674 inhabitants.

**Hubbardston, l. 3, r. 1127.**

**Hubbardston, or Hubbardston, l. 2, r. 734.**

**Huddersfield, l. 27,** r. 1811—1871—6971.

**Hull,** col. 5, l. 9 from bottom, r. 1811; l. 8, 4611; l. 7, 26,792—11,998—14,794.

Hull in America, l. 1 and 2, for Suffex r. Plymouth; l. 3, r. 132—167—943.

**Humeite.** See Mineralogy, Addenda.

**Hummock, l. 12 from bottom, dele the reference (see that article).**

**Humours of the Eye, Chemical Properties of.** See Eye.

**Humphries, in Geography, a county of West Tennesse, having 1511 persons, of whom 132 were slaves in 1810.**

**Hungary, col. 2, l. 33, after inhabitants (in 1810, 7998, 184).**

**Hungerford, l. 2 from bottom, r. 1811—167—2397—454.**

**Huntingdon, col. 3, two last lines, r. 1811—522.**

**Huntingdon,** in America, l. 7, r. 16,778; l. 14, r. 4775; after Philadelphia, add—the township contains 1698 persons; l. 22, r. 2770.

**Huntingdon, North, South, and East, three townships, &c. the former containing 2345, the second 1656, and the last 1267 inhabitants.**

**Huntingdon, a township in Luzerne county, in Pennsylvania, having 1114 inhabitants.**—Alfo, a township of Adams' county, in the same state, having 1014 inhabitants.

—Alfo, a township of Adams' county, in Ohio, containing 1375 persons.

**Huntingdonshire, l. 14, r. 7566 houses, 42,208 inhabitants: 20,402 males, 21,806 females.**

**Huntington, l. 5, r. 514.**

**Huntington, in Connecticut.** See Huntington.

**Huntsburg, l. 3, r. 714.**

**Hurd, Richard, in Biography, an eminent English prelate, was the fon of a reputable farmer, in the parish of Tetherhall, in the county of Stafford, and born in January 1710-20. After a preparatory school-education, he was sent to Emanuel college in the university of Cambridge, where he was graduated M.A., and was elected a fellow in 1742. In 1744 he received priest's orders. As a writer, he began his career by an anonymous work, which was, "Remarks on a late Book, entitled an Enquiry into the Rejection of the Christian Miracles by the Heathens, by William Wetton, B.D. &c." which was highly commended by Dr. Warburton. As a literary critic, he first laid the foundation of his future fame in 1749, by an anonymous publication, entitled "Horace's Epistles to the Pifos, with an English Commentary and Notes," and also of his fortune by a compliment paid in the preface to Warburton, whom he afterwards resembled, not only in his advancement, but in his mode of thinking and of writing. By his recommendation to Bishop Sherlock, he was appointed, in 1750, one of the Whitchall preachers. In 1751, he published a "Commentary on Horace's Epistle to Augustus," referring in learning and ingenuity his former commentary. Both these Commentaries were reprinted in 1753, with two dissertations on dramatic poetry and poetical imitation. This volume was dedicated to Warburton in a high style of pædagogy; and it was followed, in 1755, by a piece, entitled "Delicacy of Friendship," in which the anonymous author, known to Hurd, paid homage to his patron by an attack on Dr. Jortin, who, in his "Six Dissertations," had not treated Warburton with that respect to which, in the estimation of his admirers, he was thought to be entitled. By this pamphlet he gained no reputation, and it is said, that in consequence of some remarks on his subfervient disposition, he was deisirous of supressing it, though it has been since reprinted in a late edition of his works. His first church preferment was a college living at Thurcaston in Leicestershire, to which he was inducted in 1756, and here he lived for several years in retirement. Soon after Hume's "Eflay on the Natural History of Religion" was published, a pamphlet of "Remarks" upon it appeared, of which Hurd was thought to be the author, and which Hume notices in the following terms: "Dr. Hurd wrote a pamphlet against this work, with all the illiberal petulance, arrogance, and frivolity which distinguished the Warburtonian school." These Remarks have been thought to be the joint production of the master and disciple. Dr. Hurd's "Letter to Mr. Mafon on the Marks of Imitation," published in 1757, is represented by his biographer as "one of the most agreeable and ingenious of the writer's works on elegant criticism." Our author's "Moral and Political Dialogues," which appeared in 1759, contributed to the increase of his literary reputation; and those in particular that relate to the English constitution evince the writer's attachment to Whig principles. In 1762 appeared, without his name, an amusing work, entitled "Letters on Chivalry and Romance," 12mo. and in 1764 was published another dialogue on "The Uses of Foreign Travel." The several dialogues now recited were published in 1765, in 3 vols. 8vo. introduced with a preface on the manner of writing dialogue. The defence of his patron and friend had in the mean time occasioned a "Letter to the Rev. Dr. Leland of Dublin College;" in which he vindicates Warburton's idea of an inspired language, stated in his "Doctrine of Grace."

Hurd's preferments in the church had not corresponded to his growing literary fame; but in 1765 he was recommended by bishop Warburton and Mr. C. York to the office of preacher at Lincoln's-Inn; and in 1767 he was collated by the bishop to the archdeaconry of Gloucester. In the following year, he was graduated D.D. at Cambridge, and appointed to preach the lectures on prophecy, embellished at Lincoln's-Inn by Warburton; these were comprized in twelve discourses, which formed a volume of highly valuable theological literature, published in 1772, 8vo. with his explication of the double sense of prophecy, called by him "a divine artifice." With that excess of ingenuity which in some cafes seems to derogate from the simplicity of the gospel, some have been dissatisfied. Having embellished his reputation both as an elegant writer and an ingenious theologian, Dr. Hurd was promoted without solicitation to the see of Lichfield and Coventry in 1775; and in his first charge to the
the clergy of his diocese, the subject to which he directed their attention was the excellence of the liturgy, inculcating at the same time the duty of submitting all alterations to the wisdom of the church, and thus guarding against that disposition to reform which was manifesting itself among those who formed a considerable party pertaining to the establishment.

In the following year, the learned prelate had the honour of being preceptor to the Prince of Wales and his brother the duke of York. In the same year, he published a volume of sermons preached at Lincoln’s-Inn; to which, in 1780, he added two additional volumes, containing a variety of elegant discourses, orthodox with regard to their theology, and conformable to the articles of the church, which he professed highly to venerate. His translation to the fee of Worcester took place in 1781, when he was also nominated clerk of the cefet; and though he was offered the primate in 1783, he declined the acceptance of this high dignity. In his retired station at the episcopal seat of Hartlebury, he passed the remainder of his life in attending to the concerns of his diocese, pursuing his literary avocations, and collecting a noble library, which he bequeathed as an heirloom to the fee of Worcester. Of his minor publications, both before and after this period, we shall take no notice; but content ourselves with mentioning his edition of the works of his esteemed friend the bishop of Gloucester, presented to the public in 7 vols. 4to. in 1788; adding afterwards, v. 2 in 1794, an account of the life, writings, and character of the author. With this performance he terminated his literary labours; and after a gentle and easy decline, he expired, in his sleep, in May 1808, four months after the completion of his 88th year. The literary character of this prelate may be duly appreciated by a perusal of his writings; but with respect to his private character and conduct, we shall adopt the opinion and language of a candid biographer, who says of him, “if a fair abatement be made on account of some literary arrogance and acrimony, probably derived from the same source,” (referring to familiarity with the writings of Warburton) “they will merit unqualified praise. His strict regard to decorum, his liberal courtesy, his warmth of friendship, his moderation and disinterestedness, rendered him equally an object of regard and esteem.” Gen. Biog.

HURON, in Geography, a town of Cayahuga county, in Ohio, having 424 inhabitants.

HUTCHINSON, in Botany, dedicated to the memory of the late Mr. Hutchins, of Ballylickey, near Bantry, in Ireland, a most intelligent and accomplished botanist.—Br. in Ait. Hort. Kew. v. 4. 82. Sm. Compend. 98.—Cliffs and order, Tetradyrrama Siliculofa. Nat. Ord. Siliculofa, Linn. Crucifers, Jaff.


2. H. laurina. Alpine Hutchinson. Ait. n. 2. see Leptidium alpinum.—Leaves pinnatifid. Petals twice as long as the calyx. Style short.

3. H. petraea. Rock Hutchinson. Sm. n. 3. see Leptidium petraea.—Leaves pinnatifid. Petals shorter than the calyx. Stigma saccate.

HYALANCHE. See Toxicodendrum.

HYALITE. See Mineralogy, Addenda.

HYDE, I. 4, p. 6029—1882.

HYDE-PARK, I. 2, p. 261.

HYDRODATES, HYDRIODIC Acid, in Chemistry.

See Simple Bodies.

HYDROCHLORIC Acid. See Muriatic Acid, and Chlorine.

HYDROCYANIC Acid. See Cyanogen and Prussic Acid.

HYDROGEN. For the recent determinations respecting the specific gravity, &c. of this gas, see Atomic Theory.

HYDROGEN, Arsenical. See Arsenic.

HYDROGEN, Boruretted, the name of a gaseous compound of hydrogen and boron. The existence of such a gas, however, seems somewhat uncertain. Dr. Thomson thinks Gmelin succeeded in forming it by mixing together four parts of iron-dustings, and one part of boracic acid, and exposing the mixture to a strong heat for half an hour. When this fused mass was dissolved in muriatic acid, an effervescence took place, and a gas, supposed to be boruretted hydrogen, was extracted; but it was not satisfactorily examined. Sir H. Davy endeavoured in vain to unite boron with hydrogen by heating them together.

HYDROGUERET of Carbon, Phosphorus, and Sulphur, the names by which some have chosen to distinguish compounds of hydrogen with these respective substances, and which were formerly called carburetted, phospburetted, and sulphuretted hydrogen.

HYDROPHILUS. At the close, add—The genus hydrophilus, like that of dytiscus, has been greatly increased by the perverting researches of modern entomologists. Mr. Marsham enumerates twenty-eight British species.

HYDROPHOSPHORIC Acid, HYDROSULPHURIC Acid, HYDROTHIONIC Acid, in Chemistry, names which have been given, the first to phospburetted hydrogen, the last to sulphuretted hydrogen.

HYGROMETRY, col. 13, l. 22, add—Mr. Leflie's improved hygrometer is composed of a tube of ivory, containing quicksilver, with a glass tube adapted to it, to which a scale of equal parts is attached. When the ivory yields moisture to the air, which it does according to the dryness of the atmosphere, it contracts, and presses the quicksilver higher in the tube; when it imbibes moisture from damp air, it swells, and allows the quicksilver to subside. Mr. Leflie finds, however, that these variations do not correspond with the real measures of atmospheric dryness or humidity; near the point of extreme dryness, they are much augmented; while they diminish rapidly towards the other extreme. The addition of another scale, therefore, corresponding to this inequality, is necessary; and even with this, it cannot be regarded as either an accurate or delicate instrument.

There are other circumstantialties, fays the professor, connected with evaporation, on which an hygrometer may be constructed; particularly the dilatation imparted to the air by the vapour, and the depression of temperature produced on the humid surface.

On the fift of thefe he has invented an hygrometer consisting of a small tumbler, the mouth flat, having a hole ground through the bottom, in which is cemented a flender recurved tube, like a pyphen, containing a portion of coloured oil. A few drops of water being put on a glass plate, and the tumbler being printed upon this, the included air diffuses moisture proportional to its dryness; and the increased elasticity, thus communicated to the air, causes the column of oil in the tube to ascend. This instrument, however, requires adjacent in its management, which renders it difficult to obtain with it results perfectly precise.

On the other principle, Mr. Leflie has constructed what

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He
he regards as the most accurate hygrometer. It is a happy application of the differential thermometer. One of the balls is coated with fine cambric paper, and the paper is moistened with pure water. Evaporation takes place; and, from the cold which accompanies this, the liquid falls in the opposite item. The extent of its defect is measured by the scale attached. This indicates the degree of cold; this, again, the extent of evaporation; and this, lastly, indicates the relative dryness of the air, the evaporation being proportionally greater as the air is more free from moisture. The full effect is very soon obtained—generally in about two minutes; and it continues permanent under the same circumstances, as long as moisture is supplied to the covered ball.

This ingenious author observes, in consequence of experiments adapted to the purpose, that the condition of the atmosphere, with regard to dryness, is extremely variable.

In our climate, the hygrometer will, during winter, mark from 5 to 25 degrees; but, in the summer months, it will generally range between 15 and 55 degrees, and may even rise, on some particular days, as high as 80 or 90 degrees. In thickest fogs, the instrument flanks almost at the beginning of the scale; it commonly falls before rain, and remains low during wet weather; but it states powerfully in continued tracts of clear and warm weather. The greatest dryness yet noticed was at Paris, in the month of September, when it reached 120 degrees. But for want of observations, we are totally unacquainted with the real state of the air in the remote and tropical climates.

When the indication of the hygrometer does not exceed 15 degrees, we are directed by our feelings to call the air damp; from 30 to 40 degrees we begin to reckon it dry; from 50 to 60 degrees we should account it very dry; and from 70 degrees upwards we might consider it as intensely dry. A room is not comfortable, or perhaps wholesome, if it has less than 30 degrees of dryness; but the atmosphere of a warm occupied apartment will commonly produce an effect of upwards of 50 degrees.

Mr. Leflie has invented another instrument, which gives indications of the quantity of evaporation from a humid surface in a given time—which he has named the atmometer. It consists of a thin ball of porous earthen-ware, two or three inches in diameter, with a small neck, to which is cemented a long and rather wide tube, bearing divisions, each of them corresponding to an internal annular section, equal to a film of liquid that would cover the outer surface of the ball, to the thickness of the thousandth part of an inch. To the top of the tube is fitted a braze car, having a collar of leather, which, after the cavity has been filled with distilled or boiled water, is screwed tight, to prevent the tranfusion of the liquid from being fo copious as to drop from the ball. Evaporation of the water takes place from the external surface, the instrument being suspended in the air; and the quantity evaporated in a given time, is discovered by the defect of the liquid in the tube. The use of this instrument will require some dexterity, particularly in adjusting the pressure of the collar; and its indications are slow,—but it may often be employed with advantage, where it is of importance to ascertain the actual rate of evaporation.

From a variety of observations on the subject of evaporation he infers, that air has its dryness doubled at each rise of temperature, answering to 15 centesimal degrees. Thus, at the freezing point, air is capable of holding a portion of moisture represented by 100 degrees of the hygrometer; at the temperature of 15 centigrade, it could contain 200 such parts; at that of 30, it might diffuse 400; and at 45 on the same scale 800. Or, if we reckon by Fahrenheit's divisions, air absolutely humid holds, at the limit of congelation, the hundred-and-fiftieth part of its weight of moisture; at the temperature of 59 degrees, the eightieth part; at that of 86 degrees, the fortieth part; at that of 113 degrees, the twentieth part; and at that of 140 degrees, the tenth part. While the temperature, therefore, advances uniformly in arithmetical progression, the diffusing power which this communicates to the air mounts with the accelerating rapidity of a geometrical series.

The theory of the precipitation of rain, which he founded on this principle, requires, as he says, the affirmation, not merely of the mixture of two mists of air at different temperatures, saturated with moisture, but the continued contact of two currents of air under these conditions; as it is thus only that a sufficient quantity of water will be furnished to form that copious precipitation which constitutes rain. And he adds a calculation, founded on the preceding law, which illustrates this, and illustrates exceedingly well, the general theory.

We shall here take occasion to observe, that as the capacity of air for heat is increased by its rarefaction, its disposition to hold moisture in solution appears to be increased by the same cause; and at the same time the removal of pressure, which is the consequence of the rarefaction, facilitates the transition of water into vapour. From these causes, if the hygrometer be suspended within a large receiver, from which a certain portion of air is quickly abraded, it will sink with rapidity. But the effect is only momentary, for the rarefied air soon becomes charged with moisture, and consequently ceases to act on the wet ball of the thermometer. Hence there is every reason to believe that the higher regions of the atmosphere are drier than those beneath; and, without this condition, Mr. Leflie remarks, our globe must have been shrouded in darkness; for the cold which reigns in the upper strata, would have prevented the humidity from ascending to a great elevation, and have precipitated it in continual fogs or clouds. In the actual state of things, the diminution of temperature, in ascending, predominates at first over the augmented power of aqueous solution; and the air becomes damper till a height be reached, at which the opposite effects of cold and rarefaction are balanced. Above this, which is the proper region of the clouds, the influence of the rarity of the medium exceeds that of the cold, and the air therefore becomes progressively drier, until it melts away into the clear ethereal expanse.

On this principle is founded the very beautiful experiment invented by Mr. Leflie, of causing water to freeze by the cold produced by its own evaporation. The peculiar arrangement for this consists in placing water in a porous earthen cup, suspended within the receiver of an air-pump, and placing, at a short distance beneath it, sulphuric acid in a broad shallow vessel, so that an extensive surface of the acid shall be presented. On rarefying the air, the evaporation of the water is accelerated, and of course the degree of cold produced by that evaporation is increased. This, however, would soon be checked by the presence of the watery vapour; but this the sulphuric acid absorbs, almost as quickly as it is formed; keeps, therefore, the rarefied air always dry; and thus allows the evaporation to proceed with the same rapidity. The temperature, therefore, continues to fall, until the water freezes into crystals of ice; and even after it is entirely congealed, the ice continues to suffer evaporation, until it wholly disappears. See Leflie's Short Account of

HYPERSTONE. See MINERALOGY, Addenda.

HYPOCHLORHYDRIC ACID. See PHOSPHORUS.

HYPERUS, in Ornithology, a genus of birds of the order Passeres; the characters of which are, beak conic, straight and ferrated; nostrils ovate; tongue short and obtuse; feet with three toes, two before and one behind. There is one species, viz. H. Abyssineus, or black plant-cutter, with the head, throat, and jugulum red, wing-coverts brown, with white margins. It is found in Abyssinia, and, according to Mr. Bruce, it is a solitary species, and subsists on the kernels of almonds and other seeds, which it easily breaks with its strong ferrated beak. It frequents woods, and is called "Guifso batim dimmo-won jerck."

I and J.

Jackson, l. 2, containing, together with its town Jefferson, 10,569 inhabitants, the slaves in 1789, and in the town 27; l. 3, r. Welf Tenenfees, adding—containing 5401 inhabitants, of whom 481 were slaves in 1810.

Jacksonsborough, l. 2, after Carolina, add—in Scriven county. At the close, add—containing 2663 inhabitants, of whom 2000 were slaves in 1810.

Jaffray, l. 4, r. 1336.

Jaglire, l. 7, after hereditary, add—There are two species of jaghie; one personal, for the use of the grantee; and the other, in truf, for some public service, commonly for the maintenance of troops.

Jaina, l. penult. r. Myfore. Col. 2, l. 32, after Jaina, add—some say that; l. 34, after distinctions, add—others, however, affirm, that they have the same fourfold division into classes or calls.

Jamaica, in America, l. 8, after inhabitants, add—Also, a town of Windham county, in Vermont, having 996 persons.

Jamdavanta, l. 1, for Snr. Sri; l. 5, for Canta r. avatara.

James II. col. 3, l. 16, r. 5th.

James City, l. 3, r. 4094 inhabitants, of whom 2320 were slaves in 1810.

James, St. l. 5, after Chelfter, add—Also, a parish in the county of Acadia, in the territory of Orleans, containing 9325 inhabitants.

Jamesstown. Add—Also, a town of Newport county, in Rhode island, containing 524 persons.

Java, l. 24, after one, add—(See Bantam.) At the close, add—See Raleigh's Java.

Jay, l. 1, for Kennebeck r. Oxford; l. 7, r. 1107. Add—Also, a town of Orleans county, in Vermont, containing 28 inhabitants.

Jayadeva, l. 5 from the bottom, for practical r. poetical.

Jayadevi, l. 4, for Kari r. Kafi; l. 7, for Sina r. Siva.

Ice, col. 4, l. 43, add—clouds and frequent changes of wind being certain preventives of its formation; l. 44, Dr. Wells, in his Essay on Dew, &c. has given an account of the processes described by Mr. Williams, which, from its extent, 300 persons being employed in it, must have been carried on for profit, and of course would be conducted in the most economical manner. "A piece of ground, nearly level, containing about four acres, was divided into square plots, from four to five feet wide, which were surrounded by little mounds of earth, four inches high. In these inclosures, previously filled with dry straw, or sugar-cane haum, were placed as many broad, shallow, unglazed earthen pans, containing unboiled pump water, as they could hold. The air was generally very still, when much ice was formed; wind prevented its formation altogether. In the morning, between five and six o'clock, at which time alone, Mr. Williams made his observations, a thermometer, with its bulb naked, placed on the straw, amidst the freezing vessels, was never found by him lower than 35°; and he has observed ice, when a thermometer placed was 42°. Another thermometer, suspended five feet and a half above the ground, was commonly 4° higher than that among the pans. It is possible, therefore, that Mr. Williams may have seen ice, a little before sun-rise, when the temperature of the air was 40°. But granting this were the fact, it would not hence follow, that the ice was formed, while the air polflefeled that heat. For, although the air is generally held to be in all countries colder about sun-rise than at any other time, I know, from my own observations, that this is not always the case in England; and similar exceptions may occur in Bengal."

The formation of ice in the circumstances above specified is ascribed by Dr. Barker wholly, and by Mr. Williams in great measure, to cold produced by evaporation; and this opinion has been adopted by bishop Watson, Thompson, Young, Davy, and Leslie. Dr. Wells, however, is of opinion, that they have not fully considered the subject, alleging several reasons against it. He conceives, agreeable to his sentiments respecting the formation of dew (see Dew), that the formation of ice in Bengal depends upon the radiation of heat to the heavens. This cause, he says, not only exists, but exists in a degree sufficient for the production of the effect which he attributes to it. To this purpose he observes, that according to Mr. Leslie (on Heat, p. 80.) the power of water to radiate heat exceeds, perhaps, that of
all other substances. Ice, he adds, is chiefly formed in Bengal during the clearest and calmest nights; and on such nights the greatest cold, from radiation, is perceived on the surface of the earth. Moreover, the cold that produces this effect in Bengal appears, in its greatest degree, like cold from radiation in other substances, on those mild and serene nights, during which little dew is deposited by the atmosphere. He further adds, that clouds and wind prevent the formation of ice in Bengal; and that the same flates of the atmosphere either prevent, or considerably diminish, the occurrence of cold from the radiation of heat at night by bodies on the ground. From experiments, in procuring ice in the manner of Barker and Williams, Dr. Wells found reason for inferring, that water may freeze at night, in air of a temperature higher than 32°, not only without any loss of weight from evaporation, but with a gain of weight from an opposite process: and he concludes in general, that the formation of ice in Bengal, in the circumstances described by Barker and Williams, must be attributed, in far the greater measure, if not altogether, to a loss of heat, which the water suffers by its own radiation, while situated in such a manner, that it can receive little heat from other bodies, either by radiation or conduction. Our author, in the course of his experiments, found, that evaporation from water of 32° produces very little cold, even in the day-time: and he thinks it much more probable, that on a clear and calm night, though in a dry winter of Bengal, water at the temperature of 32° will acquire warmth from the formation of dew upon it, than that it will become cold from evaporation.

ICHNEUMON. Add—The characters are, mouth with jaws, without tongue; antennae with more than thirty joints; abdomen in most species foot-flaked; piercer exserted, with a cylindric-bivalve sheath. The animals of this genus deposit their eggs in the bodies of other living insects, and generally in the hofe of caterpillars. Here they hatch, and the young larvae, resembling small white maggots, nourish themselves with the juices of the unfortunate animal, and at length the young brood of ichneumon larve creep out by perforating the skin in various places, and each spinning itself up in a small oval flaken case, changes into chrysalis, the whole number forming a group on the shrivelled body of the caterpillar which had afforded them nourishment, and, after a certain period, emerge in the state of complete ichneumons. The principal species are, glomeratus, eumerus, ovum, uramidus, lutes. See Vespa, and Wasp.


ICTUS SOLARIS, A Stroke of the Sun, denotes the effect of a too violent influence of the sun upon the head. It is ranked by Dr. Cullen as a variety of apoplexy, under the name of "Carus ab infolatione."

IDA. Add—The summit of Ida is denominated Gar- garius; and it affords a level surface, of no great extent, but of an oblong form, with a rudely-built wall around it, in which are small blocks of marble. This inclosure, if conjectured, may have been a Greek church, or perhaps only a sheep-pon, united for the protection of the flocks in the summer months.

IDOCRASE. See Vesuvian.

IDOLATRY. col. 5. l. 15 from the bottom, for even r. ever.

JEDBURGH. In 1811, the burgh and parish contained 669 houses, and 4454 persons; vis. 1957 males, and 2497 females: 399 families being employed in agriculture, and 405 in trade and manufactures.

JEFFERSON. (See Jackson.)—Also, a county of the Missippiri, containing 4001 inhabitants, of whom 1792 were slaves in 1810.—Also, a township of Clarke county, in the Indiana territory.

JEFFERSON, in Kentucky, l. 3, r. 11, 611; l. 4, r. 5746; l. 7.—It contains, together with Louiville, 6111 inhabitants, the slaves in the county being 2080, and in the town 256; l. 9, r. 7309 inhabitants, of whom 783 are slaves; l. 14, r. 1971; l. 11 towns with 17,260 inhabitants, of whom 6001 are slaves; l. 14, after St. Clereville, add—Also, a town of Adams' county, in Ohio, having 494 inhabitants.—Also, a town of Fayette county, in Ohio, having 327 persons.—Also, a township of Madison county, in Ohio, having 246 inhabitants.—Also, a township of Montgomery county, in Ohio, having 1343 inhabitants.—Also, a township of Muskingum county, in Ohio, having 962 persons.—Also, a township of Preble county, in Ohio, having 385 inhabitants.—Also, a township of Scioto county, in Ohio, having 258 persons.—Also, a township of Geauga county, in Ohio, containing 168 inhabitants.—Also, a town in Maine, in Lincoln county, having 1205 inhabitants; l. 16— also, a county of Virginia, containing 11,581 inhabitants, including 3552 slaves; l. 17, for Grantham r. Coos, New Hampshire; do. r. 197; l. 19, after Scottville, add—Also, a county, containing 161 inhabitants.—Also, a township of Greene county, in Pennsylvania, having 1124 inhabitants.—Also, a county of New York, containing 15,140 inhabitants.

JERICO, l. 4, r. 1185.

JERSEY, New, after the table, add—By the census of 1810, the whole number of its inhabitants is rated to be 245562, and that of slaves 10851. See each county, and United States.

JESSAMINE, l. 2, r. 8219 and 2466.

JET. See Mineralogy, Addenda.

JEWS, col. 16, l. 9 from the bottom, r. 110000.

JINJAL, denotes a large mullet, fixed on a trivet, used in Indian forts, and fired with great precision.

ILCHESTER, l. 4 from the bottom, r. 1811—83—610.

ILEUM. See Intestine.

ILFRACOMBE, l. 434 and 1934.

ILLINOIS. Add—The Illinois territory, now one of the United States, contains two counties, viz. St. Clair and Randolph; the former comprising nine townships, and the latter four; and the number of inhabitants in the whole territory is rated, by the census of 1810, to be 12282 persons, of whom 168 were slaves. See United States.

ILLORI, a town of Mingrelia, on the left bank of the Enguri, surrounded by a wall.

ILMINSTER. By the return in 1811, the parish contained 364 houses, and 2160 persons; vis. 1022 males, and 1138 females: 121 families being employed in agriculture, and 231 in trade, manufactures, and handicraft.

ILSEY, l. 2, and East and West Ilsey were returned to parliament, in 1811, as containing 179 houes, and 996 persons.

IMIRETTA, l. 8, after W. add—between the 43d and 4th degrees of N. Lat.

IMPEDEMENTS, in Elusion. See Lanyx, and the references under that article.

IMPERATA, in Botany, so called after Ferrante Im-
perato, a Neapolitan botanist of the 16th century. See
Saccharum, n. 15.

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INCUBATION, dele the account of the figures.
INDEPENDENCE, in Geography, a town of Suffolk
county, in New Jersey, containing 1224 inhabitants.
INDIANA. After the table, add—According to the
census of 1810, Indiana is divided into five counties, viz.
Dearborn, having 7210 inhabitants; Clark, with 5070;
Harrison in two divisions, having in one 2338, and in the
other 1257 inhabitants; and Knox in two cantons, one
having 4907, and the other 3848. See United States.
INDIANA, in Pennsylvania. Add—Indiana contains nine
townships, and 6214 inhabitants.—Alto, a township of
Alleghany county, in Pennsylvania, containing 692 inha-
bitants.

INDICATOR, Honey-guide, in Ornithology, a peculiar
genus formed of the Cuculus Indicator; the characters of
which are, beak strong, conical, dilated at the base, narrow
towards the tip, the upper mandible bent and carinated, the
lower one recurved at the tip; nostrils slightly covered with
feathers, feet simple, with two toes before and two behind.
The external hinder toe longest, armed with a stout claw.
See Cuculus, and for Dr. Sparrman's account of it, Phil.
Trans. vol. lxxxv. p. 38.

INDIGO, Chemical Properties of. The indigo of com-
merce is exceedingly impure, and seldom contains more
than half its weight of real indigo. Thus, Bergmann could
only obtain 47 per cent. of real indigo from the purest speci-
men he could procure; and more lately Chevrel from the belt
Guatamala could only obtain 45 per cent. The following
analysis of Chevrel will give some idea of the substances
with which the indigo of commerce is adulterated.

Substances separated by water

| Substance                           | ... | ...
|------------------------------------|-----|-----
| Ammonia                            | 5   | 2   |
| Dióxygenified indigo               | 12  | 16  |
| Green matter                       | 46  | 46  |
| Bitter matter                      | 13  | 13  |
| Red matter                         | 7   | 7   |
| Muriatic acid                      | 1   | 1   |
| Alumina                            | 1   | 1   |
| Silica                             | 1   | 1   |
| Pure indigo                        | 1   | 1   |
| Total                              | 100 | 100 |

The principal properties of indigo have been already
detailed. The effects of nitric acid upon indigo, however,
as ascertained by Mr. Hatchett, have been omitted, and are
so interesting that they deserve to be mentioned.

Nitric acid acts on indigo with great violence, so as even
to set fire to it when concentrated, as was long ago observed
by Woulfe. When the acid is dilute, the action is less
violent. Mr. Hatchett, however, found, that when diluted
with an equal quantity of water, the action of the acid was
still so violent as to require further dilution. When the
effervescence had nearly subsided, the liquid was placed on a
sand-bath for some days, and evaporated to dryness. Water
poured upon this redfluid dissolved a considerable portion of
it, and formed a beautiful deep yellow solution of an
intense bitter taste. This solution contains only a very
small portion of oxalic acid; but with a solution of if you
or its it forms a copious yellow insoluble precipitate, and hence
contains a portion of artificial tannin; with ammonia, crystals
precipitate, consisting of bitter principle combined with
ammonia.

When four parts of nitric acid are poured upon one part
of indigo, the pigment soon loses its colour, and is dissolved.
The solution becomes yellow, and a thin layer of a renin-
like substance appears on the surface. This substance
becomes solid on cooling if the procures be now flopped. If
it be removed, and the solution be evaporated to the con-
fistency of honey, redissolved in hot water, and filtered,
pa-day throws down yellow iscopical crytals, consisting of
bitter principle combined with potash. These crytals have
the property of detonating with a purple light when wrapped
up in a paper, and struck with a hammer; the reyn by
further treating it with nitric acid may be converted into the same
bitter principle. If the procuses be flopped sooner than the
point above-mentioned yellow crytals are obtained, which
on solution become white, and appear to posses the prop-
erties of benzoic acid. Thus it appears, that by treating
indigo with nitric acid, it is converted into tannin, oxallic
acid, benzoic acid, and bitter principles.

INDRA, col. 2, 1, 32 and 33, read thus, without a
break; and omitting INDRA Malwa.—Malwa, the hereditary
person of, &c.

INDUSTRY, in Geography, a township of America, in
Maine, county of Somerfet, having 562 inhabitants.

INFLAMMATION of the Breast. See Breast, In-
flammation of, in the Atlcida.

INGA, in Botany, an American name, recorded by
Marcgrave, and adopted by Plumiier. It was funk in
Mimosa by Linnaeus; but Humboldt and Bonpland have
separated from the original genus of Plumiier, have
retained the appellation he had chosen, and they are followed
by Willdenow, as well as by Brown and Aiton in Hort.
Kew. If any barbarous name be tolerated, and they
can hardly be all expunged, the present is unexceptional.

Hort. Kew. v. 5. 15. Clasf. and order, Polygania Mon-
ocica ; rather Monadelphia Polyandria. Nat. Ord. Lamen-
taces, Limn. Leguminosae, Jutt.

Eff. Ch. Calyx five-toothed. Corolla tubular, five-
toothed. Stamens united into a cylindrical tube. Legume
of one cell. Seeds imbedded in pulpy tunics. Some
flowers without a pistil.

Obv. If Mimosa be divided at all, the present numerous
genus may commodiously be separated from it, though the
inflorescence, and structure of the flowers, come, in many
instances, very close to Acacia; see that article, as well as
Mimosa and Desmamthus. From the last, Inga is truly
distinct, in having monadelphous indefinitely numerous
flowers, no neuter, though so many male, flowers, and in
every instance a very different fruit. The greater size of the
leaflets is characteristic of Inga, and they are, for the most
part, differently compounded from those of the other genera.
Willdenow enumerates fifty-eight species, some of them truly
superb in their flowers. We shall give examples of this
writer's fix sections. The leaves of this whole genus are
compound; some of them sensitive.

Sect. 1. Leaves twice yoked. Eleven species.
1. dulcis. Sweet Inga, or Sappan Fruit. Willd. n. 3;
Ait, n. 1. (Mimosa dulcis; Roxb. Corom. v. 1. 67. t. 99.)

2. Thorns bipetalous, straight. Leaflets elliptic-oblong,
somewhat pointed. Fruits with few glands. Cluster
compound, terminal. Flowers capitatis. Legume twifled.

—Native of the Philippine islands. Cultivated on the coast of
of Coromandel, for the sake of its sweet pulpy red fruit, which is six inches long, wholesome, though rather impish. Flowers small, white.

Sect. 2. Leaves thrice pinnate. Five species.

Sect. 3. Leaves pinnate; common flake winged. Thorns none. Twelve species.
I. vera. Common Inga. Willd. n. 17. Ait. n. 3. (Mimofa Inga; Linn. Sp. Pl. 1498. Inga flore albo cimbratio, fructu dulci; Plum. Ic. 14. t. 25. Arbor; Merian. Surin. t. 51.)—Leaflets about five pairs, ovate-oblong, pointed, smooth, with a gland between each pair. Corolla hairy. Legume furrowed, downy. Native of South America and the West Indies, where the legumes are esteemed for their agreeable sweetmeats.
I. furtuofa. Stately Inga. Willd. n. 25. (Mimofa furtuofa; Jacq. Fragnm. 15. t. 10.)—Leaflets about four pairs, ovate, pointed; hairy beneath; with a flaked gland between each pair. Corolla hairy. Legume hairy, compressed, twisted.—Native of the Caraccas. We have from Dr. Merter a fine dried speciem, such as that from which Jacquin's plate is taken. This is a truly magnificent plant, whose copious large tawny flowers, with long crimson filaments, make a splendid appearance. The leaflets are from two to five inches long. Legume broad, flat, but containing a sweet pulp, with large oval seeds.

Sect. 4. Leaves pinnate; common flake simple. Thorns none. Ten species.
I. nodofa. Knobbed Inga. Willd. n. 29. Ait. n. 6. (Mimofa nodofa; Linn. Sp. Pl. 1498. Phaeolus arbores, &c.; Phil. Phyt. t. 121. f. 5.)—Leaflets two pair, ovate-oblong, smooth, undivided by the rib; the lower ones smaller, with a gland between.—Found in Ceylon and Cochinchina. It appears to have been raised in the English and Dutch flaves, but not preferred. The leaflets are from one to two inches long, their two fides very unequal.

I. purpurea. Purple Inga, or Soldier-bush. Willd. n. 42. Ait. n. 8. (Mimofa purpurea; Linn. Sp. Pl. 1500. Andr. Repol. t. 372. Acacia frutescens, &c; Plum. Ic. 6. t. 10. f. 2, the Linnaean character misapplied.)—Leaflets four pairs, oblong, obtuse; unequal at the base. Footstalks without glands. Heads of flowers flaked.—Native of the West Indies. The leaflets are half an inch long, smooth. Flowers copious, very conspicuous for their long tassels of crimson filaments.

Sect. 6. Leaves doubly pinnate. Eleven species; some thorny.
I. Saman. Great Downy-leaved Inga. Willd. n. 49. (Mimofa Saman; Jacq. Fragnm. 15. t. 6.)—Thorns none. Leaves with five pair of primary divisions; leaflets five or six pair, elliptic-obovate, obtuse; terminal ones unequalied; all downy beneath as well as their flake.—Native of the Caraccas. One of the largest and floutest trees of the Mimofa tribe. Leaves two feet, or more, in extent, with a impressed gland at every subdivision. Legume flat, seven or eight inches long.

INGESTONE, l. 5, r. 98 and 640.

INSTITUTE, National, &c. col. 2, after line 6, add—By a royal edict, passed the 26th of March, 1816, the first clafs refumes the name of the Royal Academy of Sciences, preferving the organization and distribution of ftentions.

INVERARY, col. 2, l. 8 and 7 from bottom, r. 103 and 113.

INVERKEITHING. Add—The burgh and parifh of Inverkeithing, by the last returns in 1811, contained 581 houfes, and 2400 perfons.

INVERNESS, col. 2, l. 7, 8, 9, r. The burgh and parifh was returned, under the act of 1811, containing 577 houfes, and 10,775 inhabitants.

INVERNESS-SHIRE, l. 10 and 11, r. comprehended, in the year 1811, 78,336 perfons, occupying 14,646 houfes; 35,722 being males, and 42,614 females.

INVERURY. In 1811, the burgh and parifh contained 205 houfes, and 907 perfons; 453 being males, and 454 females.

INULIN, in Chemical, a name given by Dr. Thomson to a flubstance extracted by Rofe, from the Inula helenium, or Elecampane. This flubstance is extracted by boiling the roots in water, and putting by the decoction to cool, when the inulin is deposited in the form of a white powder. Inulin resembles flarch in its appearance, and some of its properties. It is principally distinguished from flarch by separating from water after boiling in the form of a white powder. Inulin has been found by Dr. John in the roots of several other plants.

IOANNA. Add—In 1809, this ifland was visited by the favages of Madagascar, called Malagacars, who laid fiege to the principal town, and defroyed the crops, and thus reduced the inhabitants to the moft deplorable flate; fo that nearly 200 women and children perihed of hunger, and numbers of the latter were actually eaten by their parents, fo that these favages have nearly defolated the Comorof iflands. The once happy and flourishing ifland of Ioanna, with its 370 towns and f Villages, so enchantingly defcribed by Sir William Jones, is now reduced to two walled towns, and a population of 5000 fows.

IOANNINA, a city of Albania, the capital of Ali's dominions, situated on the weftern banks of a lake of the fame name, at about two miles from its eaftern extremity. In its uptem length, it may be, perhaps, about two and a half miles, and in breadth nearly a mile. Near the lake it flands on a flat, but the northern and weftern parts are built on flpes of rising and uneven ground. A triangular peninfula juts into the lake, and contains the reftidence of the pacha, being defended by a fortification at each angle. The entrance into these forts is over a draw-bridge. There is one ifreet which runs nearly the whole length of the town, and another that intercefs it at right angles, extending to the forts; there are the principal ifreets. Many of the houfes are large and well built, containing a court-yard, and having warehouse or flables on the ground, and the apartments of the family above. A flight of wooden flies and a gallery connect the under and upper parts of the houfes. Although gloomy in appearance, with small windows fatted with crofs bars of wood, the yard is furnifhed with orange and lemon trees; and the bell houfes communicate with a garden, and the galleries are sufficiently spacious to allow scope for walking in rainy weather. The bazaar, or principal ifreet, inhabited by trademen, has a fhowy appearance; the bizelefen, or covered bazaar, is of confiderable size, and would put one in mind of Exeter Change in London. Beside the palace of the pacha, and two houfes allotted to the sons of Ali, there is another fummer refidence of the vizier's in the fruburbs, at the N.W. end of the town. Beyond the pavilion,
pavilion, there are gardens belonging to the principal inhabitants of Ioanna, most of whom have summer-houses. The population is variously stated: some compute the number of houses at 8000, and others estimate the number of inhabitants at no more than 35,000. From the commercial transactions of this city, the vizier draws a revenue of 250,000 piastras. Hobhoue's Journey through Albania, &c.

IODATES, IODIC ACID, IODIDE, in Chemistty. See Simple Bodies.

IODINE. This newly discovered elementary substance has been correctly described under Simple Bodies, to which, therefore, we refer our readers.

JOHN of Gaunt, l. 2, for third r. fourth.

JOHN BAPTISTE, in Geography, a parish of German Coafl county, in the territory of Orleans, containing 2990 inhabitants.

JOHNSBUROUGH, Sr. 1, 3, r. 1330.

JOHNSON, l. 2, r. 4867; l. 3, r. 2330. Add—Alfo, a town of Franklin county, in Vermont, having 494 inhabitants.

JOHNSTON, l. 3, r. 1516. Olee the last paragraph, and insert—See Johnson.

JOLITE. See Mineralogy, Addenda.

JONES, l. 3, r. 4968 inhabitants, of whom 2375 were slaves in 1810.—Alfo, a county of Georgia, which, with its town Clinton, contains 8597 inhabitants; the number of slaves belonging to the county being 2574; and to the town 63, in 1810.

JONESBOROUGH. Add—a township of Washington county, in Maine, having 523 inhabitants.

JOSEF, Sr. 1, 6, r. Tucuman.

IPECACUANHA, l. 33, add—The plant is now known to be the Calliococa.

IPECACUANHA, Chemical Properties of. See Emetin.

IPSCHW, l. 6. In the year 1811, by the parliamentary returns, it contained 2732 houses, and 13,670 persons.

IRA, a town of Rutland county, in Vermont, having 519 inhabitants.

IRAC, l. 17, after wine, add—This province is divided into five great districts, and each of these into halloows, or leffer districts. The five districts are, Ipaavan, Tehraun, Naen, Mullagar, and Kermaunhaw. See each. At the clofe, add—See Yezd, Kom, Tehraun, &c.

IRAVAT, l. 15, for thunder, bearer r. thunder-bearer.

IREBY. In 1811, the parish, comprehended High and Low Ireby, contained in the former township 26 houses, and 130 persons, viz. 62 males, and 68 females; and in the latter, 41 houses, and 269 persons, viz. 137 males, and 132 females.

IRIDIUM. See Mineralogy, Addenda.

IRITIS, or Inflammation of the Iris. Professor Schmidt, of Vienna, first accurately discriminated this disease from other kinds of ophthalmia, and applied it to the foregoing name. The iris often becomes inflamed in consequence of artificial or accidental wounds of the eye-ball. Constitutional syphilis frequently affects the eye, producing a peculiar and characteristic iritis. The iris is the texture, which is the seat of inflammation in the diffusel kind of ophthalmia; frequently meeting with in gouty constitution. In the rheumatic ophthalmia, the inflammation, though never originating in the iris, frequently extends to it. And, lastly, an inflammation of this membrane sometimes accompanies cutaneous eruptions; particularly tho' which, though not syphilitic, have succeeded fores of the genitals, and are generally sup- posed to be connected with the abuse of mercury.

besides the common symptoms of ophthalmia, there are changes which occur at the very commencement that indicate the seat of the inflammation. The pupil is contracted, the motions of the iris are less free, and the pupillary opening loses the bright black colour which it naturally possesses. The colour of the iris is next observed to alter; this happens first in the lesser circle, which gets of a darker hue; and afterwards in the greater, which grows green if it has been greyish or blue, and reddish if it has been brown or black. The iris afterwards swells and projects towards the cornea; and the margin of the pupil loses its sharply defined edge, and is turned back towards the posterior chamber. The redness accompanying these changes is by no means considerable, and is at first confined to the sclerotic coat, in which a number of very minute rose-coloured vesicles are seen running in straight lines towards the cornea. The pupil, at the same time, loses its circular form, becomes somewhat irregular, and presents a greyish appearance. Examined with a magnifying glass, this appearance is seen to be produced by a substance very like a cobweb, occupying the pupil, and which is soon afterwards distinguished as a delicate flake of coagulable lymph. Into this, the processes and dentations of the margin of the pupil seem to shoot, and it is afterwards found, that at these points adhefions are apt to be established, in consequence of which vision is rendered more indistinct, and only one side or parts of objects can be discerned.

The effusion of lymph into the pupil continues to increase; it is likewise poured into the posterior chamber, and adhefions between the iris and capsule of the lens are formed. The quantity of lymph effused is sometimes so great, as to fall in a curdled form from the pupil to the lower part of the anterior chamber. The pupil, the size of which is considerably diminished, now derives a greyish-white colour from that of the lymph by which it is filled; the morbid fen- bility to light, which prevailed at the commencement of the inflammation, is diminished; the powers of vision become gradually more and more limited; and, at length, merely the perception of light remains.

By this time, the redness of the eye has increased, and partly arises from vesicles which are now developed in the conjunctiva. The redness is deepest all around the cornea; towards the periphery of the eye-ball it fades. The cornea loses somewhat of its peculiar brilliancy; and lymph now appears to be effused into the substance of the iris; for, while it projects more and more towards the cornea, its fibres are collected into bundles, and its surface exhibits a puckered or plaited appearance. A yellowish-red tuberle then forms on some part of its surface; it is at first small, but enlarges and projects forwards, and, according to Schmidt, is distinctly seen to be an abscess, which finally bursts, and discharges its contents into the anterior chamber. At this period of the disease, a small quantity of blood is sometimes extravasated into the anterior chamber. The inflammatory symptoms now abate, and, as the abscess subsides, both the pus and blood in the anterior chamber are absorbed. The throes of the eye of the abscess, which were floating in the aqueous humour, in a few days disappear. The anterior chamber regains its transparency; the iris remains permanently expanded; its aqueous appearance continues, the pupil is closed, and the power of vision is entirely lost. When the termination is somewhat more favourable, the pupil is not entirely closed, and the iris retains some degree of motion. The piece of coagulable lymph which occupies the pupil is reduced to the state of a thin membrane, which is opaque towards its centre, but somewhat transparent at the edges; the margin of the iris is only adherent
at some points to this membrane; and vision is impaired, but not destroyed.

Sometimes the inflammation of the iris extends to other textures of the eye. When the cornea is attacked, it becomes cloudy and thickened; and the iris, projecting, the two inflamed textures come into contact, and adhere before any visible effusion of lymph takes place. Should the inflam-

mation spread more deeply, and attack the membranes of the lens, and of the vitreous humour, the choroid coat, 

&c. then the violent symptoms of deep-seated inflammation of the eye take place. Even if the form of the organ is

preferred, vision is totally destroyed; but often the eye suppures, bursts, and almost entirely disappears.

In the Syphilitic iritis, a pale redness all round the cornea is the first symptom which is perceived. It is at first feated in the fcelerotic coat alone; but the conjunctiva very soon shares in it, and afterwards becomes even redder than the preceding membrane. However few the vessels may be elsewhere, there is always a broad zone of them all round the cornea, a zone formed at this place, not only by the vascular net-work in the conjunctiva, but by the ciliary vessels on the external surface of the fcelerota. The redness has a peculiar tint; for instead of being bright red, it is brownish, something like the colour of cinnamon. The whole cornea becomes uniformly hazy. The pupil also becomes con-

tracted, and the iris limited in its motions, as in common iritis; but the pupil does not preserve its natural situation. It is removed in a direction upwards and inwards towards the root of the nose, and is irregular. At the same time, the iris loses its natural colour, and projects forwards.

Towards evening, there is always an aggravation of the symptoms; the intolerance of light and painful sensibility of the whole eye increasing, and a gush of tears following every change of light and temperature. At length, a reg-

ular nightly pain sets in, of an extremely severe kind, but strictly limited to that part of the cranium which is imme-
diately above the eye-brow. It usually begins between six and seven in the evening, gradually increases, reaches its utmost height about midnight, and then diminishes till about four or five in the morning, when it ceases. After every such attack of pain, the pupil is found more contracted, drawn farther upwards and inwards, the iris more altered both in colour and form, the quantity of lymph increased, and consequently vision more impaired.

Peculiar appearances then take place in the iris; for, either on its pupillary or ciliary margin, or on both, one or more reddish-brown tubercles arise, which have a spongoy look. Their growth is pretty rapid. Lardy-looking ulcers sometimes appear on the cornea and white of the eye, or on the eye-lids. Even when syphilitic iritis terminates in the most favourable manner, the eye for a long time afterwards is peculiarly sensible to the influence of cold and moisture. On every exposure to the cold, the organ becomes morbidly sensible to light, of a reddish colour, and discharges tears. Indeed, frequently for more than a year afterwards, on every sudden change of temperature, a pale violet-coloured zone appears around the cornea, but goes off when the eye has remained for some time exposed to an equal temperature.

In the iritis which appears in conjunction with the eru-
tions supposed to be connected with the abuse of mercury, the inflammation feems less active than in the other kinds. The pupil is not much contracted, and lymph is less apt to be effused. A vehicle full of yellow matter sometimes rives on the iris, without any other alteration on this mem-

brane than that of colour, the pupil remaining almost un-

changed. By the use of proper remedies, this vehicle, even when it seems quite ready to burst, can generally be made to disappear in a few days, without any rupture taking place. The blood-vessels of the conjunctiva are large and dilated, without being varicose; they have a more livid colour than in the iritis of arthritic persons, and run quite to the edge of the cornea.

The treatment of iritis is conducted on the same prin-
ciples as that of inflammation in general, with one differ-
ence, which is deduced from the important fact so well explained by Dr. Farre and Mr. Travers, viz. that in iritis, the free exhibition of mercury is the most effectual means of preventing the effusion of coagulating lymph, and promoting its absorption after it has taken place, from which effu-

sion the thickening and adhesions of the iris, the formation of opacities in the pupil, and other mischievous and deftruc-
tive effects upon vision, are principally derived. According to Mr. Travers, indeed, whatever may be the cause of iritis, mercury is the grand remedy for retarding the progress and consequences of the effusion of lymph in the eye. According to professor Schmidt, of Vienna, general bleeding is necessary only where there is a great degree of sympto-
matic inflammatory fever. Hence, it is principally in the idio
topathic iritis that large bleedings from the arm are requi-
site. In the syphilitic species, he says, it is never necessary to open a vein. In the arthritic, it is sometimes attended with benefit; but in patients of this description, a small bleeding, repeated next day if necessary, is found to answer much better than a large bleeding at once, even though the constitutional disturbance be considerable. In the rheumatic iritis, it is also sometimes highly beneficial to bleed from the arm. Local bleeding, by means of leeches to the forehead, produces the most decided benefit in all the varieties of iritis.

Purgatives, given so as to act copiously, professor Schmidt describes as being useful only in the idiopathic iritis; and as for cold local application, he tells us that they are in all cases quite useless.

In the idiopathic iritis, he recommends us to take fifteen or twenty ounces of blood from the arm; and to repeat the bleeding if circumstances should require it. Six or eight leeches are to be applied to the eye-brow or temple. A smart purgative should then be given. The application of leeches, but in smaller number, should be continued every day, or every other day, until an abatement of the inflam-
mation has evidently taken place. In the first stage of the disease, blisters and blisters to the temple, or behind the ears, have little or no effect; though sometimes a large one on the nose seems to be of service. According to Schmidt, the only topical treatment which is admissible is the fomenta-
tion of the eye with water made as hot as the patient can bear it, which sometimes procures a mitigation of the vio-

lence of the pain. Care, however, must be taken to dry the eye-lids and circumference of the orbit well after using this application.

When the discharge passes into its second stage, or that in which the effusion of coagulating lymph commences, mercury is to be given with the views already mentioned. Two grains of the submuriate of mercury, and half a grain of opium, made into a pill, are to be given every evening and morning; or common mercurial fomentations may be employed. Externally, professor Beer applies a solution of the oxymuriate of mercury in water, to which mucilage and a considerable quantity of the vinum opii have been added. When this collyrium loses its effect, or the eye cannot bear any fluid application, which is sometimes the case, then he inserts daily between the eye-lids a small quantity of a face compos-
ed of two drachms of fresh butter, five grains of red precipitate, and eight grains of extract of opium. According to
to the same eminent oculist, frictions once a day over the eye-brow with mercurial ointment, opium being added to it, very much contribute to the absorption of the lymph effused in the posterior chamber.

It is seldom necessary to continue many days the exhibition of mercury; for such is the efficacy of this mineral in producing a removal of the lymph, and clearing away all opacities about the pupil, that in less than eight or ten days these objects are generally effected, and the medicine then may be omitted.

The form of iritis, usually named syphilis, or unquestionably one of those diseases which does not require more mercury for its cure than the common idiopathic iritis; and although it was suppos'd by professor Schmidt that it could not be radically cured without removing the constitutional disease, modern experience fully proves, that it may often be entirely and permanently relieved by freely exhibiting mercury for only a few days. This is another fact tending to confirm the opinions which have recently been examined and promulgated with so much ability by severals of our army surgeons, in relation to the curability of all the forms of syphilis without mercury. For, even in the syphilitic iritis, we are not to imagine that the complaint is stopped and cured by a few grains of calomel, on the principle of eradicating a specific disease: the thing is more rationally explained by the peculiar efficacy of the medicine in producing an absorption of the lymph, which thickens the iris, obstructs the pupil, and even serves for the formation of preternatural adhesions, and new opaque membranes destructive of vision. Besides the use of mercury, however, other means are advisable. When there is severe pain in the eye with violent headache, three or four leeches should be applied on the eye-brow, and a mild purgative administered. The nightly attacks of pain, which so invariably follow by an aggravation of all the symptoms, are most effectually prevented by rubbing into the part just over the eye-brow a small quantity of mercurial ointment with opium, a short time before the pain is expected to begin, and then covering the eye with a folded piece of warm linen. Generally speaking, calomel given in small doses two or three times a day, is the best preparation of mercury for internal exhibition.

The iritis which accompanies cutaneous eruptions was thought by Schmidt to be the most easy of cure; local bleedings are said to be in this case strikingly beneficial. According to some writers, when the eruptions have arisen from the previous abuse of mercury, calomel has not the least effect on the accompanying iritis. But at the London Infirmary for diseases of the eye, this form of the disease, though originally it may have been caused by the effects of a mercurial course, is said to be benefited as much as the other varieties of iritis by the exhibition of mercury; a circumstance which no mode of reasoning would ever have led us to anticipate. If, however, it be an unequivocal fact, the voice of experience must direct us in practice, and we must be silent on things which we cannot explain.

The best account of iritis is contained in professor Schmidt's valuable work, entitled "Ueber Nachbarlauf und Iritis nach Staar-Operationen," 4to. Wien. 1801. Additional information is also published in Beer's "Lehre von den Augenkrankheiten," b. 1. p. 350. Wien. 1813. Saunders on Diseases of the Eye, edit. 3. by Dr. Farre; B. Travers, in "Surgical Essays," part I. Carmichael in "Observations on the Symptoms and Specific Distinctions of Venerial Diseases," 8vo. 1818. The Quarterly Journal of Foreign Medicine, No. 1. contains a well-written analysis of professor Schmidt's work on Iritis; and at the same time that we acknowledge our obligations to that periodical publication for every thing which is valuable in this article, we cannot refrain from expressing our full wishes for the success of a journal, the principal object of which is to make us acquainted with the contents of all the best modern books which appear on the subject of medical science in different parts of the continent.

IRON, in Chemistry. According to the recent determination of Dr. Thomson, the black or protoxyl of iron is a compound of

\[
\begin{align*}
\text{Iron} & \quad - \quad - \quad - \quad 100. \\
\text{Oxygen} & \quad - \quad - \quad - \quad 28.5
\end{align*}
\]

Hence the weight of the atom of iron will be 35. The red or peroxyl of iron, according to the same chemist, is a compound of

\[
\begin{align*}
\text{Iron} & \quad - \quad - \quad - \quad 100. \\
\text{Oxygen} & \quad - \quad - \quad - \quad 42.955
\end{align*}
\]

Or it is composed of 1 atom iron + 1/2 atoms oxygen, or, to get rid of fractions, of 2 atoms iron + 3 atoms oxygen, on which latter supposition the weight of an atom of peroxyl will be 100.

IRON-CLAY. See MINERALOGY, Addenda.

IRON-FLINT. See MINERALOGY, Addenda.

IRON, Meteoric. See MINERALOGY, Addenda.

IRON-SAND. See MINERALOGY, Addenda.

IRON-STONE, Iron-Ore. See IRON-STONE, and MINERALOGY, Addenda.

IRON-STONE, Magnetic. See MINERALOGY, Addenda.

IRVINE, col. 2, l. 12, r. In 1811, the burgh and parish contained 694 houses, and 5700 inhabitants.

IRWIN, a township of Venango county, in Pennsylvania, having 357 inhabitants.

ISIAURIA, l. 1, for town r. country.


1. I. fruticosum. Ait. n. 1. (Apocynum fruticosum, see that article, n. 7. Burm. Zeyl. t. 12. f. 1.)—The only species.

ISLE OF WIGHT. At the end, add—By the parliamentary returns in 1811, the Isle of Wight contained 4323 houses, and 24,120 persons; 11,935 being males, and 12,185 females.

Isle of Wight, in America, l. 3, r. containing 9186 inhabitants, of whom 4031 were slaves in 1810.

ISLEBOROUGH, l. 51, r. 583.

ISLEWORTH, l. 20, add—By the parliamentary returns in 1811, the parish contained 775 houses, and 4606 persons.

ISLINGTON, col. 2, l. 15, r. 1811—15,065—2390.


Eff. Ch. Lip nearly similar to the converging petals and calyx. Anther a moveable deciduous lid. Males of pollen four, parallel.

2. I. prolific. Ait. n. 2. (Cymbidium prolificum; Wild. Sp. Pl. v. 4. 95.)—Flowers axillary. Leaves lanceolate-oblong. Stem proliferous, with axillary two-leaved bulbs.—Both species grow in the West Indies.

ISRAEL, in Geography, a township of Preble county, in Ohio, having 394 inhabitants.

JUBILEE, l. 13, for thirty-five r. thirty-three.

IVES, St. l. penn. r. 1811—712—32^1 perons, in the borough and parrih.

IVES, St. l. 4 from the end, r. 1811—2426—474.

JULIAN, See ZULPHA.

JULIEN, St. l. 3. r. Saulilue.

KAMA, col. 2, l. 3 from bottom, for magry r. magry.

KAMAL, col. 2, l. 3, and 4 from the bottom.

KAMAWKA, in Geography, a county of Virginia, containing 9366 perons, of whom 352 were slaves in 1810.

KARLY, col. 2, l. 8, for ball r. bafe; l. 15 from bottom, for as r. or.

KARPOOT, a large and ancient town in the pachalic of Diarbeik, built on the summit of a hill, at the western extremity of a fertile valley, about three or four miles broad, and from twenty to twenty-five miles long.

KASAWAGO, a township of Crawford county, in Pennsylvania, having 384 inhabitants.

KASHEKA, for Vifnaviira r. Vifnaviitra.

KASI, l. 4, for nari r. naf.

KASKASKIAS, l. 5, r. 622, and 48.

KASYAPA, l. 7, for all r. ufe.

KAYKIYA, l. 4, for Lucina, his half brother r. twins, his half brothers.

KAZAMEEN, a town of Periia, in the pachalic of Bagdad, three miles north of Bagdad, and on the western bank of the Tigris, inhabited by about 8000 Periians, who reside here because this town is the burying-place of Imam Mofa Cafim, and Imam Mahomet Tonky, holy men for whom they had great respect, and to whose memory a noble mosque is erected. About nine miles north-west of Kazameen, and at some distance from the river, a pyramidal structure is erected, called by Europeans the Tower of Babel, Nimrood by the natives of Bagdad, and Agerkaft by the Arabs, and supposed by fome to be coeval with the remains of ancient Babylon. It is 190 feet high, and 100 in diameter.

KAZARON, or KAZEROON, r. nearly seventy miles W.S.W. of Schiras, E. long. 51° 45'. This town is situated in a valley about thirty miles long, and seven or eight broad, bounded on the N. by a falt lake, and fertilized by many freams of excellent water. From the depopulation it has suffered, its preent inhabitants do not exceed 3000 or 4000.

JUNGLE, denotes, particularly in India, a wood or thicket, in a country overrun with shrubs or long grasses.

JUNIATA, in Geography, a township of Cumberland county, in Pennsylvania, having 1233 inhabitants.


Eff. Ch. Recept. chaffy, Seed-down none. Calyx imbricated; inner scales radiating, coloured.

K. A. n. 1.—Native of the fourth coast of New Holland. A green-houfe fhrub, flowering molt part of the year.

KEARSARGE GORE, a township of Hilliborough county, in New Hampshire, having 125 inhabitants.

KEENE, l. 3, 1810; l. 4, r. 1046.

KEITH. In 1811 the parifh contained 755 houfes, and 3352 perons; 1391 being males, and 1961 females; 173 families employed in agriculture, and 295 in trade, manufactures, and handicraft.

KELAT, the capital of Balouchiftan, &c.; add—It is immediately encompassed by a low mud wall, and contains 4000 houfes: the inhabitants are estimated at 7000, of whom 500 at least are Hindus. The palace of the Khan is feated on a very high hill, and commands a view of the whole place and neighbouring country. The bazaar is well supplied, and the town has the appearance of opulence, being frequented by merchants, and enjoying a confiderable trade. N. lat. 26° 6'. E. long. 67° 57'.

KELLY VALE, a township of Orleans county, in Vermont, having 40 inhabitants.

KELSO. In 1811 the parifh of Kelso contained 529 houfes, and 4408 perons; 1079 being males, and 2429 females; and the district of Kelso, comprehending twelve parifhles, contained 2173 houfes, and 12,378 perons; 5592 being males, and 6786 females; 1268 families employed in agriculture, and 797 in trade, manufactures, and handicraft.

KENDAL, l. alt. In the year 1811, Kendal ward contained 2710 houfes, and 13,674 perons; and the town of Kirkby Kendal contained 1496 houfes, and 7508 perons.

KENERA, 1. 9, for there r. thefe.

KENFIG. In 1811, the parifh contained 55 houfes, and 242 perons; 110 being males, and 153 females; and Higher Kenfig, which is a hamlet in Mengan parifh, contained 24 houfes, and 129 perons; 69 being males, and 60 females.

KENILWORTH. In 1811 the parifh contained 463 houfes, and 2279 perons; 1145 being males, and 1134 females; 155 families employed in agriculture, and 264 in trade, manufactures, and handicraft.

KEN-
KERNEBECK, l. ult. It contained, in 1810, 32,564 inhabitants.

KENNEDIA, in Botany, so named in honour of Mr. Kennedy, the well-known cultivator at Hamfermath, whose skill and experience have so much enriched the works of his son-in-law, Mr. Andrews.—Venten. Malmais. 104. Brown in At. Hort. Kew. v. 4, 299.—Claths and order, Delphina Decandra. Nat. Ord. Papilionaceae. Linn. Leguminosae, Jaffi.


3. K. profusara. Few-flowered Scarlet Kennedia. Br. in Ait. n. 3. (Glycine coccinea; Curt. Mag. t. 270. Willd. Sp. Pl. v. 3. 1606.)—Leaves ternate, ovate, hairy. Stalks one or two flowered. Stem prostrate.—Native of New South Wales, from whence its seeds were brought about 1790.


Mr. Brown appears to have some unpublished species.

KENNET. Add.—It contained, in 1816, 947 inhabitants.

KENNINGTON, l. 4. 1811—1379—19,886.

KENNINGTON, in America, l. 4. r. 781.

KENT, l. 19, &c. r. In 1811, Kent contained 62,063 houfes, 373,095 perfons; 183,500 being males, and 189,595 females.

KENT, in America, l. 4. r. 11,450; i. 5, r. 4,429; i. 13, r. 9,341; l. 24, r. 1,794.

KENT, New. See New Kent.

KENTUCKY. Add.—See United States.

KERBALA. See VOLGOLESIA.

KERRUK, or KERKOUK, the largest town in the lower Kuriditan, in N. lat. 35° 29', 59 furlongs from Bagdad, and 41 from Mosul, on the road from one place to the other. It was formerly a military station, called by Strabo, Demetrias; and by Ptolemies, Cercura. Its population is estimated at 18,000 souls, Turks, Armenians, Nettorkians, Kurds; this estimate, however, is supposed to exceed the truth by 5000. The city is defended by a mud wall, has two gates, seven mosques, fourteen coffee-houses, one harem, one caravansera, one Armenian church, and twelve pieces of udefles artillery mounted on the bastions. In the suburbs, are five mosques, nine small caravanseras, thirteen coffee-houses, three convents, and three Catholic churches. Near it is a number of naphtha pits, which afford an abundant supply of that commodity.

KERMANSHAW, one of the five distritcs of the province of Irak in Peria; the capital of this extensive and fruitful distritc of the same name, and the residence of Mahomet Ali Meerza, the king's eldest fon, and the most able and warlike of the princes of Peria. It is a flourishing town, containing about 12,000 houfes, at the extremity of a fine plain, through the centre of which runs the Karatu. It is adorned with many gardens, and fourteen hummums or public halls, four mosques, and yields a revenue of 15,000 tomans a year.

KERRIA, in Botany, so named after Mr. William Kerr, a gardener, who has introduced the shrub in question, with many other Chinese plants, into the English gardens. —De Candolle Tr. of Linn. Soc. v. 12. 156.—Claths and order, Kennedia Polygynia. Nat. Ord. Senticf, Linn. Rosaceae, Jaffi.


KESWICK, l. 7. r. 352—168. See KET, 1. 14.

KETERING, l. 24, &c. r. 1811—713—3,242—587—126.

KETU, l. 4, for Karyapa r. Kalyapa. Col. 2, l. 4, for r. a.

KEW, l. 4 and 5; r. 1811—73—560.

KEYNSHAM, l. 4 and 5; r. 1811; the parish contained of 318 houfes, and contained 1748 inhabitants.

KHARASAM, col. 2, l. 3; r. (See KIHEVA.)

KHOE, a town of Peria, in the province of Persia, with 22 furlongs from Tebrz. This town is the capital of a rich and extensive district, and the emporium of a considerable trade carried on between Turkey and Peria. It is said to contain a population of 25,000 souls, and is situated on a plain, famous for a battle fought, in 1514, between Shah Ismail and Selim I, in which 30,000 Perians encountered 300,000 Turks. There is no town in Peria better built or more beautiful than Khoee: the walls are in good repair; the streets are regular, shaded with avenues of trees; and the ceilings of many of the houfes are painted with extraordinary talke.

KHONSAR, a town of Peria, in the province of Irak, situated at the base of the two ranges of mountains, running parallel with each other, and fo close that the houfes occupy the bottom and also the declivity of the hills to some height. The town, placed in a beautiful and romantic situation, and formed of houfes and gardens, connected by means of its plantations, is about six miles in length, and about one-fourth of a mile in breadth. It contains 2500 families under a chief named Ali Shah, and yields an annual revenue of 3000 tomans, exclusive of the fadir, which generally consists of dried fruits and a kind of cotton chintz. Although they have no corn in the valley, fruit is fo abundant, that the inhabitants procure for it every article which they can want or desire. Of their apples, they make a kind of cyder, but it will not keep above a month. The women are celebrated for their beauty and vivacity.

KOHASSAN. Add.—Khorassan is a level country, interspersed with fancy islands, and irregular ridges of lofty mountains; the climate is accordingly various; in some parts temperate, but in others very cold; and the "had-a-fennum," which blows in the defects for 40 days in the year, proves

instantan—
KILMAURS, a parish of Ayrshire, which, in 1811, contained 248 houses, and 1,432 persons; viz. 685 males, and 747 females: 61 families being employed in agriculture, and 142 in trade and manufactures.

KILPATRICK. The parish of New or East Kilpatrick contained, in 1811, 205 houses, and 1,643 persons; viz. 746 males, and 897 females. The parish of Old or West Kilpatrick contained 370 houses, and 3,428 persons; viz. 1,595 males, and 1,833 females. In the former, 81 families were employed in agriculture, and 120 in trade and manufactures; in the latter, 95 families were engaged in agriculture, and 577 in trade, &c.

KILSYTH. In 1811, the parish of Kilcony contained 626 houses, and 3,206 persons; viz. 1,488 males, and 1,718 females.

KILWINNING. In 1811, the parish contained 561 houses, and 3,521 persons; viz. 1,607 males, and 1,684 females.

KIMBOLTON, l. 4 r. 1811: l. 5 r. 260—1400.

KINCRINE. By the parliamentary returns of 1811, the parish of Kinbrace, in Montrose, with Thornhill, contained 479 houses, and 2,419 persons.

KINCRINE, col. 2, l. 8, after Bervie, and which burgh and parish, in 1811, contained 193 houses, and 927 persons; l. 46 r. 1811: l. 47, r. 578—27,439: add—12,580 being males, and 1,485 females.

KINETON, l. 12, r. 1811, the hundred contained 4,666 houses, and 19,459 persons; and the parish 166 houses, and 801 inhabitants. Add—See KINGTON.

KING and Queen, l. 5 r. contains 10,989 inhabitants, of whom 6023 were males in 1810.

Kings, George, l. 3 r. 6456, of whom 3876 were males in 1810.

KINGHORN. Add—In 1811, the burgh and parish contained 326 houses, and 2,204 persons.

KINGSBRIDGE, l. 9, r. 1811—156—1242.

KINGSCLEERE, l. 9, r. 1811—398—1803—50 families; l. 15 r. 1137.

KINGTON, in America, l. 12 r. 324. Col. 2, l. 3 r. 746. Add—Allo, East Kington, a township of the same county and state, having 442 inhabitants; l. 12 r. 832.

KINGSTON, on the Thames, l. ult. r. 1811—716—414.

KINGTON, l. 2, r. Huntingdon; l. 11 r. 1811—1617—329. See KINGTON.

KING WILLIAM, a county of Virginia, containing 31,925 inhabitants, of whom 3788 were males in 1810.

KINGWOOD, l. 1 r. Hunterdon; l. 2 r. 2605—48.

KINROSS, l. 4 r. The number of inhabitants of this parish, in 1811, was 2940, of whom 287 families were employed in trade and manufactures, and 92 in agriculture; the number of houses was 396.

KINROSS-SHIRE, col. 2, l. 9 r. 1811, as containing 1364 houses, and 7245 persons.

KINTORE, l. 11 r. 1811, the burgh and parish contained 218 houses, and 863 persons.

KINTRYE, l. 1 r. fix for three; l. 2 r. fix for three; l. 3 r. after this: Argyll, Corrall, Illay, Kintyre, Lorn, and Mull. The first district contained, in 1811, 2702 houses, and 15,637 persons; Corrall, 2121 houses, and 6887 persons; Illay, 2636 houses, and 14,161 persons; Kintyre, 2959 houses, and 18,286 persons; Lorn, 2721 houses,
houses, and 13,779 persons; and Mull, 3,012 houses, and 16,834 persons.

KIRCALDY, col. 2, l. 25, r. In 1811, the number of inhabitants in the burgh and parish was 37,471, occupying 31,488 houses, of whom 453 families were employed in trade and manufactures, and 46 in agriculture: the number of houses in the whole district was 38,999, and of inhabitants 31,958.

KIRKBY-LONSDALE, l. 5, r. In the year 1811, the town contained 271 houses, and 1,568 persons.

KIRKBY-STEPHEN. Add—By the return of 1811, the township contained 250 houses, and 1,235 persons.

KIRKUDBRIGHT, l. ult. r. In 1811, the number of houses in the burgh and parish was 302, and of inhabitants 2,073.

KIRKUDBRIGHTSHIRE, col. 2, l. 8, r. 1811—33,684 persons: 15,788 being males, and 17,894 females: the number of houses being 6,223.

KIRKHAM, l. 6, r. 1811—424—2214.

Kirkham, a township of Amounderness hundred, in Lancashire, part of Kiffen parish, containing, in 1811, 424 houses, and 2,214 persons; viz. 1,039 males, and 1,175 females.

KIRKINTULLOCH, l. penult. r. In 1811, the number of houses was 605; and of persons 3740; of whom 573 families were employed in trade and manufactures.

KIRK-OSWALD. At the end, add—In 1811, the number of houses in this township was 116, and of inhabitants 636.

KIRKWALL. Add—The burgh and parish of Kirkwall contained, in 1811, 287 houses, and 1,715 persons.

KIRKMANSHA. Add—See Kirkmanshaw.

KIRRIEMUIR, l. 12 and 13—1811, the town and parish were returned as containing 955 houses, and 4,791 persons.

KIRTON, l. 6, r. In 1811, it contained 307 houses, and 1,531 persons.

KIRTON Lindsay, l. 5, 1811—258—1152.

KILBERRY, l. 3, r. 1919.

KIZIL-OZAN. Add—This river, called the Golden Stream, is the natural boundary of Irak and Azerbijan, and, according to Renell, the Gozan of Scripture.

KNARESBOROUGH, col. 4, l. 13, r. The population of the borough and township, as returned to parliament in 1811, was 2,934, occupying 688 houses.

KNEE, in the Mange, add—Broken knees very much depreciate the value of a horse; and therefore various methods have been proposed for repairing and correcting this injury. Mr. Tepelin recommends, first of all, to wash the injured parts well with a sponge and warm water, so as thoroughly to cleanse them from gravel or sand; and then plentifully embrocating them with camphorated lead-water, and bandaging over them a pledget of towel moistened with the same, repeating the operation once or twice, if necessary. This treatment should be continued, that a crust or cicatrix may be formed, which will render unctuous or greasy applications unnecessary. But if the laceration be considerable, suppuration will ensue, and should be encouraged by a common poultice, and the cure completed by digestive ointments. Mr. Lawrence proposes to make the hair grow after such accidents, by, binding a piece of fleet-lead on the part after the wound is healed; and he also mentions a contrivance by which the knees of a valuable horse may be preserved from this accident. (See Hose.) He advises to wash the wound clean with a linen rag and warm soap-fands, and having wiped the parts dry to apply brandy. Friar's balsam (compound tincture of benzoin) will, he says, heal broken knees very speedily. A kind of hofe, or boots, is used to defend the legs of race-horses in travelling; and some kind of guard, latten'd above and below the knee, would be very useful to pit-horses. For broken knees, Mr. Ryding recommends a mixture of 1 dr. of cantharides in fine powder with 1 oz. of olive-oil, which should be applied occasionally with the hand to the wounded part. This, he says, by its gently stimulating power, will brace the parts, promote the fore, and facilitate the growth of hair.

KNIGHTIA, in Botany, so named by Sir Joseph Banks and Mr. Brown, in honour of Thomas Andrew Knight, eqq., the able president of the Horticultural Society, well known by his numerous writings on vegetable physiology.—Br. Tr. of Linn. Soc. v. 10. 193.—Clubs and order, Tetrapedia Monogynia. Nat. Ord. Proteaceae, Juff. Br.


K. excelsa. Br. as above, t. 2.—Found by sir J. Banks, in New Zealand. A large tree, often eighty feet high. Leaves scattered, flaked, elliptic-lanceolate, ferrated, five or six inches long; downy beneath. Flowers red, in dense lateral clusters, with red falks. This genus comes very near Aublet's and Schreber's Rhopala, (see that article,) differing only in having four seeds winged at the apex, instead of two winged all round.

KNOWLTON, l. 2, r. 2.064 inhabitants, including 17 slaves in 1810.

KNUFSORD, l. 5 from the bottom, r. In 1811 there were in the township of Nether Knutsford 448 houses and 2,114 persons, and in Over Knutsford 49 houses and 243 persons, of whom in the former township 276 and in the latter 37 were employed in trade, manufacture, and handicraft.

KOM, l. 4, add—It is said to have been built in the year 203 of the Hejira, from the ruins of seven towns, which had composed a small sovereignty under Abdalrahman, an Arabian prince:—l. 19, after khan, add—It was taken by the Afghans, when they invaded Persia in 1722, and completely destroyed. Part of it has been since rebuilt, but it still appears like a vast ruin.

KORASAN, or Khorassan. Add—See Khorassan.

KORNA. See Siat-ul-Arab.

KOUMISS, an intoxicating drink, prepared by the Tartars from mare's milk. See Milk.

KRISHNA, l. 21 and 24 from the bottom, for Gapia r. Gapia; l. 18, for Tafuda r. Yafuda.

KROOK. See Regan.

KUFA, a kind of boat in use on the Euphrates and Tigris; it is perfectly round, made of wicker-work, covered with bitumen, and generally about seven feet in diameter.

KUFRI, in Geography, a town of Persia, in the pashalic of Bagdad, between Bagdad and Kerkook, containing about 2,000 inhabitants.

KUPRI-ALTUN. See Altun-Kupri.

KURMAVATARA, l. 18 from the bottom, for beautiful r. bonuful.

KYANITE. See Mineralogy, Addenda.


K. calycina.
1. K. calycina. Roxb. t. 215.—Outer calyx four-leaved, longer than the corolla.—Native of the banks of rivulets, in Coromandel and Hindooften, flowering in the cool season. A tree, with long-talked, roundish, mealy, slightly three-lobed leaves. Flowers small, white, in terminal panicles.

2. K. fraterna. Roxb. t. 216.—Outer calyx six-leaved, shorter than the corolla.—Native of the Cercul mountains, flowering in the rainy season. A larger tree than the foregoing. Flowers more conspicuous. Leaves whiter underneath.

LABORATORY. Woulfe's Apparatus, Plate V.

LAC, in Coinage. See Lack and Rupee.

LACKAWANNA, a township of Mercer county, in Pennsylvania, having 379 inhabitants.

LACTATES, in Chemistry. See Lactic Acid.

LACTIC Acid. The description of this acid has been omitted, we shall therefore introduce a brief account of it here.

The lactic acid was first obtained by Scheele from four whey. He considered it as analogous to the acetic acid. Bouillon Lagrange afterwards instituted a series of experiments upon it, from which he drew the conclusion that it is merely acetic acid, contaminated with some fatty and animal matter. Four years afterwards, Thenard advanced a similar opinion. Both these chemists, however, had obtained the acid which they examined by distillation, though Scheele had expressly stated that lactic acid, when distilled, was converted into acetic acid. The existence of lactic acid, therefore, was by no means disproved by their experiments. Soon afterwards, Berzelius took up the subject, and in an elaborate set of experiments proved that Scheele's original opinion was correct, and thus fully established the peculiar nature of lactic acid.

Berzelius obtained the lactic acid by the following complicated process. The extract obtained by evaporating whey to dryness was dissolved in alcohol, and mixed with alcohol holding 2/3 of its weight of concentrated sulphuric acid in solution, till there was an excess of sulphuric acid present. Sulphate of potash was precipitated. To get rid of the other acids, it was digested over carbonate of lead till the liquid acquired a sweetish taste. By this means, the sulphuric acid, the phosphoric acid, and most of the muriatic acid, were separated; but the lactic acid forming a soluble compound with lead remained in solution. A current of sulphuretted hydrogen gas being passed through the liquid threw down the lead. The liquid was digested over quick-lime till all the animal matter was separated. It now contained only lactic acid, muriatic acid, and lime. A portion of it was freed from lime by means of oxalic acid. This portion was then saturated with carbonate of silver; by means of this solution, the remainder of the liquid was freed from muriatic acid. Finally, the lime was thrown down by means of oxalic acid, so that nothing remained but lactic acid dissolved in water. To get rid of a small portion of oxalate of lime which it held in solution, it was evaporated to dryness, and redissolved in water.

Lactic acid thus obtained has a brownish-yellow colour, and a sharp four taste, which is much weakened by diluting the acid with water. While cold it has no smell, but when heated it acquires a sharp four odour, not unlike that of sublimed oxalic acid. It does not crystallize, but when evaporated to dryness forms a smooth varnish, which gradually attracts moisture from the air. It dissolves readily in alcohol. When heated it boils, emits a four smell, and leaves a bulky charcoal, not easily burnt. When distilled it gives out empymatic oil, water, acetic acid, carbonic acid, and inflammable gas.

Lactates.—All the lactates are more or less soluble in water, and hardly any of them can be made to crystallize. The lactate of potash and lactate of soda form a light yellow transparent gummy mass, which cannot be easily made hard. The lactate of ammonia has some tendency to crystallize. It forms a gummy mass, which acquires in the air an excess of acidity. When heated, most of the ammonia is driven off. The lactates of barytes, lime, and magnesia, are divided by alcohol into superlactates of those earths which are soluble in alcohol, and into sublactates which are insoluble. The metallic lactates do not possess remarkable properties. There are three lactates of lead; the superlactate which does not crystallize, the lactate which exists in grey crystalline grains, and the sublactate which is insoluble. The lactate of zinc crystallizes.

Dr. Thomson estimates the weight of the atom of lactic acid from Berzelius's experiments at 57.5.

Such are the chief properties of lactic acid and its compounds. We have entered further into the description than we should otherwise have done, on account of the importance of the subject,—the lactic acid existing both in a simple and combined state in most of the animal fluids. See Blood, and Fluids, Animal.

LACTODORUM, in Ancient Geography. See Towcester.

LACTUCARIUM, a name given by Dr. Duncan to the impregnated juice of the lactuca salia, or common lettuce, and which has been found beneficial in various disorders, especially consumption, as an anodyne, where opium disapproved and could not be taken.

LADY-BIRD. See COCCINELLA.

LAFOURCHE, in Geography, a county of the territory of...
of Orleans, containing in its interior, and in the parish of Assumption, 4467 inhabitants.


LAHORE, l. 10, for Schaugruve r. Shah Jehan.

LAKE, a town of Champaign county, in Ohio, containing 180 inhabitants.

LAKSHMI, col. 3. l. 4. for deities r. deity's wives.

LALESTON, Higher and Lower, in Geography, form a parish of Newcastle hundred in Glengarnshire. The Higher in 1811 contained 34 houses, and 157 persons; 81 being males, and 76 females; and the Lower contained 62 houses, and 271 persons; 111 being males, and 160 females.

LAMBETH, l. 25, r. 1811—7201; l. 24, r. 4144, and 4491; l. 27, r. 338.

LAMBOURN, l. 13 and 14, r. In the year 1811, the population of the parish, with its dependent hamlets, viz. Bрагgrave and Halsey, Eastbury and Bockhampton and Upper Lambourn, was 2674 persons, and the number of houses 527.

LAMP, Aphiologic. Sir Humphrey Davy, during his researches on flame with the view to the construction of his safety-lamp for coal-mines (see Wire-Gauze), observed, that a fine platinum wire heated red hot and held in the vapour of ether would continue ignited. Soon after this curious fact was made known, Mr. Ellis of Bath thought of extending the principle, and found that a coil of fine platinum wire, flung into the wick of a common spirit-lamp (being previously heated), might be kept red hot for any length of time. The lamp so constructed received the appellations of aphiologic lamp, lamp without flame, &c.

The platinum wire for this experiment should not exceed \( \frac{1}{8} \) of an inch in diameter. About twelve coils of this (the coil being about \( \frac{1}{8} \) of an inch in diameter, and as close together as possible without touching) are to be placed upon the wick of a common spirit-lamp, in such a manner that half be on the wick and half above it; the lamp is then to be lighted, and when the wire has become red hot the flame is to be blown out; the wire will then remain red hot for any length of time required, and in a dark room, if properly constructed, will emit a considerate light. Instead of alcohol, ether may be employed, or a similar effect may be produced by flicking the ignited wire into a piece of camphor.

LAMP, Safety, for coal mines. See Wire-Gauze.

LAMPETER, l. 2, r. 2501.

LAMPIC Acid, in Chemistry. The name recently given by Mr. Daniell to an acid generated by the combustion of alcohol, &c. by the aphiologic lamp.

Sir Humphrey Davy observed, during the combustion of ether in the manner above described, the formation of a peculiar acid pungent vapour, which he considered as a new product. Mr. Faraday soon afterwards described some of the properties of this acid, and more recently Mr. Daniell has given us a more full description. Mr. Daniell prepared Vol. XXXIX.

it for his experiments by burning the aphiologic lamp under an alembic head, and collecting the products; but we understand it may he formed much more readily by palling the vapour of ether through a tube containing platinum wire. The lampic acid, when as pure as possible, is a colourless fluid, of an intensely taint and pungent odour. Its vapour when heated is extremely irritating and disagreeable, and produces an oppression on the chest, something like that produced by chlorine. It reddens vegetable blues, and decomposes all the earthy and alkaline carbonates. Its ip-kr. when rectified as highly as possible, according to Mr. Daniell, is 1015.

The Lampates of Potash and Soda are deliquecent salts, and do not readily crystallize. The lampate of ammonia is volatile, and easily decomposed. The lampate of barite readily crystallizes in colourless transparent needles. The lampates of lime and magnesia are deliquecent.

The lampic acid has the property, according to Mr. Daniell, of reducing many of the metallic oxides; this is particularly the case with the oxides of gold and mercury. When warm nitrate of mercury, according to Mr. Daniell, is mixed with lampic acid, a metallic flower takes place, and brilliant globules of mercury soon accumulate at the bottom of the vessel.

Mr. Daniell estimates, from his experiments, the weight of the atom of lampic acid at about 64, and confers it as composed of 1 atom hydrogen + 1 atom carbon + 1 atom water. How far these determinations are to be depended upon we cannot say, though we think it probable that they are incorrect.

LANARK, l. ult. r. 1811—5677—658.

LANARKSHIRE, l. 13, r. according to the parliamentary returns in 1811, the population of the county consists of 191,532 persons, occupying 32,870 houses; the males are 88,688, and the females 102,844: the families employed in trade, manufactures, and handicraft, are 27,672, and those employed in agriculture 5387.

LANCASHIRE, l. 21, r. 1811—14,283—828,309; l. 22, r. 114,222; l. 23, r. 23,305. The number of males was 394,104, and that of the females was 434,205.

LANCASHIRE. This county contains several villages and parishes, which, by the prevalence of its manufactures, are become populous, but which our limits will not allow us to mention.

Abston-under-Lime (omitted in its proper place) defers a particular notice as a parish in the hundred of Salford, which in 1811 contained 3042 houses, and 19,052 persons, viz. 9146 males, and 9906 females; 213 families being employed in agriculture, and 2727 in trade, manufactures, or handicraft.

Abston-in-Mankerfield is also a township in the hundred of Well Darby, and parish of Winwick, which contains 864 houses, and 4747 persons; viz. 2342 males, and 2405 females: 163 families being employed in agriculture, and 726 in trade, manufactures, &c.

LANCASTER, col. 4, l. 26 from bottom, r. 1811; l. 25, r. 1694 and 9247.

LANCASTER, in America, l. 5, r. 3927—44. Col. 2, l. 5, r. 5592 inhabitants, of whom 312 were slaves in 1810; l. 7, r. 6318; l. 8, r. 1646; l. 18, add,— and by the census of 1810, 5405 inhabitants, including 700 slaves; l. 31, add.—Also, a township of the same county, containing 592 inhabitants:—l. 43, r. 1694; l. 44, for Grafton r. Coos; l. 47, r. 1810; and 517.

LANDAFF, l. 2, r. 550.

LANDGROVE, a town of Bennington county, in Vermont, having 299 inhabitants.

3 X STRANDSCAPE,
LANDSCAPE, 1. penult. r. wherein. Col. 2, l. 6 from bottom, r. aims.

LANESBOROUGH, 1. 3, r. 1302.

LANGAYA, a genus of serpents, the characters of which are, that it has abdominal plates, caudal rings, and terminal scales. Of this genus there is only one species, differing from all the rest of the serpent tribe in having the upper part or beginning of the tail marked into complete rings, or circular divisions, resembling those on the body of the amphid, while the extreme or terminal part is covered with small scales, as in the genus anguis. This species is called Langaya nacha, or large-mouted Langaya, has 184 abdominal scales, and 42 caudal rings; it is a native of Madagascar, and was first described by M. Bruguier of the Royal Society of Montpellier. The natives of Madagascar are much afraid of this serpent; as they conceive it to be very poisonous.

LANGDON, l. 3, r. 632.

LANGHOLM, l. 5, r. 1811, 2636 persons, occupying 522 houses.

LANGPORT, col. 2, l. 3, r. 1811—112; l. 4, r. 861.

LANFITT, Major, a parish of Cowbridge hundred, in the county of Glamorgan, containing, in 1811, 179 houses, and 786 persons; viz. 357 males, and 429 females.

LAN WTIT, Lower, a parish near Neath, which, in 1811, contained 116 houses, and 564 persons; viz. 265 males, and 299 females.

L A R, l. 6, add.—It still contains about 12,000 inhabitants, celebrated for the manufacture of muskets, and cotton cloth. It has very handsome buildings, and particularly a bazaar, that is reckoned the noblest structure in Persia. N. lat. 37° 30'. E. long. 52° 45'. See TAMREM.

LARIISTAN, L. 1, after Perfa, add—extending along the Northern shore of the gulf from E. long. 55° 10'.

LARUS, col. 3, r. RIDIBUNDUS.

LASCAR, a term in India, denoting a camp-follower, but applied to native sailors and artillerymen.

LASCQ, JOHN, Add.—A brief account has already been given of this famous reformer under ALASCO.

LASSUS. See ORLANDO.

LATIMORE, in Geography, a township of Adams' county, in Pennsylvania, having 666 inhabitants.

LAUD, l. 16 from bottom, r. Stanford.

LAVENHAM, at the close, r. 1811—398, and 1711.

LAUGHTER, l. 15, add—See LUNGS.

LAVINGTON, Ed. l. 11, r. 1111; l. 12, r. 899—184; l. 16, for Whirlond r. Potturn and Cannings; l. 17, r. 1811—127; l. 18, r. 582.

LAUNCESTON, col. 2, l. 4 and 3 from the end, r. 1811—1758, and 262.

LAUREAT, POET, l. 5, add.—In anciently conferring degrees in grammar, which included rhetoric and verification, at our universities, particularly at Oxford, a wreath of laurel was presented to the new graduate, who was afterwards usually styled "Poeta Laureatus." These scholastic laureations seem to have given rise to the appellation:—l. 19, after Edw. IV, infert—who appointed John Kay poet laureat, and who, according to Warton, was the king's first poet under this appellation. The only composition he has transmitted to posterity is a profe English translation of a Latin history of the siege of Rhodes. In the dedication, addressed to king Edward, or rather in the title, he styles himself by humble poet laureate. The same appellation occurs under, &c. At the close, add—Warton's Hift. of English Poetry, vol. i. p. 128.

LAUROPHYLLUS, in Botany, an exceptional compound name.—Thumb. Prodr. pref. n. 16. Willd.


1. L. caprifol. Thumb. Prodr. 31. Willd. n. 1. Ait. n. 1.—Found at the Cape of Good Hope. A tree, with round, brown, lining branches; alternate, oblong, serrated, smooth, coriaceous leaves; and minute flowers, in terminal panicles.

LAWLANSE, in Geography, a township of Northampton county, in Pennsylvania, having 157 inhabitants.

LAWSVILLE, a township of Luzerne county, in Pennsylvania, having 166 inhabitants.

LEAD, in Chemistry. According to the most recent determinations, mafficot, or the protosxil of lead, is a compound of 100 lead + 7.593 oxygen; and the brown or persyil, of 100 lead + 7.2534 oxygen. Hence the weight of the atom of lead will be 136, oxygen being 16. From these data, the composition of all the other compounds of lead can be easily estimated. See Atomic Theory.

What is usually called minium, or red-lead, is a combination of these two oxyds, or of 2 atoms lead + 3 atoms oxygen. Red-lead does not appear capable of combining with acids, at least no salt of which it forms a constituent is at present known.

LEAD, page 10, c. 2, l. 3, after gallic, read acid.

LEAD-ORES. See LEAD, and MINERALOGY, Addenda.

LEATHERHEAD. In 1811 the parish contained 312 houses, and 1290 persons; viz. 580 males, and 629 females: 75 families being employed in agriculture, and 101 in trade, manufactures, and handicraft.

LEBANON, in America, l. 3, r. 1810; l. 4, r. 1993; l. 8, r. 2580; l. 11, r. 1810; l. 12, r. 1808. Col. 2, l. 3, add—containing 1434 inhabitants. Also, a township in the same county, containing 2473 inhabitants. Also, a town of Hunterdon county, in New Jersey, containing 2490 inhabitants.


Eff. Ch. Calyx in five deep acute segments, with rounded sinuæ. Stamens all connected. Legume cylindrical, with many seeds.

Thunberg and Wildenow describe three species with simple, and five with ternate, leaves, all shrubs, found at the Cape of Good Hope. Three are in Hort. Kew. L. contaminata, ferrica, and cytisoides, all previously referred to Spartium; see that article.

LECANA, Ach. Synt. 146. "Lichenogr. 77. t. 4. f. 3—7." a new genus, confining of 139 species, of the Lichen tribe, being the crustaceous species of Parmelia; see that article.

LECLOADE, l. 16 from bottom, r. 1811; l. 15, r. 993; l. ult. r. 195.

LECIDEA, in Botany, Ach. Synt. 111. "Lichenogr. 32. t. 2. f. 1—7." A genus of Lichenet, chiefly the tuberculata of Linnæus, whose shields have no border from the fulness of the frond or cupa, 153 species are now described, whose fronds are various.

LEDBUY, col. 2, l. 17, r. 1811—316; l. 18, r. 604.

LEDYARD, col. 2, l. 39, r. Ochotok.

LEE, in Virginia, l. 6, r. 4694 inhabitants, of whom 336 were slaves in 1810; l. 10, r. 1329; l. 12, r. 1305.

Lee, a long measure in China, rather more than one-third of a mile.

LEEDS, col. 2, l. 25; r. 1811, the town and liberty contained
LEP

1. contained, &c.; l. 26, r. 12,449 and 62,534; l. 27, r. 11,739 families were flated, &c.

2. Leeds, in America, l. ult. r. Kennebeck for Cumberland; after county, add—containing 1273 inhabitants.

3. LEKEE, l. 7, r. 1811—832; l. 8, r. 3703.

4. LEELITE. See MINERALOGY, Addenda.

5. LEGEND, col. 2, l. 34; r. Sybaris. Col. 3, l. 36, for found. r. secret; l. 8 from bottom, r. Coningham.

6. LEHI, in Geography, add—Allo, a township containing 1185 inhabitants.

7. LEICESTER. At the close, r. 1811, 4699 houfes, 23,146 inhabitants.

8. LEICESTERSHIRE, col. 3, l. 24, r. 1811—150—419; add—of whom 10,801 were males, and 12,345 females; 17,027 families were employed in trade and manufactures, and 11,700 in agriculture. The number of houses was 30,019.

9. LEIGH, West. In 1811, this township contained 341 houses, and 1960 perfons; viz. 927 males, and 1033 females.

10. LEIGHTON-BUZZARD, l. 5, r. 1811—408 houses, 2114 inhabitants; of whom 187 families were employed in trade and manufacture, and 283 in agriculture.

11. LEITH. At the end, add—By the parliamentary return of 1811, North Leith had 1085 houfes, and 4875 inhabitants; and South Leith had 838 houfes, (if not a millake in the number,) and 15488 inhabitants.

12. LEMINGTON, or LEMINGTON, l. 2, add—containing 1774 inhabitants.

13. LEMINGTON-PRIORS, a parish of Warwickshire, in the hundred of Knightlow and Kenilworth division, contained, in 1811, 125 houfes, and 543 perfons; viz. 275 males, and 268 females. But since that period, it has been much referted to as a watering-place refembling Cheltenham; and the number of private houfes, baths, hotels, and public buildings, for the accommodation and amufement of its visitors, has been very much augmented, and is every year increafing.

14. LEMNIAN EARTH. See PEARLIDE.

15. LEMON, a township of Ohio, in Butler county, having 1308 inhabitants.

16. LEMPSTER, l. 3, r. 1810 and 854.

17. LEMUR, col. 3, l. 17 from bottom, r. MACAO.

18. LENIOR, or LENORE, l. 3, r. 5572, of whom 2449 were flaves in 1810.

19. LENOIX, l. ult. r. 1310.

20. LENS, Cryallifline of the Eye, Chemical Properties of. See EYE.

21. LEOMINSTER, col. 3, l. 19, r. the population of the borough and parifh, &c.; r. 1811—3238; l. 20, r. 730.

22. LEMINSTER, in America, l. 5, r. 1814.

23. LEONINE, l. 12, after Leonius, add—A French monk of St. VIdor, at Marseilles, about the year 1153; l. 14, after III.—But rhymes in Latin verses were in use much earlier. See Warton’s Hist. of Poetry, vol. i. diff. ii.

24. At the close, add—See Rhyme.


27. Anther a deciduous lid.

28. Four West Indian species are described, small plants, each with a thick, solitary, roundifh leaf, and one or two clusfers of minute flowers.


31. L. criepata, Wildenow’s only species, from the East Indies, bears aggregate, sessile, scaly balls of flowers, chiefly about the crown of the root. The numerous flons are decumbent, eighteen or twenty inches long, leafy, square. Leaves simple, oblong, rough-edged. Mr. Brown has refoaected the character, as above, from various Chinefe and tropical species, in Sir J. Banks’s herbarium.

32. LEPIDOLITE. See LEPIDOLITE, and MINERALOGY, Addenda.

33. LEPSIA. Add.—It is now called Lippo.

34. LERIA, l. 2, after Strabo, add—This little ifland has three harbours, and is faid to produce abundance of the wood of aloes, fo much esteemed in Turkey as a perfume; though others have doubted this fact, on account of the high price of this wood at Constantinople. In this iflad is a monaftery, and it has a town called Lera.

35. LERWICK. At the close, r. 1811—1049; add— the number of houfes was 252.

36. LESGESTAN, one of the small iflats of Daghestan, confifting of a fupenous range of mountains, very long but narrow, and forming the whole N.E. frontier of Georgia. The Lefghi or Lefghans, who inhabit this country, are a wild and favage banditti, divided into different tribes and fpeaking a different dialect. Their houfes are situated on the loftic iflands, and on the moft tremendous precipices; they are connected by fone or wooden bridges, and roads carried through rocks; and they are fupplied with water by pipes or canals cut out of the rocks. The foil is featy, and in order to furnish themselves with the means of fubfiflence, the surface is increafed to the fummits of the elevated ground by graduated terraces, the intermediate spaces being filled up with rubbish, and covered with earth. These people are the bravest, as well as the moft turbulent, of all the nations of mount Caucasus, exciting terror in their neighbours, laying waste their cottages, and carrying away the inhabitants into fervitude. They have long preferred their liberty and independence, and rendered their country inaccessible to any foreign invaders. Moft of them are Mahometans; and the few tribes that continue in ignorance, never change the object of their veneration, which is either the fun, moon, or stars; or indeed any thing that has made an impression on their minds. They hire themselves to fight the battles of their neighbours, at the price of twelve roubles the campaign, which is to ceafe at the end of three months from the appointed day. They often take different fides, not caring againft whom they fight; and thus it often happens, that the Lefghan falls by the fword of his brother or moft intimate friend. They are lightly defroed, after the manner of the Tatars, and armed with a gun, pilfols, dagger, and fable. Their women far- pas in Symmetry and beauty all the females of mount Caucasus, and fetch the largest prices in the markets of Constantinople. M’Kinney’s Peria.

37. LESSERTIA, in Botany, named in honour of the late Mr. Stephen Deloffert, to whom whole mother Roufcaul’s celebrated Letters on Botany were adreffed, and who, like all his family, was no lefs endeared, to those who knew him, by perfonal worth than by talents.—“De Cand. Afragal.


L. annua. (Colutea herbacea; Linn. Sp. Pl. 1245.), and L. perennis. (C. perennians; Jacq. H. Vind. v. 3. t. 3.), see Colutea, n. 11 and 12; with L. diffusa. (Galega dubia; Jacq. 1c. Rar. t. 576; are the only species in Hort. Kew. all natives of the Cape of Good Hope, composing a very natural genus.

LEVERT, in Geography, a township of Gallia county, in Ohio, having 501 inhabitants.

LETTERKENNY, l. 2. r. 1549.

LEVER, col. 2. l. 3, dele (See Plate Surgery.)

LEVERETT, l. 4. r. 760.

LEWES. At the close, r. The population of the rape of Lewes was settled, in the parliamentary return of 1811, to be 18,659 persons, occupying 2932 houses.

LEWIS XVI. col. 10. l. 44, r. the son, Lewis XVII, died very miserably June 8th, 1793, and his father, Maria Theresa Charlotte, was delivered up in exchange for deputies, December 26th, 1793. The queen was brought to the scaffold on October 16th, 1793, and Elizabeth, the king's sister, May 12th, 1794. Col. 11, l. 2, add—Lewis XVIII, on whom the crown devolved after the death of Lewis XVI. and his son Lewis XVII, retired, during the subsequent period of the Revolution, (which flee,) first to Vienna, and was allowed a provision by the emperor of Russia, April 30th, 1798; he afterwards sought an asylum in this country, and landed at Yarmouth, under the title of the Count de Lille, October 6th, 1807; and before returned to the throne of France, made his public entry into London from Hartwell, where he had resided, April 21st, 1814; and having failed from Dover April 23d, made his entry into Paris May 3d, 1814; but quitted this city again in consequence of the landing of Buonaparte in France, March 21st, 1815. After the battle of Waterloo, he returned to Paris, and resumed the government, July 8th, 1815.

LEWIS, in Geography, a county of New York, containing 6433 inhabitants, of whom 4 were slaves in 1810.—Alfo, a township of Ohio, in Clermont county, having 903 inhabitants.—Alfo, a county of Kentucky, containing 2357 persons.

LEWISBURG; a town of Kentucky, in Mason county, having 19 inhabitants.

LEWISHAM. In 1811, the parish contained 1105 houses, and 6625 persons; 2923 being males, and 3702 females.

LEWISIA, in Botany, in memory of Meriwether Lewis, e. q. late governor of Upper Louisiana, the discoverer of several new American plants.—Pursh 368.—Clas and order, Polyandria Monogynia. Nat. Ord.....


1. L. redorvar. Pursh. n. 1.—On the banks of Clark's river, perennial, flowering in July. Leaves radical, linear, rather succulent. Stalk radical, bearing one or two handsome white flowers, whole calyx is elegantly veined with red.

LEWIS TOWN, l. 3. r. 1038; l. penult. r. 474.

LEXAWASCEIN, a township of Wayne county, in Pennsylvania, containing 165 inhabitants.

LEXINGTON, l. 2, add—containing 6641 inhabitants, of whom 971 were slaves in 1810; l. 19, after university, add—or college, a Lancasterian school, and other well-regulated seminaries; l. 22, r. in 1810, were 4326, of whom 1509 were slaves. In 1817, it amounted to 6000, though in 1773 it was merely a hunting camp; l. 28. after Georgia, add—in Oglethorpe county, having 113 inhabitants; l. 34, add—in 1810, the inhabitants were 1052.

LEYDEN, l. ult. r. 1009.

LEYLAND, a township of Leyland hundred, in Lancashire, which, in 1811, contained 459 houses, and 2646 perons; 1263 being males, and 1383 females; 97 families employed in agriculture, and 391 in trade, manufactures, and handcraft.

LIBEL, col. 4, l. 30, dele pilory.

LIBERTY, l. 12. r. 6228 inhabitants, of whom 4898 were slaves in 1810. At the close—Alfo, a township of Butler county, in Ohio, containing 1790 inhabitants.—Alfo, a township of Ohio, in Delaware county, containing 206 inhabitants.—Alfo, a township of Highland county, in Ohio, having 1120 inhabitants.—Alfo, a township of Ohio, in Trumbull county, having 473 inhabitants.

LICHEN ISLANDICUS, Chemical Composition of. This has been submitted to a rigorous and curious analysis by Berzelius. Our limits will not permit us to enter into the details, but the following are the results:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syrup</td>
<td>3.6</td>
</tr>
<tr>
<td>Bitartrate of potash, with some tartrate of lime</td>
<td>9</td>
</tr>
<tr>
<td>and phosphate of lime</td>
<td>9.1</td>
</tr>
<tr>
<td>Bitter principle</td>
<td>3.0</td>
</tr>
<tr>
<td>Green wax</td>
<td>1.6</td>
</tr>
<tr>
<td>Gum</td>
<td>3.7</td>
</tr>
<tr>
<td>Extractive colouring matter</td>
<td>7.0</td>
</tr>
<tr>
<td>Starch</td>
<td>44.6</td>
</tr>
<tr>
<td>Starchy insoluble matter</td>
<td>36.6</td>
</tr>
</tbody>
</table>

We premise in the above analysis the excels of weight (if not an error) was owing to water.

This indefatigable chemist afterwards examined other species of lichen, such as the L. barkatus, L. fuscatus, and the L. fraxinse. He found them all characterized by the presence of a species of starch which posesses several peculiur properties.

LICHFIELD, l. 4. r. 1811—1010 houses, 5022 inhabitants, 509 families employed, &c.

LICK, a township of Ohio, in Ross county, having 334 inhabitants.

LICKING. Add—Alfo, a county of Ohio, containing 7 towns, and 3832 inhabitants.—Alfo, a township of the said county, having 632 inhabitants.—Alfo, a township of Ohio, in Meukgum county, containing 756 inhabitants.

LIEOU-KIEOU, or Loo-choo, or Great Loo-Choo, l. 2, after number, add—or rather innumerable. At the close, add—The belt maps are wrong in the situation of Loo-choo. They place its town between 23° 45' and 27° 53' N. lat. and between 128° 5' and 129° 2'E. long. The island is also made to extend about 130 miles from N. to S. with an uniform breadth of about 30 miles. Its true direction is nearly N.E. by N. and S.W. by S.; its length is only 56 miles, and its breadth about 11. The longitude of the western extremity is 126° 34' E., and of its easter 128° 19'. The latitude of the S. point is 26° 4' N. and of the N. point 26° 52' N. See an interesting account of these islands in Capt. Hall's Voyage to Loo-choo, or Edinburgh Rev. N° 58. p. 460, &c.
LIMESTONE. Add—Allo, a town of Georgis, in Lincoln county.

LIMON, col. 6, l. 4, from bottom, r. 1811—1813—1861.

LIMON, in America, l. 14, after Warren, add—The number of inhabitants, in 1810, was 42,992; l. 22, r. 16,339—2,489. Col. 2, l. 5, r. 4,555; l. 4, 2212; l. 5, r. 8676—2,341; l. 11, r. 109; l. 13, r. 221; l. 15, r. 713. Add—Allo, a county of Well Tennessee, containing 6104 inhabitants, of whom 720 are slaves.

LIMKHURSHIRE, l. 8, r. 1811—46,368—237,891; l. 9, r. 117,022 males, 120,869 females, 13,184 families; l. 11, r. 29,831.

LIMKQNTOFT. Add—Allo, a town of Georgis, in Lincoln county.

LIMDLWNVILLE. Add—It contains 1013 inhabitants.

LINE, in Fortification. Add—See Field-Fortification. LINGA, col. 2, l. 2, for fire r. fine.

LINLITHGOW, l. ut. r. 1811—40,222—535; the country part having 229 houses, and 1465 persons; and the town part having 306 houses, and 2357 persons.

LINLITHGOWSHIRE, col. 2, l. 15, r. 1811—19,451, occupying 3908 houses: the number of males is 8874; and that of females 10,577; of these 1506 families are employed in trade and manufactures, and 1132 in agriculture. Col. 4, l. 18, after town add—The number of houses in the parish is 354, and of persons 2704.

LINNEUS, col. 5, l. 24, r. journal. Col. 8, l. 19, r. Caper. Col. 11, l. 12, r. Oeland. Col. 15, l. 7, r. Hemmavley.

LINOZSTAS. Add—See Mercurialis.

LIQUIDS, Expansion of. See Expansion and Heat. LISBON, in America, l. 3, r. 1128. Add—Alfo, a town of Maine, in the county of Lincoln, having 1614 inhabitants.

LISKARD, l. 32, r. in the year 1811, the borough and parish were returned to parliament as containing 523 houses, and 2884 persons; the borough having 361 houses, and 1072 persons.

LISMORE. At the close, add—By the returns of 1811, the parish of Lismore, in the district of Lorn, contains 252 houses, and 1323 persons.


LITAMO. Eff. Ch. Calyx and petals spreading. Lip without a spur, cloven, not embraced by the calyx. Column without wings. Anther parallel to the stigma.

L. ovata, and L. cordifolia; see Epipactis, n. 10 and 11.

LITCHFIELD, l. 2, r. 1847; l. 6, r. 1810—382; l. 9, r. 22; l. 10, r. 4,137; l. 20, r. 4,639.

LITHON, LITHO, or rather Lithina, in Chemistry, the name of a fixed alkali recently discovered in Sweden, and so called from $\frac{\text{SiO}_2}{\text{K}_2}$, a flax, because obtained only from mineral substances. This alkali was first detected by Mr. Arvedson, a young Swedish chemist, and pupil of Berzelius. He obtained it from a mineral found at Uten, in Sweden, and which had been some time before described, and named pentalite (see Pentalite) by M. D'Andrada. He found it likewise soon after in tripahne (or fudnmen) and in crystallized lepidolite, all minerals from the same place.

Lithina is principally distinguished from the other alkaline metals, by its great capacity for saturating acids. Sir H. Davy has succeeded in reducing it to the metallic state. Lithium, as this metallic base may be called, bears a strong resemblance to the other alkaline metals, especially to soda, to which it seems most nearly allied.

With respect to the salts of lithina, they have not yet been rigorously examined. The sulphate crystallizes with sufficient facility, and the crystals contain no water of crystallization. Their solution is not precipitated by the muriate of platinum, nor by the tartaric acid. The muriate deliquesces like the muriate of lime, and melts below a red heat. The nitrate crystallizes in rhomboeds, but readily attracts moisture. The carbonate crystallizes in prisms, and the crystals which are commonly very minute are not very soluble in water. The sulphate of lithia is very soluble, and of a yellow colour.

According to Vaquerin, 100 parts of lithia contain 43.5 of oxygen; hence the weight of the atom of lithium will be very nearly 13, and of lithia 23, from which data the composition of all its salts can be easily ascertained.

LITHOMARGE. See Mineralogy, Addenda. LITHONTRIPHT. See Lithotomv, and Urinary Calculi.

LITTLE BRITAIN, l. 14, r. 1700.

LITTLE BEAVER, a township of Beaver county, in Pennsylvania, having 1379 inhabitants.

LITTLE COMPON, l. 2, r. 1553.

LITTLE CREEK, l. 2, r. 2093; l. 3, r. 3840.

LITTLESTOWN, a township in Adams' county, in Pennsylvania, having 287 inhabitants.

LITTLETON, l. 3, r. 773; l. 5, r. 873.

LIVERMORE, l. 2, r. Oxford for Cumberland; l. 4, r. 1560.

LIVERPOOL, l. 6, r. 1811—94,376—15,589.

LIVINGSTON, l. 4, r. 3575—685.

LLANBADARN VAWR, col. 2, l. 17, exclusive of Aberystwith; l. 18, r. 1811—352—2998. Aberystwith contains 477 houses, and 2264 persons.

LLANBIDDER, l. 2, r. Moyddyn; l. 10, for Tuesday r. Saturday; and add—it has nine fairs in the year l. 21, r. 1811—128; l. 22, r. 692.

LLANDAFF, near the clofe, r. 1811—199 houses, and 963 inhabitants.

LLANDELO VAWR, l. 2, r. Cavo, and r. Perfed, Col. 2, l. 46, r. The inhabitants of Llandeilo, exclusive of the hamlet of Llandeilo-villa in the hundred of Perfed, which contains 184 houses, and 776 inhabitants, according to the parliamentary returns of 1811, are estimated at 1105, and the houses at 222.

LLANDOVERY, l. 6. By the returns of 1811, the township
township contained 266 houses, and 1,442 inhabitants. Col. 2, l. 5; for Friday r. Saturday. Add—It has six fairs in the year.

LLANDRINDOD. Add—In 1811, the parish was returned as containing 32 houses, and 171 inhabitants.

LLAN-ELLY, l. 3, r. 1811; l. 4, r. 862, and 3891; l. 16, add—This is one of the most thriving places in South Wales. It abounds with excellent coals and iron-ore, extensive iron-works, and also lead and copper works.

LLAN-ELLY, Vawr, l. ult. r. 1811—1964; and add—378 houses.

LLANGOLLAN, l. 4, r. 1811; l. 5, add—Those of the parish, comprising three townships, amounted to 619, and the inhabitants to 2897.

LLANERCH Y MDD, l. 3, add—the parish of Amlwch contains, by the returns of 1811, 920 houses, and 4210 inhabitants.

LLAN RHAJADAR, col. 2, l. 6 and 7, r. 1811—1874; add—414 houses.

LLANRWRST, near the close, r. 1811—2502, and 452 houses.

LLANSTEPHAN, col. 2, l. ult. r. 1811—997—221. 

LLANTRISSENT, l. ult. r. 1811—446—212.

LLANVYLLING, or LLANYLLIN, l. ult. r. 1811; the parish of Llanvikling contained 291 houses, and 1508 inhabitants.

LLANYDLOES. Add—By the return of 1811, the parish contained 470 houses, and 2386 inhabitants.

LLAUGHARNE, l. ult. r. 1561; and add—the number of houses was 283.

LOCHE. See Cobitis.

LONDON. In 1811, the whole parish of Dryfhale contained 369 houses, and 1893 persons; 904 being males, and 992 females.

LOGAN, l. 2, r. 11,591, including 2285 slaves in 1810.

LOGWOOD, Chemical Properties of. See Hematin.

LONCHURUS FOR LONCHURUS.

LONDON, in Geography, a town of Rockingham county, in New Hampshire, having 1492 inhabitants.

LONDON, Britain, a township of Chelten county, in Pennsylvania, having 404 inhabitants.

LONDON All, in America, l. 5; r. 2766; l. 16, add—containing, in 1810, 637 inhabitants. Also, three townships in Pennsylvania, one in Dauphin county, having 2411 inhabitants; the rest of the article, and add—the second in Chelten county, having 1164 inhabitants; and another in Bedford county, having 486 inhabitants.

LONDON GROVE, l. 2, r. 583.

LONG MEADOW, l. ult. r. 1036.

LONG STRETH, a township of Mercer county, in Pennsylvania, having 908 inhabitants.

LONGTOWN. In 1811 this township contained 173 houses, and 1579 persons; viz. 744 males, and 835 females: 169 families being employed in agriculture, and 147 in trade, manufactures, and handicraft.

LONGTOWN, a township of Ewaiacney hundred, in the parish of Clodock, and county of Hereford, which, by the returns of 1811, contained 164 houses, and 844 persons; viz. 423 males, and 421 females: 124 families being employed in agriculture, and 40 in trade, &c.

LOO-CHOO, See LIEU-KIEOU.

LOOE, East, l. 14, r. 1811—128—608.

LOOE, West, l. 13 and 14, r. 1811—92—433.

LOSTWITHEFIELD, col. 2, l. 17 and 18, r. 1811; for town r. borough and parish—132 houses, 825 inhabitants.
LYN

LUNEBURG, in Virginia, l. 3, r. 12,261 inhabitants, of whom 7,155 were flakes in 1810; l. 6, r. 744. Do.

LURGAN, l. 2, r. 874.

LUTON. In 1811 the parish contained 726 houses, and 3,716 persons; viz. 1,695 males, and 2,021 females; 418 families being employed in agriculture, and 219 in trade and manufactures.

LUTTERWORTH, l. 16 from the bottom, r. 1811—410—1845.

LUZERNE, l. 5, r. 29; l. 8, r. 18,109; add—Alto, a township of Fayette county, in Pennsylvania, having 1,538 inhabitants.

LYCOMING, l. 5 and 6, r. 18—1,006; add—Alto, a township in the said county, having 795 inhabitants.

LYCOPERDON. Add—See Tulostoma.

LYMAN, l. 5, r. 948; l. 7, add—with 1,248 inhabitants.

LYME, l. 11, r. containing 670 inhabitants; l. 6, r. 4321.

LYME-Regis, col. 2, l. 8 and 7 from the bottom, r. 1811—1925—342.

LYMINGTON, l. 18 and 17 from the bottom, r. 1811—2641—534.

LYNDEBOROUGH, l. 4, r. 1074.

LYNDHURST, l. 24 and 25, r. 1911—192—1015.

LYNDON, l. ult. r. 1090.

LYNN, l. 5, r. 4087; add—Alto, a township of Northampton county, in Pennsylvania, having 1,497 inhabitants.

LYNN-Field, l. ult. r. 509.

LYNN-Regis, l. ult. r. 1811—2199—10,259.

LYONS, l. 38, after branches, add—The present manufactures of Lyons consist chiefly of cloths, of gold, silver, and silk, galloons, ribbons, and lace, and the produce of furriers, hatters, and book-sellers, besides those of the working of gold-thread, silk-weavers, dyers, &c. Col. 2, l. 26, add—some reckon the whole population at 150,000.

LYTHIODES. See Mineralogy, Addenda.

LYT

MACCLESFIELD, l. 6 from bottom, r. 1811—2518—12,299; of whom 2,458 families were employed, &c.; l. 3 from the bottom, for that period r. the return in 1800.

MACHIAS, l. 14, r. 1810—1570.

MACADAM, in Geography, a county of Georgia, which, with its town Darien, contains 3,739 persons, including in the county 28,500, and in the town 107 flakes.

MACKAN, a county of Pennsylvania, containing Ceres township, and 142 inhabitants.

MACPHERSON, col. 2, l. 29, for Lairy r. Laing.

MACROMETER, an instrument invented by Dr. Wollaston, for measuring directly the distance of inaccessible objects, by means of two reflectors, mounted as in a common sextant, but at a greater distance from each other.


Calyx ereth.


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MADDOX, l. 32, del to that of St. Afaph; and for and from thence to r. that of Worcesters.

MADELEY, l. 9.—In 1811, the parish contained 1026 houses, and 5076 persons; viz. 2,352 males, and 2,574 females; 18 families being employed in agriculture, and 747 in trade, manufactures, or handicraft.

MADISON, l. 4, r. 8381 inhabitants, of whom 3970 were flakes in 1810; l. 7, r. 11,587—3000. At the end, add—Alto, a township of Maine, in Somerfield county, having 686 inhabitants.—Alto, a county of New York, containing 25,144 inhabitants, of whom 35 were flakes in 1810.—Alto, a township of Ohio, in Guernsey county, having 249 inhabitants.—Another in Highland county, with 430 persons.—Another in Knox county, with 389 persons.—Alto, a county of Ohio, containing 163 inhabitants.—Alto, a township of Montgomery county, with 462 persons.—Another of Muskingum county, with 462 persons.—Another of Pickaway county, with 462 persons.—Another of Butler county, with 1,228 persons.

—Another of Columbiana county, with 539 persons.

—Another of Gallia county, having 170 inhabitants.—Another of Scioto county, with 397 persons.—Alto, a town of Georgia, in Morgan county, having 124 inhabitants.—Alto, a county of the Mississippi territory, having 4,699 inhabitants, of whom 948 were flakes in 1810.—Alto, a township of Clarke county, in the Indiana territory.

MADRID,
MADRID, in America. At the close, add—The district, by the census of 1810, contains 2103 inhabitants, of whom 287 were slaves.

MAD-RIVER, a township of Champaign county, in Ohio, having 1008 inhabitants.

MAGIC, Superstitious, insect—has been supposed to confest; in l. 2, after its—hupposed; l. 7, dele half.

MAGNIFIC SQUARE, col. 5, l. 18 from bottom, dele and.

MAGNESIA, in Chemisty. According to the latest determinations, the weight of the atom of magnesia is 25.7, that of oxygen being 10; from this, the composition of its salts can be easily ascertained. See Atomic Theory.

Separation of Magnesia from Lime.—We may take the opportunity of mentioning here an ingenious method of effecting this difficult chemical problem lately proposed by Mr. R. Phillips, and originally suggested, we believe, by Mr. T. Cooper. The two earths are to be reduced to the state of flatus, and then well washed with a saturated solution of sulphate of lime, which readily diffuses, and thus separates the sulphate of magnesia, but which, from its being already saturated, can take up no more sulphate of lime.

MAGNESIAN LIME-stone. See Mineralogy, Addenda.

MAGNESITE. See Mineralogy, Addenda.

MAGNESIUM, in Chemisty, the metallic basis of magnesia. See Magnesia.

MAGNOTS. At the end, add—See MAINA.

MAHNING, a township of Northumberland county, in Pennsylvania, with 829 inhabitants.

MAHIM, for 17 miles N. of Bombay r. 7 miles N. of Bombay fort.

MAHONING. Add—In Indiana county, having 552 inhabitants.—Also, a township of Mercer county, in the same state, having 1316 inhabitants.

MAHONTOGO, Lower and Upper, two townships of Berks county, in Pennsylvania: the former having 557, and the latter 489 persons.—Also, a township of Northumberland county, having 1608 inhabitants.

MAID, or MAIDEN. See VIRGIN.

MAID, in Ichthyology. See SKATE.

MAIDEN CREEK, in Geography, a township of Berks county, in Pennsylvania, having 918 inhabitants.

MAIDENHEAD, col. 2, l. 8, r. 1811—792—161.

MAIDENHEAD, in America, l. 4, r. 1810—1086.

MAIDSTONE, col. 3, l. 21, &c. r. 1811—9443; viz. 4412 males, and 5031 females: of whom 942 families are employed in trade and manufactures, and 437 in agriculture. The number of houses is 1766.

MAIDSTONE, in America, l. 2, r. 177.

MAINA, a district of the Morea, including that part of the country anciently called Laconia, that lies between the gulf of Melone and Gythium, bounded on the N. by the highest range of Taygetus, from which a chain of rugged mountains attends to Cape Matapan, the southern termination of the country. It is watered by Pamfius, now the Pirena, the broadest river of the Peloponnesus. The plains round Calamata, a town towards the N.W., are fertile and well cultivated, abounding with the cactus, a prickly pear, the white mulberry affording food for great numbers of silk-worms, and various fruit-bearing trees. The town is built on a plan that is well adapted for defending the inhabitants against the attacks of the pirates that infest the coast. The government of the Maina, in 1705, resembled that of the Scottish islands in former time. Over each district prefixed a capitan, whose residence was a fortified tower. Each chief, besides his own domain, received a tithe from the produce of the land of his retainers; and the different chiefs were independent of each other. Because the Mainots were reluctant to submit to the chajarch, or poll-tax, they had been repeatedly attacked by the Turks, but without success; when an enemy appeared, the coast was immediately deserted, and the inhabitants retired to the strongholds of Taygetus. Expert also in the use of the rifle, besides the advantages of their situation, they have been able to defend the Turkish forces. Some of the chiefs were found by Mr. Morritt to be tolerably vered in Roman literature, and some capable of reading Had, and Xenophon. The laws of hospitality were observed amongst them with the strictest punctiliousness, and letters of recommendation secured to travellers a friendly reception. The religion of the Mainots is that of the Greek church, with all its mummery. Their women were never secluded nor enslaved, and therefore neither corrupted nor ignorant. They distinguished themselves by attention to domestic management, and the education of their children. Influences of conjugal infidelity were rare. In case of necessity, it is said that the Mainots can bring 12,000 men into the field. See Walpole's Memoirs on Turkey, &c. 1817.

MAINE, at the close, add—See United States.

MAINOTS. See MAINA.

MAKEFIELD dele: add—See Wakefield.

MAKONGO, one of the states of Loango in Africa, of which Malemba is the port. The king of Makongo, or Malemba, resides inland at a town called Chingale, the Kinkole of the charts.

MALABAR, l. 11, add—The Malabar language prevails on the western coast of Cape Comorin, extending over Travancore and Malabar, formerly named Kera, as far N. as Nilgirian. See Toolava.


Eff. Ch. Pod nearly cylindrical, of two valves. Stigma simple, acute. Cotyledons incumbent, flat. Calys clooted. This appears to us a very natural and well-defined genus, though hitherto confounded with Cheiranthus. The three species in Hort. Kew. are,

1. M. maritima. See Cheiranthus. n. 14; a pretty annual, frequently and easily cultivated.

2. M. africana. (Hefersis africana; Willd. Sp. Pl. v. 3. 532. Leucojum gallicum, folio balini; Boce. Sic. 77. t. 42. f. 1.)

3. M. littorea. See Cheiranthus. n. 21. (Leucojum marinimum minus; Cluf. Hift. v. 1. 298. f. 2.)

MALDEN, col. 2, l. 12, r. 1811; l. 13, r. 505—2559.

MALDEN, l. 4, r. 1584.

MALEMBO, or MALEMA. Add—See Makongo.

MALIC Acid, in Chemisty. See Sorbic Acid.

MALKOHA. See Phenicopifus.

MALLENDERS, a cutaneous dis ease, commonly confined to draught-horses: it is an inflammation of the skin below the hock, producing cracks which discharge a fetid matter. For the cure of this disorder, owing to want of cleanliness and friction, the hair should be clipped, and the parts well washed with soaps and water; and Mr. White recommends the following ointment: viz. a composition of 2 oz. of wax ointment, 1 oz. of olive-oil, oil of turpentine and camphor, of each 1 dr., and 2 drs. of acetated water of litharge. Mr. Ryding recommends a mixture of 1 oz. of strong quicksilver ointment, and 10 grs. of muriated quicksilver.
The greatest number of the teeth of the mammoth that have been examined resemble at first sight those of the Indian elephant; but, according to Cuvier, the structure, on more attentive observation, will be found somewhat different. In the living species of elephants, the size of the tusk varies with the species, the sex, and the varieties; and as they continue to grow during the life of the animal, age determines their dimensions more than any other cause. The tusks of the African elephant are larger than those of the Indian; they are harder, and preserve their whiteness better. According to Pennant, Mofambique furnishes tusks of living elephants ten feet in length, which are the largest that are known. The degree of curvature in the tusks differs as much as the size; some occasionally occur in a spiral form, and some in that of the letter S. We are unacquainted with the differences that might exist in the curvature of the tusks of the mammoth occasioned by difference of sex or other causes. Many of the tusks have the common degree of curvature, but others have much more curvature than occurs in any living elephants, approaching to a semi-circle or half an ellipse divided through its transverse axis. Some tusks of the mammoth are formed spiral, like what sometimes occur among living elephants. The height of the mammoth did not greatly exceed that which the Indian elephants can attain. It is however certain from its remains, that the mammoth differed as much from the Indian elephant as the as differs from the horse.

The bones of the mammoth, or fossil elephant, are generally found in alluvial soil, near the surface of the ground. They are seldom isolated, but generally mixed with bones of other quadrupeds of known genera; as the rhinoceros, the ox, the horse, and the antelope; and are often accompanied with the remains of marine animals, such as shells, parts of which are attached to the bones. Cuvier states that he has in his possession a jaw-bone covered with millepores and oysters.

The beds which cover the bones of the fossil elephant have seldom any great depth, and are scarcely ever composed of stone. They are rarely petrified, and only one or two inclusions are quoted where they were incrusted with a silicious stone. Often they are only accompanied with fresh-water shells. Every thing appears, says Cuvier, to announce that the cause by which they were buried is one of the most recent that has contributed to change the surface of the globe. It was nevertheless a cause general in its operation, for these fossil bones of elephants are too numerous, and occur in countries too remote and uninhabited to allow us to suppose that they have ever been brought there by man.

The beds which contain and cover these remains shew, that the cause by which the animals were destroyed was water, and in many instances the waters were the same as those of the present day, since they contained the same species of shell-fish. These bones are not water-worn, and therefore have not been transplanted from a distance.

The shells and millepores which adhere to them prove that they remained some time covered only with water. The different species of mollusca, the gigantic tapir, and the fossil rhinoceros, lived in the same countries as the fossil elephant, since their bones are found in the same beds and preferred in the same strata. Everything therefore leads us to conclude that the mammoth, or fossil elephant, is an extinct species, though it differs less from existing species than the other remains of quadrupeds that are found in the same situations. In a former part of this work, under the article Megatherium, the discovery of the fossil elephant described by Mr. Adams is more particularly given; but the animal is erroneously supposed to belong to another species.
species than the elephant, and the tusks are called horns. (See Mastodon, Megalodon, and Megatherium, Addenda.) According to Pallas, there is a scarcely a river from the Don or the Tanais to Tchutskinof in the banks of which the bones of the mammoth are not abundant, and two islands of great size near the mouth of the Indigirka seem entirely composed of these bones mingled with ice, sand, and the bones of the elk, rhinoceros, and other large quadrupeds.

Similar bones are found in Poland, Germany, France, Holland, and Hungary. We have before mentioned that they are found in various parts of England, and no where more abundantly than in the vale of Thames, particularly near Brentford. The teeth and bones have generally been found in alluvial soil over the chalk formation; but in Mr. Bakewell’s Introduction to Geology, an instance is given of an entire skeleton having been found in a cavern in the mountain lime-dome near Wirksworth, in Derbyshire, in 1663. Its skull was so large that it is flated to have held four bushels of corn.

MANCHA, LA., l. 1 and 2, r. bounded on the N. by New Caftle; deb north of.

MANCHESTER, l. 10, add.—In 1811, the number of houses inManchester and Salford was 16,535, and that of the inhabitants 98,573; 44,332 being males, and 54,241 females: of whom 19,659 families were employed in trade and manufactures, and 47 in agriculture.—l. 15, r. the whole population of which, including Manchester, was 138,349.

MANCHESTER, in America, l. 4, r. 1137; l. 7, r. 1502; l. 9, r. 1579; l. 10, r. 978; add—Alfo, a town ofHillsborough, in New Hampshire, containing 615 inhabitants.

MANEGE, or MENAGE, denotes an academy, riding-school, or other place for learning to ride, and for breaking horses to their various motions and actions. Alfo, the exercife itself, or the art of riding, which teaches at the fame time to form the horfeman and the horfe.

MANE-SHEET, in theManage, a covering for the upper part of a horfe’s head, extending round his neck, with holes for the ears to pass through, and joining to the halter upon the fore-part of the head, and likewise to the surcingle, or long girth, upon the horfe’s back.

MANGANESE, in Chemistry. The specific gravity of manganese, according to Dr. John, is 8.013. A good deal of common flaw exifts refpeeting the oxides of this metal.

According to Dr. John, there are three oxides; the green, the brown, and the black. According to Berzelius, there are no lefs than fve. Sir H. Davy could only obtain two, and Dr. Thomson agrees with him in concluding there are but two; namely, the olive or protoxyd, which combines with acids, and forms the common falks of manganese; and the black or peroxyd, which is found native. From the experiments of Dr. John and Berzelius, Dr. Thomson fixes the weight of the atom of manganese at 35, and of course that of its protoxyd at 45; from which data, if correct, the composition of its falks may be efimated. The following erratum exifts in this article in the Cyclopedia. Col. 3, l. 16, for malts r. metals; also in the fame col. paragraph 9, at the end of the fentence refpeeting iron, add—Berzelius has lately fhewn, that manganese is a con- tinent ofonne iron.

MANGE, a cutaneous difeafe, incident to many domestic quadrupeds, and attended with an eruption and loss of hair. Its caufes, according to Mr. Ryding, are, sudden changes of temperature, hot ftable, bad diet, and want of cleanliness. It is alfo communicated by infection, as when a found horfe rubs himfelf againft a f tall, in which a mangy horfe had been kept. Its symptoms are, a loss of flesh, without any apparent caufe, a forwarding of the coat, and afterwards eruptions, difcharging a thick yellowish matter, which forms a kind of fcurf that peels off, and a falling off of the hair. The difierer, though partial at first, soon penetrates all over the body, and is attended with an itching, which causes the horfe to rub againft every thing that comes in his way. It is faid, that with attention to cleanliness, an ointment composed of 1 lb. of prepared hog’s-lard, ½ lb. of fulphur, 3 oz. of white helbelle in fine powder, and olive-oil in fufficient quantity, rubbed over the affected parts, and repeated after an interval of three days, will after two or three applications complete a cure. Some fay, that if the animal’s strength will allow it, the cure should be commenced with bleedings, and a ball formed of powdered nitre, powdered rofin, and caftile foup, of each 1 oz., 1 drachm of camphor in powder, and honey q. s. should be given in the evening. Attention fould be paid to diet, exercise, and good grooming; the bowls fould be kept in a proper state with mashes, in which 1 oz. of nitre is dissolved; the affected part fould be well washed with a strong folution of fof-loaf, and afterwards rubbed morning and evening with an ointment composed of 4 oz. of flowers of fulphur, 3 oz. of hog’s-lard, and 2 oz. of quickfliver ointment. The ointment may be continued every other day, until the difeafe is removed. Two or three doses of mild physic are recommended, and then a ball made of Ethiopia’s mineral, crude antimony in powder, and cream of tartar, of each ½ oz., and honey q. s. fould be given every night for a month.

In a flight cafe, ftrong tobacco infufion with one-third part of fial urine, used for fwalling the affected parts, will be fufficient; but as an efficacious unguent, the following is recommended; viz. ½ lb. of quickfliver ointment, 4 oz. of finely powdered bromifhone, 2 oz. of black fop, ½ oz. of crude fal ammoniac, and oil of bays and tumentine, q. s., or tar, gun-powder finely pulverized, black fop, and oil of turpentine, of each about equal quantities. Fhe foles may be washed twice a day with a lotion compounded of ½ oz. of muriated mercury (fublimate) in powder, diluted in 1 pint of boiling water; 1 oz. muriated mercury, muriated zinmonia (crude fal ammoniac), of each from two to three drachms, and three half pints of boiling water.

MANTHEIM, l. 3, r. 1282; l. 5, r. 2207; add—Alfo, a township in Berks county, having 1354 inhabitants.

MANINGTREE, l. 18, r. 1811; l. 19, r. 1735—217.

MANNA, Chemical Properties of. Manna differs from sugar in feveral remarkable particulars. It difolves very readily and abundantly in alcohol, and crystallizes on cooling. Nitric acid converts it partly into oxalic, and partly into faclatic acid. It does not ferment like sugar, and of course yields no alcohol. The common manna of the fhips, according to Fourcroy and Vauquelin, confifts of four different ingredients. Pure manna conftituting about three-fourths of the whole—a little common fugar—a yellow matter with a wafeful odour, to which 18 of purgative qualities of manna are chiefly owing—and a little mucilage, convertible into faclatic acid. Manna feems to be formed during the fermentation of many juices, fuch as the juices of the onion, melon, &c.

MANNINGTON. Add—containing, in 1810, 1664 inhabitants.

MANOR, l. 2, r. 2642.

MANSFIELD, l. 23, r. 1811—1427; l. 24, r. 5816.

MANSFIELD, in America, l. 3, r. 1810—2058; l. 6, r. 1303; l. 10, r. 38; l. 14, r.—In 1810 the number was 1810; l. 16, 2570.
MANTUA, a township of Ohio, in Portage county, containing 243 inhabitants.

MARAZION, l. 15 and 13 from bottom, r. 1811—

MARBLEHEAD, l. 4, r. 5900.

MARECHAUSSES, denoted, under the French monarchy, several small bodies of troops, composed of officers and soldiers who had been in service, that continued stationery in the principal towns, for the purpose of aiding the civil magistrate. That in Paris consisted of three companies; viz. the company belonging to the "Lieutenant criminal de Robe au Coûte," or to that particular court of judicature which was superseded by the provost de la Marechaussée, and which Charles IX. attached to the gendarmerie; the independent company of mounted police, called "Guet à Cheval," and the company of the police or foot patrol, called "Guet à Pied," which was again subdivided into two companies, in order that one might do the duty of the quays. These companies were under the immediate direction of the secretary of state for the interior department of Paris.

MARGARIC ACID, in Chemistry. This acid exists in the form of pearly scales; hence the name. It was first described by Chevreul, who obtained it by digesting a fap made of hog's-lard and potash in water. Part of the margaric of potash was dissolved, while another part was depoited in the form of pearl-coloured scales. The potash was afterwards removed by muriatic acid, and thus the margaric acid obtained in a state of purity. Margaric acid is pearl-white. It is talc-like, and emits a smell something like white wax. It melts at a temperature of 134°, and crystallizes on cooling into beautiful brilliant white needles. It is insoluble in water, but very soluble in alcohol. It reddens vegetable blues very readily, and combines with all the baxes, especially with the alkalies and alkaline earths, forming salts, or rather faptes. Dr. Thomson, from the experiments of Chevreul, fixes the weight of the atom of this acid at 330.

MARGATE, col. 3, l. 9, r. 1811; l. 10, r. 612—

MARION, l. 2, r. 88—

MARK ISLAND, a township of Hancock county, in the district of Maine, with few inhabitants.

MARBOROUGH, col. 1, l. 8 from the bottom, r. 1811—2579; l. 7, r. 445. Col. 3, l. 24, after lady Jane, dele unhappily for herself; l. 27, after favourite, r. who died in childbirth. After Edward VI.; deo who was defined to suffer the fate of her predecessor.

MARBOROUGH, in America, l. 4, add—containing 4906 inhabitants, of whom 1709 were slaves in 1810; l. 7, r. 1674; l. 12, r. 1806—1245; l. 14, r. 1112. Col. 2, l. 1, r. three; l. 2, after Pennsylvania, r. one in Montgomery county, having 672 inhabitants; and E. and W. Marlborough, in Chelster county; the former having 1046, and the latter 917 inhabitants.—Also, a town of Hartford county, in Connecticut, having 720 inhabitants. —Also, a township of Delaware county, in Ohio, containing 177 inhabitants:—l. 5, r. 1832.

MARLOW, Great, col. 2, l. 16 and 17, r. 1811—25—1166 persons; add—and its borough to contain 468 houses, and 2799 inhabitants; l. 20, add—in a parish of the same name, which contains 140 houses, and 730 inhabitants.

MARLOW, in America, l. 2, r. 564.

MARPLE, a township of Delaware county, in Pennsylvania, having 649 inhabitants.

MARSELLOIS, The, or Marselles Hymn, a national march, adopted by the French during the course of the Revolution, and regularly played in their armies when they went to battle. It was frequently accompanied, or rather succeeded by the "ca ira," a lively tune; the former being calculated for slow or ordinary time, and the latter for quick movements. Both are now proscribed.

MARSHFIELD, l. 25, r. 1811—272; l. 26, r. 1415.

MARSHFIELD, in America, l. 4, r. 1364; l. 6, r. 513.

MARSEPEE, l. 3, r. 139.

MARTELLO, or Morteullo, Towers, denoting small cisterns erected for the defence of a coast; such are those of Romny Marsh, of the island of Jersey, Halifax in Nova Scotia, &c. Grofe derives the term martello, from morta, whence moto or moat, which formerly signified a cistern. Others derive it from the Italian "fonare in campagna a martello," to sound the alarm bell, which, in some parts of Italy, is struck by hammers. In old French, the word signifying the same thing, (now martel,) was martel, and martel en fable was the adage for the rumour of annoyance or alarm.

MARTOCK, l. 2, r. 1823.

MARIU. Add—This was the ancient capital of the province of Margiana, founded by Alexander the Great, and afterwards embellished by Antiochus Nicator, who called it Antiochia. It was one of the four imperial cities of Khorassan; its fruits were finer than those of any other place, and the walls were on all sides surrounded with magnificently-paved palaces, groves, and gardens. It was taken and pillaged by the Tubex about 25 years ago; since which time, it has gradually declined, and the population is now reduced to 3000 souls, under the government of Hyder Shah of Bokhara. The revenues of the king are 200000 rupees annually. It is 80 furlongs hence to Herat. Del the next article.

MARY, queen of Scotland, l. 2, first (or 7th). Col. 2, l. 29, after their own, add—This article, says Mr. Chalmers, (ubi infra) denounced the Scottish queen, who was heir-presumptive to the crown of England, of all future pretensions to the crown. The flpulation, he says, ought to have been, not in all times coming, as expressed in the article, but during the life of Elizabeth. Considering, moreover, the defective powers of the French negotiators to treat upon the matter of that importance, in addition to the wordings of the clause, these circumstances created an insuperable objection to the ratification of such a treaty; which treaty was never ratified by the Scottish queen, or by any person under her authority. Col. 4, l. 8, for He r. Darnley; l. 20.—We know for certain, says Mr. Chalmers, that the king was murdered by Murray's faction, and that Morton, Bothwell, and Maitland, were the eminent characters who were attained by parliament for the deed, though many inferior persons, and some of the innocent, were tried and punished for the same crime. But the queen, he says, as she was not one of that faction, was not guilty; and every attempt of Robertson and Laing to establish her privy to this transgression has failed. Col. 6, l. 28, after employers, add—Queen Elizabeth, it has been said, wished to have had Mary put to death privately by poison or by affimation, and actually suggested and expressed her wishes to this purpose, and she thus acted suitably to the declaration made by her on Palm-sunday 1572, viz., "that the queen of Scots' head should never be quit." At length, when she dark hints or more explicit instructions, communicated to Paulet and Drury her keepers, had failed of producing effect, preparations, &c.; l. 29, after publicly, add—but the privy-counsellors differed in their opinion
opinion concerning the law by which he should be tried, whether it should be the statute of treasons, (25 Edw. III.) or a late act of the 27th of Elizabeth, which had been made for this special occasion. However, the last opinion prevailed. At the close, add—Chalmers's Life of Mary, Queen of Scots, vol. i. 4to. 1818.

Mary, St. col. 2. 1. 8. 12. 794; l. 9. 6000; l. 13. add—in the county of Camden, which fee.

MARYLAND. Add—See United States.

MARYPORT, col. 2. 1. 5 and 6. l. 1811—322—

MASHAM, l. 7. r. 1811—213—1014.

MASOLES, the name of a militia in Croatia, which is bound to march to the frontiers whenever there appears the least symptom of hostile disposition on the part of the Turks. The private soldiers have lands allotted to them, which they cultivate for their own use, but receive no pay from the public. The officers are paid.

MASON, l. 7. r. 1077.

MASSACHUSETTS. Add—See United States.

MASTODON, in Natural History, a large quadruped, whose bones are found in a fossil slate. It was for a long time confounded by naturalists with the mammoth or fossil elephant. (See Mammoth, Addenda.) Cuvier has ascertained, that the mastodon is not only a distinct animal from the mammoth and the living species of elephants, but that it must be classed as a new genus. Five species of this genus have been at present discovered.

The great mastodon, or the animal of the Ohio, the bones of which have been found in the greatest abundance near the Ohio river, in the province of Kentucky, in North America, bears a considerable degree of resemblance to the elephant in its tufs and general ooleogy, the form of the grinders excepted. It had probably a trunk, but this part being more perishable than the bones has not been discovered. Cuvier concludes from its general structure, that it could not have fed itself without the aid of a trunk. Its height did not surpass that of the largest elephant, but its body was longer, and its members were somewhat thicker; its belly was less extended than that of the elephant. Notwithstanding the general resemblance, the structure of the grinders is so different, as to entitle us to class it as a different genus. It fed itself nearly in the same way as the hippopotamus and the wild boar, on the roots and pulpy parts of vegetables; and this kind of food would naturally lead it to moil and marshy ground; but it was not made for swimming, or living under water, like the hippopotamus, but was really a land animal. Its bones are more common in North America than elsewhere, and are more fresh and better preserved than any other known fossil bones. Yet there is not the least reason to believe, according to Cuvier, that there are any living mammals either in America or elsewhere. The most celebrated place where the remains of the mastodon occur is called Big-bone Lick, on the south-east of the Ohio, five miles from the river, and thirty-six miles below the entrance of the Kentucky river, and nearly opposite the great Miami. The place where they occur is a fall marsh surrounded by hills. The bottom of the marsh is a black and fetid mud. The bones are found in the mud and on the borders of the marsh at about four feet below the surface, but they occur also in various parts of North America in marshy situations. In 1805, many bones of these animals were found in the county of Wythe, in Virginia, about five feet under the earth, upon a bed of lime-stone. One of the teeth weighed seventeen pounds. But what renders this discovery the more remarkable is, that a mafs of half-ground branches, roots, and leaves, included in a kind of hum, supposed to be the foimach, was found in the midst of these bones, so as to leave no doubt that these were substances that the animal had devoured. Among the vegetable matter in this hum were distinguished the remains of some plants known in Virginia. The bones of the great mastodon may be said to be common in North America; two nearly entire skeletons were collected by Mr. Peale; one of the largest is preserved in the Museum of Natural History at Philadelphia, the smaller was exhibited in London a few years since. These bones are scarce in other parts of the world; but wherever they have been found, it is at no great depth under the soil, and yet they are but little decomposed. They are not rounded by attrition, and offer proofs that they have not been removed from the places where the animals died. The skeletons found near the river called the great Ofages were nearly in a vertical position, as if the animals had simply sunk into the mud and been buried there. According to a letter from Mr. Smith Barton, professor at the university of Pennsylvania, to M. Cuvier, "An intelligent traveller had seen near that river thousands of these bones, and had collected seventeen tufks, some of which were fix feet in length, and a foot in diameter; but the greater part of these bones was much decomposed." Mr. Barton sent a grinder to M. Cuvier, so that no doubt can be entertained that the bones belonged to the mastodon. No remains of marine shells have been discovered with the bones of the mastodon, as is the case with those of the mammoth. Mr. Barton thinks, that the salt water of the marshes where they are found has contributed to the preservation of the bones. He states also two instances which appear to prove that from time to time the soft part or flesh of these animals has been dug up; a circumstance which, from the heat of the climate, is much more astonishing than what is stated of the flesh of the mammoth and rhinoceroses being found in Siberia. (See Mammoth.) The Indians, who discovered five skeletons in 1762, relate, that one of the heads had a long nose above the mouth; Mr. Barton supposes that this was in fact the trunk. Kalm, in speaking of a great skeleton discovered by the savages in a marsh in the Illinois country, says, that the form of its beak was still discoverable, though half decomposed; it is probable that this was the root of the trunk.

Some doubts exist whether the mastodon be really an extinct genus, and whether it may not be found living well of the Missouris. The Indians of Virginia, according to Mr. Jefferson, say, that a troop of these formidable beasts destroyed the deer, buffaloes, and other animals created for their use; when the great man above destroyed them all with his thunder, except the largest male, which presenting its head to the thunder-bolts threw them off as they fell, but being at last wounded in the side, it fled towards the lakes, where it lived to this day.

The skeleton of the great mastodon exhibited in England was near eleven feet high. From the size of detached bones, Cuvier conjectures that the animal never exceeded twelve French feet, but its body was much longer in proportion than that of the elephant.

The form of the crown of the molares or grinders is nearly rectangular. The substance of the teeth is of two kinds only, the inner or ooleous part, and the outer or enamel, which is very thick, and has no kind of cement or cortical. This very important difference joins with the form brings this animal nearer to the hippopotamus and the pig, than to the purely herbaceous animals like the elephant.

The crown of the grinders is divided by deep open furrows into a certain number of transversal ridges, and these ridges
ridges are again divided into two large irregular pyramidal oblique points, a little rounded. The crown therefore is fluted with these pyramidal points disposed in pairs; it is however very different from the teeth of carnivorous animals, which have only one principal longitudinal furrow divided into lesser indentations, like a saw. The teeth of the elephant have on the crown several little transverse walls, divided into a number of small tubercles, and these grow flat early, whereas the tubercles or cones on the tooth of the mastodon being much larger, the crown remains long mantled. It was this circumstance of the grinders being fluted with points that gave rise to the opinion of the mastodon being carnivorous.

The number of grinders, according to Cuvier, are fix on each side, three above and three below.

The structure of the jaws indicates that the mastodon had tusks like the elephant or more. The number of tusks which occur with the teeth further confirms this opinion. A skull was found by Mr. Peale which proves this fact, being furnished with alveoles. The curvature of the different tusks varies as much as in the elephant; but M. Cuvier thinks there is no ground for believing with Mr. Peale, that the tusks turned downwards.

The head of the mastodon being of vast size, and rendered exceedingly heavy by the teeth and tusks, which carried the centre of gravity far from the point of support, the neck was therefore necessarily short, like that of the elephant; so that without a trunk it could not have reached the ground with its mouth. Its tusks would also have deprived it of the power of eating on the ground; it is therefore certain that it must have had a trunk like that of an elephant.

From the remains of the mastodon, it appears there were five species, all of which are believed to be extinct.

1. The great mastodon that we have been describing.
2. The mastodon with narrow grinders. The remains of this species have been dug up at Semorea, and many other places in Europe, and also在美国.
3. The small mastodon with small grinders. This species is much less than the preceding, and was found in Saxony.
4. Mastodon of the Cordillera. This species was discovered in South America by Humboldt. Its grinders are square, and it appears to have been equal in size to the great mastodon.
5. Humboldtian mastodon. This, which is the smallest species of the genus, was found in America by Humboldt. These five species may be considered as forming a distinct and hitherto unknown genus.

The following are the dimensions of the skeleton of the great mastodon found by Mr. Peale, and placed in the Museum of Natural History in Philadelphia.

<table>
<thead>
<tr>
<th></th>
<th>Feet</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height over the shoulders</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Hip over the hips</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Length from the chin to the rump</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>From the point of the tusks to the end of the tusk, following the direction of the curve</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>In a straight line</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>Width of the hips and body</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Length of the largest vertebra</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Of the longest rib</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Of the tusks</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Circumference of one tooth</td>
<td>1</td>
<td>6 2/3</td>
</tr>
</tbody>
</table>

The weight of the whole skeleton is 1000 lbs.

MATTHEWS, in Geography, a county of Virginia, containing 4227 inhabitants, of whom 2908 were slaves in 1810.

MATTHIOLA, or rather Matthiola, in Botany, Brown in Ait. Hort. Kew, v. 4. 119. See our former article. Mr. Brown has restored this meritorious name, to designate a new genus of his own, extracted from the more hoary kinds of Cheiranthus, (see that article,) n. 16, 17, 20, 24, 31, 28, and 15. We allow a difference of habit, but scarcely perceive a sufficient character.

MATLOCK, l. 14, r. 1811—525—2496.

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MAURICE, l. 4, add—The town contains 2085 inhabitants.

MAURY, a county of West Tennessee, containing 16,335 inhabitants, of whom 2626 were slaves in 1810.

MAWS, St. In 1811, the parish of St. Juft contained 272 houses, and 1639 persons; viz. 751 males, and 888 females; 72 families being employed in agriculture, and 59 in trade, manufactures, and handicraft.

MAYOMBA, or MAJUMBA, Cape, a cape on the coast of Africa, in S. lat. 3° 34'. E. long. 11° 13' 30'.

MEADS, a township of Crawford county, in Pennsylvania, containing 736 inhabitants.

MEADVILLE, l. 5, after houses, add—457 inhabitants.

MECKLENBURG, l. 2, r. 18,453 inhabitants, of whom 16,264 were slaves in 1810; l. 6 and 7, r. 14,272—3494.

MECONIC Acid, in Chemisty. See MORPHIA, and OPIUM.

MECRAN, or Mekran. At the end, Kidge or Kej, add—The population of Mekran is formed of many different tribes and independent chiefs, of which the Balouches are the most numerous; a middle-sized race of men, spare, muscular, and active, and armed with a match-lock, sword, shield, and dagger. The common language of the country is a corrupt Persian, mixed with Scindi, and the Balouches in general are of the Soonee persuasion. Thos. of the central territories reside mostly in towns; those of the lower countries scattered over the plains, in hamlets of eight or ten huts, built of branches of palm, and covered with mats. The Balouches take, in general, but one wife, and their chiefs four; they are said to have great influence in the disputes of their tribes. The women of Mekran are allowed to appear indifferently in public. Mekran was formerly under the dominion of Naffir Khan, the chief of Kelat; but since his death, in 1795, the authority of his son has ceased, and of the dominions of his father he only retains possession of the fort of Kej. The whole force of the country, it is thought, may amount to about 25,000 men, whom it would be impossible to collect or to induce to concur in action. The revenues of this country are trifling.

MEDFIELD, l. 3, r. 786.

MEDFORD, l. 6, r. 1443.

MEDICAL ELECTRICITY. Since our remarks on medical electricity (see Medical Electricity) were written, a method has been announced, in some degree new, of exhibiting this remedy, which we shall very briefly notice here. This consists in employing a jar coated on the outside with paper tinfoil, and instead of a coating on the inside, having only a spiral coil of wire in contact with its surface. On making the experiment, we find the shock is modified and softened by this contrivance. It appears, therefore, much better adapted for administering what is commonly called vibratory shocks, (that is to say, small shocks in very quick succession,) than the jar commonly used for the purpose. We omitted to mention that this method of exhibiting electricity (called vibratory) is commonly practised by electricians, chiefly from its requiring
requiring a very small apparatus, and from its being at the same time equal, or nearly so, in effect to a large current of fluid produced from a very powerful machine.

MEDOMAN, in Geography, a town of America, in Maine, and county of Lincoln, having 121 inhabitants.

MEDULLIN, in Chemistry, a name given by Dr. John to the pith of the sunflower, the *safranga vulgaris*, &c. and which, according to him, is distinguished by the following properties: It is soluble in water, alcohol, ether, and oils. It has neither taste nor smell. It is soluble in nitric acid; but instead of forming fuferic acid, furnishes a quantity of oxalic acid. Its structure is peculiar, and when burnt it leaves a charcoal having a metallic bronze-like appearance.

MEDOWAY, in America, l. 4. r. 1713.

MEERSCHAUM, See Meerschaum, and Mineralogy, Addenda.

MEGALONIX, in Natural History, an extinct species of quadruped, about the size of an ox, whose remains were first discovered in Virginia. It was supposed by Mr. Jefferson to be allied to the lion, and hence received its name. According to Cuvier, however, the megalonix and megatherium are nearly allied, and may be considered as belonging to the same genus, which may be placed between the floth and the ant-eaters, but nearer to the former than the latter. The remains of these animals have hitherto been found only in America, where floths and ant-eaters are present exit. See Megatherium, Addenda. Semegatherium. (See Megatherium.) The animal described in the former part of that article, whose remains were found in Siberia, and noticed by Mr. Adams, was not the megatherium of Cuvier, but the fossil or extinct elephant. (See Mammoth, Addenda.) The megalonix was of the size of the rhinoceros; its fossil remains have hitherto been found only in South America. The first and most complete skeleton was sent from Buenos Ayres in the year 1789. It was found in digging in alluvial soil, on the banks of the river Lusitania, a league S.E. of the village of that name, and three leagues W.S.W. of Buenos Ayres. A second skeleton was sent from Lima to Madrid in the year 1795; and a third was found in Paraguay. This animal differs from the megalonix chiefly in magnitude, being much larger. See Cuvier's description in the latter part of the article Megatherium.

MEGIDDO, or Megede, in Scripture Geography, a city of Mansiel (Joh. xvii. 11. Judg. i. 27.), famous for the defeat of king Josiah. (1 Kings, xxix. 29, 30.) Herodotus, speaking of this victory, says, Nehoch obtained it at Megador, lib. ii. cap. 159.

MEIGS, in Geography, a township of Adams' county, in Ohio, having 835 inhabitants.

MEKAN. See Mekan.

MELDUM. In 1811, the parish of Old Meldrum contained 411 houses, and 1635 persons; viz. 736 males, and 919 females: 335 families employed in agriculture, and 86 in trade, manufactories, and handicraft.

MELFORD, Long, l. 5 and 6, r. 1811—415—2668—951—1117.

MELLIT, in Farriery, a dry scab growing upon the heels of the foot of a horse, which is cured by a mixture of half a pound of common honey, and a quarter of a pound of black soap, with four or five spoonsful of vinegar, half an ounce of finely powdered alum, and two spoonsful of fine flour, applied to the affected part, after removing the hair, like a plaster, and suffered to remain five days. If the cure be not completed, the leg, foot, and toe, should be washed, and the same application repeated.

MELMOTH, col. 2, l. 20 and 21, r. thus—The author of 'The Pursuits of Literature' says, 'Mr. Melmoth is a happy, &c."

MELROSE, l. 12. In 1811, this parish contained 538 houses, and 1832 persons; viz. 1531 males, and 161 females: 239 families employed in agriculture, and 251 in trade, &c.

MELTON-MOWBRAY, l. 24 and 25, r. 1811—451—275.

MENALLENG, a township of Fayette county, in Pennsylvania, having 1288 inhabitants.

MENANGEEBOW, for Menangeebow.

MENDHAM. Add—containing 1277 inhabitants.

MERA, l. 14 from bottom, after Lingo, add a comma.

MERCER, after acres, add—16 townships, 8277 inhabitants; l. 6, 11, 587 inhabitants, of whom 3500 were slaves in 1810.—Also, a township of Mercer county, having 692 inhabitants.—Also, a township of Butler county, in Pennsylvania, having 588 inhabitants.—Also, a township of Maine, in Somerset county, having 562 inhabitants.

MERCURY, p. 12, col. 2, l. 12 from bottom, for Todd r. Thomson.

Mercury: This metal boils, according to Crichton, at 65°; according to Heirich at 65°. These differences respecting the boiling point of this metal, as well as those mentioned in the original article, probably arose in part from the mode in which the thermometers employed were graduated. See further on this subject under Heat. There are but two oxyds of mercury known, and not three, as stated in the Cyclopaedia, the black or protosyd, and the red or persyed: the former of which, according to Dr. Thomson's recent determinations, is a compound of 100 mercury + 4 oxygen; and the second, 100 mercury + 8 oxygen. Hence the weight of an atom of this metal will be 250, and from this the composition of its salts may be deduced. (See Atomic Theory.) What has been said in our original article respecting calomel and corrosive sublimate, formerly termed submuriate and oxymuriate of mercury, is now to be understood, according to the present views of their composition, as applicable to the protechloride and perchloride of mercury. See further on this part of the subject under Chlorine.

MERDIN, l. 7. Its inhabitants amount to nearly 11,000 souls; l. 9, add—their number is supposed to be 1500, having several churches, and a parochial, and besides here are 200 Jews, and also Turks, Arabs, and Kurds. At the end, add—it is 45 furlongs from Diarbekr. It is the frontier of the pachalic of Bagdad, towards Constaninople, and under the government of a Mussaleem, appointed by the pacha.

MERIDEN, a town of New Haven county, in Connecticut, having 1249 inhabitants.

MERION, l. 3. r. 1156—1835.

MERIONETSHIRE, col. 5, l. 37 and 38, r. 1811—6022—30, 924—14, 089—16, 616—3619—1720.

MERRICK, l. 3, r. 1048.

MERTHYR-TFYDVI, col. 2, l. 30, add—in its five hamlets, by the parliamentary returns of 1811, it is rated to amount to 11, 104 persons, occupying 2264 houses.

MERTON, l. 4, r. 1811; l. 5, r. 135—905.

MERU-SHAH-JEHAN, See Mearu.

MESCHID, Maschid, or Meched, l. 1, infer—The capital of the Persian division of the province of Khorasan, situated about two furlongs from the ruins of the ancient city of Tous, and celebrated for a very superb sepulchre, containing the relics of Imam Reza, and those of the caliph Haroun ul Ruchid. This city, though a great part of it
it is in ruins, has a population of 50,000 souls. The bazaar is well supplied with fruits and provisions, from the fertile plain on which the city stands. It is surrounded by a strong wall, three furlongs in circumference, and the great bazaar is three miles in length. The city is governed by one of the king's sons, and with the districts belonging to it yields a revenue of 99,000 tomans. It carries on a considerable trade with Bokhara, Bukh, Candahar, Yezd, and Herat. Velvets of the finest quality are manufactured here, and its fur pelisses are much esteemed.

MESHED. See MESHID.

MESHED. Ali. See NEJAF.

METAL, in Geography, a township of Franklin county, in Pennsylvania, having 1236 inhabitants.

METALS, in the Materia Medica, vol. 2, l. 24, for Todd r. Thomson.

METEORIC IRON. See Mineralogy, Addenda.

METHERVAN, in Geography, a town of Essex county, in Massachusetts, containing 1181 inhabitants.

METWOLD, col. 9, r. l. 4, 1. 1981-94—174.

METROXYLON, in Botany, a name given by Rotboll, in the Copenhagen Translations, to the true Saga Palm, described from Dr. Konig's manuscripts, by Mr. Charles Konig, in Ann. of Bot., v. 1. 195, l. 4. This genus appears to differ from Gertner's Sago, (see that article,) in having a corolla; which is monopetalous and three-cleft. See Saga.

MEXICO, col. 15, l. 21 from bottom, add—The industrious researches of the ingenuous and philosophical traveller M. Humboldt have established the remarkable fact, that in the whole of the New Continent, there is nothing which indicates the existence of alphabetical writing, nor any very near approach to it. Although the use of hieroglyphic paintings was common among the Toltecks, Aztecks, and other tribes, which, since the sixteenth century, have appeared successively on the elevated plain of Anchau, Humboldt suggests, that the progressive perfection of Symbolical writing, and the facility with which objects were painted, prevented the introduction of letters. It is alleged, that they have done so for a much longer time with the Chinese.

MIAMI, a township of Clermont county, in Ohio, containing 1670 inhabitants.—Also, a township of Greene county, in Ohio, containing 704 inhabitants.—Also, a township of Hamilton county, in Ohio, containing 495 inhabitants.—Also, a county of Ohio, containing 6 townships, and 3941 inhabitants.

MICHIGAN. Add—The territory of Michigan includes four districts, viz. Detroit, Erie, Huron, and Michilimackin, and by the census of 1810, 4702 inhabitants, of whom 24 were of foreign birth.

MICKLEHAM, col. 2, l. 1, r. 1811; l. 2, 416 persons, occupying 34 houses; l. 3, 190—226.


Eff. Ch. Calyx of five spreading leaves. Petals five, minute, undivided; or wanting. Stigmas four, sessile. Capsule ovate, longer than the calyx, of four valves.


Mr. Pursh speaks of Arenaria foetidissima as probably belonging to this genus, but we know not whether he intends the plant of Linnaeus, or of Jacqu. "t. 182; see Al. Bot. t. 1744.

MIDDLEBOROUGH, l. 3, r. 4400.

MIDDLETON, l. 3, r. 4218; add—Also, a town of New Haven, in Connecticut, having 847 inhabitants.

MIDDLEFIELD, l. 3, r. 822.

MIDDLE HERO, a township of Grand Isle county, in Vermont, having 623 inhabitants.

MIDDLESEX, col. 2, l. 4, r. 1811—130,613 houses, 953,276 inhabitants; viz. 434,633 males, and 518,643 females: of whom 135,395 families are employed in trade and manufactures, and 9085 in agriculture.

MIDDLESBROUGH, in America, l. 3, r. 441; l. 6, r. 52,789. Col. 2, l. 9, r. 8—20,723; r. 10, r. 57 were slaves in 1810; l. 14, r. 20,383; add—Also, a township of Chittenden county, in Vermont, having 421 inhabitants.—Also, a township of Butler county, in Pennsylvania, containing 568 persons.

MIDDLETOWN, l. 3, r. 541; l. 8, after houses, add—2014 inhabitants.

MIDDLETOWN, except the city, a township, containing 3368 inhabitants.—Also, a township of Columbiana, in Ohio, having 579 inhabitants.

MIDDLETON, col. 2, l. 23, r. 1811; l. 24, r. 4422 persons, occupying 806 houses.

MIDDLETOWN, l. 3, add—containing 439 inhabitants; l. 4, add—having 1207 inhabitants; l. 7, r. 976; l. 17, r. 3849; l. 33, after county, add—containing 948 inhabitants; l. 24, after Cumberland, add—having 2351, and the third in Bucks county, having 1462 inhabitants.

MIDDLEWICH, col. 2, l. 10, r. 1811; l. 11, 279—123.

MIDDELBURGH, l. 8, r. In 1811, the borough and parish contained 1256 persons, occupying 106 houses; 60 families being employed in agriculture, 127 in trade and manufactures.

MIEMITE. See Mineralogy, Addenda.

MIFILIN, l. 4, r. nine; l. 9, r. this county contains 12,132. Add—Also, a township in Alleghany county, in Pennsylvania, containing 627 inhabitants.—Also, a township of Rofs county, in Ohio, with 445 inhabitants.

MILBORNE, col. 2, l. 7, r. 1811; l. 8, r. population of this borough and parish amounted to 1000 persons, occupying 224 houses; 474 being males, and 526 females: of whom 132 families were employed in trade, and 78 in agriculture.

MILDENHALL, l. 25, r. 1811; l. 26, r. 2493, occupying 351 houses; 1187 being males, and 1306 females:—278—112.

MILFORD, col. 3, l. 39, 40, r. 1811—1961, the number of houses being 352.

MILFORD, in America, l. 2, containing 2095 inhabitants; l. 3, 973; l. 11, containing 2333 inhabitants; l. 18, and 2674 inhabitants.—Also, a town of Hillborough county, in New Hampshire, containing 1117 inhabitants.—Also, a township of Wayne, in Pennsylvania, having 37 per sons.—Also, a township of Somerset county, in the same state, with
MIL

with 1180 inhabitants.—Also, a township of Butler county, in Ohio, having 1037 inhabitants.

MILFORD, New, a town of Litchfield county, in Connecticut, having 3537 persons.—Also, a township of Luzerne county, in Pennsylvania, having 178 inhabitants.

MILK, col. 5, l. 29 from bottom, for oxidizing r. oxidizing.

MILK, Chemical Properties of. According to Berzelius, 1000 parts of milk deprived of its cream consist of

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>928.75</td>
</tr>
<tr>
<td>Curd with a little cream</td>
<td>17.0</td>
</tr>
<tr>
<td>Sugar of milk</td>
<td>35.00</td>
</tr>
<tr>
<td>Muriate of potash</td>
<td>1.70</td>
</tr>
<tr>
<td>Phosphate of potash</td>
<td>6.00</td>
</tr>
<tr>
<td>Lactic acid, acetate of potash</td>
<td>1.40</td>
</tr>
<tr>
<td>with a trace of lactate of iron</td>
<td>0.30</td>
</tr>
</tbody>
</table>

1000

In the paragraph describing the fermentation of mares’ milk by the Tartars, l. 2, after brandy, add—called Koumis.

After the paragraph upon cream, add—Cream of the sp. gr. 1.0244 was found by Berzelius to consist of

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>4.5</td>
</tr>
<tr>
<td>Cheeze</td>
<td>3.5</td>
</tr>
<tr>
<td>Whey</td>
<td>92.0</td>
</tr>
</tbody>
</table>

100

After the observations on curd, add—Curd has many of the properties of coagulated albumen. It is white and solid, and when all the moisture is squeezed out, it has a good deal of brittleness. It is precipitated by acids, and the precipitate consists of the curd combined with the acid employed. If this precipitate be digested with carbonate of lime or barytes in water, the acid combines with the earth, remains undiffolved, (supposing the sulphuric acid employed,) and leaves the curd in solution. The aqueous solution of curd thus obtained is yellowish, and resembles a solution of gum. When the solution is boiled in an open vessel, it becomes covered with a white pellicle, precisely as milk does, and acquires the smell of boiled milk. The membrane is almost insoluble in water, and appears to be produced by the action of the air on the diffused curd. With the mineral acids, curd forms the same compounds as albumen and fibrin do; but the neutral compounds are less soluble. A great excess of acetic acid is required to dissolve curd, and the neutral compound of curd and this acid appear insoluble. According to the analysis of Gay Lussac and Thenard, curd is composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>7.429</td>
</tr>
<tr>
<td>Carbon</td>
<td>59.781</td>
</tr>
<tr>
<td>Oxygen</td>
<td>114.09</td>
</tr>
<tr>
<td>Azote</td>
<td>213.81</td>
</tr>
</tbody>
</table>

100

MILL CREEK, in Geography, a township of Hamilton county, in Ohio, having 1334 inhabitants.

MILLEDGIVLE, a town of Georgia, in the county of Baldwin; which see.

MILLVILLE, add—containing 1032 inhabitants

MIN

MILNTHORP, l. 2, r. Haverham; l. 14, after population, add—of the townships of Miltorpe and Haverham; l. 15, r. 1811—138—242 houles; l. 16, 546—592—129—111.

MILTON, l. 8 and 7 from bottom, r. 1811—307—1746.

MILTON, in America, l. 9, r. 1264; add—Also, a town of Strafford county, in New Hampshire, having 1005 inhabitants.—Also, a town of Chittenden county, in Vermont, containing 1546 inhabitants.

MILVERTON, l. ult. r. 1811—1637; add—and number of houles 322.

MINCHIN-HAMPTON, l. 27, r. 1811—town and parish; l. 28, r. 3246, and occupying 710 houles; l. 29, 1523 males, and 1723 females.

MINEHEAD, l. 3, r. 144.

MINEHEAD, 1. 3, after England, add—By the returns in 1811, the borough and parish were entitled to contain 255 houles, and 1037 inhabitants; 443 being males, and 594 females.

MINERAL CAOUTCHOUC. See MINERALOGY, Addenda.

MINERALOGY, according to the most eminent mineralogists of the French school, comprises the study of all inorganic substances that exist naturally in the earth, or on its surface. According to this comprehensive definition, water, air, and all ponderable elementary matter, may be clasped with minerals. The German mineralogists use the term mineral in a more restricted sense. See MINERALOGY, where is given a history of the progress of this science, and an outline of the systems of Werner and Haüy. For a more full account of the external characters of minerals, and of the systems of classification introduced by Werner, see OBYECTOGRAPHY; and for the leading principles of crystallography, on which the system of Haüy is formed, see CRYSTALLOGRAPHY, Addenda. Under the article SYSTEMS OF MINERALOGY, we have given a summary view of the chemical systems of mineralogy recently attempted to be introduced by the distinguished Swedifh philospher Berzelius.

Mineralogy has scarcely been cultivated as a regular science in Europe longer than fifty years, and in England it has not excited much attention until the present century; since which time our acquaintance with the mineral kingdom has been rapidly extending. We propose in the present article to describe those minerals which have been recently discovered, or whose characters have been more accurately known since the articles were written in which they were described. Many minerals having received several different names, we have also deemed it expedient to give an alphabetical list of all the known species of minerals, with references to the particular name under which each is described. This will, we trust, in a considerable degree, remedy the inconvenience resulting from the ulelefs multiplicity of names; an evil which, in this department of science, tends greatly to retard the progress of useful knowledge. To Werner, we are indebted for the first precise definition of the external characters of minerals; but unfortunately both he and the mineralogists of the Freyberg school have introduced such a multiplicity of divisions, subdivisions, and minute distinctions into the science, with so many quaint terms to express what was before perfectly definite in the language of common life, that the description of the most intelligible properties is often rendered harsh and obscure to the student. This is greatly to be regretted, as it prevents many from cultivating mineralogy, deterred by a parade of frivolous distinctions which affail them in limine.

The
The characters of minerals, arranged according to the Wernerian method, are enumerated under the article **Oryctognosy**; but a selection of the most important ones, with a further definition of some of them, appears necessary to render more complete this department of our work, and to enable the general reader to understand the descriptive language used by mineralogists. The characters of minerals are either **physical** or **chemical**. Physical characters are those properties which can be discovered without decomposing or changing the nature of minerals; under this term we comprehend the external characters of Werner, and also some of those properties which are elicited by the action of other bodies on the mineral examined, such as magnetism and electricity.

Chemical characters in mineralogy are those properties which are most easily discovered by the action of heat, of acids, and of various re-agents. It is in this limited sense that these characters are understood by the mineralogist. A complete analysis of minerals belongs to chemistry.

In our enumeration of physical characters, we shall commence with those which depend on the action of light; namely, colour, transparency, lustre, and refraction.

Colour is regarded by the German mineralogists as an important character, and it is that which first arrests the attention of the observer; but in earthy minerals, the colours of the same species are often so various, that this character loses much of its value as applied to them. The colours of minerals, as far as they have been chemically examined, are principally owing to metallic oxides and inflammable matter: the earths, the acids, and the alkalies, in a state of purity, are white or colourless. The colour of earthy minerals may, therefore, be regarded for the most part as arising from accidental admixtures with unimportant ingredients. But in the inflammable minerals and metallic ores, and in a few of the earthy minerals, the colouring matter is as important as the other parts, and generally more so; hence in the latter, the colour varies but little in each species, and is a character of importance precisely in proportion to its simplicity. For an enumeration of the different varieties of each colour, and the minerals in which they are most characteristic, and for change of colour, see **Oryctognosy**.

Transparency, in its different degrees, from perfect transparency, semi-transparency, translucency, and opacity, are terms perfectly intelligible to every reader. When the cloudiness in semi-transparent minerals increases, so that the outline of objects can fearfully be seen, translucency commences, as in common chalcedony.

Double Refraction, or Duplicating, is the property which some transparent minerals possess of presenting a double image of an object when seen through them in particular directions, of which calcareous spar, an Iceland crystal, offers a remarkable example. See **Crystal of Iceland**.

Opalescence, a term not unfrequently applied to some minerals, is thus defined by Mr. Jamefon: "Some minerals, when held in a particular direction, reflect from some fingle spots in their interior a coloured glancing lustre; this is what is understood by opalescence: it is distinguished into simple and fiddler; in the latter, the lustre diverges in fix rays in the form of a star, as in the flar-sapphire."

Lustre.—The lustre of a mineral produced by the reflection of light is of different kinds, and is called metallic, semi-metallic, adamantine, pearly, resinous, and vitreous. Perfectly opaque minerals, as the metals, and most of the metallic sulphures, reflect the light wholly from the surface without undergoing any refraction, and exhibit the metallic lustre of various degrees of intensity; and the lustre is increased, and the colour is unchanged, when a scratch is made in them with a knife or file. Minerals having a metallic lustre yield a lighter colour, or have their lustre destroyed when scratched. The adamantine lustre is exhibited by minerals which are translucent, and possefs great refractive power; the lustre is reflected from the interior of the mass with great vivacity, and is produced both by reflected and refracted light. Examples, the diamond, sulphur, and the native salts of lead. In these minerals, though the lustre is increased by polishing, yet its particular character is lost distinct, owing to the increased reflection of unrefracted light from the surface.

The pearly or nacreous lustre is well exhibited in some kinds of zeolite, and in kyanite. When it proceeds from fibrous minerals, as in satin spar and fibrous gypseum, it is sometimes called a silky or faty lustre.

The resinous lustre is well represented by that of pitch: it exists in pitch-foncé and resinous flints.

The vitreous lustre is perfectly represented in rock-crysal.

Each of these kinds of lustre may vary in degree from the most splendid, which can be seen at a great distance, to shining, glinting, or glimmering. When entirely deficient, a mineral is called dull.

The streak implies the colour or lustre which a mineral exhibits when scratched with a knife or file; the colour is the same as that of the mineral when pulverized.

Soiling is a character that occurs in some soft minerals, which leave a mark when drawn on the surface of other bodies, or on the fingers, as plumbago, chalk, and redde.

The above are the principal characters depending on the action of light.

**Phosphorescence**.—Certain minerals give out light when rubbed against each other, as quartz; or when scratched with a knife, as dolomite. Other minerals give out light when heated on hot coals, or heated iron, as fluor spar; and certain minerals emit light when exposed to the action of the blow-pipe.

**Hardness and Solidity**.—Solids are the only bodies to which the terms hard or soft can properly be applied. In common language, hardnefs and frangibility are often confounded. A stone that endures many heavy blows before it breaks, is considered as harder than another which requires fewer blows for its fracture; but the property which different minerals have of resisting the point of a knife or file of hardened steel, or the effect produced when a mineral is rubbed on other minerals, or scratched by them, is the most exceptionable test of their hardnefs. Thus some minerals, as the crystal, quartz, a stone easily recognized, and whose hardnefs in that state is always the same; other minerals scratch steel, glass, steel, &c.; and soft minerals do not unfrequently contain minute grains of harder ones, which will give sparks with steel.

As a knife is the most convenient and portable instrument for determining the hardnefs of most minerals, except gems, the following judicious observations on the use of it, by Mr. Aikin, are deserving the attention of the student. In fibrous minerals, a scratch directed across the fibres will always indicate a lower degree of hardnefs than the true one; for the fibrous structure presenting an alternation of ridges and furrows, the knife glances across the intervals, thus interrupting the uniformity of the stroke, and producing a succession of small blows, which rather break down than divide the

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fummits of the ridges. The hardness of, therefore, be tried by a scratch parallel to the direction of the fibres, or, still better, on the surface of the transverse fracture. Another precaution is always to select a second undeformed or blemish of a specimen to make a trial of the hardness, this character being affected sooner than any other by the spontaneous alteration of a mineral. In examining the relative degree of hardness of two minerals, by trying which will scratch the other, it is necessary to be aware that the solid angles and edges of the primitive forms are very sensibly harder than those of the derivative forms, or than the angles and edges produced by casual fracture, either of crystals or malleable varieties of the same species. This fact has been long known to diamond-cutters, who always distinguish between the hard and soft points of the gem, that is, between the solid angles belonging to the primitive octahedron, and those belonging to any of its modifications, the latter being easily worn down by cutting or rubbing them with the former.

The whole range of hardness of minerals is thereby classified. When a mineral does not yield to the point of a knife, it may be called very hard, as quartz and feldspar. If it yields with great difficulty, it may be called hard, as feldspar. When a mineral yields more readily than the former, it may be called semi-hard, as hornblende and fluorspar. When it is easily scratched with a knife, it is called soft, as calcareous felspar and barytes. And when it yields to the nail, very soft, as gypsum and chalk.

Tenacity.—By this property is understood the relative mobility of the particles of minerals, and the different degrees of cohesion. In some metallic minerals, particularly native gold and silver, the particles, though they cohere with great force, are capable of a considerable degree of motion, and may be cut with a knife or extended with a hammer. Such minerals are called malleable. When a mineral may be cut into fragile shavings, or coarse grains, adhering to the knife, it is called brittle, as in plumbago and soapstone. When on cutting a mineral with a knife, the particles do not fall off with a grating noise, it is said to be brittle. All hard minerals, and the greater number of semi-hard minerals, are brittle, as quartz and fluorspar.

Frangibility.—By this property is understood the resistance which minerals oppose to the stroke of a hammer before they are broken into fragments. The degrees of frangibility depend partly on the cohesion of the particles; partly on the structure of the mineral. Frangibility must not be confounded with hardness; for soft minerals are more infrangible than hard ones. Quartz is much harder than hornblende, but may be broken with greater facility. The brittle minerals are the most frangible, whilst those which yield to the knife and are brittle are generally very tough; and the malleable minerals, such as native gold, can scarcely be said to be frangible.

A mineral is more easily frangible by a sharp blow from a small hammer, than by a heavier blow from a large hammer; hence this property appears to depend much on elasticity. Some earthly minerals, as beryl, felspar, and topaz, are more frangible when first obtained from their native beds, than when they have been exposed for some time to the atmosphere, owing to their containing a number of moistures which is afterwards evaporated. The degrees of frangibility, from very difficultly frangible to very easily frangible, are enumerated under Onyxography.

Some earthly minerals, and all malleable minerals, bend without breaking, or are flexible; and some minerals are both flexible and clastic, as mica.

Structure of Minerals.—This is the internal arrangement of the particles of a mineral. The three great divisions of structure are, the perfectly crystalline, imperfectly crystalline, and the promiscuous structure. The perfectly crystalline structure is described under the article Crystal; and the Wernerian description of crystalline forms will be treated of in the following section. For the imperfectly crystalline and promiscuous structure, see Structure of Minerals, where these important characters are described. The structure of minerals is ascertained by the number of joints, or determinate directions in which a mineral can be split, or exhibits distinct laminae. This is called the cleavage by the German mineralogists.

When a mineral splits in one direction, it is said to have a single cleavage, as in mica. The cleavage may be double, as in felspar; triple, as in calcareous felspar; quadruple, as in fluorspar; or six-fold, as in blende and rock-crystal.

The Wernerian system takes no account of the angles under which the planes or laminae of a mineral meet, except as being rectangular, equiangular, or oblique. But the angular measurement of the inclination of the planes forms the basis of Hauy's system of crystallography. (See Crystal and Goniometer.) According to Werner, the two-fold cleavage is described either as rectangular, (examples, felspar and hyacinth,) or oblique, as in hornblende.

The four-fold cleavage may either be equiangular and oblique, as in fluorspar and the diamond, or three of the cleavages may be equiangular and oblique in the common axis of the crystal, and intersected by a fourth, which is at right angles with the axis, as in beryl.

In the six-fold cleavage, all the laminae may meet under equal oblique angles, as in rock-crystal, or three of the cleavages may form equal and oblique angles in a common axis, and be obliquely intersected by three others, which also intersect the axis in an oblique direction.

Fracture.—This property is carefully distinguished from the fracture by Hauy. The fracture is the casual division of the whole into fragments, and depends much on the kind of fracture. In this sense, a mineral is said to be glassy, conchoidal, or tenaciously fragile. Glassy fracture denotes a smooth, adhering, conchoidal fracture. A mineral is said to be tenaciously fragile, when the fragments are very adherent, and will not part, even at unequal angles, as in quartz. Glassy fracture is more frequent in metallic minerals, and in opaque minerals which have some degree of lustre and transparency. The uneven fracture denotes elevations which are commonly irregular, and angular. This fracture is most frequent in metallic minerals, and in opaque minerals which have some lustre; it passes into flat and imperfect conchoidal, and finally into earthy. The even fracture is that kind of surface which leaves the fewest inequalities, and these inequalities are flat and never sharply defined. It passes into large conchoidal and splintery. The splintery fracture, improperly so called, denotes a nearly flat surface, on which are numerous small wedge-shaped scales, adhering by their thick ends.

The earthy fracture is peculiar to opaque earthy minerals.
The surface has a number of minute elevations and depreffions, which makes it appear rough.

The backly fracture is peculiar to the malleable metals, and consists of short sharp-pointed protruding fibres, which are sometimes only discoverable by the feel.

These different kinds of fracture often pass into each other, and occur together: the most prevalent one must be taken as the characteristic fracture. In minerals which have a crystalline structure, the true or proper fracture is that which is across the direction of the planes. When crystalline minerals are broken, the division taking place more readily in the direction of the planes, the fragments have generally a tendency to a regular form, as cubic, rhomboidal, &c. according to the structure of the mineral from which they are broken.

Imperfectly crystalline minerals break into fragments, which are more or less regular, and contain the following varieties: the wedge-shaped, splintery, specular, and tabular.

Indeterminate fragments, from hard and brittle minerals, which possess no crystalline structure, have sharp edges and angles. In other minerals, the angles and edges are more or less blunt in proportion to their softness and toughness.

External form or shape of minerals is either indefinite, definite, or crystalline.

The indefinite or amorphous, called by Mr. Jamefon the common external shape of a mineral. This character is applied when a mineral exhibits no appearance of regular planes or laminae, nor any resemblance to well-known natural or artificial bodies. When the mineral forms a thin coat or crust on other minerals, it is called superficial or investing, which is common to friable or pulverulent minerals.

Another variety is called plated or membranaceous, where the mineral forms thin membranes or flakes not exceeding in thickness common paper. When the three dimensions are not very different from each other, if the bulk is not considerable, the mineral is said to be in pieces, which may be either angular or rounded. If the bulk of an amorphous mineral be considerable, it is called sphenose. An enumeration of Werner's common external forms is given under Oryctognosy; which fee.

The definite form, or particular external shape, appears in many instances to be derived from crystallization modified or disturbed by other causes. According to Mr. Aikin, many of the definite forms have evidently been occasioned by matter in a semi-fluid state having been exposed to the simultaneous action of crystallization, concentric attraction, and gravitation. To crystallization is owing the minute structure in short prisms or fibres laterally aggregated; to the concentric attraction it is owing that each of these fibres converges towards a real or imaginary centre, forming a curved thick plate of the whole, or several plates in succefsive coats, like the structure of the onion; and lastly, it is owing to gravitation that these concretions do not form perfect spheres, but are more or less elongated into the mamillary, the reniform, the botryoidal, and the alabastrine varieties. Of particular external forms, a great variety are enumerated. (See Oryctognosy.) The definite form that approaches nearest to the regular crystalline, is the arborensent or dendritic: it bears a near resemblance to a vegetable spray; hence its name. On minute examination, it will, however, be found to consist of crystallals occasionally very perfect, implanted one into another, and branching in different directions. Certain varieties have obtained particular names, as rictulated or reniform, when the branches interlace like the meshes of a net; and peltinated, when a number of short branches rise parallel to each other, at nearly equal distances, on the same side or on opposite sides of a main branch, as in a comb.

The crystalline form of minerals is called by Mr. Jamefon the regular external shape. When a mineral occurs crystallized in a simple form which has received a name in geometry, as the cube, the rhomboid, the octahedron, &c. it is easy to give an idea of it by referring it to that form: but when a crystall presents a great number of unequal planes, or is very complicated, the description becomes difficult without a drawing or model. Mr. Werner has, however, confiderably facilitated the mode of describing crystals by considering them as modifications of certain simple forms; and this mode, though not strictly scientific, is found most convenient in practice.

The simple forms, or what he calls the fundamental forms, are, the cube (fig. 1); the rhomboid (fig. 2); the prism, which may have three, four, or a greater number of sides (figs. 3, 4, 5, &c.); the pyramid, which may have three, four, five, or six triangular planes (fig. 6); the table, which has two equal and parallel planes, which are very large compared with the thickenss of the table, and is bounded by an indeterminate number of sides (figs. 7 and 8.). The three following forms are very rare. The isoscadron, having twenty equilateral planes (fig. 9.); the dodacahedron, having twelve pentagonal faces (fig. 10.); and the lens, which has two curved faces (fig. 11.)

Mr. Aikin is of opinion, that the number of simple forms, or models, to which almost all crystals can be referred, may be reduced to four. The prism, the rhomboidal dodecahedron (fig. 12.); the regular tetrahedron (fig. 13.); and the double pyramid formed by two equal and similar pyramids joined together by a common base. The pyramid, like the prism, may have a greater or smaller number of sides, and the edges of the base of each pyramid may be in the same plane, as in fig. 14., or so on obliquely, as in fig. 31.

These forms, or models, must be carefully noticed, have no connection with the true primitive forms of crystals (fee (Cristallography, Addition), but are merely adopted as convenient types for the description of crystals. The changes which these forms are supposed to undergo by truncation and bevelling may take place either on the edges or fold angles of the crystal. As the prism and the cube are the most common forms of crystals, we shall proceed to describe them modified by these changes. The prism, as we have before observed, may have several sides, and may be triangular, or rectangular, or as in fig. 3; oblique, as in fig. 4.; or polygonal and equiangular, as in fig. 5. The sides are technically called the lateral planes, they are parallel to and surrounding an imaginary axis. The bafes at each extremity of the prism are called the terminal planes. The lateral edges are formed by the junction of two contiguous sides or planes, and the terminal edges are formed by the junction of the lateral planes with the base or terminal planes, and the fold angles are formed at the point of junction of the terminal planes with the lateral planes. The cube may also be described as a short rectangular four-sided prism. When a solid angle is removed and one plane is formed in its place, as in Plate VII. fig. 16., the crystal is said to be truncated on the angles. When planes are formed on the edges of a crystal, as in fig. 17., it is described as truncated on the edges; and when two planes are formed on an edge of the crystal, as in fig. 18., it is said to be bevelled on the edges. Fig. 19. is a three-sided prism bevelled on its lateral edges. When the fold angles of a crystal, or the terminal planes, appear cut off by three or more planes converging to a point, the crystal is said to be acuminate; in fig. 20., each angle of the crystal is acuminate by three small planes set on the lateral planes; and in fig. 21., each angle is acuminate by planes set on the lateral edges. Fig. 22, according
to the Wernerian method, is a four-sided prism, acuminate at each extremity by four planes set on the lateral planes. 

**Fig. 23.** is a four-sided prism acuminate by four planes set on the lateral edges. 

In the second instance, the acuminating planes are rhomboidal; in the first instance, triangular. 

**Fig. 24.** is the equiangular fix-sided prism, acuminated at each extremity by fix planes set on the lateral planes. 

**Fig. 25.** is a similar prism acuminated by three planes at each extremity set on the alternate lateral planes; and 

**Fig. 26.** is also a similar fix-sided prism acuminated by three planes at each extremity, set on the alternate lateral edges. 

The planes at the opposite extremities in **figs. 25 and 26.** are set in different planes or edges, and are what the Germans call unconfomable. 

The octahedron, or double four-sided pyramid (**fig. 27.**), is a common form of crysftals: it is frequently truncated or bevelled. 

**Fig. 28.** represents the octahedron bevelled at each of the angles. 

**Fig. 29.** is a double eight-sided pyramid acuminated by four planes at each extremity, set on the alternate lateral edges of the pyramid, thus forming a crystal with twenty-four faces, a form common in the leucite. 

The table may be bevelled on the surrounding edges, as in **fig. 30;** but in this figure, the Wernerian mineralogists call the surrounding sides the terminal planes, and the larger sides the lateral planes, a deviation for which there does not appear any sufficient reason, and which is liable to introduce confusion into the description of crysftals. Some of the forms here referred to, particularly **figs. 22 and 24.,** may be more simply described as four-sided and fix-sided prisms, truncated at each extremity by four-sided or fix-sided pyramids. The edges of a crystal may sometimes be doubly bevelled, or may be bevelled, and the edge of the bevelment truncated. Such modifications are better described as replacements of the edges by three, four, or more small planes or secondary faces. 

A very long prism is called a capillary crystal, if the diameter be too small to render the faces distinct. A very short prism, in which the length is very small in proportion to the thickness, may be regarded as a tabular crystal. Most crysftals may be very intelligibly described by alluming the fundamental forms of Werner variomomly modified. We are not, however, to suppose, that Werner himself intended to convey the idea that nature first made crystals complete, and then cut away the angles and edges: he only expresses, by the terms truncation and bevelment, the appearance the crystal presents to the eye. 

The primitive forms, or the true fundamental forms of crysftals, as given by Haüy, are enumerated under the article Crystai; but **Plate VI.** Crystallization, comprises those forms, and also those of the integnet molecule. The primitive forms are, the paralleloiped, including the cube and rhomb (**fig. 1 and 2.**), and the rectangular-table (**fig. 7 and 8.**), the octahedron (**fig. 27.**), the tetrahedron (**fig. 13.**), the hexagonal prism (**fig. 5.**), the rhomboidal dodecahedron (**fig. 12.**), and the dodecahedron with triangular faces (**fig. 14.**). The integrnet molecules are, the tetrahedron (**fig. 13.**), the three-sided prism, and the cube (**fig. 1.**) 

In nature, we rarely find crystals entirely perfect and symmetrical. If, says Mr. Aikin, the student should imagine that the real crysftals of minerals, such as nature presents them, are formed with the precision that characterises the models of the crysftallographer, he will in general find himself much mistaken. By far the greater number of crysftals are either imbedded in other substances, from which it is difficult to disengage them without much injury, or inhere by one extremity in amorphous or uncrystallized matter of the same nature with themselves. Hence it is, that few prisms occur both terminations of which are entire. Not unfrequently also crysftals, by being formed in narrow clefts, are compressed, or in other ways variously mutilated, and thus perplex even the most skilful mineralogist. Their minutencies too, when the parts are much complicated, is frequently such as to elude the keenest eye and the most adroit use of the goniometer. 

It is often by no means easy to distinguish genuine from spurious crysftals. The latter are generally supposed to have been formed in cavities occasioned by the decomposition of real crysftals. These are called casts. Spurious or suppositious crysftals are either casts or imitations; the latter occurs when a mineral is deposited over a pre-existing crystal and assumes its figure. The crystal either remains forming a nucleus, or it disappears, and the suppositious crystal is hollow. 

In the Wernerian crysftagnosty, the magnitude of crysftals and their mode of aggregation are minutely enumerated. (See Orvslctognosy.) In the last edition of Mr. Jameson's external characters, he defines the scopiform or fascicular aggregation as "formed of a number of thin prismatic crysftals, diverging from their point of attachment, and forming a kind of fasciculus or bundle; example, zeolite." The manipulator, or file-like, consists of a number of crysftals that diverge towards both ends and are narrower in the middle, thus resembling a file; examples, zeolite and prehnite. 

Scalawgife is when many cubical crysftals are arranged like the lips of a srair; example, cubes of conoic silver. 

The surface of crysftals is either smooth or streaked, the streaks sometimes cross longitudinally and sometimes transversely. These streaks are deferving of notice, as they frequently serve to indicate the structure of crysftals. See Crystallography, Addenda. 

**Electricity** is a character peculiar to a small number of crysftallized minerals, that exhibit the positive and negative electricity at their extremities on being heated. This property was first discovered in the tourmaline. (See Triple.) The points which exhibit electricity are called the electric poles. In order to distinguish these poles from each other, the following simple apparatus is employed. (See Crystallography, Plate IV. fig. 92. A.) It consists of a needle of copper or silver, having at each end two small balls a, b; this needle, like the common compass-needle, is moveable upon a pivot, having a very fine point, and at the bottom a frind or foot. The needle and item are insulated by placing the foot on a plate of wax or resin. To use the apparatus, we place one finger on the item, and present near to the needle a flick of sealing-wax, made electrical by rubbing, then withdraw the finger, and afterwards the flick of sealing-wax, and the needle will be positively electrified; and when a crystal electrified by heat, and held by a pair of small pincers in an insulated handle, as at B, is brought so that the positive or negative pole may approach one of the balls a, a, b, it will be attracted or repelled. The electricity of the needle will be perceived a quarter of an hour, or longer, and may be rendered more or less strong by varying the distance at which the flick of sealing-wax is held. It may be proper to observe that many minerals become electric by friction. 

**Magnetism** is a character which occurs principally in ores of iron, or in minerals that contain a portion of iron, or iron in a state of black oxyd. 

The above are the most important physical characters, comprising those which are called the external characters by Werner, and those to which he restricts the term physical. 

**Specific Gravity**, or weight, is one of the most impor
MINERALOGY.

The continued rendering of a minerologist is sufficiently accurate. The mineral may first be weighed, and the weight be noted, and then it must be suppended by a fine thread, and weighed again in rain or river water, about the temperature of 60°. The original weight of the mineral divided by the difference of the weight will give its specific gravity, or the weight compared with that of water. The heaviest bodies are the metallic, and the metallic ores, which range from about five times the weight of water to seventeen; the latter is the specific gravity of native platinum. The heaviest earthy minerals are the barytic and frontitic earths, and the gems; these range from 2.5 to 4.5. The other solid earthy minerals range from 2. to 3.5: and some few solid minerals are lighter than water, as rock-cork.

The feel, whether unctuous, or smooth or dry, meagre or harsh, is a character which serves to distinguish particular minerals. The odour and taste are also characters of particular minerals; some yielding a peculiar odour naturally, as petroleum, or when rubbed, as sanguine-red; and others, as the saline, affect the taste. Adhesion to the tongue is also a character possessed by minerals which absorb water. The coldness and found of minerals are also given as characters by Werner, but they are of little practical value.

Friable minerals are either loose, as when the particles have no perceptible cohesion, or are slightly cohering. The particles are in some instances scarcely discernible, and are called duluy particles, as in cobalt-crust; in other instances, the particles are large and incly.

The fluid minerals are few in number, and are characterised by their fluidity, transparence, and lustre.

The remaining characters are purely chemical, except the action of water, and of the atmosphere, which is in some instances chemical, and in others mechanical. Water unites with many of the clays, and renders them plastic; other minerals, as fuller's-earth, fall to pieces in water, without being disintoeled, or even rendered plastic. In some cases, minerals absorb water, which alters their transparence and colour. Saline minerals chemically combine with water, and are dissolved. To the absorption of water, is owing the property of adhering, when applied to the tongue before noticed. The action of the atmosphere on minerals is principally effected either by the abstraction or absorption of moisture, and the oxidation of minerals when exposed to the air is for the most part owing to the moisture which it contains.

The chemical characters of minerals are those which the mineralogist can ascertain by the action of acids, or of heat as applied by the blow-pipe, either simply or aided by reagents. The action of acids is of great use in ascertaining many essential characters of minerals. For this purpose, the muriatic or the nitric acids of moderate strength are most convenient. A minute fragment of the mineral may be placed in a watch-glass, and a few drops of acid poured upon it. The native carbonates effervescence, and are dissolved. Some minerals require to be reduced to a state of powder to shew the action of acids, and are thereby reduced to the form of jelly in a few hours, as zeolite. Other minerals only require to be touched with a glass rod dipped in acid to ascertain their nature.

The blow-pipe is an instrument of very great use to the mineralogist; it has been already described. (See Blow-pipe.) A blow-pipe which can be carried in the pocket, to be worked when required by the mouth, is by far the most convenient; but it requires some precautions in the management to render it efficient. The bell and clearest directions for this purpose which we have are those given by Mr. Aikin.

"Few persons," he says, "are able at first to produce a continued stream of air through the blow-pipe, and the attempt often occasions a good deal of fatigue. I shall make no apology, therefore, for treating this matter somewhat in detail. The first thing to be done is to acquire the habit of breathing easily and without fatigue through the nostrils alone; then to do the same while the mouth is filled and the cheeks inflated with air, the tongue being at the same time slightly raised to the roof of the mouth, in order to obstruct the communication between the mouth and the throat. When this has been acquired, the blow-pipe may be put into the mouth, and the confined air expelled through the pipe by means of the muscles of the cheeks. As soon as the air is nearly exhausted, the expiration from the lungs, instead of being made through the nostrils, is to be forced into the cavity of the mouth; the communication is then instantly to be shut again by the tongue, and the remainder of the expiration is to be expelled through the nostrils. The second, and all subsequent supplies of air to the blow-pipe, are to be introduced in the former manner as the first. Thus, with a little practice, the power may be obtained of keeping up a continued blast for a quarter of an hour, or longer, without inconvenience.

"Much depends on the size of the external aperture of the blow-pipe. If too large that the mouth requires very frequent replenishing, the flame will be wavering, and the operator will soon be out of breath; if, on the other hand, the aperture be too small, the muscles of the cheeks must be strongly contracted, in order to produce a sufficient current, and pain and great fatigue of the part will soon be the consequence. An aperture about the size of the smallest pin-hole will generally be found the most convenient, though for particular purposes one somewhat larger or a little smaller may be required.

"Several varieties of form have been recommended for the blow-pipe; they all have their advantages and disadvantages. Upon the whole, it appears desirable that there should be an expansion of the tube somewhere between the two extremities, both for the sake of collecting and retaining the condensed moisture of the breath, and for producing a regulated pressure, and therefore a regular blast. The nozzle also should be tipped with a moveable piece for the convenience of giving at least three different sizes of aperture. These conditions being obtained, other circumstances are of small importance, provided neither the bulk nor weight of the instrument be troublesome.

"The fuel for this little reverberatory furnace (as the blow-pipe apparatus may, without impropriety, be denominated) is oil, tallow, or wax, kept in combustion by means of a wick. The oil is the wick, the tallow is better, and the wax is best, not only as being cleaner, and free from any offensive smell, but also as affording a greater heat. The management of the wick too is a matter of some nicety. It should neither be too high nor inundated too low, and should be a little bent at its summit from the blast of the pipe. All casual currents and drafts of wind ought to be carefully avoided, as rendering the flame unsteady, and very materially impairing its strength. The above conditions being duly complied with, the flame, while acted on by the pipe, will evidently confine to two parts, an outer and inner; the latter will be of a light-blue colour, converging to a point at the distance of about an inch from the nozzle; the former will be of a yellowish-white colour, and will converge into a shining point.
lefs perfectly. The most intense heat is just at the point of the blue flame. The white flame consists of matter in a state of full combustion, and calcines or oxygenates the substances immersed in it; the blue flame consists of matter in a state of imperfect combustion, and therefore partly deoxygenates metallic oxides which are placed in contact with it.

"The supports of the various substances while undergoing the action of the blow-pipe come next to be considered. Of supports there are two kinds, combustible and incombustible. The combustible support (used chiefly for metallic ores) is charcoal. The clove-grained and soundest pieces are to be selected for this purpose; and even the best often split and become rifty after being used for a short time. This will not oftentimes happen in the middle of an experiment, when the melted globule sinks into the cracks, is lost, and the experiment must be begun again. Instead of flocks of charcoal, some persons recommend that the charcoal, after being finely pulverised, should be moistened with a solution of gum tragacanth, and moulded into a convenient form; a plan that will defer its being tried. Perhaps simply moistening the charcoal-powder, and then submitting it to the action of a very strong screw-prest, might be still better. The incombustible supports are, metal, glass, and earth, in the use of all which one general caution may be given,—to make them as little bulky as possible. The support always absorbs more or less of the heat, and in many cases, especially when metallic spoons are employed, entirely prevents the flame from producing its due effect. The best metallic support is platinum, because it is insensible, and transmits heat to a less distance and more slowly than other metals. A pair of slender forceps of brass, pointed with platinum, is the best possible support for non-metallic minerals that are not very fusible. For the fusible earthy minerals, and for the fusible ones when fusives are used, leaf-platina will be found the most convenient; it may be folded like paper into any deformable form, and the result of the experiment may be obtained simply by unfolding the leaf in which it was wrapped up. Glass supports are slender tubes or rods of this substance. If the mineral to be examined is of a longish or fibrous shape, one end may be cemented to the top of the glass rod by heating it, and in this state it may be further examined with great convenience. Earthen supports are used only for extemporaneous cupellation; they are best made of bone ash, and must of necessity be of a certain bulk, in order to absorb the litharge, and other impurities, which it is the object of this process to separate from the fine metal. With regard to the magnitude of the specimens required for examination, no very precise rule can be given; the most fusible, such as some of the metallic ores, may be as large as a small pea, while the more refractory of the earthy minerals should scarcely exceed the bulk of a pin's head.

"The heat that is first applied to investigate the properties of mineral substances should be very slow, not exceeding that which exists on the outside, even of the yellow flame; at this temperature, the phosphorescence is best elicited, and decrepitation for the most part takes place, the fusible inflammables begin to melt, and the metallic and most other mineral salts lose their water of crystallization. The yellow flame will raise a substance to a tolerably full red heat, by which the following effects are produced. Many changes of colour take place, all the yellow ores of iron become red, and the peach-bloom tinge of flowers of cobalt becomes blue; certain earthy minerals lose their water of crystallization or of composition, and exfoliate, as gypsum, or throw up coarse and irregular ramifications, as prehnite and metate. At this temperature, also, carbonate of thomont begins to tinge the flame with its peculiar crimson colour, and malate of copper with its bright green colour. The roasting of all the metallic ores is best carried on at this heat; sulphur and arsenic are drawn off, and exhibit their characteristic odours; grey antimony melts; native bismuth runs out from the matrix, through which it is disseminated; and pearlspur and spathole iron blacken and become magnetic. In the still higher degree of heat produced at the point of the interior blue flame, although some minerals still continue perfectly refractory, and undergo but little change of any kind, yet the greater part is very sensibly altered. Some, as pearlstone, enlarge very considerably in bulk at the first impression of the heat, but are with difficulty afterwards brought to a state of fusion. Others become covered with a superficial glazing, and the sharp edges and angles become glossy and rounded off. Others, confining really, though not visibly, of an intermixture of two substances differing in fusibility, undergo the process of fritting, in which refractory grains are dispersed through a vitreous mass. In others, a complete fusion takes place, and produces a ppyogic opaque fuscireous mass called a flag, or an opaque glas called a enamel, or a more or less transparent or true glas, which latter may vary in texture from compact to porous and opaque or intersetent.

"In examining the habits of the earthy minerals with the blow-pipe, no fruses are required; whereas to most of the metallic ores,fluxes will be found at almost all times a very useful and often a necessary addition. The ores of the difficultly reducible metals, such as manganese, cobalt, chrome, and titanium, are characterised by the colour which their oxides give to glasses; in all these classes, therefore, vitreous fluxes must be largely made use of, both to diffuse the earthy matter with which the oxides are generally mixed very intimately, and to furnish a body with little or no colour of its own, which may receive and sufficiently diffuse the inherent colour of the oxide. I say sufficiently dilute, because the colour of most oxides is excessively intense, and most persons in their first experiments of this kind, are very apt to obtain ambiguous results in consequence of using too large a proportion of oxide, that the glass, whether blue, red, or green, appears quite black. With regard to fluxes, the following will, I believe, be found amply sufficient. Where the object is not only to diffuise the oxide, but at the same time to retain it at a high state of oxidation, the flux employed should be either nitre or a mixture of this with a glas of borax, or, still better, nitrous borax formed by dissolving common borax in hot water, neutralizing its excess of alkali by nitric acid, then evaporating the whole to dryness, and lastly half-melting it in a platina crucible. For an active, and at the same time non-alcaline flux, boracic acid may be used, or neutral borate of soda; and where a slight excess of alkali is required, or at least does no harm, common borax by itself, or mixed with a little cream of tartar, when a strong reducing flux is wanted, may be had recourse to. For coloured glasses, the proper support is leaf-platina; but for reductions, charcoal. In the latter case, the ore previously roasted, if it contain either sulphur or arsenic, is to be pulverised and accurately mixed with the flux; a drop of water being then added to make it cohere, it is to be formed into a ball, and deposited in a shallow hole in the charcoal, being also covered by a piece of charcoal, if a high degree of heat is wanted. The easily reducible metals, however, may be treated with less ceremony; a bit of the ore being placed on the charcoal, and covered with glasses of borax, will, in a space of a few seconds, be melted by the blow-pipe, and converted
converted into a metallic globule, imbedded in a vitreous fcoria.

"In all cases where a metallic globule is obtained, it should be separated from the adhering fcoria, and examined as to its malleability and other external characters; being then placed a second time on the charcoal, but without flux, it is to be brought to a state of gentle ebullition, during which the surface being oxygenated, will exhale a heavy vapour that condenes on the blow-pipe, or falls down on the charcoal in form of a powder, or of piccular crystals, from the colour and other characters of which the nature of the metal may probably be ascertained. If any fulpicion is entertained of a portion of silver or of gold being mixed with the oxidable metal, the button must be placed on an earthen support, and there brought to a full melting heat; by degrees the oxidable metal will become怂erified, and will entirely sink into the support, leaving on the surface a bright head of fine metal, if such was contained in the alloy; but the proportion of this last being generally very small, and the entire mass of the alloy often not exceeding a large shot, it is not unfrequently necessary to have recourse to the magnifying glafs, to be fully convinced of the presence or absence of fine metal." Aikin's Manual of Mineralogy.

The above directions will be found of the greatest use, and are sufficiently ample to make any additional remarks unnecessary. Some German mineralogists have, indeed, arranged under nearly one hundred heads, the different changes produced on minerals by the action of the blow-pipe, and have given elaborate explanations of words known with sufficient accuracy by almost every child of seven years of age. This we regard not as smoothing the paths of science, but as blocking them up with rubbish to impede the progress of the student.

In the mineralogy of Haiiy, he has introduced very judiciously what he denominates the distinctive characters of minerals, noting the particular characters which serve to distinguish one mineral species from another, to which it has the greatest general resemblance.

New species of minerals have been discovered almost every year since the commencement of the present century, the greatest number of these discoveries have been made in the mines of Sweden. Few, however, of the newly discovered minerals possess properties that entitle them to much notice, and it is highly probable, that as the science of mineralogy advances to perfection, many of these supposed new species will be discovered to be only varieties of species that have been long known.

Acinolite, or Alcyonite. Fr. altinate. See Strahlstein.

Acinote, Amphibole. See Strahlstein.

Adamantine Spar, or Common Corundum; Corindon harzophane, Haiiy. See Adamantine Spar.

Adhesive Slate, a species of polishing slate, or polier schifte. See Polishing Slate, Addenda.

Adularia. (See Felspar, Addenda.) This variety of felspar was formerly confounded with glaffy felspar. (See Glassy Felspar, Addenda.) Adularia occurs in veins of granite in Barmahire, in the Ife of Arran, and other parts of Scotland. Rolled pieces of adularia having a most beautiful pearly light are found in the island of Ceylon.

Agalmatolite, or Figure-Stone; Beldjlein, Werner; Tule graphique, Haiiy. A mineral which may be regarded as an indurated flintecite, or rather, according to Jameson, as intermediate between flintecite and nephrite or jade. It occurs maslive; the fracture is splintery, or imperfectly flat; the colours are greenish-grey, apple-green, or yellowish-brown, and sometimes flesh-red and rose-red. It is translucent, unctuous to the touch, and yields with ease to the knife, owing to which property it is carved with facility into different figures by the Chinese, and into pagodas, cups, and snuff-boxes. The specific gravity is from 2.6 to 2.8. According to Klaproth, the confluent parts of agalmatolite are:

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According to Aikin, this mineral occurs at Glyder Bach, Caernarvonshire.

Agaric Mineral, or Rock Milk; Chaux carbonatée spongeus, Haiiy. See Agaric Mineral.

Agate. (See Agate.) The agate is not a single mineral, but is composed of various siliceous substances arranged in concentric lamellae, exhibiting, when cut and polished, zones and angular lines, like fortifications. There is also a kind of agate-breccia, in which angular fragments are cemented by quartz or chalcedony. Agates appear to be formed by siliceous infiltration in the cavities of basaltic rocks, the formation commencing from the surface, and the cavity gradually filling by successive depositions on the fides, until the whole forms one solid nodule. According to the direction of the lines or the structure of agates, they are denominated ribbon or striped agate, fortification agate, landscape agate, brecciated agate, tubular agate, Jasper agate, spotted agate, banded agate, flar agate, marked with radiated spots; petrification agate, flossil-shells and zoophytes are sometimes penetrated or filled with agate. In the variety called moss agate, nodules of chalcedony inclose minute arborizations resembling moss, some of which are tupposed by mineralogists to be branches of moss suddenly inclined and preferred in siliceous matter.

Alabaster, Calcaceous, or Cale finter Alabaster, Gypsiferous Alabaster. See Alabaster and Gypsum.

Albite, Diopside, and Muffite, a mineral allied to augit; first found in the Alp of La Muffa, near the town of Aia, from whence the names albite and muffite are derived. See Diopside, Addenda.

Albanite, Cerium amalgame, Fr. an ore of the newly-discovered metal cerium, first analyzed by Mr. Allan, and hence called albanite. Its colour is a brownish-black; it occurs disseminated and crystallized in rhomboidal prisms, the angles of which measure 115° and 65°. The internal lustre is shining, and refino-metallie. It is opaque, and yields a greenish-grey streak. It scratches glass, is brittle and easily frangible. Before the blow-pipe it froths, and melts into a brown liquid. It gelatinizes in nitric acid. The specific gravity is from 3.5 to 4. The confluence of parts are:

<table>
<thead>
<tr>
<th></th>
<th>from China</th>
<th>from Nagey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of cerium</td>
<td>- - 33-9</td>
<td></td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>- - 35-11</td>
<td></td>
</tr>
<tr>
<td>Silex</td>
<td>- - 35-11</td>
<td></td>
</tr>
<tr>
<td>Lime</td>
<td>- - 9-2</td>
<td></td>
</tr>
<tr>
<td>Alumine</td>
<td>- - 4-1</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>- - 4</td>
<td></td>
</tr>
</tbody>
</table>

It occurs in granite in West Greenland.

Allochroite,
MINERALOGY.

**Allochroite, idem, Haüy; splintery garnet of Karff.** It is classed with the garnet family by Werner, but is regarded as a distinct species. It occurs massive; the fracture is uneven, passing into conchoidal. Its colours are greenish and yellowish-grey: it is translucent on the edges; internally it has a bluish tincture. It gives sparks with fleecy. The specific gravity is 3.5. It has hitherto been found only in an iron-mine at Dramman, in Norway. It is less hard and lighter than common garnet. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>35</td>
</tr>
<tr>
<td>Alumine</td>
<td>8</td>
</tr>
<tr>
<td>Lime</td>
<td>30.5</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>17</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>6</td>
</tr>
<tr>
<td>Oxid of manganese</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**Almandine, regarded as a variety of garnet.** See Almandin; but for garnet r. garnet.

**Alum-Earth, Alum-Slate, Common and Glossy, Alum-Stone.** See Alum, Ores of.

**Aluminate, Subulphate of Alumine; Reine thonerde, Werner; Alumine pure, Haüy.** This mineral is of a snow-white colour, verging on yellowish-white. It occurs in reniform pieces, it has no fracture, the fracture is earthy, and the confluence between friable and solid. It is opaque, foils slightly, affords a glintening streak, and adheres feebly to the tongue. It feels fine, but meagre. The specific gravity is 1.66. A variety of the same mineral substance occurs at Newhaven in Sussex, filling up fissures in chalk. This variety is white, yields to the nail, and adheres strongly to the tongue. The constituent parts of the foreign aluminate are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>32</td>
</tr>
<tr>
<td>Water</td>
<td>47</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>19.25</td>
</tr>
<tr>
<td>With a trace of silex, lime, and iron, equal in some specimens to 1.25</td>
<td></td>
</tr>
</tbody>
</table>

**Amalgam, Native, semi-fluid and solid.** See Mercury, Ores of.

**Amathoidite, Capillary, and Amathoidite, Byssolite; the latter so called by Saussure.** The former appears to be a variety of amathusite; the latter resembles it, but differs from it in chemical composition, if the analysis of Saussure be correct. It is supposed to be hornblende in a capillary form. Haüy.

**Amazon-Brine, green felspar from South America, which is cut and polished, and sold under that name, because it is found in rolled pieces on the banks of the river of the Amazons.**

**Amber, White and Yellow.** The white amber is of a straw-yellow or yellowish-white colour. It occurs massive, and sometimes inclosed in the yellow amber; it is less transparent than yellow amber. See Amber.

**Amethyst, a variety of crystallized quartz.** See Quartz, and Amethyst. Werner divides amethysts into two sub-species, common and fibrous. The prevailing colour of the amethyst is violet-blue of different degrees of intensity; but it is sometimes plum-blue and brownish-black; also grey, olive-green, and piftachio-green, which last colour is very rare. In massive varieties of amethyst, several colours occur together. In crystallization and other properties, the amethyst does not differ from quartz. It contains 97.50 of silex, with a minute trace of alumine, oxides of iron, and manganese; to these oxides, no doubt, its colours are owing. Amethysts occur in agate boulders in basaltic rocks. Thick fibrous amethyst occurs in massive and in rolled pieces; it occurs in agate veins, in the same rocks as common amethyst. A red colour is given to amethysts by the jewellers, by inclosing them in charcoal, which is ignited, and allowed to consume gradually. When the colour is not uniformly diffused, it is exposed in a mixture of sand and iron to a moderate heat, by which it is rendered more uniform.

**Amianthus, Flexible aequalis; Amiant, Werner; Athesan amiantus, Fr.** (See Amianthus, and Asbestos.) It is found in serpentine in the Isle of Anglesea, and in the same rock at Portlow in Scotland.

**Amelolite is a bituminous slate, or shale, of which drawing-flake, alun-flake, and slate-clay, are varieties.** See Slate.

**Amphibole, hornblende.** See Hornblende, Adenda.

**Amphibole Lamellaire, common hornblende.**

**Amphibole Crystallide, basaltic hornblende.**

**Amphibole Actinolite.** See Strahlstein.

**Amphibole Fibreux, glassey actinolite.** See Strahlstein.

**Amphibole Actinolite, asbestos actinolite.** See Strahlstein.

**Amphibole Garnematite, common tremolite and glassey tremolite.**

**Amphigene.** See Leucite.

**Analine.** See Zolite.

**Anatase, of Oolithedrite, Titane natare, Haüy.** See Titanium.

**Andalusite, Feldspath-aphyre, Haüy, is of a chestnut-red colour, sometimes inclining to pearl grey; it occurs massive or crystallized in rectangular four-sided prisms, with the terminal edges and angles sometimes truncated. The structure is imperfect lamellar, with a double rectangular cleavage, parallel with the lateral planes of the prism. It is translucent; it fractures with ease, but is rather easily fragmentable. The specific gravity is 3.16. Before the blow-pipe it becomes white, but is insubflible. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>32</td>
</tr>
<tr>
<td>Alumine</td>
<td>52</td>
</tr>
<tr>
<td>Potash</td>
<td>8</td>
</tr>
</tbody>
</table>

94

It occurs in veins in granite, gneis, and mica-flake, along with felspar, quartz, mica, and schorl. It was first found in the province of Andalusia. It has since been found in Aberdeen. The crystals are generally middle-sized or small, and occur imbedded. It is distinguished from felspar by its greater hardness, weight, and insubflibility; and from corundum by its double rectangular cleavage, and its inferior specific gravity.

**Anhydrite, or Anhydrous Gypsum, a species of gypsum which contains scarcely a trace of water in its composition, and is much harder than common gypsum; the latter (see...)}
MINERALOGY.

(see Gypsum) contains 22 per cent. of water, and some varieties 38 per cent. There are five varieties of anhydrite: compact, fibrous, radiated, sparry, and feebly crystalline. It is a peculiar stone, being a member of the class of earthy substances, but it is not a mineral in the strict sense of the word. It is a natural analog of the mineral gypsum, and is often found in association with it. It is a white, soft, and friable substance, and is often found in the form of crystals, which are usually elongated and prismatic. It is often found in the form of stalactites, and is often found in the form of stalagmites.

Compact Anhydrite.—Its colours are various shades of white, inclining to greyish-blue, and is also red and brownish-red. It occurs massive, contorted, and reniform. The compact variety, from its resemblance to the convolutions of the intellines, was called triphe-lone, or pierre de triphe. Compact anhydrite is more or less translucent, and is feebly glimmering, with a small splintery fracture, passing or in conchoidal. The fragments are sharp-edged; it is difficultly frangible. Specific gravity from 2.8 to 2.9. According to Klaproth, the constituent parts are,

\[ \text{Lime} \quad 41.48 \\
\text{Sulphuric acid} \quad 56.28 \\
\text{Water} \quad 1.75 \\
\hline
\text{99.51} \\
\]

Fibrous Anhydrite is of a red colour: it occurs massive, and has a delicately fine and parallel fibrous structure. Radiated anhydrite has a blue or greyish-colour, and is sometimes spotted with red: it occurs massive. The structure is radiated, the surface splintered and pearly: it is translucent and rather hard. Its specific gravity and constituent parts are the same as the former variety.

Sparry Anhydrite, or Cube-Spar; Chaus sulphaté laminaire, Haüy.—The prevailing colour is white, inclining to blue-grey, pale yellow, and red. It is more or less transparent, the lustre splintered and pearly; it refracts doubly. It is crystallized in rectangular four-sided prisms, and in fix or eight-sided prisms. It also occurs massive. It has a foliated structure, with a cleavage parallel with the sides of a rectangular prism, which is its primitive form. It fractures calcareous spar, but is easily frangible. The specific gravity is 2.9. Before the blow-pipe, it becomes glazed over with a white friable enamel, but does not melt and exfoliate like gypsum. It is met with in the salt-mines of the Tyrol, and in Switzerland, and also in the gypsiferous of Nottinghamshire. Scaly anhydrite is generally white, inclining to blue or grey: it occurs massive, has a confused foliated structure, and a splintered and pearly lustre. It is translucent on the edges, is easily frangible, and is soft. Specific gravity 2.9. According to Klaproth, the constituent parts are,

\[ \text{Lime} \quad 41.75 \\
\text{Sulphuric acid} \quad 55. \\
\text{Muriate of soda} \quad 1. \\
\hline
\text{97.75} \\
\]

It occurs in the salt-mines of Hall in the Tyrol.

Asbestos. Its colour is between dark yellowish-grey and olive-brown: it occurs massive and crystallized in red-banded crystalline, which appear to be four-sided prisms longitudinally streaked. The lustre is shining and pearly, approaching to metallic. The structure is radiated. It has a two-fold cleavage parallel with the sides of a rectangular prism. It is more or less translucent, yields to the knife, but fractures glads with difficulty. It is infusible before the blow-pipe. Its specific gravity is 3.2. The constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>56.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>15.30</td>
</tr>
<tr>
<td>Magnesia</td>
<td>14.00</td>
</tr>
<tr>
<td>Lime</td>
<td>3.33</td>
</tr>
<tr>
<td>Oxyd of manganlite</td>
<td>3.1</td>
</tr>
<tr>
<td>Iron</td>
<td>6.0</td>
</tr>
<tr>
<td>Water</td>
<td>1.43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>97.06</strong></td>
</tr>
</tbody>
</table>

This mineral is allied to hornblende; it occurs at Konigberg in Norway.

Asbestos, or Anthracelite, is a greyish-colour and columnar, and is allied to hornblende. Anthracelite is that species of coal which has a shining lustre approaching to metallic, and burns without smoke. Kilkeen coal and Welsh coal are varieties of anthracite. See Coal.

Antimony, Native, and Ores of. See Antimony-Ores, and Red Antimony, Addenda.

Apatite. (See Apatite.) Chaus phosphate, Haüy. Werner makes two sub-species of apatite, the common and conchoidal. The latter, or conchoidal apatite, has a conchoidal fracture; it has been called asperagus stone. Apatite has been discovered in Cornwall, and recently near Bovey in Devonshire. Massive apatite and earthy apatite have received from Werner the names of common phosphorite and earthy phosphorite. Phosphorite has nearly the same constituent parts as apatite, with an addition of a small portion of fluorite acid, about 2.50 per cent.

Aphrite. (See Scholum-Earth.) Aphrite is divided into feebly apatite, flatly apatite, and sparry apatite.

Aplonite, a mineral closely allied to garnet, but is supposed to have a different primitive form of the crystal or that of a cube. (See Garnet.) Aplonite is considered by Jansen as crystallized common garnet.

Aphrylite. See Zeolite.


Arietin, a name given by Werner to the mineral since called Wernerite. See Wernerite.

Aragonite. (See Aragonite.) Since that article was written, the remarkable anomaly in the crystallization of this mineral has been partly explained by the discovery that it contains a portion of the carbonate of iron, which is supposed to give a different form to its primitive crystal.

The constituent parts, as given by Stromeyer, are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>94.57</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>3.06</td>
</tr>
<tr>
<td>Hydrate of iron</td>
<td>1.70</td>
</tr>
<tr>
<td>Water</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.33</strong></td>
</tr>
</tbody>
</table>

From Baltic.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>94.82</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>4.08</td>
</tr>
<tr>
<td>Manganese and a trace of iron</td>
<td>0.9</td>
</tr>
<tr>
<td>Water</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.79</strong></td>
</tr>
</tbody>
</table>

Werner divides aragonite into common, columnar, and acicular. Aragonite occurs in trap rocks in various parts of Scotland, and we have acicular crystals of aragonite in lava from Vesuvius.

Arseniate of Copper. See Copper-Ores.


Arseniate of Lead. See Lead, Ores of.

Arsenic, Native. See Arsenic, Ores of.

Arsenic Bloom. See Phosphorite, Addenda.

Arsenic Oxide, and Arsenical Pyrites, or Marcasite. See Arsenic, Ores of.

Asbestos, Common and Flexible, (see Amiantus and Asbestos,) Asbestos ligniform, or wood asbestos. Its colour is
It occurs in common basalt, in wacke, and in lava; also in some kinds of porphyry. It decomposes more slowly than basalt; hence, according to professor Jameson, we frequently find crystals of basaltic hornblende dispersed through clay formed by the decomposition of basaltic rocks. See Hornblende, Addenda.

BASANITE, black flinty slate. See Slate.

BERGMANNITE, a mineral which occurs massive with grey and red quartz at Freidichswarn, in Norway, and is classed with scapolite in the felspar family in Jameson's Mineralogy. Its colours are greenish and greyish-white, or yellowish-grey and muddy flesh-red. It is extremely glissening, with a lustrum between pearly and resinous. The structure is delicately fibrous, curved, or diverging. It is faintly translucent on the edges, and scratches felspar. It melts before the blow-pipe without intumescing into a white enamel.

BERYL. (See BERYL and EMERALD.) In Weisse's collection at Vienna, there are two crystals of beryl in a group crossing each other, which are a foot and a half in length, and one foot in diameter. It has been found in alluvial soil, in the upper part of Aberdeenshire, and in the county of Wicklow, in Ireland, imbedded in granite.

BILDSTONE, See AGAMMATOLITE.

BISMUTH, Native. See BISMUTH-ORE.

BISMUTH, Glance, or Sulphuretted Bismuth. See BISMUTH-ORE.

BISMUTH-ORE, Plumbum cupriferum, has a steel-grey colour, with a pale copper-red tarnish. It occurs disseminated and crystallized in oblique four or six-sided acicular prisms, longitudinally streaked. The crystals are frequently adhering together, and are sometimes curved, and divided by cross rents. The lustrum is metallic. The cross fracture is fine-grained and uneven. It yields easily to the knife. The specific gravity is 6.2. Before the blow-pipe, it melts into a steel-grey globule; by continued the heat, it is partly volatilized, and deposits in the charcoal a yellow powder, after which there remains a red globule, containing a grain of cupriforous metallic lead, which communicates a bluish-green colour to borax. According to John, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bismuth</td>
<td>43.20</td>
</tr>
<tr>
<td>Lead</td>
<td>24.32</td>
</tr>
<tr>
<td>Sulphur</td>
<td>12.10</td>
</tr>
<tr>
<td>Sulphur</td>
<td>11.58</td>
</tr>
<tr>
<td>Nickel</td>
<td>1.58</td>
</tr>
<tr>
<td>Tellurium</td>
<td>1.32</td>
</tr>
<tr>
<td>Gold</td>
<td>0.79</td>
</tr>
</tbody>
</table>

94.89

It occurs near Berezof, in the district of Catharinenburg, in Siberia.

BISMUTH-ORE, Cupreous, or Cupriferos sulphuretted Bismuth-Ore, has a light lead-grey colour, sometimes steel-grey and tin-white. It occurs massive, disseminated, and in diverging prisms. The lustrum is metallic; it is feticile. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bismuth</td>
<td>47.24</td>
</tr>
<tr>
<td>Copper</td>
<td>34.66</td>
</tr>
<tr>
<td>Sulphur</td>
<td>12.58</td>
</tr>
</tbody>
</table>

94.48

This is a very scarce ore of bismuth.

BISMUTHIC Silver-ORE. See SILVER-ORE.
MINERALOGY.

BITUMEN, Liquid, Tenacious, Solid, Compact, and Elastic. See Bitumen.

BITUMINOUS MARLE-SLATE occurs in beds in the lower stratified lime-stone in various parts of Europe. It has a dark-brown or blackish-grey colour, a glimmering or glinting fault, a flaty fracture, and is soft, meagre, opaque, and feetile. It frequently contains ores of copper. It is remarkable for the number of petrified fish which occur in it. It also contains fossil remains of shells, corals, and of cryptogamous fresh-water plants. In many of its characters, it appears to resemble the alun-halite of Whitby. It is a frequent mineral in Saxony, Thuringia, Franconia, Bohemia, Bavaria, and in Switzerland.

BITUMINOUS WOOD, a variety of brown-coal or wood-coal, in which the fibres of the wood are distinguishable. See Coal and Wood-Coal.

BLACK COAL. See Coal.

BLACK CHALK, or Drawing-Slate, Ampellite graphique, Fr. occurs in beds, in rocks of the slate formation. It has a blueish or greyish-black colour, a flaty fracture, an earthy crofs fracture, is dull, meagre to the touch, and leaves a distinct mark on paper. It is feather, and becomes glintening in the streak. The specific gravity is 2.11. According to Wregleb, its constituent parts are,

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>64</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Carbon</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Iron</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

It is found at Morilla in Spain, in Brittany, in Germany, and in Italy. It is cut into square pencils, and used for drawing; it is also ground and used in painting. Those varieties which have the darkest colour and the finest earthy texture are to be preferred. The pencils become hard, unless kept in a moist place.

BLACK-JACK, a provincial name for blende.

BLENDX, Black, Brown, and Yellow, various sulphures of zinc. See Zinc-Ores.

Bog Iron-Ore. (See Iron-Ores.) Werner supposes bog-iron, whether in meadows, swamps, or marshes, to be formed by water impregnated with vegetable acid, dissolving part of the iron in the rocks over which it flows, which, being poured into hollows, becomes flagrant, and evaporates. Thus succeffive depoitions are formed, which are at first yellowish earthy, and of little confection. This is moras-or-e. In course of time, it becomes harder, and the colour palaces to brown, forming famp-ore. After the swamp is dried up, the ore becomes much harder, and palaces into meadow-ore, which is covered with soil and vegetation.

BOLE. See BOLE.

BOLOGNESE SPAR, or Radiated Heavy SPAR. See Heavy SPAR, Aldenda.

BORACIC Acid, Native or Saffoline, is found in salie incrustations on the borders of hot springs, near Saffo, in the territory of Florence. It has a greyish or yellowish-white colour; it occurs in thin crusts or minute pearly fale; it is soft and friable, and is feebly translucent. To the taste, it is slightly bitter and acidulous. It melts easily before the blow-pipe into a transparent globule. According to Klaproth, the constituent parts are,

Boracic acid - - - - 86
Ferruginous sulphate of magnesia - - 11
Sulphate of lime - - - - 3

BORACITE, Magnesie boras, Haüy. (See Boracite.) Vaquetin found no lime in this mineral, and supposes it to be a simple boras of magnesia. Boracite is remarkable for its electric properties when heated. The form is generally that of the cube, and those angles which are diagonally opposite are, one positive, and the other negative, forming eight electric poles.

BOTRYOLITE occurs in mammillary or botryoidal concrections, in a bed of gneifs, near Arendal in Norway, associated with quartz, fchol, calcareous spars, and iron pyrites. Its colours are, pearl-grey, greyish or reddish-white, and pale rose-red. The colours are concentric stripes. It has a delicately fibrous flatter structure, and sometimes a sphericl fracture. It has a pearly glintening lufure internally, is translucent on the edges. According to Klaproth, the specific gravity is 2.88; and the constituent parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Boracic acid</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

According to Wregleb, the constituent parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Iron</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Earthly botryolite occurs with the above, which has a snowy white colour, and an earthy fracture.

BOVEY COAL. Bituminous wood coal, found at Bovey Heathfield, Devonshire. See Coal.

BROXITE, Diatolage metalloid, Haüy. A mineral nearly allied to Labrador hornblende or hyperthine. It has a yellowish-brown or pincheck-yellow colour, and a ferrimetallic lustre; it occurs massive, and coarfly disintegrated; it has a foliated and fibrous structure, with a distinct angle cleavage. It is opaque. The specific gravity is 3.2. According to Klaproth, the constituent parts are,

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
</tr>
<tr>
<td>Iron</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
</tr>
</tbody>
</table>

BROXITE. See Broxite.

BURRSPAR, or Dolomite SPAR; Chalk carbonaté ferro manganosferi, Haüy; Bitter Spar, Werner. Its prevailing colours are, milk-white, greyish-white, yellowish-grey, and pearl-grey; it also occurs red, brown, yellow, and black. It occurs both massive and crystallized in oblique rhomboids, and in compressed hexahedrons. The joint are parallel to the faces of an oblique rhomboid, the alternate angles of which measure 106° 18' and 73° 45'. The faces of the rhomb are sometimes convex or concave; it occurs also in lenticular forms. The lustre is shining, and between vitreous and pearly; it is more or less translucent. It yields to the knife, but is harder than calcareous spar. Its specific gravity is from 2.18 to 2.88. It hardens and becomes an opaque brownish-black before the blow-pipe. It diffuses slowly in cold muriatic acid, but with considerable effervescence in hot acid. According to Klaproth, the constituent parts are,

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>-</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron and manganese</td>
<td>3</td>
</tr>
</tbody>
</table>

MINERALOGY.

The proportion of manganese and iron is sometimes much greater, and there are several intermediate varieties, which it is difficult to determine whether they are to be classified with brown spar or sparry iron-ore. Brown spar occurs in veins along with galena and other ores of lead, in the mines of Cumberland and Northumberland. Fibrous brown spar, both massive and in balls, occurs in veins in Lower Hungary. Columnar brown spar has a splendent lustre and a foliated structure, but no distinct cleavage can be observed in it. The fragments are wedge-shaped. It has been found at Gersdorf in Saxony, and Guanaxto in Mexico. The name brown spar was given to this species because it changes its colour, on exposure to the air, from a light to a dark brown, becoming oxidized on exposure.

BUTTERMILK, Silver. See Silver-Ores.

BYSSOLITE, a name given by Sauvage to a variety of asbestous actinolite, which occurs in minute acicular diverging crystals, which are elastic. See Actinolite.

CACHOLONG, Quarz agate cacholong, Häi'y, is by some mineralogists considered as a variety of milk-white chalcedony, by others as a kind of common opal. Cacholong is distinguished by its milk-white colour, its refulgent lustre, its even fracture, and its want of translucency, except at the edges. It sometimes adheres when applied to the tongue. This mineral accompanies flints and chalcedony, and, according to Brongniart, even pitch-flons is sometimes coated with it; hence it is supposed to be the result of alteration in those minerals, produced by an unknown cause, as it is observed passing into them by almost imperceptible gradations. The true cacholongs, which have given the name to this variety, are found near the banks of the river Cach, in Bucharis; they are spread over the fields, but are not rounded; on the contrary, they form tables composed of alternate layers of cacholong and chalcedony. Cacholongs are sometimes cut and employed in jewellery.

CALAMINE. See Zinc-Ores.

CALCAREOUS Spar, - crytallized carbonate of lime. See Lime-stone.

CALC SINTER. See Statistical fibrous Lime-flon, in the article Lime-stone.

CALC TAFF, or Taffaceous Lime-flone, a light porous lime-flone, formed by the deposition of calcareous matter, in calcareous springs, or near lakes or rivers. It frequently encloses the remains of animals or vegetables which have been encased and imbedded in it by successive deposits. See Taff.

CALF, a name given by Kirwan to a dark ferruginous lime-flone, agreeing in many of its characters with the English lias. See Lias, Addenda.

CANDLE Coal. Bituminous coal, so called on account of the great light which it affords in burning. See Coal.

CAT'S-EYE, Quarz agate chatoyant, Häi'y; by some mineralogists called false opal. It appears to be a variety of agate occurring like the latter mineral in trap rocks, but remarkable for reflecting a peculiar play of colour, resembling that of the eye of a cat, whence its name; it is used in jewellery, and is generally cut into ring flons. Cat's-eye occurs massive and in loose angular and rounded pieces; its colours are various, inclining most frequently to yellowish and greenish-grey, and sometimes to brown-red and greyish-black. It exhibits a beautiful opalescence when cut in a spherical form, which proceeds from the fibrous structure, and sometimes from the mixture of amianthus. It is translucent in different degrees; it has a shining vitreous-refinonous lustre, a small conchoidal fracture; it scratches quartz. Cat's-eye becomes opaque and spotted by exposure to the blow-pipe. Its specific gravity is 2.64. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of cerium</td>
<td>54.5</td>
</tr>
<tr>
<td>Silex</td>
<td>34.5</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3.5</td>
</tr>
<tr>
<td>Lime</td>
<td>1.2</td>
</tr>
<tr>
<td>Water</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Cat's-eye occurs in the Hartz, in Hanover, in trap, with amianthus, aegius, azinite, and calcareous spar. It is obtained from Ceylon, Malabar, Sumatra, Peru, and Arabia.

CELESTINE, sulphate of Strontian. See Strontian.

CEMER, or Cerite, Cerium oxyd filifere, Häi'y, an ore of the newly-discovered metal cerium. (See Cerium.) The colour is between rofe-red and flesh-red, and also reddish-brown; when pulverized it is grey; it occurs both massive and disseminated. The fracture is splintery, the lustre glimmering and refringent. Opake (Jame'son), transparent (Aikin). It scratches glas with difficulty; it is brittle and easily friable. Specific gravity 4.6 to 4.9. Infusible before the blow-pipe, but changes from grey to yellow. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of cerium</td>
<td>54.5</td>
</tr>
<tr>
<td>Silex</td>
<td>34.5</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3.5</td>
</tr>
<tr>
<td>Lime</td>
<td>1.2</td>
</tr>
<tr>
<td>Water</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Cerium occurs in a bed of copper pyrites, situated in graves, near Riddarhyttta, in Westermanland, Sweden.

CEYLANITE, Phenagite, Häi'y, is claffed with the ruby family by Werner; its colours are a muddy dark-blue and greyish-black, which approaches to iron-black; it occurs in grains and in small crystallites, either perfect octahedrons or truncated on the edges, or with the angles acuminated by four planes, which are set on the lateral planes, also in rhombo-dodecahedrons. The crystals are smooth and splendent; it is translucent on the edges. The fracture is flat conchoidal; it scratches quartz. Before the blow-pipe, it is infusible. The specific gravity of ceylanite is 3.8. According to Berzelius, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>27.25</td>
</tr>
<tr>
<td>Magnesia</td>
<td>14.63</td>
</tr>
<tr>
<td>Silex</td>
<td>5.48</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>4.26</td>
</tr>
</tbody>
</table>

This mineral was first found in the island of Ceylon, where it occurs in the sands of rivers with tourmaline, zircon, sapphire, and iron-fund. It occurs in lava from Verfuria, with olivine, augit, and mica. It occurs also in bafalt, near Andenach, on the Rhine.

CHALCEDONY. See Chalcedony and Quartz.

CHALK. See Chalk, and Geology, Addenda.

CHERT, a variety of horn-flone; it differs from flint principally by being more opaque, and having less lustre; it occurs in nodules and masses in the sand under the chalk formation, and in beds in some mountain lime-flone.

CHLAMYTOLITE, or Hollow Spar, occurs crystallized in slender rhomboidal prisms, the edges of which are sometimes rounded,
MINERALOGY.

rounded; sometimes four prisms are arranged in the form of a cross. The prisms appear composed of two distinct substances, as if they had once been hollow, and these hollows filled up with clay-flake, nearly similar to what the crystals are imbedded in. The exterior part of the prism is of a greyish-white or reddish colour, and varies in thickness, in some specimens being a mere shell; within this, is a dark-blue or black prism, exactly parallel to that by which it is inclosed. Frequently from each angle of the interior prism a black line or thread proceeds, bifurcating the corresponding angle of the white prism, and often terminated by a small black prism. The white part exhibits a lamellar structure, parallel with the lateral planes of the prism; it has a slight glimmering lustre, is translucent, and feraches glafs. The specific gravity is 2.6. Before the blow-pipe, it fufes into a whitish scoria; the black part affords a black glafs. This mineral occurs in scicular crystals in some beds of dark flake in the mountain Skiddaw, Cumberland. The largest crystals are found in clay-flake, near St. Brieux, in Brittany. Some mineralogists consider chalcedony as the same substance as andalusite; others clas it with common felfspar, and some regard it as a distinct species.

Chlorite, Talc chlorite, Haüy. This mineral is nearly allied to tale and mica. The prevailing colour is various shades of green; hence it derives its name from the Greek ἰχνένης, green. It is divided by professor Jameson into four sub-species: earthy chlorite, common chlorite, fatty chlorite, and falked chlorite.

Earthly Chlorite occurs massive and disseminated, and in- cruating other minerals, and inclosed in dendritical forms in adularia and rock-crystal. It contains fine scaly particles closely adhering, and has a glimmering or glittening pearly lustre, and feels rather greasy. The green colour becomes lighter in the flake. The specific gravity is 2.6. Before the blow-pipe, it melts into a blackish flak. According to Vanuelpin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>26.50</td>
</tr>
<tr>
<td>Alumina</td>
<td>18.50</td>
</tr>
<tr>
<td>Magnesia</td>
<td>8.00</td>
</tr>
<tr>
<td>Muriate of soda &amp; potash</td>
<td>2.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>43.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>98.00</td>
</tr>
</tbody>
</table>

According to Haüy, the scaly particles are regular hexagonal prisms when viewed with the microscope.

Common Chlorite is a leek or dark-green colour, inter- mixed with black. It occurs in rocks of various kinds, in beds and veins, either alone, or with quartz, magnetic iron-flone, iron-pyrites, hornblende, actinolite, and other minerals. It is amorphous, has a glimmering lustre, an earthy fracture, and a fine granular, laminated, or scaly structure. Common chlorite is soft, opaque, and greasy. Its specific gravity is 2.8. It occurs in various parts of Scotland, and in Cornwall, Cumberland, and all alpine parts of England.

Foliated Chlorite: Tale chlorite, Haüy.—Its colour is leek-green; it occurs crystallized in six-sided tables, curiously aggregated in cylindrical or conical forms. The crystals are longitudinally streaked. The lustre is resinous, either glittening or fibbing. The structure is curvedly lamellar, with a single cleavage. It is opaque or translufcent at the edges; it is soft, felcile, and rather greasy. The specific gravity is 2.8. According to Lampadius, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>35</td>
</tr>
<tr>
<td>Alumina</td>
<td>18</td>
</tr>
<tr>
<td>Magnesia</td>
<td>30</td>
</tr>
<tr>
<td>Iron</td>
<td>19</td>
</tr>
<tr>
<td>Water</td>
<td>3</td>
</tr>
</tbody>
</table>

Foliated Chlorite is found in various parts of the continent of Europe, and on the island of Jena, one of the Hebrides.

Chlorite Slate has a greyish or darkish-green colour; it occurs in beds in clay-flake, sometimes associated with talc-flake, into which it passes. It has a glitinning resinous lustre, a flaky structure, inclining to scaly. On minute examination, it appears composed of small scales of chlorite closely adhering. Chlorite-flake forms beds in mountains of clay-flake in various parts of the Grampian-hills. It passes into hornblende-flake and clay-flake. The specific gravity is 3.03.

Chlorophane, a variety of flour spar from Siberia, which gives out a beautiful apple-green light when placed on a heated iron. Pallas mentions a pale-violet blue variety spotted with green, which becomes phophorescent when held in the hand, and gives out a pale-whitiff light; in boiling water, it emits a green light, and at a higher temperature a blue light. See FLUOR SPAR.

Chromate of Iron, Fer chromate, Fr. has a pitch-black colour, with somewhat of an olive tinge superficially. It occurs massive and disseminated, and also crystallized in octahedrons. It has a shining lustre, between refringent and metallic. The fracture is uneven, or imperfectly small conchoidal, and sometimes imperfectly lamellar. It feraches glafs, is opaque. The colour of the flake is ash-grey or brownf. The specific gravity is 4.03. It is rarely magnetic, is infufible, but tinges borax of a beautiful green colour. According to Vanuelpin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of chrome</td>
<td>43</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>35</td>
</tr>
<tr>
<td>Alumina</td>
<td>20</td>
</tr>
<tr>
<td>Silica</td>
<td>2</td>
</tr>
</tbody>
</table>

According to Klaproth,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of chrome</td>
<td>55</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>33</td>
</tr>
<tr>
<td>Alumina</td>
<td>6</td>
</tr>
<tr>
<td>Silica</td>
<td>2</td>
</tr>
<tr>
<td>Lofs by heating</td>
<td>2</td>
</tr>
</tbody>
</table>

Chromate of iron occurs in beds and veins, and in im- bedded mafles, in ferpentine and tale-flate. It has been found at Portfuy, in Bamfshire, and is said to occur in considerable quantities in the Shetland islands. It occurs in the vicinity of Nautes, and in the department of Van. The greatest quantity has hitherto been found in fer- pentine, in the Bare hills near Baltimore. The chromic acid
MINERALOGY.

acid obtained from this mineral when combined with lead forms a beautiful yellow pigment, and is now an article of commerce.

Chromate of Lead, red lead-ore. See Lead-Ores.

Chrysolite, Earthy Malachite, Cinnor malachite cry-

socolla. Fr. See Copper-Ore.

Chrysolite, Peridot chrysolites, Fr. (See Chrysolite.)

This gem is the softer of the precious stones; its colours change by heat. It is brought to Europe from the shores of the red sea. Jamefon.

Chryzo-Prase. Apple-green chalcedony coloured by the oxyd of nickel. (See Chryzo-Prase.) It has hitherto been found only in the vicinity of the towns of Glaffendorf, Grochau, and Kofenunitz, in Lower Silelia. It is softer than common chalcedony. It is used in jewellery.

Ciomolite. See Ciromolite.

Cinnabar, Mercurius sulphur, Haüy. (See Mercury-

Ores.) Besides the localities of cinnabar there enumerated, various mines of cinnabar occur in New Spain. In the kingdom of New Granada, cinnabar is found in three different places in veins, and also in alluvial soil, mixed with gold. In Peru, cinnabar occurs in various parts, particularly near the town of Huancavelica, at the height of twelve thousand feet above the level of the sea. Cinnabar is found in veins near to Silacara, interflecting alpine lime-stone; these veins, according to Humboldt, at present furnish all the mercury of Peru.

Cinnamon-stone. This gem was originally found in the sands of rivers in Ceylon. It has been classed with hyacinth, but it is a variety of garnet. Its colours are, hyacinth-red inclining to oranges-yellow. It is found in blunted-angular or in roundish pieces. It has a shining vitreous lustre approaching to splendent. The fracture is flat and small conchoidal. It is transparent or semi-transparent, but generally full of cracks. It scratches quartz with difficulty. When cut it feels rather greasy. The specific gravity is 3.6. According to Klaproth, the crystalline parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>38.80</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>21.25</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>31.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
<td>6.50</td>
</tr>
</tbody>
</table>

97.80

Before the blow-pipe, it fuses into a blackish enamel. When free from flaws it is of considerable value.


Clay Iron-flone, Argillaceous Iron-flone; Fer oxyd maf-

fi, Haüy. (See Iron-ores.) The name has been inappropriately given to this species of iron-ore, as it frequently contains scarcely any alumine or clay in its composition. The following analysis of Defcots, given in the Ann. de Chemie for 1812, No 251, will shew how greatly this species of ore varies in its composition.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of iron</td>
<td>54.0</td>
<td>38.60</td>
</tr>
<tr>
<td>Oxid of manganese</td>
<td>2.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Silex</td>
<td>-</td>
<td>12.0</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>1.0</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
<td>2.0</td>
</tr>
<tr>
<td>Carbonic acid and water</td>
<td>24.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

In these specimens, the iron was in the flate of carbonate; in others, it exits in the flate of oxyd. According to Mr. Jamefon, it would appear that the carbonated iron-flones by decomposition lose their carbonic acid, and are in time converted into the oxydized varieties. In those common clay iron-flones which have a yellow or brown streak, the iron is in the flate of hydrate; in those having a red streak in the oxydized flate, and in most of the varieties having a grey streak, the iron is carbonated. When the carbonated varieties begin to decay they become soft, and assume a liver or reddish-brown colour. This species of iron-flone, besides occurring in numerous thin flata alternating with coal-flake and sand-flone in the coal formation, occurs in kidney-shaped and rounded nodules. The greatest repository of this ore in Great Britain is in the coal basin extending from Pembroke-on-Gower to Camborne, on the borders of the Brill Channel.

Clay-slate, Argilaceous Schistus. See Slate.

Clay-stone is nearly connected with basaltic and porphyritic rocks of the trap formation. It forms the basis of clay porphyries. The colours of clay-flone are bluish and yellowish-grey or yellowish-white, lavender-blue and brownish-red. It is sometimes spotted and striped. It has a line earthy fracture, sometimes inclining to flat or conchoidal. The fragments are angular and rather blunt-edged. It is opaque, yields to the knife, and is rather easily frangible. The specific gravity is 2.2. It occurs in various parts of Scotland, in North Wales, and in Shropshire.

Clint-stone, Phonolite, Porphyry-flone, Felspath compacte flone, Fr. has mol closely a greenish-grey colour. It occurs in beds of considerable magnitude in rocks of the trap formation. (See Trap.) The principal fracture is flaky, with a fcale aspect and a glinting pearly lustre. The crofs fracture is splanhry and faintly glimmering. It occurs columnar and tabular, is translucent on the edges, and easily frangible. The thin tables yield a metallic found when struck. The specific gravity is 2.8. It melts before the blow-pipe into a grey-coloured glass. According to Klaproth, the crystalline parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>57.25</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>25.50</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>2.75</td>
</tr>
<tr>
<td>Soda</td>
<td>-</td>
<td>8.10</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
<td>3.25</td>
</tr>
<tr>
<td>Manganese</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>3.00</td>
</tr>
</tbody>
</table>

98.10

This mineral is regarded as principally composed of compact felspar. It falle into basalt, with which rock it is often associated.

Coal, Black and Brown. (See Coal, and Collie-

ries.) The coal called by the Germans glasche-coal is described in that article as unflammable or Kilkenny coal. For a further account of it, see Glance-Coal, Addenda.

Cobalt-ores. (See Cobalt.) Earthy cobalt-ore has been found in sand-flone at Alderly-edge, in Chelfire; and other ores of cobalt have recently been discovered in several mines in Cornwall.

Coccolite, Pyroxene granularis, Haüy. A granular variety of augit. (See Augit.) The colour is various shades of green. It occurs in slightly coherent granular concretions, has a lamellar structure, a shining vitreous lustre, is more or less translucent, and scratches glas. The specific
MINERALOGY.

Specific gravity is 3·3. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>50.0</td>
</tr>
<tr>
<td>Lime</td>
<td>24.0</td>
</tr>
<tr>
<td>Magnesia</td>
<td>10.0</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.5</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>0.6</td>
</tr>
<tr>
<td>Oxyd of manganese</td>
<td>3.0</td>
</tr>
</tbody>
</table>

95.5

Columbite, an ore of tantalum. See Tantalite.

Compact Felspar. See Felspar, Addenda.

Copper Nickel. See Nickel-ores, Addenda.

Copper-ores. (See Copper-ores, and Phosphate of Copper, Addenda.) The following table of the annual quantity of copper raised in Europe is given in the last edition of Jamelon's Mineralogy, vol. iii. p. 196. The authority is not flatted.

Quintals of 100 Pounds.

<table>
<thead>
<tr>
<th>Country</th>
<th>Quintals</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>200,000</td>
</tr>
<tr>
<td>Russia</td>
<td>67,000</td>
</tr>
<tr>
<td>Austrian dominions</td>
<td>60,000</td>
</tr>
<tr>
<td>Sweden</td>
<td>22,000</td>
</tr>
<tr>
<td>Kingdom of Wettphalia in 1808</td>
<td>17,229</td>
</tr>
<tr>
<td>States of Denmark</td>
<td>8,500</td>
</tr>
<tr>
<td>Bavaria (including the Tyrol)</td>
<td>3,000</td>
</tr>
<tr>
<td>France</td>
<td>1,550</td>
</tr>
<tr>
<td>Saxony in 1808</td>
<td>1,320</td>
</tr>
<tr>
<td>Prussia after the treaty of Tilsit</td>
<td>0,337</td>
</tr>
<tr>
<td>Spanish European mines</td>
<td>0,309</td>
</tr>
</tbody>
</table>

Total of quintals 383,195

Cornelian. See Chalcedony and Agate.

Corundum, Corinden, Fr. The French mineralogists class as varieties of corundum the oriental ruby, the sapphire, and emery. (See these articles.) Though they are principally composed of alumine, they are, excepting the diamond, the hardest of mineral substances, and nearly the heaviest of earthy minerals, the specific gravity being from 3·87 to 4·28. Common corundum, or adamantine spar, has a greenish-white colour: it is sometimes pearl-grey, brown, or red. It is translucent and sometimes nearly transparent, and is doubly refracting. It has a distinct lamellar structure, and splits into rhomboids, the angles of which are 86° 38' and 93° 22'. (See Adamantine Spar.) This mineral is found imbedded in granite, like felspar, in various parts of India, and also in North America, and imbedded in micaceous schist in Italy.

Cross-stone, Harmotome, Haiy. See Zolite.

Cryolite, Alumine fluétée, Fr. This mineral has hitherto been found only in West Greenland. It occurs in two thin layers in gneiss. Its name is derived from the Greek word denoting ice, because this mineral melts almost like ice at a low heat. Its colours are pale greyish-white, snow-white, and yellowish-brown. It occurs massive and disseminated. It has a thinning or glinting vitreous lustre, inclining to pearly, and is translucent. The fracture is imperfectly lamellar, with joints in three directions parallel to the faces of a rectangular parallelopiped. It is softer than fluor spars, and is easily fragile. The specific gravity is 2.9. It becomes more translucent in water, but does not melt. Before the blow-pipe it first melts, then hardens, and assumes the appearance of a flag. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Compound</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>24</td>
</tr>
<tr>
<td>Soda</td>
<td>36</td>
</tr>
<tr>
<td>Fluoric acid and water</td>
<td>40</td>
</tr>
</tbody>
</table>

100

According to Vauquelin,

<table>
<thead>
<tr>
<th>Compound</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>21</td>
</tr>
<tr>
<td>Soda</td>
<td>32</td>
</tr>
<tr>
<td>Fluoric acid and water</td>
<td>47</td>
</tr>
</tbody>
</table>

100

Cryosberyl, Gymophane, Haiy. See Cryosberyl.


Cuprous Arseniate of Iron, Martial Arseniate of Copper. See Copper-ores.

Cyanite, or Kyanite; Sappin, Saufrine; Dortheen, Haiy. See Kyanite, Addenda.

Datolite. See Datolite. This mineral is composed of boracic acid, united with lime and fels. It occurs massive and crystallized in oblique four-sided prisms, generally truncated on the edges and angles. The primitive form of the crystal is fluted by Hamsmann to be an oblique four-sided prism, with angles of 77° 30' and 103° 30'. It gelatinizes with acids. In the flame of a candle it becomes opaque and friable. Before the blow-pipe it intumesces, and then melts into a globule of a pale rose-colour.

Diallage, Smaragdit de Saufrine; Diallage verte, Haiy. Its colours are greenish-yellow, and yellow. It occurs massive and disseminated. It has a fibrous growth, or a two-fold nearly rectangular cleavage, one of which is distinct. It is rarely so hard as glass. The specific gravity is 3. Before the blow-pipe, it melts into a grey or greenish enamel. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>50.0</td>
</tr>
<tr>
<td>Magnesia</td>
<td>6.0</td>
</tr>
<tr>
<td>Alumine</td>
<td>11.0</td>
</tr>
<tr>
<td>Lime</td>
<td>13.0</td>
</tr>
<tr>
<td>Chrome</td>
<td>7.0</td>
</tr>
<tr>
<td>Iron</td>
<td>6.30</td>
</tr>
<tr>
<td>Copper</td>
<td>1.50</td>
</tr>
</tbody>
</table>

Diallage is found in Corfica with saufrite, and on Mont Blanc in Switzerland; also in Carinthia and Transylvania. The mixture of diallage and saufrite is named Gabbro by the Italians, Euphotide by the French, and Verde de Corfica duro by artists. When cut and polished it has a beautiful appearance, and is made into various articles of ornament.

Diallage Metalloïde. See Bronzite, Hyperstene, and Schiller Spar, Addenda.

Diamond, Diamant. (See Diamond.) In addition to the characters of the diamond given under that article, it may be proper to state, that besides the colours there enumerated, the diamond occurs sometimes blue, red, brown, yellow, and green, with the following transitions. The only variety of blue is indigo-blue, which appears to pass into red. Of red, the varieties are rose-red and cherry-red. From the latter colour it passes into olive-brown, and yellowish-brown, ochre-yellow, orange-yellow, wine-yellow, and
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and fulplur-yellow; further into fiskin-green, afparagus-green, pitachios-green, keek-green, and mountain-green, which latter passes into greenish-grey and greenish-white.

The olive-brown phases into blackih-brown, pitch-black, and greyih-black.

Besides occurring crystallized, the diamond is also found in rolled pieces and grains. The crystallizations of the diamond, besides the octahedron and its varieties, are, the perfect tetrahedron; the tetrahedron with truncated angles, or with the angles acuminated by three planes, fet on the lateral planes; segments of the tetrahedron, either detached or united, forming twin crystals; the rhombohedral dodecahedron, with convex planes or faces; the same figure somewhat elongated; the dodecahedron, with the planes divided diagonally; an acute double fix-fided pyramid, with the lateral planes fet on each other, and the apex acuminated by fix planes fet on the lateral planes; a flat double threfiided pyramid, with convex planes fet laterally on each other, and the angles of the common bafe acuminated by four planes fet on the lateral planes; a flat double threfiided pyramid, on which the lateral planes of the other are fet on the lateral edges of the other, and the angles of the common bafe truncated; a fix-fided table, with oblique terminal planes; and lastly, the diamond has been found in a cubic form, either perfect or with the edges truncated, or variously modified.

The surface of the octahedron is either smooth or flecked; the external luftre of the natural diamond is adamantine, and alternates from fplendent to glimmering; internally it is highly fplendent. It is seldom completely transparent. The black diamonds are nearly opaque. The diamond has a four-fold equiangulear cleavage parallel with the planes of the octahedron in this direction; it is rather easily frangible. The diamond scratches all other minerals. Its specific gravity is fixed by Mr. Lowry at 3.488.

The diamond, besides its other localities, is found in the district of Serro Dofria, in Brazil; it was first discovered there about the middle of the last century, in gullies of torrents, and at the beds of rivers, where gold is also obtained, but for a very considerable time the diamonds being unknown, were disregarded and thrown away. Diamonds occur also in other parts of Brazil, in the rivers Giquitig-nagoa, Riais Fundon, and Rio de Peixo. See Gem.

Diaspore is regarded as a variety of wavellite. (See Wavellite.) It occurs in curved lamellar concretions easily separable from each other; it has a grey colour, a shining pearly luftre, the angular pieces cut glaft. It flies before the blow-pipe, but is infufible. Its specific gravity is 3.43. According to Vaquelin, the con黉ent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>80</td>
</tr>
<tr>
<td>Water</td>
<td>17</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Dichroite. See Iolite, Addenda.
Diospide. See Alalite, Addenda.
Diopside, Emerald Copper Ore, occurs in crystallized fixfided prisms, acuminated by three planes fet on the lateral edges: it is translucent, and scratches glaft freely. The specific gravity is 3.3. Haify. According to Luuitz, the con黉ent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of copper</td>
<td>55</td>
</tr>
<tr>
<td>Silex</td>
<td>33</td>
</tr>
<tr>
<td>Water</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

A very small specimen analyzed by Vaquelin gave fortytwo per cent. of lime. This mineral is found, according to Hermann, in the land of Konguir, 125 leagues from the Russian frontier, where it is associated with malachite and calcareous spar.

Dipyre. See Zeolite.
Disthene, or Kyanite. Sappare, Saffare. See Kyanite, Addenda.

Dolomite, a species of magnesian lime-flone, to which the name was given in honour of Dolomieu, the celebrated French Geologist. Mr. Jamelon has claffed the different kinds of magnesian lime-flone into one order, which he calls the dolomite family: it contains four species, dolomite, brown flspar, mienite, and gyrotile. The dolomite species he has divided into four sub-species, common dolomite, dolomite spar or rhomb spar, columnar dolomite, and compact dolomite or maghnian lime-flone.

Common dolomite occurs in beds in primitive mountains, and frequently contains tremolite. It nearly resembles primitive lime-flone or flatusy marble, the chaux carbonate faceroid of the French, but may be distinguished from it by the little effervescence which it yields on the application of mineral acids compared with the former. The grains of dolomite are also more loosely adhering than in white primitive lime-flone. The mineralogical characters of common dolomite are given under the article Dolomite. Dolomite generally phosphorizes when rubbed in the dark or heated. The con黉ent parts of different dolomites are given by Klaproth as under:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of magnesia</td>
<td>46.50 - 38.00 - 48.00</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>52.00 - 65.00 - 51.00</td>
</tr>
<tr>
<td>Oxyd of manganife</td>
<td>0.25</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>0.50</td>
</tr>
<tr>
<td>Lofs</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Dolomite is found in the mountain of Campo Longomart, St. Gothard.

Dolomite Spar, or Rhomb Spar. See Brown Spar, Addenda.

Dolomite, Columnar, occurs in serpentine, in a mine at Mafs, in Rulitla, in bright prismatic concretions: its colour is pale greyish-white, the luftre vitreous inclining to pearly. It is feebly translucent. The specific gravity is 2.765. According to Klaproth, the con黉ent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>28.20</td>
</tr>
<tr>
<td>Magnesia</td>
<td>10.74</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>0.50</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>39.25</td>
</tr>
<tr>
<td>Water</td>
<td>11.31</td>
</tr>
<tr>
<td>Lofs</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Dolomite, Compať, magnesian lime-flone. See Mag-nesian Lime-flone, Addenda.

Egypian Jasper. See Jasper.
Elalite, Fatigien, Werner; Pienegrages, Haify. The colours of this mineral are dark-greenish or blueish-grey, and flesh-red; it is translucent in a low degree, and has a shining refrinos luftre. The blueih varieties display a peculiar opalecence. It occurs massive, and has a distinct double cleavage. The fracture is uneven. It scratches glaft, is rather
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rather easily frangible, and melts before the blow-pipe into a white enamel. When pounded it gelatinizes in acids. The specific gravity is 2.58 to 2.61. According to Klaproth, the constituent parts are,

Silica - - - 46.50
Alumine - - - 30.25
Lime - - - 0.75
Potash - - - 18.00
Oxyd of iron - - - 1.00
Water - - - 2.00

According to Vaquelin,

Silica - - - 44.00
Alumine - - - 34.00
Lime - - - 0.12
Potash and soda - - - 16.50
Oxyd of iron - - - 4.00

98.50

98.62

This mineral has hitherto been found only in the rock named zircon fineite. (See Zircon Fineite.) It is classed by Mr. Jameson in the felspar family; but is placed by Werner between jasper and cat's-eye.


ELECT, an argentiourous gold-ore, or native alloy. Its colour is a pale braun-yellow. It is not soluble either in nitrous or nitro-muriatic acid. It contains, according to Klaproth,

Gold - - - 64
Silver - - - 36

100

It occurs at Schlagenberg, in Siberia.

EMERALD, Emeraude verte, Haüy. See Emerald.

Faffe emeralds are sometimes offered for sale, which are either green fluor spar, green quartz, or prase. The emerald of Brazil is sometimes the green tourmaline. The true emerald is harder than quartz. The beryl and the emerald have both the same primitive form of the crytal or the hexahedral prism. The terminal planes of the emerald are rough, those of the beryl smooth. The emerald agrees in chemical composition with the beryl, both containing from thirteen to fourteen parts of the newly-discovered earth galicium; but the colouring matter of the emerald chrome is wanting in the beryl. See Gem.

EMERY, Corindon granulaires, Haüy. (See Emery.)

This mineral owes its hardness to an intermixture of blue corundum. See Adamantine Spar, and CORUNDUM, Addenda.

EPIDOTE. (See Pistazite, and Thallite.) Under the latter article, for Arundel in Norway r. Aredal.) Epidote occurs at the Malvern-hills in Worcestershire, at Wallow Crag near Kewick in Cumberland, and near Marazzion in Cornwall.

EPSON Salt, Natron, or sulphate of magnesia, occurs as an efflorescence at Hurlet near Pailey, and sometimes is found efflorescent on old walls, and on the surface of different rocks, particularly gypsum, sand-stone, clay, and compact lime-stone.

EUCLARE. See Euclaire.

FAHLLERZ, Werner; grey copper ore. See Copper-ores.

FELSPAR. (See Felspar. The name of this mineral appears to be derived from the Saxon term fell, a mountain, still used in the northern counties of England; hence felspar, in its original signification, denoted mountain spar. In the mineralogical systems of Werner and Mr. Jameson, the felspar family comprises various species of minerals, which are supposed to be nearly allied to felspar. The felspar species is also divided into adularia, gluffy felspar, Labrador felspar, common felspar, disintegrated felspar, and compact felspar.

Adularia. (See Felspar.)—The forms of crytahls of adularia are the same as those of common felspar. It polishes double refraction. It melts before the blow-pipe into a transparent white gale. Adularia occurs in veins in granite and gneiss, in various parts of Aberdeenshire and Banffshire, in the Isle of Arran, and in the granite of Switzerland, France, and Germany. The largest and most beautiful crystals are found in the mountains of Stelis, a part of St. Gothard. Rolled pieces having a beautiful pearly light are collected in the island of Ceylon. The variety which exhibits a strong pearly light is cut in a semi-globular form, and is sold under the name of mornilone, and is usually worn as a ring-stone.

Gluffy Felspar occurs always crystallized in broad rectangular four-sided prisms, bevelled on the extremities. These crystals are very much cracked, and always imbedded. It is transparent, and has a splendid vitreous lustre internally. Its other characters agree with adularia. It occurs in pitch-ftone and trap in various parts of Scotland.

Labrador Felspar. See Felspar.

Common Felspar occurs variously crystallized. Haüy enumerates more than twenty of its secondary forms; several of these are represented Plate I. figs. 8, 9, 10, 11, 12, &c. Crystallography. The primitive form is an oblique-angled paralleloipipedi. The structure is perfectly lamellar, with a double, very distinct, rectangular cleavage, and an oblique indistinct cleavage intersecting the two former. The four rectangular planes have splendent faces; the faces of the oblique cleavage are dull. This remarkable character is peculiar to felspar, and may very frequently be observed in the rhomboidal fragments of this mineral. Felspar has been frequently analyzed with different results. According to Berzelius, the most probable composition of common felspar, so far as we can calculate it from the many analyses of which we are in possession, is, that the alumine bears the same proportion to the potash as in alum, and that the silica contains three times the oxygen of the base. The following is therefore a comparison between the calculated and experimental results, according to the principles of Berzelius's new system of Mineralogy. See Systems of Mineralogy.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>64</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td>Alumine</td>
<td>20</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Potash</td>
<td>14</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Lime</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Proteoxyd of iron</td>
<td>-1</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

The lime and protoxyd of iron are regarded as accidental admixtures. Felspar is one of the principal constituents of many of the rocks called primary, formed from the trap rocks, and many of the lighter-coloured lavas. It forms an essential constituent part of granites, gneiss, sienite, greenstone, and forms the basis of many porphyries, and the rock called sublite-flone. (See White-Flone.) In green-flone, the felspar is often tinged of a green colour, from the admixture of hornblends or augit. In many of the porphyries, it exists in a compact flake, or as compact felspar. The colours of compact felspar are various shades of white, grey, green, or red. The
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Flamellar structure is nearly lost in many of the compact felspars, particularly in those varieties which have little lustre. When it contains crystals of quartz or felspar, it constitutes a felspar porphyry. It forms extensive beds in many alpine districts. It is distinguished from hornstone by its inferior hardness, fusibility, and its frequent intermixture with hornblende or mica.

Disintegrated Felspar has generally a greyish-white colour. It occurs massive and in imbedded crystals which have the same form as common felspar. It is glitthening, glimmering, or dull, and soft and feétile. In fome instances, it appears to be felspar in a decomposing state; in others, to be a softer kind of felspar in an unaltered state.

Fibrolite, a mineral which occurs with corundum; it has a white or grey colour, is crystallized in rhomboidal prisms, the angle of whose planes are 80° and 100°. It has a fibrous fracture, and an uneven cross fracture. Internally it is glitthening. Fibrolite is harder than quartz. Its specific gravity is 3.21. According to Chenevix, the constituent parts are:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>38.25</td>
</tr>
<tr>
<td>Silex</td>
<td>38.00</td>
</tr>
<tr>
<td>Iron and lost</td>
<td>3.75</td>
</tr>
</tbody>
</table>

\[
\text{Alumine} - 38.25 \\
\text{Silex} - 38.00 \\
\text{Iron and lost} - 3.75 \\
\]

\[
\text{Total} = 100
\]


dk Figure-Stone. Agalmelolite, or chalcedeen.
Fish-Eye-Stone, or chalcopyrophalimite.
Flint. See Flint.
Float-Stone, Quarz veiique, Hayt; sometimes called swimming quartz. Its colours are yellowish-white and grey. It is dull, earthy, and friable, absorbs water and becomes transluent. Its specific gravity is less than water, being from 0.448 to 0.793. The constituent parts are:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>91 to 98</td>
</tr>
<tr>
<td>Water</td>
<td>6</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>2</td>
</tr>
<tr>
<td>Oxid of iron and alumine</td>
<td>2</td>
</tr>
</tbody>
</table>

It is found at St. Ouen, in the vicinity of Paris, along with flint, and sometimes contains the same petrifactions as those found in flint. Flint is sometimes found in the centre of float-stone, and passes into it by gradation. Float-stone may therefore be considered as a porous flate of flint.

Flos Ferri, Coralloidal Argonite, occurs in snow-white dendritical branches, either smooth or incrusted with points. It is found in the mines at Duaston Fell, Weilmorland; it is supposed by count Bournon to be formed by sublimation.

Fluor Spar, Fluss, Werner; Chaux fluantées, Fr. See Fluor Spar.

Foliated Granular Lime-flone. The name given by Mr. Jemlon to cryalline primitive lime-flone, called by the French chaux carbonaté fauvarole. See Lime-stone, and Lime-stone, Addenda.

Fossil-Copal, or Highgate Resin, a reinosus substance found in perforating the bed of London clay at Highgate. It appears to be a true vegetable gum or resin, partly changed by remaining in the earth. It gives out a reinosus aromatic odour when heated, and melts into a limpid fluid. It takes fire when applied to the flame of a candle, and burns away entirely before the blow-pipe. The colour of fossil-copal is a yellowish-brown; it has a reinosus lustre, is brittle, and yields easily to the knife. The specific gravity is 1.048.

Fuller’s-Earth, Argile froide; French. See Fuller’s-Earth.

Gadolinite. See Gadolinite.

Galeena, or Sulphuret of Lead, Lead Glance; Plomb sulphure, Hayt. See Lead.

Garnet, Grenat, French. (See Garnet, Precious, and Garnet, Common.) The garnet family of Werner and professor Jemlon, in their mineralogical systems, comprises the following minerals, supposed to have an alliance with garnet: lenite, vesuvian, grossular, melilith, alaquoi, garnet, grenate, pyrope, and cinnamon-flone. (See these articles in the preceding volumes, and in the Addenda.) In the British Museum, these minerals are claffed together under the name of gneumatic substances, whereby the confusion of making the name word represent both the genus and species is avoided.

Glance-Coal, Ambraicite. The coal which has a splendid lustre, and burns without flame. (See Coal.) It is principally composed of carbon, and passes into graphite, or black-lead. Werner divides glance-coal into three sub-species: conchoidal glance-coal, flaky glance-coal, and columnar glance-coal. See Coal.

Glauber Salt, Native Glauberite; Salze sulphatarum, Fr. occurs as a mealy efflorescence in the neighbourhood of some salt lakes, and occasionally encrusting sand-flone and marle-flone. It is sometimes fialatitic, botryoidal, or crystallized in acicular crystals. According to Reufs, the glauber salt of Eger, in Bohemia, contains

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphate of foda</td>
<td>67</td>
</tr>
<tr>
<td>Carbonate of foda</td>
<td>16</td>
</tr>
<tr>
<td>Muriate of foda</td>
<td>11</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>5</td>
</tr>
</tbody>
</table>

| Total | 99 |

Glassy Felspar. See Felspar, Addenda.

Glassy Tremolite. See Tremolite.

Gold. (See Gold.) In addition to the localities of gold given under that article, we may state that native gold is found in some of the stream works of Cornwall, and, like the stream tin which accompanies it, was doubtless once a part of the metallic veins that have been defroyed by the natural disintegration of the rocks which these once interfected. We have seen globules of native gold the size of a pea in a matrix of quartz, in the potholes of the Rev. Mr. Hennor, of Plymouth.

Native gold was found in alluvial soil in various parts of Scotland, and was once extensively worked at the leadhills. In the time of queen Elizabeth, it is said that three hundred men were employed in searching for it, and that in the course of a few summers a quantity was collected equal to 100,000l. sterling. Gold was obtained a few years since in a ferruginous sand in Ireland, near Arklow, in the county of Wicklow. One mass of pure gold weighing twenty-two ounces was found, which was the largest piece hitherto discovered in Europe. The total amount of gold exported to Europe annually from the Spanish and Portugueee colonies in America is stated by Humboldt at 455,800 pounds troy, of which 25,000 pounds weight comes from the Spanish colonies; the remainder comes from the Portugueee, principally from the Brazil, where it is collected by washing the sands of rivers and alluvial deposits. Gold is found almost every where along the feet of these immense mountains which run in a chain nearly parallel with the coast, from 5° to 30° of south latitude. Many of the silver-ores in America are also rich in gold. (See Silver.)
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SILVER.) For a more particular account of the various travels of M. Humboldt, to whom we are indebted for most of the correct information we have respecting the European colonies in South America. The quantity of gold and silver imported from these colonies between the years 1492 and 1803, it states at eleven hundred and sixty-six millions in pounds sterling; an amount somewhat exceeding that of the present national debt of England! 

GRAMMATITE, Tremolite. See Tremolite. 

Granular Lime-flone, flatyary marble; Chaux carbonatée fauricidiat. Fr. See Limestone, and Limestone, Addenda. 

Graphic Gold and Graphic Tellurium. See Tellurium. 

Graphic Plumbago or blackLead, (see Plumbago,) has an iron-grey colour, and a glimmering or glintening metallic lustre. It is greasy and, when fresh cut has a lead-grey colour: it is unctuous to the touch, and leaves a distinct lead-grey mark on paper. Before the blow-pipe it gradually burns away, leaving a portion of red oxide of iron. According to Berthollet, the constituent parts are, 

\[
\begin{align*}
\text{Carbon} & \quad \ldots \quad 92.9 \\
\text{Iron} & \quad \ldots \quad 7.1
\end{align*}
\]

The graphite of Borrowdale occurs with ochreous and unctuous clay; it is found in nodules and masses of various sizes. The bed in which it is found lies in a rock of grey porphyrite felspar, which has been improperly called grey wacke. 

Green Earth, Chlorite zographique, French. This mineral, though made a distinct species by Werner, appears to be soft earthy chlorite (see CHLORITE;) it generally occurs in cavities or incrusting agates in amygdaloid. It is of various shades of green, is soft and felicitus, and adheres lightly to the tongue. The specific gravity is 2.5. Before the blow-pipe, it is converted into a black flake. It is used as a green colour in water-painting. When slightly burned, it affords a beautiful and durable brown.

Grenatite, Staurolide, Haüy; the staurolide of some mineralogists. (See Staurolite.) This mineral is classed in the garnet family by Werner; but it varies from garnet in the form of its crystal, which is an oblique four-sided prism, truncated on the acute lateral edges. Sometimes it is bevelled on the extremities by two planes set on the lateral edges, and the edge of the bevelment is truncated. The crystals sometimes intersect each other, forming a cross; hence it has been called cross-flone by some mineralogists; but it is a very distinct species from the barnstonite, or cross-flone, which is a member of the zoelite family. (See Zeolite.) The colour of grenatite is dark reddish-brown. It is infusible before the blow-pipe. The above characters distinguish it from precious garnet. It occurs imbedded in mica-flone, and in talc, generally accompanied with kyanite and precious garnet.

Grey Antimony-Ore. (See Antimony-Ores.) Grey antimony occurs in some of the mines in Cornwall in considerable quantities, particularly at St. Stephen’s, Padstow, and Huel bays. It is found also at Glendening, in Dumfriesshire.

Grey Cobalt-Ore. (See Cobalt-Ore.) This mineral is found at Herland and Dolgoth mines, and in some other veins, in Cornwall.

Grey Manganese-Ore. See Manganese. 

Gypsum, Telenite; Chaux fulvata, Haüy. See Gypsum.

Harmonite, Groffflone. See Zeolite.

Haüyne, Latitale, Haüy. A mineral classed by the German mineralogists with the azure-stone, or lapis lazuli family. It was first discovered in the volcanic rocks of Albano and Praetoria, and called latitale, from ancient Latium, and was afterwards discovered in the basaltic rock of Andenmond, and has been called Haüyne, in honour of the celebrated mineralogist Haüy. Haüyne has a sky-blue colour, passing into pale Berlin-blue and blue-green. It occurs in imbedded grains, and crystallized in minute splinters of rhomboidal dodecahedrons. The fracture is conchoideal, pouting into uneven; it has a vitreous lustre, is transparent, or semi-transparent, scratches glass, and is fusible before the blow-pipe. When pulverized, it gelatinises with nitric acid, giving out an odour of sulphured hydrogen. The specific gravity is from 3.1 to 3.3. According to Vauquelin, the constituent parts are:

- Silex : 
- Alumine : 
- Sulphate of lime : 
- Potash : 
- Iron : 
- Water : 

\[
\begin{align*}
\text{Sum} & \quad 95.0
\end{align*}
\]

It has by some mineralogists been classed with sapphire, and described under the name of saphirin. It was arranged by Cordier with spinel.

Heavy Spar, Sulphate of Barites, Baro-Selenite. This mineral exceeds in weight all other purely earthy minerals, its specific gravity being from 4.3 to 4.49. It occurs both massive and crystallized in many metallic veins. Its colours are various shades of white, yellow, red, greenish-grey, and blue. Crystallized heavy spar is transparent or translucent, and refracts doubly; it has a distinct lamellar structure, and splits into a right-rhombohedral prism, which is its primitive form; the angles of the rhomb are 104° and 78°. The joint parallel to the base of the rhomb is the most distinct. The lustre is shining between vitreous and resinous; it yields readily to the knife. Before the blow-pipe it decomposes violently, and then melts into a hard white enamel. A piece exposed to the blow-pipe, and laid on the tongue, gives the flavour of sulphured hydrogen. The powder of some varieties of heavy spar, when calcined, absorbs light, and emits it again in the dark. Sulphate of froutian (see STROXINT) is the only earthy mineral with which heavy spar can probably be confounded. White lead-ore may be distinguished from heavy spar, as it is softer, and yields a metallic globule before the blow-pipe. Pure heavy spar consists of

- Barite : 67
- Sulphuric acid : 33

\[
\begin{align*}
\text{Sum} & \quad 100
\end{align*}
\]

Mr. Jameson makes the following varieties of heavy spar, which he classifies as sub-species: earthy heavy spar, compact heavy spar, granular heavy spar, lamellar heavy spar, radiated heavy spar, fibrous heavy spar, and prismatic heavy spar; and he divides lamellar heavy spar into three kinds, straight lamellar, heavy spar, curved lamellar heavy spar, and disintegrated lamellar heavy spar.
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Earthly Heavy Spar occurs sometimes loose, and sometimes cohering in the drusy cavities in veins: it is composed of dull or glimmering dully particles, which feel meagre.

Compact Heavy Spar occurs massive, diffedimented, reniform, semi-globular; it has a coarse earthy fracture, and is sometimes imperfectly foliated; it has a glistening lustre, is slightly transient, soft, and easily frangible. It is often marked with dendritic delineations. According to Well-rumb, it contains

| Sulphate of barytes | 83 |
| Silex | 6 |
| Alumine | 1 |
| Water | 2 |
| Oxyd of iron | 4 |

In Derbyshire, this mineral is called cowk by the miners.

Granular Heavy Spar occurs massive: the structure is finely granular; the structure of the grains is lamellar. This mineral nearly resembles granular line-lime, but is much heavier, and does not effervesce with acids.

Lamellar, or Crystallicised Heavy Spar, occurs in the following secondary forms. 1. A rectangular four-sided table, either perfect, or with the terminal planes bevelled, and sometimes the angles of the bevelment are truncated. 2. An oblique four-sided table, perfect, or with the angles or edges truncated. 3. A longish six-sided table, either perfect or variously bevelled. 4. Eight-sided tables, either perfect, bevelled, or truncated. Curved lamellar heavy spar occurs in distinct concretions, which have a curved lamellar structure.

Fibrous Heavy Spar has a chestnut-brown colour. It occurs in reniform or botryoidal masses, and has a plumose or diverging fibrous structure.

Radiated Heavy Spar, or Bolognese Spar.—Its colours are, smoke-grey, ash-grey, or yellowish-white. It occurs in roundish compacted pieces, which are always covered with marble or clay. The structure is lamellar in one direction, and in the longitudinal fracture radiated; it is translucent. It is remarkably phosphorescent after being heated and exposed when cool to the light, and carried into a dark room. It was first found at Monte Paterno, near Bologna. Its constituent parts are,

| Sulphate of barytes | - | 62 |
| Lime | - | 2 |
| Silex | - | 16 |
| Alumine | - | 14.75 |
| Oxyd of iron | - | 0.25 |
| Water | - | 2 |

in diameter; these masses have a curved lamellar structure. According to John, the constituent parts are,

| Sulphate of barytes, with | 93.58 |
| Trace of frontian | - |
| Sulphate of lime | 3.58 |
| Oxyd of lime | - | 0.87 |
| Water, carbonaceous matter, | - | 2.00 |

According to Klaproth,

| Sulphate of barytes, with | 85.25 |
| Trace of frontian | - |
| Carbon | - | 0.50 |
| Sulphate of lime | - | 6.00 |
| Oxyd of iron | - | 5.00 |
| Alumine | - | 1.00 |
| Lof, including water and | 2.25 |

Hepatite occurs at Buxton, in Derbyshire.

Heliotrope, Quarz agate ponizé, Haüy.

Hematite, Black and Brown; For oxydé hematite, Haüy.

Hemátite, Red; For oligiste concretion, Haüy. See Iron-Ores.

Hepatic Pyrites, or Lower Pyrites. See Pyrites.

Hematite. See Heavy Spar, Addenda.

Highgate-Resin. See Fossil-Copol, Addenda.

Hollow Spar. See Chalcolith, Addenda.

Honey-Stone. See Mellite.

Horn-stone, a mineral nearly allied in composition to flint, but has a more earthy texture; it received its name from the supposed resemblance to horn. A more opaque variety of flint, which occurs along with flint and chalcedonic flint in the sand flata below chalk, is called chert. (See Chert, Addenda.) This is a kind of horn-flint. Horn-flint is the petro-flake of some mineralogists, and under that name is often confounded with compact felspar. Indurated flake, which contains a large portion of silex in its composition, is sometimes called horn-flint flake. Sanstone, under the names of palaeopter and neopter, appears to include both the splintery horn-flint and flinty flate of Werner. Werner divides horn-flint into three sub-species, splintery horn-flint, conchoideal horn-flint, and wood-flint.

Splintery Horn-flint occurs of various shades of grey, red, and green. It is generally massive, but sometimes is found in large balls, and sometimes lenticular, or in the form of crstals, in the cavities where crsytals have once occurred, and hence called suppositious crsytals. The flate is dull, the fracture splintery; it is more or less translucent, is somewhat less hard than quartz. It is infusible before the blow-pipe, which distinguishes it from compact felspar. The latter mineral is not so hard as horn-flint, and has more flurate. Horn-flint passes into compact felspar, quartz, common jasper, and chalcedonic flint. In these transitions, it is frequently difficult to determine among which of these it should be placed. It forms the basis of horn-flint porphyry.

Conchoideal Horn-flint is glimmering or glintening, with a vitreous flute; it has a more or less perfect and flat conchoideal fracture. It is harder and less translucent than splintery horn-flint. It occurs massive, globular, and sometimes forms suppositious crsytals. It is found in veins and beds. Chert appears to belong to this sub-species.
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Wood-(optionally Quarz agate xylloid, Hayny, is generally various shades of grey, frequently striped or clouded. It occurs rounded, in the shape of the trunks, branches, or roots of trees: it is generally translucent at the edges, with little or no lustre. The crofs fracture is imperfectly conjoint, the longitudinal splinter and fibrous. Wood-robe is properly wood filifere, in which the greater part of the vegetable matter has disappeared, and fibrous matter has occupied the place, preserving the form and texture of wood. Some wood is petrified with opal, forming wood opal; and sometimes the mineral matter of petrifed wood is quartz, or calcareous earth.

Hornblende, Amphibole, Hayny. The description of this mineral, so important in geology, was omitted in the proper place, and is given here. Hornblende may be divided into common hornblende, bafaltic hornblende, and hornblende slate. Hayny, under the term amphibole, classifies actinolite with hornblende. (See Actinolite.) Hornblende generally occurs of various shades of dark green passing into black; sometimes common hornblende occurs of various shades of brown. Hornblende has a lamellar structure longitudinally, with a two-fold oblique angular cleavage, parallel to the planes of a rhombohedral prism, the alternate angles of which are 124° and 56°. This is the form of the primitive crystal, and distinguishes it from epidote, which cleaves at an angle of 111° and 69°; and augite or pyroxene, which cleaves at an angle of 92° and 88°. The crofs fracture of hornblende is coarser-grained, uneven; it melts easily before the blow-pipe into a greyish-black coloured glaze. These characters, together with the cleavage, serve to distinguish hornblende from augite or epidote; its inferior hardness distinguishes it from felspar.

Common Hornblende occurs both massive, disseminated, and crystallized; the crystals are oblique four-sided prisms, aggregated or long flatish prisms, intersecting each other, or confusely radiated. The structure is lamellar or bladed. The crystals are long and deeply streaked longitudinally. The lustre is shiny and pearly. The black-coloured varieties are opaque; the green generally translucent at the edges. It yields pretty easily to the knife, leaving a greenish-grey streak. It is very tough, and becomes indented by the stroke of a hammer. The specific gravity is from 3.20 to 3.28. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>42.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>12.00</td>
</tr>
<tr>
<td>Lime</td>
<td>11.00</td>
</tr>
<tr>
<td>Magnesia</td>
<td>2.25</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3.00</td>
</tr>
<tr>
<td>Ferruginous manganese</td>
<td>0.25</td>
</tr>
<tr>
<td>Water</td>
<td>0.75</td>
</tr>
<tr>
<td>A trace of potash</td>
<td>0.00</td>
</tr>
</tbody>
</table>

This mineral occurs forming beds in mountains, or is disseminated, as a constituent part of many compound rocks. It occurs occasionally in granite, gneifs, mica-flate, and flate, and is an essential part of fiente and green-flone. It forms a constituent part of many bafaltic and volcanic rocks, but has frequently been confounded with augit. (See Volcanic Products.) Hornblende occurs abundantly in various parts of Scotland and in England, particularly at the Malvern-hills in Worcestershire, and at Charlwood forest in Leicestershire, and in Devonshire, Cornwall, and Cumberland.

Bafaltic Hornblende, Amphibole felifique bafaltique, Fr. is distinguished from common hornblende by its velvet-black colour, and more perfect crystallization. It occurs crystallized in unequangular six-sided prisms, terminated at each extremity by a trihedral pyramid, with rhombic faces. It is sometimes terminated diffusely at each extremity, and sometimes acuminated by four or more planes. The angles of the cleavage have already been described. Bafaltic hornblende has a splendid vitreous lustre. The fracture is fine-grained, uneven, and glinting. It is black, opaque, and builds glaft. It is more iridescent than common hornblende, and melts with greater difficulty. The specific gravity is from 3.15 to 3.19. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>47.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>26.00</td>
</tr>
<tr>
<td>Lime</td>
<td>8.00</td>
</tr>
<tr>
<td>Magnesia</td>
<td>2.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>15.00</td>
</tr>
<tr>
<td>Water</td>
<td>0.50</td>
</tr>
</tbody>
</table>

98.50

It occurs imbedded in bafalt, as at Arthur's seat, near Edinburgh, and in various parts of Scotland. It is frequently found in lava, particularly in the lava of Vefuvius. It was formerly confounded with felspar, until Werner pointed out its characters.

Hornblende-Slate occurs in beds in granite, gneifs, and mica-flate; in the latter rocks, it is often much intermixed with mica, and sometimes contains garnets, as is the case near Tyrnodr in Prescott. Its colour is greenish-black. It has in the mafs a flaty structure, and is internally laminar or fibrous, and has a glinting or velvet-like lustre. No very well characterised beds of hornblende-flate occur in England.

Horn-Mercury, Mercure muriatis, Hayny. See Mercury-Ores.

Horn-Silver, Argent muriatis, Hayny. See Silver-Ores.

Hunite occurs at Mount Somina near Naples, in a granular topaz rock, intermixed with brown and olive-green mica and white Haynye. Its colour is reddish-brown; it occurs crystallized in oofathrous, which are always more or less truncated and bevelled; the planes are frequently transversely streaked; it has a shiny lustre, and is transparent; it scratches quartz with difficulty. This mineral was named humite in honour of Sir Abraham Hume, by the count de Bourbon, who has given the preceding characters of it in his Catalogue Mineralogique.

Hyacinth, Zircon hyacinth. See Zircon.

Hyalite, Muller glaft, Werner; Quarz concretion, Hayny. (See Hyalite.) The specific gravity of this mineral is given in the last edition of professor Jamefon's Mineralogy at 2.47, from Karsten. Its constituent parts are given by Bucholz as under:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>92</td>
</tr>
<tr>
<td>Water</td>
<td>6.33</td>
</tr>
<tr>
<td>Trace of alumine</td>
<td>1.66</td>
</tr>
</tbody>
</table>

99.99

Hyclate of Magnesia has a white colour with a greenish tinge; it occurs massive, has a lamellar-bladed structure, a pearly lustre, and is more or less fentictransparent, but becomes
MINERALOGY.

comes opaque by exposure to the air. The lamellar are somewhat elastic; it is soft, and adheres slightly to the tongue. Specific gravity 2.3. It is insoluble, but soluble in muriatic acid. According to Vanquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesia</td>
<td>4</td>
</tr>
<tr>
<td>Water</td>
<td>29</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>2.5</td>
</tr>
<tr>
<td>Silex</td>
<td>2</td>
</tr>
</tbody>
</table>

**Hydroplane.** See Opal, Addenda.

**Hyperstene.** Labrador Hornblende; Diallage metallic, Haüy. Its colours are, dark-greyish, brownish, or greenish-black, with generally a pseudo-metallic lustre, reflecting a copper-red, a pinchbeck-brown, or a gold-yellow light. It occurs both massive and disseminated; it has a lamellar structure and a two-fold cleavage, the planes forming angles of 100° and 80°. It is opaque, and yields a greenish-white streak. It is harder than common hornblende. Its specific gravity is 5.38. Before the blow-pipe it blackens, but is insoluble. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>54-25</td>
</tr>
<tr>
<td>Magnesia</td>
<td>14.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>2.25</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>24-50</td>
</tr>
<tr>
<td>Lime</td>
<td>1-50</td>
</tr>
<tr>
<td>Water</td>
<td>1</td>
</tr>
</tbody>
</table>

**Iridium, Native.** has a pale lead-grey colour; it occurs in flat small irregular grains in alluvial soil in South America. It has a shining metallic lustre, a lamellar structure, is brittle and harder than platinum. The specific gravity is 19.5. It is proved by Dr. Wollaston to be an alloy of Iridium and Osmium; which see.

**Iron-Clay.** is of a reddish or brownish-red; it occurs massive and vesicular, as the bases of some mygaloides which form beds in basaltic rocks. It is intermediate between basalt and wacke, having less hardness than the former, and more than the latter. It is also more easily frangible than either basalt or wacke.

**Iron-Flint** is generally of a brown or brownish-red colour; it is opaque and hard, and has an imperfect conchoidal fracture. It occurs massive in rounded pieces, and crystallized in small equiangular fix-sided prisms. Its specific gravity is from 2.5 to 2.8. It is insoluble. This mineral appears to be quartz rendered opaque by a chemical combination with iron. According to Bucholz, the constituent parts are,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>93</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>5</td>
</tr>
<tr>
<td>Volatile matter</td>
<td>1</td>
</tr>
<tr>
<td>Oxid of manganese</td>
<td>1</td>
</tr>
</tbody>
</table>

Pebbles of iron-flint are used at Worcester for burnishing the gilding in china. They have sometimes been found in considerable quantities in the ploughed fields near Ashby-de-la-Zouch in Leicestershire.

**Iron-Mica.** Micaceous iron glance, or iron-ore. See Iron-ores.

**Iridium, Native.** See Iron-ores.

**Iron, Native and Meteoric, For native metorique, Haüy.** is the iron which has been observed in various places to fall from the atmosphere. See Stone, Meteoric, Falling Stone, and Meteoric Iron, Addenda.

**Iron-Orfe and Iron-Stones. (See Iron.)** We shall here enumerate the different species of iron-ore, with the names given to them by the French and German mineralogists.

**Iron Pyrites, Common; For sulphure, Haüy; Gmelin scheufelkies, Werner.** Chalcopyrite Pyrites, For sulphure capillaire, Haüy; Haarkies, Werner. Cellular Pyrites, Zellkies, Werner. Radiated Pyrites, For sulphure radiate, Haüy; Strebbkies, Werner. Hematite, or Liver Pyrites, La pyrite hepaitique, Brochant; Laberkies, Werner. Magnetic Pyrites, For sulphure ferrufere, or magnetique, Haüy; Magnetkies, Werner. Polished Magnetic Pyrites, Blatbichier magnetikies, Werner. For an account of these species, see Pyrites, and Iron-ore.

**Iron-Stone, Magnetic, Common, For oxyde, Haüy; Gmelin.**
MINERALOGY.

Geimer magnetfein, Werner. This ore is highly magnetic with polarity. According to Berzelius, it contains

Peroxid of iron - - 71.86
Protoxid of iron - - 28.14

---

It occurs in various parts of the world, chiefly in primitive mountains; it is found at St. Juft in Cornwall, and Tavistock in Devonshire.

Iron-sand, or Sandy Magnetic Iron-flone, Fer oxydul titanifer, Haüy, (see Iron-ore,) occurs in volcanic and basaltic rocks, forming a component part of many black lavas, and in the sands of rivers. According to Cordier, its constituent parts are,

Iron-sand, Teneriffe.

Oxyd of iron - - 79.2
Oxyd of titanium - - 14.8
Oxyd of chrome, a trace - -
Oxyd of manganese - - 1.6
Silex and alumine - - 0.8

---

According to Thompson,

River Dee, Aberdeenshire.

Oxyd of iron - - 85.3
Oxyd of titanium - - 9.5
Arsenic - - 1.0
Silex and alumine - - 1.5

---

Earthy Magnetic Iron-flone; Fer oxydul fulgineux, Haüy; Ööhriger magnetfeinstei, Werner.—The colour is blueish-black; it is opaque, soft, sectile, and easily frangible. It appears to be common magnetic iron-flone in a state of decomposition. Common magnetic iron-flone and iron-sand are distinguished from iron-glance by the colour of the streak, which is black; but that of iron-glance is red. According to Mr. Jameson, Werner was the first who observed that magnetic iron-flone does not pollute the magnetic property when that at a depth in the earth's surface; but acquires it after exposure to the atmosphere.

Specular Iron-ore, Fer Common Iron Glance; Haüy; Eifenhans, Werner.—This ore, according to different analyses, appears to contain about 90 per cent. of oxyd of iron. See Iron-ores.

Scaly Red Iron-ore, or Iron Frath; Fer oxydul rouge luifant, Haüy; Rother eisenraum, Ööhr Red Iron-flone; Fer oxydul rouge graffier; Ööhriger rathfeinstei, Werner.

Compáet Red Iron-flone; Fer oxydul compacte, Haüy; Dichter rathfeinstei, Werner.

Red Hematite, or Fibrous Red Iron-flone; Fer oxydul concretion, Haüy; Rother glasflöste, Werner. See Iron-ores.


—Brown iron-flone is distinguished from red iron-flone by its red streak and inferior specific gravity; it also contains more water, the brown iron-flone being an hydrate. This ore, according to professor Janson, makes but indifferent cast-iron, but affords good malleable iron and excellent steel.

See Iron-ore.

Compáet Black Iron-flone; Dichter saurezeisenstei, Black bematite; Mine de fer noire compacte, Fr.; Schwarzer glasflöste, Werner.—When melted with borax before the blow-pipe, it yields a violet-blue glas; hence it is conjectured to contain much manganese.

Sparry Iron-flone; Chaux carbonaté ferrifere over manganace, Haüy.


Reddle; Argile acaufe rouge graphique, Haüy; Rotfei, Werner.

Columnar Clay Iron-flone; Fer argileux baillé, Fr.; Lenticular Clay Iron-flone; Fer oxydul brun granuleux ou lenticleulaire, Fr. (See Iron-ore.)—The following analysis of this ore is given by Daubuisson, Journal des Mines, 1810.

Peroxid of iron - - 73
Water - - 14
Silex - - 9
Peroxid of manganese - - 1
Lofs - - 3

---


Renniform Clay Iron-flone; Fer oxydul geodique, Haüy.—The constituent parts of this ore are stated by Daubuisson.

Peroxid of iron - - 76
Water - - 14
Silex - - 8
Oxyd of manganese - - 3
Alumine - - 1

---

See Iron-ore.

Pea-ore, or Pfisform Iron-ore; Fer oxydul globuliforme, Haüy; Bobners, Werner. See Iron-ore.


Pitchy Iron-ore; Fer oxydul refusite.—The pitchy iron described under the article Iron-ores appears to be a phosphate of iron; later mineralogists describe it as an oxyd and sulphate of iron. It is a rare ore, having been found only in one mine near Freyberg, and in the district of Pfis in Upper Sileia. Its colour is greyish-black, passing into dark liver-brown. It is said to occur forming crusts. It has a splendid or shining resinous luster. The fracture is imperfectly conchoidal: it is composed of granular distinct concretions: it is translucent on the edges; the streak is lemon-yellow: it is soft. When placed in water, it becomes semitransparent and vitreous. According to Klaproth, its constituent parts are,

Oxyd of iron - - 67
Sulphuric acid - - 8
Water - - 20

---

Blue Iron-ore; Blue Iron Earth; Fer phosphaté terreux, Haüy.
MINERALOGY.

Klaprotli, (See Iron-ore.) According to Klaprotli, this ore contains,

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxid of iron</td>
<td>47.50</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>32.0</td>
</tr>
<tr>
<td>Water</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.5</strong></td>
</tr>
</tbody>
</table>

Chrome of Iron. See Chrome, and Chromate of Iron.

Cubé Ores. See Ores of Iron.

Muriate of Iron, Native, or Pyroslonite, Fer muriaté, Fr. has a liver-brown colour, inclining to pittachio-green. It occurs crystallized in short six-sided prisms. The terminal planes of the crystals are shining and pearly, the lateral planes, when clear, are shining and vitreous. It has a foliated structure and four-fold cleavage, the last distinct of which is parallel with the terminal planes. It is translucent on the edges, and yields a brownish-white streak. Its specific gravity is 3.08. It is insoluble in water, but soluble in muriatic acid, except a small residuum of silicious earth. Before the blow-pipe, it gives out copious fumes of oxy-muriatic acid. This is a very rare ore of iron.

The following table of the annual quantity of iron raised and smelted in different parts of Europe, is extracted from the second edition of Jameson’s Mineralogy, vol. ii. p. 314.

<table>
<thead>
<tr>
<th>Country</th>
<th>Quintrals of 100 Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>5,000,000</td>
</tr>
<tr>
<td>France</td>
<td>4,500,000</td>
</tr>
<tr>
<td>Russia</td>
<td>1,275,579</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Austria</td>
<td>1,010,400</td>
</tr>
<tr>
<td>Prussia, after the treaty of Tilsit</td>
<td>322,053</td>
</tr>
<tr>
<td>Kingdom of Westphalia in 1808</td>
<td>187,411</td>
</tr>
<tr>
<td>Spain</td>
<td>180,000</td>
</tr>
<tr>
<td>Danish states</td>
<td>135,000</td>
</tr>
<tr>
<td>Bavaria and the Tyrol</td>
<td>110,000</td>
</tr>
<tr>
<td>Kingdom of Saxony</td>
<td>80,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,010,400</strong></td>
</tr>
</tbody>
</table>

The United States of America, without including Louisiana and the Indiana territory, are said to yield 480,000 quintals, and, according to Dr. Bruce, the value of the iron and manufactured articles of iron in the United States is from twelve to fifteen millions of dollars. The annual importation, including bar-iron and every article of iron or steel, is estimated at four millions.

Iridium, an alloy of iridium with osmium. See Osmium, Addenda.

Isingale. See Titanium.

Jade, Jade-Nephrite, Fr. See Nephrite, Addenda.

Jasper. (See Jasper.) In that article it is stated, that common jasper is exclusively found in veins; this is not strictly correct, for jasper occurs in irregular beds and masses in the argillaceous schists, which cover the granite of the Grampian-hills in Kincardineshire. Jasper occurs in some of the beds of manganite near Exeter.

Jenite. See Jenite.

Jet Pitch-coal. Jetl, Fr., has a black colour, and yields a brownish-black streak. It occurs massive, and in the shape of branches. Jet has a ligneous structure. The fracture is large and perfect conchoidal, with a shining lustrous lustre. It becomes electric by friction, and burns with a greenish flame and bituminous odour. Jet, according to the experiments of Dr. Macculloch, contains vegetable extract on dilillation; but when heated under compression, it is converted into true mineral coal. For some account of the localities of jet, see Jet.

Kaolin. See Porcelain Earth, Addenda.

Kyanite, or Cyanite; Diffrène, Haiy; Suporre, Sauffure. Its colours are blueish, or grey sky-blue, and pale blueish-green. The white varieties are partially shaded with blue. It occurs crystallized and massive. The form of the crystals are an oblique four-sided prism, with two opposite broad, and two opposite narrow planes. This is the primitive crystal. It occurs also truncated on the two opposite acute lateral edges, forming an hexaehedral prism; sometimes all the lateral edges are truncated; and sometimes two prisms are joined by their broader lateral planes, forming a twin crystal. The narrow lateral planes are longitudinal streaked. The lustre is shining and pearly, and that of the broad planes is sometimes pellucid. Kyanite has a lamellar structure, with a cleavage parallel to the planes of an oblique tetrahedral prism; that parallel with the broad lateral planes is the most distinct. The structure of amorphous kyanite is more or less curvedly lamellar, passing into bladed. It is translucent or transparent; it fractures silky, and is easily fragile. The specific gravity is 3.47 to 3.51. Some of the crystals become positively electric, others negative; hence the name diffrène was given to it by Haiy, on account of its double electrical powers. It is insufible before the blow-pipe. According to Klaprotli, its constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>55.5</td>
</tr>
<tr>
<td>Silex</td>
<td>43.0</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.0</strong></td>
</tr>
</tbody>
</table>

According to Langier,

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>55.30</td>
</tr>
<tr>
<td>Silex</td>
<td>38.30</td>
</tr>
<tr>
<td>Lime</td>
<td>0.50</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>2.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>97.05</strong></td>
</tr>
</tbody>
</table>

It occurs in primitive mountains, in micro-flate, talc-flate, and white-flone. It has been found at Bohorn, in Banffshire, and Banbury, Aberdeenshire. In India it is cut and polished, and sold as an inferior kind of fapphire. Sometimes crystals of kyanite may be seen joined and intermixed with garnetite, (see Grivetite,) which forms the near alliance of these minerals, which have also nearly the same chemical composition.

Labrador Felspar. See Felspar.

Labrador Hornblende. See Hyperstene, Addenda.

Lapis-Lazuli. See Lazuli.

Lattialite. See Haüyne, Addenda.

Laumontite. See Zedolite.

Lazemestone. See Lazuli.

Lazulite. See Lazulite.

Lead-ores. (See Lead, where eleven species of lead-ore are described.) The ammonial lead-ore is called the triple sulphuret of lead. Four other species of lead-ores have since been described; cobaltic lead-ore, native minium, arseniate of lead, and muriate of lead.

Cobaltic Lead-ore has a fresh lead-grey colour, and a shining metallic lustre. It occurs minutely disseminated, and
and in extremely minute crystals, aggregated like moss; it is opaque, soft, and seifile. Before the blow-pipe it splits into small pieces, and communicates a small blue colour to borax.

Native Minium; Plumb oxydé rouge, Haiy.—It has a scarlet-red colour. It occurs massive and pulverulent; when examined with a lens, it exhibits a crystalline structure, like galena, in which it is generally found. Before the blow-pipe, on charcoal it is first converted into litharge, and then into metallic lead. This mineral is probably produced by the decomposition of galena, which it incrusts. It has been found at Graffington, and other parts of Craven, in Yorkshire.

Muriate of Lead, or Cornoc Lead-Ore.—Its colours are greyish or yellowish-white, passing into wine-yellow. It occurs crystallized in cuboidal prisms, either simple, or terminated by tetrahedral pyramids, or bevelled on the edges. It exhibits a lamellar structure, with joints in three directions parallel to the faces of a cuboidal prism; the core fracture is conchoidal; it has a splendent adamantine lustre; is more or less transparent. It is very soft and fragile. On exposure to the blow-pipe, on charcoal it melts into an orange-coloured globule, and appears reticular externally, and of a white colour when solid; if melted again, it becomes white; and on increase of the heat the acid flies off, and minute globules of lead remain. According to Klaproth, its constituent parts are,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 85.5 \\
\text{Muriatic acid} & \quad - \quad - \quad 8.5 \\
\text{Carbonic acid and water} & \quad - \quad - \quad 6 \\
\end{align*}
\]

According to Langier, its constituent parts are,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 76.8 \\
\text{Phosphoric acid} & \quad - \quad - \quad 2 \\
\text{Arfenic acid} & \quad - \quad - \quad 4 \\
\text{Muriatic acid} & \quad - \quad - \quad 7 \\
\text{Water} & \quad - \quad - \quad 1.5 \\
\end{align*}
\]

Arfénite of Lead, or Reniform Arfénite of Lead; Plomb arfénic compaît, Haiy.—Its colours in the fresh fracture are reddish-brown and brownish-red; externally ochre-yellow and straw-yellow; internally the lustre is shining and refrinous; the fracture is conchoidal, inclining to uneven; it is opaque, soft, and brittle. The specific gravity is 3.93. This ore has hitherto been found only in one mine near Nertchenk, in Siberia. It occurs in reniform and tuberous masses; it is fusible in water. Before the blow-pipe, on charcoal it gives out arfénical vapours, and is more or less perfectly reduced. Its constituent parts are,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 35 \\
\text{Arfenic acid} & \quad - \quad - \quad 25 \\
\text{Water} & \quad - \quad - \quad 10 \\
\text{Oxyd of iron} & \quad - \quad - \quad 14 \\
\text{Silver} & \quad - \quad - \quad 2.5 \\
\text{Silex} & \quad - \quad - \quad 2.5 \\
\text{Alumine} & \quad - \quad - \quad 2 \\
\end{align*}
\]

Filamentous Arfénite of Lead, Plomb arfénic filamen-
tena, Haiy, occurs crystallized in small acicular prisms, or in delicate silky filaments, at St. Poix, in the department of Saône and Loire, in France.

Earthly Arfénite of Lead occurs in crusts, in the same mine with the filamentous. Its colour is yellow; it has an earthy fracture; it is soft and friable. This ore has also been found associated with white lead-ore, copper-ores, and quartz, in the hill of Horpie, in Oisans.

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Indurated Earthy Lead-Ore, Plomb carbonatis teneus, Fr. described as lead-earth under the article Lead-Ores, has been analyzed by John. Its constituent parts are,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 66 \\
\text{Carbonic acid} & \quad - \quad - \quad 12 \\
\text{Water} & \quad - \quad - \quad 2.25 \\
\text{Silex} & \quad - \quad - \quad 10.50 \\
\text{Alumine} & \quad - \quad - \quad 4.75 \\
\text{Iron and oxyd of manganete} & \quad - \quad - \quad 2.25 \\
\end{align*}
\]

This ore occurs in considerable quantities in some of the mines in Craven, in Yorkshire, and is smelted as a rich ore of lead.

Conchoidal Phosphate of Lead contains a small portion of arfénic and muriatic acid. It differs from green lead-ore, described under the article Lead-Ore. When crystallized, the planes of the crystals are generally convex. It occurs also fibrous, reniform, and botryoidal. The colour is orange-yellow, passing into lemon-yellow and red; the fracture is conchoidal; it is translucent; internally the lustre is shining and refrious. Its specific gravity is 7.26. According to Langier, its constituent parts are,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 76.8 \\
\text{Phosphoric acid} & \quad - \quad - \quad 7 \\
\text{Arfenic acid} & \quad - \quad - \quad 12.5 \\
\text{Muriatic acid} & \quad - \quad - \quad 1.5 \\
\end{align*}
\]

According to Rose,

\[
\begin{align*}
\text{Oxyd of lead} & \quad - \quad - \quad 77.5 \\
\text{Phosphoric acid} & \quad - \quad - \quad 7.5 \\
\text{Arfenic acid} & \quad - \quad - \quad 12.5 \\
\text{Muriatic acid} & \quad - \quad - \quad 1.5 \\
\end{align*}
\]

This ore has been found in Huel Unity mine, Cornwall.

The greatest quantity of lead is raised in England of any country in Europe. The following table contains the annual amount of lead in quintals from the following countries:

<table>
<thead>
<tr>
<th>Country</th>
<th>Lead in Quintals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>250,000</td>
</tr>
<tr>
<td>France</td>
<td>60,000</td>
</tr>
<tr>
<td>Welfphalia in 1809</td>
<td>59,771</td>
</tr>
<tr>
<td>Austrian dominions</td>
<td>45,829</td>
</tr>
<tr>
<td>Spain</td>
<td>32,000</td>
</tr>
<tr>
<td>Prussia, after the treaty of Tilsit</td>
<td>12,992</td>
</tr>
<tr>
<td>Saxony in 1868</td>
<td>10,000</td>
</tr>
<tr>
<td>Ruffia</td>
<td>10,000</td>
</tr>
<tr>
<td>Bavaria and the Tyrol</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>483,972</td>
</tr>
</tbody>
</table>

Lelleite, a mineral very recently discovered at Gryphyla, in Sweden, of which we have only the following description. It has a red colour, the lustre and trans-

4 C
The specific gravity is 2.71. Its constituent parts are,

Silex - - - - 75
Alumine - - - - 22
Manganese - - - 2.50
Water - - - - 5.00

100

Lepidolite. (See Lepidolite.) When that article was written, it was supposed that this mineral was exclusively found on Mount Hradîfo, in Moravia. Lepidolite has since been discovered in Saxony, Sweden, Norway, France, the Island of Elba, and in several parts of Scotland, particularly in lime-stone, near Dalmally, in a slate-quarry at Ballachulish, at the head of Loch Fyne, and at Glenilt in Perthshire.

Leucite, Amphibole, Häüy. See Leucite.

Leucite, or Yenite. See Yenite.

Lime-stone. See Lime-stone and Geology, Addenda.

Lithomarge, Friable. (See Lithomarge.) This variety is characterised by its scaly particles foiling, and low degree of coherence. According to Klaproth, it contains

Silex - - - - 32
Alumine - - - - 26.50
Iron - - - - 21
Muriate of soda - - 1.50
Water - - - - 17

98

Lithomarge, Indurated; Argil lithomarge, Häüy. (See Lithomarge.) This variety occurs in veins in porphyry, gneifs, grey wacke, and serpentine, and in drusy cavities in bafaltic rocks. It is intermediate between felsite and variegated clay, and appears sometimes to pass into meerschaum.

Lydián-stone. See Flinty Slate, and Horn-stone, Addenda.

Lythores, a mineral discovered in Norway, which appears allied to chaoîite, and was called lythores by Kärlén, because when first broken it appears as if spotted with coagulated blood. Its colour is aurora-red, passing into brownish-red or brown; it is occasionally marked with cream-yellow and greenish spots. It occurs mafive and disseminated; it has an imperfect foliated structure. The luster of the surface is resinous and glimmering. The cross fracture is splintery and dull; it is feebly translucent on the edges; it is hard. The specific gravity is 2.5. According to John, the constituent parts are,

Silex - - - - 44.62
Alumine - - - - 37.36
Lime - - - - 2.75
Soda - - - - 8.00
Water - - - - 6
Oxyd of iron - - - - 1.

99.73

Macle, a name given by the French mineralogists to chaoîite or Hollow spar; which fee.

Madreporeite, a variety of black lime-stone, so called on account of its occurring in radiated or diverging prismatic concretions, which are supposed to resemble the stars of madrepores: it has a minute and indistinctly curved lamellar structure. When rubbed, it emits a strong smell of sulphuretted hydrogen gas. Patron suspects that this mineral is faciculated aragonite. According to Klaproth, it consists of

Carbonate of lime - - 93
Carbonate of magnesia - - 0.50
Carbonate of iron - - 1.25
Carbon - - - - 0.50
Silicious sand - - 4.50

99.75

Other analyses give a small portion of sulphur and manganese.

Magnesian Lime-stone, or Compact Dolomite, has generally a yellowish-brown or yellowish-grey colour, a granular structure, a glimmering or glitthening lustre, and diffuses flowly in acids; these characters distinguish it from common lime-stone. The specific gravity is about 2.8. It contains fewer petrifactions than most common lime-stones. It occurs in regular strata on the eastern side of England from Nottinghamshire to Sunderland. It occurs also in amorphous masses, and variously contorted beds, and also forming a kind of lime-stone breccia in the red marls. According to Tennant, its constituent parts are,

Yorkshire.
Lime - - - - 30
Magnesia - - - - 20
Carbonic acid - - - - 47
Alumine - - - - 4

98

According to Thomson,

Near Sunderland.
Carbonate of lime - - 56.80
Carbonate of magnesia - - 40.84
Carbonate of iron - - 0.36
Insoluble matter - - 2.

100

Magnesite, Magnesia carbonatè, Häüy. It occurs in amorphous masses and tuberous spongiform. The fracture is splintery and large; and flat conchoïdal. It is opaque, earthy. The colour is yellowish-grey or white, with spots and dendritic delineations of blackish-brown. Magnesite yields to the nail externally, but internally it is harder than calcareous spar; it feels somewhat meagre, adheres to the tongue, and absorbs from nine to ten per cent. of water when immered in it, and becomes semi-transparent on the edges. It is flowly soluble with effervescence in concentrated muriatic acid. Before the blow-pipe it is inffuable, but becomes sufficiently hard to scratch glass. Its specific gravity is 2.88. According to Bucholz, the constituent parts are,

Magnesia - - 45.52 to 48
Carbonic acid - - 47.00 to 52
Silex - - 4.50
Alumine - - 0.50 a trace
Manganese - - 0.50 a trace
Lime - - 0.08 a trace
Water - - 2

100.10 100
MAGNETIC Iron-Stone, and Magnetic Pyrites. See Iron-
Stone, and Pyrites.

MOLYBDENA, or Sulphuret of Molybdena; Molybdenum Sul-
phur, Haüy; is of a bright lead-grey colour. It occurs
massive, differentiated in plates, and crystallized. The form
of the crystals is a regular six-sided table, or a very short six-

MERCURY-Ores. See Mercury, and CINNABAR, Addenda.

METEORIC, Native Iron; Fer natif meteorique, Haüy.
The colour is pale steel-grey, which inclines to silver-white,
like platinum; it is generally covered with a thin brown crust
of oxyd of iron; it occurs in racemose or globular maf-ces,
and also minutely disseminated in meteoric tones. (See
Stone, Meteoric.) The external surface is smooth and
polifhed; the internal glimmering or glintening with a
metallic lustre: it yields a splendent streak, and is malleable
and flexible, but not elastic. The specific gravity of
meteoric iron is from 6.48 to 7.57; it is magnetic. Accord-
ing to Mr. Howard, the conftituent parts are,

| All the meteoric iron which has yet been examined |
| contains a portion of nickel; the latter metal is also found in |
| molten of the meteorite tones. The phenomena attending the |
| defent of meteoric iron are precisely similar to thoce which |
| accompany the fall of meteorite tones. In molten inclufes, |
| loud detonations and brillant light or fire-balls have pre-
| ced the fall. These fire-balls appear to be the metallic |
| or mineral matter in a flate of vivid ignifcation. Pliny |
| mentions the fall of a mass of fpozy iron from the atmosphere |
| in Lucania fifty-six years before the Christian era. |
| Avicenna mentions a mass of iron weighing fifty pounds, |
| which fell from the air near Lurgea; and Averroes fays, a |
| mass of iron weighing one hundred pounds fell at Cordova |
| in Xpain. In the year 1164, a flower of iron fell in |
| Xfinicia. (Georg. Fabri. Rer. Xfinicia, lib. i. p. 32.) In |
| the year 1552 fire-tons or mafces of iron fell near Milkos, |
| in Tranflyavia. And among numerous other inflances in the |
| year 1751, a fire-ball built with a loud explofion in the |
| biffopic of Agram, in Croatia; two mafces of iron fell |
| from it; the one, which weighed seventy-two pounds, sunk |
| a confiderable depth into the earth; and the other, which was |
| sixteen pounds, fell on the surface of a meadow, at the dif-

| tance of 2000 paces from the former; the larger is still pre-
| served in the Imperial cabinet of Vienna.

Numerous mafces of native iron occur in various parts of |
the world, which agree in external appearance and chemical |
compoftion with those whose defent from the air is well |
attested. Professor Pallas discovered a mass of native iron, |
weighing about 1600 pounds, on the surface of a hill |
between Krainojark and Abakanufk, in Siberia. It is con-

Several mafces of native iron have been met with in |
Mexico; and many years since, a mass of native iron, cal-
culated to weigh about thirty tons, was discovered in the |
district of St. Jago de Eftro, in South America. It lies in |
the middle of a great plain, where no rock or mountain is |
within an hundred miles of it. According to Howard, it |
confids of go parts of iron, and 10 of nickel. Similar mafces |
have been found in Africa, North America, and the |
East Indies.

MICHA. See MICA.

MIEIMITE, Granular, is a variety of cafnfian lime-tons |
first found at Micen in Tucfany: it has a light green or |
greenish-white colour; it occurs massive and crystallized, |
in small flat double three-sided pyramids, in which the lateral |
planes of one pyramid are fat on the lateral edges of the |
other; the cryftals are often joined by the edges, or interfecl |
each other. It is transftuent, and has internally a fpidenten |
and pearly lustre. The ftucture is curvedly lamellar. Its |
specific gravity is 2.88; it diffolves slowly in acids. The |
conftituent parts are,

| Carbonate of lime - - - 53 |
| Carbonate of magnesia - - - 42 |
| Carbonate of iron and magnesia - - 3 |
| - - - 98 |

Prismatic Mieinite occurs in low, small, three-sided |
pyramids, deeply truncated on the edges; it appears to |
contain lefs magnesia than the preceding.

Milk Quartz, or Rose Quartz. See Quartz.

MINERAL CAOUTCHOUC, or Elaffite Bitumen. (See Bitu-
men.) This singular mineral has been hitherto only found |
in the Odin mine, near Caftleton in Derbyshire. Accord-
ging to the analysis of Klaproth, it contains in 100 grains,

| Carbonated hydrogen 38 |
| Carbonic acid - - 4 |

| Bituminous oil - - 73 |
| Acid water - - 1.50 |
| Carbon - - 6.23 |
| Lime - - 1.50 |
| Silex - - 75 |
| Sulphate of lime - - 50 |
| Alumine - - 25 |

MOLYBDENA, or Sulphuret of Molybdena; Molybdene Sul-
phur, Haüy; is of a bright lead-grey colour. It occurs |
massive, differentiated in plates, and crystallized. The form |
of the cryftals is a regular fix-sided table, or a very short six-

+ C 2
fied prism, terminated by two low, six-sided pyramids. The latter is metallic and shining. The structure is familiar, with a single cleavage parallel with the lateral planes of the table. It is feeble and somewhat flexible, but not elastic. Molybdenum is translucent to the touch, and leaves a mark on the paper like plumago, but on white porcelain it makes a greenish mark. Its specific gravity is from 3.5 to 4.7. Before the blow-pipe it gives out a fulgurite odour, and when urged by the ushotmail force, it yields a white vapour, and a pale blue flame; in carbonate of soda, it is soluble with violent effervescence. The characters here given, particularly its mark on china, serve to distinguish molybdena from graphite and plumago. (See MOLYBDENUM, and SULPHUR.) According to Bucholz, its constituent parts are,

Molybdenum - - 60
Sulphur - - 40

This mineral occurs in some parts of Scotland, and in granite at Coldbeck-fell in Cumberland. It is found also at Huel-Gorland, Cornwall.

MOLYBDENA Ochre is a yellow colour, passing into yellowish-green; it is friable and dull, and occurs incrusting molybdena, on which it is doubtless formed by the decomposition of the latter mineral.

MOONSTONE, a variety of adularia. See ADULARIA, and FELSPAR.

MORANO. Ore. See Bog Iron-Ore.

Mountain, or Rock Wood, or Lignum Affusus; Affusae ligniforme, Haüy; has a wood-brown colour, and a curved and fibrous structure resembling wood. It is soft, opaque, and feeble; it is slightly flexible; it feels meagre. According to Jamefon, it is insufiible; it is classified by him in the talc family.

MULLER GLASS. See HYALITE.

MURicate of Ammonia, Native, is a frequent product of volcanoes. See AMMONIA.

MURicate of Copper. See COPPER-Ores.

MURicate of Lead, or Cornue Lead-Ore. See LEAD-Ores.

MURicate of Soda. See ROCK-SALT and SALT.

Muscovy Glass, the large plates of mica, which are generally brought from Siberia. (See MICA.) These plates are erroneously called talc.

MUSITE, a variety of DIOPSIDE; which fee.

NAPHTHA, Bitume liquide blancatre, Haüy. See BITUMEN.

NATROLITE. See NATROLITE, and ZEOLITE.

NATRON, Soude carbonataé, Fr. Native carbonate of soda is deposited on the sides of lakes, or on the surface of the ground, and generally containing muriate and sulphate of soda. See SODA.

Radiated Natron, Soude carbonataé acuticulairae, Fr. occurs in Africa, and forms a considerable article of commerce. This variety is nearly pure carbonate of soda, containing, according to Klaproth,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water of crystallization</td>
<td>22.50</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>38</td>
</tr>
<tr>
<td>Pure soda</td>
<td>37</td>
</tr>
<tr>
<td>Sulphate of soda</td>
<td>2.50</td>
</tr>
</tbody>
</table>

100

Nepheline, or Sommee. (See SOMMITE.) This mineral occurs in the lava of Vefvius, and bears a near resemblance to MECONITE (which see). Nepheline is cryzzallized in six-sided prisms or tables, but the crystals of meconite are four-sided prisms. The latter mineral is easily fusible, but nepheline melts with difficulty. Nepheline has a four-fold cleavage, three of which are parallel with the lateral planes, and one to the terminal planes of the prism. Transparent pieces of nepheline become cloudy in nitric acid; hence it was named by Haüy from the Greek word πέραν, a cloud.

Nephrite, or Jade; Jade nephritique, Haüy. The colour is leek-green, paffing to greyish-green; it occurs mafive. The fracture is uneven and splinterly, with a glimmering and somewhat greasy luster; it is translucent. Nephrite yields to the knife, but fractures glass; it has a greasy feel, is very tough. The specific gravity is from 2.9 to 3. Before the blow-pipe, it melts into a white enamel. According to Kautner, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>- - 50</td>
</tr>
<tr>
<td>Alumine</td>
<td>- - 10</td>
</tr>
<tr>
<td>Magnesia</td>
<td>- - 31</td>
</tr>
<tr>
<td>Iron</td>
<td>- - 5.50</td>
</tr>
<tr>
<td>Chrome</td>
<td>- - 0.05</td>
</tr>
<tr>
<td>Water</td>
<td>- - 2.75</td>
</tr>
</tbody>
</table>

99.30

Nephrite occurs in granite veins in the Hartz in Saxony; the most beautiful varieties are from Peria and Egypt. In Turkey it is cut into handles for fabrics and daggers. It was formerly believed that this stone had the property of relieving nephritic complaints; hence it has been called nephritic stone. A flaty kind of nephrite is used by the inhabitants of New Zealand for hatchets, and hence it has been called axe-stone. Nephrite is nearly allied to serpentine and felsite; there is also a kind of nephrite which is more nearly allied to felspar, and is classified by Mr. Jamison with the felspar family; it is called faussurite, after the celebrated geologist Saussure, by whom it was first discovered. See SAUSSURITE, Addenda.

Nickel-Ores are, native nickel, copper nickel, and nickel ore.

Native Nickel has only been found hitherto in the Adolphus mine at Johanngeorgenstadt in Saxony, and at Joachimsthal in Bohemia. Its colour is bronze-yellow, but is frequently tarnished greenish-grey, or fleed or lead-grey, and occasionally invested with a crust of brown iron-flone. It occurs in capillary crystals, which are either promiscuously or scopiformly aggregated. Internally the luster is splendent and metallic, externally shining or splendent when untarnished.
unartificial. The cleft fracture is even passing into flat conchoideal; it is easily flangeable, and rather hard; it is more or less flexible and elastic. Before the blow-pipe, on charcoal it melts into a metallic globule, without any smell of arsenic or sulphur, which serves to distinguish it from capillary pyrites. Native nickel contains the metal nickel with a minute portion of cobalt. See Nickel.

Copper Nickel, Nickel arsenical, Haïy, has a copper or crimson colour, of different degrees of intensity, and often tarnished grey or black. It occurs massive and disintegrated, and sometimes reticulated, botryoidal, or dendritical, and very rarely crystallized in six-sided tables; it has shining metallic lustre. The fracture is imperfectly conchoideal, passing into granular and uneven. It is usually compact, but sometimes occurs in granular distinct concretions. It yields with difficulty to the knife, and is difficultly flangeable. Its specific gravity is from 6.5 to 7.5. Before the blow-pipe it gives out an arsenical vapour, and then fumes with difficulty into a dark secon, mixed with metallic grains; it is soluble in nitric acid, forming a dark green liquor, from which calcium alkali throws down a pale green precipitate, which distinguishes it from copper; the precipitate of the latter is a dark brown. This ore is a compound of nickel and arsenic; it occurs in small quantities in the lead-mines of Lead-hills and Wanlockhead, in Scotland, and in various parts of the continent of Europe, generally in veins in primitive mountains; it nearly resembles native copper, but may be distinguished by its brittleness.

Black Nickel-Ore has a greyish or brownish-black colour; it occurs massive, disintegrated, and in clints; it is dull, has an earthy fracture, but becomes resinous and shining in the fissure; it, as a grey, in nitric acid it forms an apple-green solution, which lets fall a precipitate of white arsenic. It is rather a rare mineral, and is found in veins with other ores of nickel, and is supposed to be formed by the decomposition of copper nickel.

Nickel Ochre, Nickel oxide, Haïy, has an apple-green colour, but on exposure to the air becomes greenish-white; it is generally found as a thin coat or crust, and seldom massive or disintegrated; it is in loose powder or friable, meagre to the touch, and light. It is infusible before the blow-pipe, but with borax it forms a red colour; in cold nitric acid it remains infusible. This ore occurs at Lead-hills and Wanlockhead, in Scotland, and in Saxony and France.

Nigrite. See Titanium.

Nitre, Nitrate, Potasse nitratté, Fr. occurs in flakes, clints, and capillary crystals on the surface of the ground. In many countries, it appears to form at certain feasons of the year. It abounds in many of the plains of Spain, Hungary, the Ukraine and Podalia, and on the walls and floors of chalk caves in France. It is very abundant in India, Egypt, and in some parts of North and South America. See Potash, Nitrates of.

Obsidian, or Volcanic Glass; Lava vitrée obsidienne, Haïy. (See Obsidianus LAPIS.) This mineral bears so close a resemblance to dark-green bottle-glass as scarcely to be distinguished from it. Its most common colours are dark-grey or greenish, or brownish-black; it has a vitreous and shining or splendent lustre; the fracture is large and perfectly conchoideal. It passes from transparent to nearly opaque, according to the intensity of the colour; it scratches glass, but is easily flangeable. The specific gravity varies from 2.34 to 2.38. The black obsidian of Iceland is said to melt into a pale agh-grey vetricular glass on charcoal; that of Spanish America too its black colour when exposed to heat, became white, pnsy, and fibrous, and increased to seven or eight times its original bulk; hence it appears that some gaseous substance escapes. Humboldt conjectures, that the gas evolved during the volcanic fusion of obsidian in the interior of the earth, may give rise to the earthquakes that agitate the Cordilleras. According to Abligard, the constituent parts of obsidian are given as under:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Silica</th>
<th>Alumina</th>
<th>Oxyd of iron</th>
<th>Lofs, supposed to be potash or soda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obsidian of Iceland</td>
<td>74</td>
<td>2</td>
<td>1.2</td>
<td>10</td>
</tr>
</tbody>
</table>

According to Collet Defoetil,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Silica</th>
<th>Alumina</th>
<th>Manganese</th>
<th>Potash and soda</th>
</tr>
</thead>
<tbody>
<tr>
<td>America</td>
<td>72.0</td>
<td>12.5</td>
<td>2.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Some analyses give 1.6 lime, and only 5 of potash and soda.

Obsidian is found in a great many volcanic countries, and also in various parts of the world, where no volcanic fires have existed since the history of man. For a long period it was contended by Werner and his followers, that this mineral was of aqueous origin, but the appearance of obsidian, and the situations in which it occurs, offer decisive proofs of its formation by fire. The Mount of de Calagna, in Lipari, according to Spallanzani, is wholly composed of it, which appears to have flowed in succeffive currents, like streams of water falling with a rapid descent and suddenly frozen. The obsidian is sometimes compact and sometimes porous and psony. On the south side of the Peak of Tenerife, there is a stream of obsidian several miles in length. In the island of Felicida, a current of lava intermixed with obsidian may be traced to the very crater of a volcano. Obsidian appears to be lava toodnently cooled, as it is well known, since the experiments of Mr. Keir, Mr. Watt, and Sir James Hall, that lava or baltol cooled suddenly forms black glass; and we have a specimen of lava from Vesuvius, which flowed in the year 1718, one part of which is compact black lava, the other is a vitreous substance passing from pitch-lobe to obsidian. See Volcanic Products.

Octahedrite, Anatase. See Titanium.

Olivine. (See Olivine.) This mineral forms a constituent part of many lavas, and is of frequent occurrence in basaltic rocks. When crystallized, it is in broad rectangular four-sided prisms, which are imbedded, and so easily broken, that it is difficult to ascertain their form; the structure of the crystals is imperfectly lamellar, in a direction parallel with the planes of the prism. Werner considers olivine as a distinct species from chrysolite (see Chrysolite), with which it is classed by many mineralogists. The colour, lustre, and fracture of olivine and chrysolite, are not precisely the same; olivine is also softer and more flangeable than chrysolite. Chrysolite is more transparent, and has a greater specific gravity, being from 3.4 to 3.34; that of olivine is 3.22 to 3.26. Olivine is often much intermixed with augite; it has generally a paler colour and greater transparency than the latter mineral. Olivine is subject to decomposition, and when this commences it exhibits on the surface iridescent colours, but afterwards falls into an earth resembling iron ochre.

Olivine.
MINERALOGY.

Oliven-Ore, or Olive Copper-Ore, arseniate of copper. See Copper-Ores.

Onyx, a variety of chalcedony with white and grey stripes. See Chalcedony.

Opal. Quartz resinite opalin, Huhny. (See Gem.) This mineral is divided into seven sub-species by Mr. Jameson.

Precious Opal has frequently a milk-white colour inclining to blue, and displays brilliant and changeable reflections of green, blue, yellow, and red. It is translucent or semi-transparent, and when placed between the eye and the light exhibits a beautiful yellow or blue colour. It occurs in veins in clay-porphyry, either massive, disseminated, or in plates: it has a shining or splendent vitreous luflre, a perfect conchoideal fracture, feratches glassy, and is easily friable. Some varieties adhere to the tongue. Precious opal becomes white and opaque when brought through the blow-pipe, but is infusible. The specific gravity is 2.110. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Silex</th>
<th>Water</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.75</td>
<td>10</td>
<td>99.50</td>
</tr>
<tr>
<td>1.25</td>
<td>5</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Hence it appears, that the precious opal is properly a hydrate of pure siliceous earth. This mineral, on account of its beauty, is employed in jewellery, and is held in great estimation. Jewels of opal must be kept with care, as they are easily scratched, and are apt to crack on sudden changes of temperature. Precious opal is found more abundantly at Caferher Wenitz, near Kaffehau, in Upper Hungary, than in any other known situation. It occurs there in clay-porphyry, and mines of it have been worked for a long period; towards the end of the fourteenth century, about 300 men were employed in these mines. Precious opal is sometimes sparingly found in the basaltic rocks, in the north of Ireland, and in the Faroe islands. The finer varieties of opal are named oriental opal. Taverner, however, informs us, that no precious opal is found in the east, and those which are sold as oriental are brought from Hungary. Those varieties of opal that adhere to the tongue are less translucent than the others, and more dull; but when immersed in water, they become nearly transparent, and acquire a beautiful play of colours. These opals have received various names, as the oculus mundi, hydrophone or changeable opal. They are much prized by collectors. To preserve their beauty, the water in which they are immersed should be perfectly pure, and they should be taken out as soon as they have acquired their full transparency. If these precautions are neglected, the pores become filled with earthy particles deposited from the water, and the hydrophone will remain more or less opaque.

Common Opal differs from precious opal, principally by its inferior luster and transparency, and the greater variety of its colours, which are either milk-white, grey, yellowish-white, yellow, red, or green. The same specimens never shews more than one colour by reflected light, but the milk-white variety, when held opposite the light, transmits a wine-yellow colour. Common opal occurs massive, disseminated, and in sharp angular pieces. Internally the luster is shining, splendent, and vitreous; the fracture is conchoideal; it scratches glass, and is easily friable. Before the blow-pipe it is infusible. The specific gravity is 2.01 to 2.14. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Silex</th>
<th>Water</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.5</td>
<td>47</td>
<td>98</td>
</tr>
<tr>
<td>7.5</td>
<td>5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Semi-opal.—Its colours are generally darker and more muddy than those of common opal; sometimes several colours occur together. Semi-opal is massive, disseminated, resplendent, and botryoidal; it has a glitrering luster, is more or less translucent, and is hard and easily friable. The fracture is large and flat, is conchoideal; it adheres to the tongue. The specific gravity is from 2.0 to 2.18; it is infusible. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Silex</th>
<th>Water</th>
<th>Iron</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>3</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>

Mother-of-Pearl Opal, or Casbolong, is a milk-white variety of opal, not unlike mother-of-pearl.

Semi-opal.—Its colours are generally darker and more muddy than those of common opal; sometimes several colours occur together. Semi-opal is massive, disseminated, resplendent, and botryoidal; it has a glitrering luster, is more or less translucent, and is hard and easily friable. The fracture is large and flat, is conchoideal; it adheres to the tongue. The specific gravity is from 2.0 to 2.18; it is infusible. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Silex</th>
<th>Water</th>
<th>Iron</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Common opal occurs in veins of porphyry and serpentine, and with chalcedony in basaltic amygdaloid; it is found in some metallic veins in Cornwall. Green common opal is sometimes cut into ring-stones. The yellow variety is also used for jewellery; it has been called wax opal and pitch opal.

Fire Opal, so called on account of its brilliant red colours and transparency, is properly a variety of precious opal; it has hitherto been found only in Zimapan in Mexico. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Silex</th>
<th>Water</th>
<th>Iron</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wood Opal, Quartz resinite xyloide, Fr. is petrified wood, penetrated with opal, and is intermediate between common opal and semi-opal. It has a ligneous structure, and is distinguished from wood-stone by its lighter colours, higher luster, perfect conchoideal fracture, greater transparency, and inferior hardness. Wood-opal is cut into plates, and used for snuff-boxes and ornaments.

Jasper Opal is of various shades of reddish-yellow or reddish-brown; it is sometimes veined and spotted; it has a shining luster, between vitreous and resplendent, and is opaque or feebly translucent at the edges. It is hard, and easily friable; it occurs massive in large and small pieces, in porphyry and in veins. The specific gravity is from 2.86 to 2.07; it is infusible. According to Klaproth, its constituent parts are,
MINERALOGY.

It appears to be common or semi-opal rendered opaque by the great intermixture of oxyd of iron. Oriental Amethyst, Sapphire, Ruby, Topaz, and Emerald, names given by jewellers to varieties of the fapphire. The blue sapphire is the true or oriental sapphire; the violet-blue is the oriental amethyst; the red sapphire, the oriental ruby; the yellow sapphire, the oriental topaz; and the green sapphire, the oriental emerald. See SAPPHIRE, &c.

OrePIMENT, Red, or Realgar, Sulphuret of Arsenic; Arsenic sulphure rouge, Fr. (See ARSenic.) According to Klaproth, the composition of this ore is,

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>-</td>
<td>-</td>
<td>69</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>-</td>
<td>31</td>
</tr>
</tbody>
</table>

100

OrePIMENT, Yellow, is composed, according to Klaproth, of

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>-</td>
<td>-</td>
<td>62</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>-</td>
<td>38</td>
</tr>
</tbody>
</table>

100

Osmium occurs as a native alloy of the metal so called with iridium; it is found in grains along with platina in alluvial foil in South America. The greens have a pale steel-grey colour, a metallic lustre, and lamellar structure; it is harder than platina, and brittle. The specific gravity is 19.5. By fusion with nitre, it acquires a dark-black colour, but regains its lustre and colour by heating with charcoal.

Palladium is a native alloy of the metal palladium, with a minute portion of platina and iridium; it occurs in grains along with grains of platina in the alluvial gold districts in Brazil. Its colour is pale steel-grey, falling into silver-white; the fracture of the grains is divergingly fibrous, the lustre metallic. The specific gravity is 12.148. It is fusible; but on the addition of sulphur, it melts with ease by continuance of the heat, the sulphur is disseminated, and a globule of metallic palladium remains. With nitric acid, it forms a deep-red solution.

Paranthine. See SCAPOLITE.

Pearl-Spar. (See BROWN SPAR, Addenda.) The name pearl-spar has been given to those varieties of this mineral which in colour and lustre have a strong resemblance to pearl, but it often occurs brown, black, and of various colours.

Pearl-Stone, Lave vitreuse perlée, Hauy. (See Pearl-Stone.) This mineral is regarded by many mineralogists as a volcanic production; it is frequently intermixed with obdidian, and hence is classed by them as a variety of the latter mineral. It occurs in basaltic and porphyritic rocks, in large and somewhat angular concretions, which are composed of smaller roundish concretions, and those of others still smaller. The surface of the concretions is smooth, shining, and pearly. The colour is grey, passing into pearl-grey and greyish-black. It is translucent on the edges; it scarcely scratches glass, is easily frangible, and is fusible with intumescence before the blow-pipe into a white spongy glassy film. This mineral has been found near Sandy Brae, in Ireland, in the island of Iceland, and in Mexico; it was first discovered in Hungary, where it occurs in large beds. It is classed by Mr. Jameson and Werner with obdidian, pitch-flone, and pumice, as forming a member of the pitch-flone family.

Pea-Stone, Pifolite, Fr. This mineral is composed of carbonate of lime, slightly coloured yellowish-white or brown by the oxyd of iron; it is properly a calcareous tuft, containing round globules, varying in size, from a pea to a hazel-nut; these conch of concentric lamellae, and often contain in the centre a minute fragment of quartz, felspar, or granite, and sometimes, but rarely, a double six-sided pyramid of rock-crystal; but in some infusions, the centre of the globule is hollow. Pea-flone occurs in great masses in the vicinity of the hot springs at Caribbad, in Bohemia; its formation we conceive to be analogous to that of roe-flone, and to be the result of crystallization; the particles included having disposed the calcareous matter to crystallize round them, in the same manner as a thread or fragment of a stone in a saline solution, generally disposes the crystals to shoot round them.

Peridite Chrysolite. See CRYSTOLITE and OLIVINE.

Petalite, a mineral recently discovered in Sweden; externally, it nearly resembles some varieties of quartz, but the cleavage is two-fold, parallel to the sides of a rhomboidal prism; two of the planes are fplendent, and two dull. The planes meet at angles of 100° and 85°, forming a four-sided prism with a rhomboidal base. Its colour is white with a slight tint of pink; it scratches glass, but yields with difficulty to the knife. When exposed to the flame of a blow-pipe it remains for some time insubflible, but by continued heat it exhibits a glazed surface, which, on examination with a lens, appears full of minute bubbles. When triturated, the powder has the whiteness of snow. It is partially soluble in highly concentrated nitric acid, losing its colour, and changing to a dingy hue; the acid at the same time becomes clouded. The prufilated alkali throw down a green precipitate, and the solution assumed an amethystine colour, which afterwards changed to brown. The constituent parts of this mineral are stated to be,

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>-</td>
<td>42.10</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
<td>-</td>
<td>18.27</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>-</td>
<td>14.28</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>-</td>
<td>14.08</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
<td>-</td>
<td>3.52</td>
</tr>
<tr>
<td>- of manganese</td>
<td>-</td>
<td>-</td>
<td>1.02</td>
</tr>
<tr>
<td>- of a unknown metal</td>
<td>-</td>
<td>-</td>
<td>0.33</td>
</tr>
<tr>
<td>Fluoric acid and water</td>
<td>-</td>
<td>-</td>
<td>3.90</td>
</tr>
<tr>
<td>Lofs</td>
<td>-</td>
<td>-</td>
<td>2.59</td>
</tr>
</tbody>
</table>

100.09

This alkali proves to be the oxyd of a new metal. The new alkali has been called lithia and lithion; it has a greater capacity of saturating acids than any other alkali, and forms a class of faults that are remarkably delicate. With alcohol, lithion yields a rofe-coloured flame, like that communicated by florelastic. The metal of lithion bears a strong resemblance to fiodium. The alkali found in petalite contains 44.84 oxygen, united to a metallic base.

Petroleum, Liquid Bitumen, or Mineral Oil. (See BITUMEN.)
MINERALOGY.

Bitumen.) It is essentially composed of carbon and hydrogen, containing less carbon than the fold bitumens, or than any kind of mineral coal. In Piedmont, Peria, Japan, and other countries, it is used in lamps, in place of oil, for lighting streets and public buildings; it is also mixed with earth, and burned for warming rooms. In Asia, numerous mines are worked for mineral oil or petroleum, the shafts are sunk through coal strata to the coal from whence the oil issues; it is intermixed with water, and is separated by decantation.

Pharmacolite, Arseniate of Lime, Chaux arsénicate, Haüy. Its colours are snow-white and milk-white, sometimes inclining to reddish or yellowish-white. It occurs in small reniform botryoidal and globular masses; sometimes it infects other minerals, or is crystallized in small diverging capillary crystals. It occurs in small reniform botryoidal and globular masses; sometimes it infects other minerals, or is crystallized in small diverging capillary crystals. Externally, it has a silky glimmering lustre; internally, it is shining or glinting. The structure is delicately radiated, either straight, diverging, or spheruliform, and sometimes fibrous. It yields to the nail, and is easily frangible. The specific gravity is 2.5. According to Klaproth, the constituent parts are,

<p>| | | | | | |</p>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.00</td>
</tr>
<tr>
<td>Lime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25.00</td>
</tr>
<tr>
<td>Arsenic acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50.54</td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.00</td>
</tr>
</tbody>
</table>

According to John,

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>97.72</td>
</tr>
<tr>
<td>Line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27.28</td>
</tr>
<tr>
<td>Arsenic acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45.58</td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23.86</td>
</tr>
</tbody>
</table>

There is an earthy variety of pharmacolite, which occurs in thin crusts, and is dull and opaque. Pharmacolite is found in veins in granite, with ores of cobalt and native arsenic.

Phosphate of Copper, Cuivre phosphaté, Haüy. Under the ores of copper, one species of this mineral is described, which was the only one then known. Mr. Jamefon makes three sub-species of phosphate of copper: foliated phosphate of copper, fibrous phosphate of copper, and compact phosphate of copper.

Foliated Phosphate of Copper, Cuivre phosphaté rhomboïdal, Haüy, has a greyish-black colour externally, but internally is emerald-green, verdigris-green, and leek and olive-green. It occurs crystallized in octahedrons, which are sometimes lengthened or cubic form; also in rhombohinds with small curvilinear faces; the edges and angles are sometimes truncated. The structure is lamellar, the lustre shining, between vitreous and pearly; it is translucent. This ore is insoluble in water, but dissolves without effervescence in nitric acid. Before the blow-pipe, it fuses into a brownish globule, which spreads on the surface of the charcoal by a continuance of the heat, and acquires a reddish-grey metallic lustre. The globule on cooling crystallizes into three-sided and six-sided faces. According to Bucholz, it is a compound of copper and phosphoric acid. It has been found in the neighbourhood of Neufchat, in Hungary, and at Wirneberg, near Rheinbreitenbach, on the Rhine; at the latter place it occurs with fibrous phosphate of copper; the latter mineral is found massive, botryoidal, and in crusts; it has a divergingly fibrous or radiated structure.

Compact Phosphate of Copper, Cuivre phosphaté compacta, Haüy, has the same localities as the foliated sub-species; it occurs massive, reniform, botryoidal, and incrusting; it has a flat conchoidal fracture, a fibrous structure may sometimes be observed. It contains near 3.5 parts of phosphoric acid united with 68 of copper.

Phosphate of Manganese. See Manganese-Ore.

Phosphorite, Common, and Phosphorite, Earthy. These minerals have been called by mineralogists as varieties of apatite; but Mr. Jamefon makes phosphorite a distinct species, which he divides into two sub-species.

Common Phosphorite, Maffive Apatite, Atkin; Chaux phosphaté terreuse, Haüy; has generally a yellowish, greenish, or reddish-white colour; it occurs massive, fibrous, reniform, and incrusting, also crystallized in six-sided tables; it is opaque, soft, and easily frangible. The specific gravity is 2.81. When rubbed in an iron mortar, or laid on hot coals, it emits a greenish light. According to Pelletier, its constituent parts are,

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td></td>
<td></td>
<td></td>
<td>59.00</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td></td>
<td></td>
<td></td>
<td>34.00</td>
</tr>
<tr>
<td>Silex</td>
<td></td>
<td></td>
<td></td>
<td>2.00</td>
</tr>
<tr>
<td>Fluoric acid</td>
<td></td>
<td></td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td></td>
<td></td>
<td></td>
<td>0.50</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

In part of Etruramuris in Spain near Lagrofain, it forms whole beds that alternate with lime-stone and quartz.

Earthy Phosphorite consists of dull earthy particles, loosely cohering, and appears to be the preceding mineral in a decomposing state, intermixed with earthy matter. We think the characters and constituent parts of these minerals entitle them to be classed merely as varieties of apatite. The multiplication of species, where no sufficient specific difference exists, tends to retard the progress of useful knowledge, and ought not to be unnecessarily introduced.

Phosphormangan. Phosphate of manganese. See Manganese.

Pharmacolite, a mineral described by Hanffmann. It is principally composed of the carbonate of magnesium. According to the description of Mr. Jamefon, (Mineralogy, vol. ii. p. 537.) its colours are leek-green, mountain-green, or straw-yellow. It occurs massive; internally it is dull or glimmering and pearly. The fracture is long, splintery, which falls by gradation to flat conchoidal. In some instances, it shows a delicate concentric fibrous structure. It sometimes occurs in concretions which are either concealed or have undulating lamellae. It is translucent on the edges, and is rather hard, and difficultly frangible. It feels meagre, and is infusible. The specific gravity is 2.53. It appears to be allied to serpentine and talc.

Pitchite. This mineral is nearly allied to mica. It occurs crystallized in regular six-sided prisms, which, according to Haüy, is the primitive form. The prisms are sometimes truncated on the edges and angles. Massive varieties of pinite also occur in thick and straight lamellar concretions. (See Pitchite.) This mineral is found in the granite veins at St. Michael's Mount, Cornwall, and in some parts of Scotland in porphyry.


Pistacite, or Epidote. See Pistacite, and Epidote, Addenda.

Pitch-coal, or Jet, See Jet.
**MINERALOGY.**

**Pitch-ore, or Pitch-blende,** an ore of Uranium. See Uranium, and Pitch-ore.

**Pitch-stone, Refinite, and Petroflex reffinite, Fr.** This mineral is named from the striking resemblance which some varieties have in colour and lustre to pitch. Its prevailing colours are dark-green, from which it passes into black, grey, and blue, to brown and red. It is feebly translucent, and has a glintening or shining vitreo-refinosus lustre. It occurs massive in veins and beds of considerable magnitude. Pitch-stone is sometimes columnar, and sometimes in thick and wedge-shaped concretions, or in somewhat globular or curved lamellar distinct concretions, and sometimes it has a flaty structure. The fracture is more or less perfectly conchoidal, or passing into splintery. The fragments are angular and sharp-edged. It scratches glasses, is rather easily fragile, and is fusible into a grey fpongy enamel. Some varieties of this mineral, however, fuse with great difficulty by the blow-pipe. The specific gravity of pitch-stone is about 2.3. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>2.60</td>
</tr>
<tr>
<td>Alumine</td>
<td>3.95</td>
</tr>
<tr>
<td>Lime</td>
<td>2.98</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>1.00</td>
</tr>
<tr>
<td>Oxid of manganese</td>
<td>0.65</td>
</tr>
<tr>
<td>Soda</td>
<td>2.26</td>
</tr>
<tr>
<td>Water</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Pitch-stone is found in various parts of Scotland, and in the islands of Rum, Egg, and Arran. It bears a near resemblance to obsidian, or volcanic glasses, into which it appears to pass, and also into pearl-stone. It is regarded by many geologists as a volcanic product. Like basalt, it intersects rocks of different formations, from granite to sand-stone, and is intimately associated with basaltic rocks.

**Plasma** has generally a dullish-green colour, with yellowish or whitish dots, a glintening lustre, a conchoidal fracture, is translucent, and rather harder than quartz. It consists of about ninety-seven parts of fleshy, and appears to be properly a green variety of frit. It was confused by the Romans as a gem, and figures were engraved upon it. Most of the specimens in collections were found in the ruins of Rome.

**Platina.** See Platina.

**Plenaste.** See Ceylanite, Addenda.

**Plumbago.** Graphite or black-lead. See Plumbago, and Graphite.

**Porcelain-clay.** (See Porcelain.) The porcelain-clay of Cornwall occurs in beds of considerable thicknees in the parish of St. Stephen's. According to Wedgwood, it consists of sixty parts alumine, and forty of fleshy. Porcelain-clay originates from the decomposition of granitic rocks, abounding in felspar, and frequently contains portions of quartz and mica. The absence of iron in porcelain-clay is what constitutes one of its most essentiel properties,—that of remaining white after burning. The Kaolin or Chinese porcelain-clay contains a much larger portion of fleshy than of alumine.

**Porcellanite, or Porcelain Jasper, (see Jasper,)** appears to be formed accidentally by fires in coal-mines, which have indurated and semivitrified beds of coal-flake or slate-clay.

**Pot-stone, Lapis aullaris; Tale olivare, Haizy.** (See Vol. XXXIX.) Pot-stone, a spar of calcite, is a material of great importance. It occurs in an aggregate of innumerable thin plates, which are conchoidal in fracture, and sometimes grow together in the form of a shell. The fracture is perfect. It is white, compact, and very durable.

**Pot-stone.** This mineral appears to be indurated, passing into serpentine; with the latter rock, it is frequently associated. It has a curved and undulating-lamellar structure, passing into flaty. It is very soft, brittle, and greyly to the touch, is translucent on the edges, and affords a white-coloured streak. It is infusible before the blow-pipe. The analysis of this mineral given by Tromsdorf is,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>3.95</td>
</tr>
<tr>
<td>Magnesia</td>
<td>2.67</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>3.00</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>2.00</td>
</tr>
<tr>
<td>Water</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Near Inverary there is a quarry of talcous slate, some of which appears to pass into pot-stone, and can be turned in the lathe; of this stone, Inverary Castle is built. Pot-stone was extensively used in Upper Egypt for culinary vessels. They were found to resist the action of fire, and did not communicate any taint to the food boiled in them. Quarries of pot-stone were worked on the banks of the Lake of Como from the beginning of the Christian era to the year 1618, when the mountain fell down on the 25th of August, and destroyed the neighbouring town of Piers. This town had annually raised stone from these quarries to the value of 60,000 ducats. Pot-stone is also used for lining ovens and furnaces, and is remarkably durable.

**Prase, Quarz hyalin vert obscure, Haizy, is transparent green quartz, the green colour being derived from an intimate mixture of quartz and actinolite. See Quartz, and Prasius.**

**Precious Garnet.** See Garnet.

**Prehnite.** (See Prehnite.) This mineral is divided into two sub-species by Mr. Jameson; foliated prehnite and fibrous prehnite. The prevailing colours are green, greenish-white, and yellowish-white. It occurs both massive and crysallized in oblique four-sided tables, or in six or eight-sided tables; also in four-sided and six-sided prisms. The crystals are generally attached by their lateral plains, and form diverging groups. The cleavage is fingle, parallel to the short diagonal of a rhomboidal prism, the planes of which are inclined at angles of 103° and 77°. The lustre is shining and pearly; it is translucent or transparent, scratches glasses with difficulty, and intumesces before the blow-pipe. Prehnite was discovered by Mr. Bakewell in a rock basaltic amygdaloid, near Berkley in Gloucestershire, accompanied with green earth and massive lamellar prehnite, or kenholite. This is the only English locality of these minerals at present known. It was first brought from the Cape of Good Hope.

**Fibrous Prehnite** has a delicate fibrous structure, either straight, diverging, or stellar. According to Langier, its constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>2.65</td>
</tr>
<tr>
<td>Alumine</td>
<td>2.67</td>
</tr>
<tr>
<td>Lime</td>
<td>2.70</td>
</tr>
<tr>
<td>Soda and Potash</td>
<td>0.75</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>3.00</td>
</tr>
<tr>
<td>Water</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Both sub-species of prehnite bear a near resemblance to zeolites, but they do not gelatinize with acids, and they become electric by heating.

**Pumice.** See Pumice-stone, and Volcanic Products.

**Pye-nite Schorlitt, or Schorlaceous Beryl.** (See D Pyrolite.)
PYCNITE. The crystals of this mineral are long hexagonal prisms, and are deeply streaked longitudinally. They have a cleavage at right angles to the axis of the prism. Pycnite is now considered by Hauy as a variety of the topaz.

PYRITES. See Pyrites.

PYROPE. This mineral is now regarded by Hauy as a variety of the precious garnet, with an accidental portion of magnesia derived from the rock in which it is imbedded.

PYROTHERITE. See Pyrophylite.

PYROMALITE. Native muriate of iron. See Iron.

Pyroxene, Augit. See Pyroxene and Augit, Addenda.

Quartz, Ores byldin, Fr. See Quartz.

Common Quartz, Rock Crystal, Amethyst, and Cairngorm Stone, or Clove-brown Quartz, Aventurine Quartz, and Rose or Milk Quartz, are essentially the same mineral substance or pure flux, varying only in transparency or colour, owing probably to a slight admixture of the other earths or metallic oxyds, an admixture which may be regarded as accidental, and which is scarcely appreciable by chemical analysis. According to Bucholz, rock-crystal is composed of 99.5% of flux. It is probable, however, that many minerals, which have hitherto been classed with quartz from bearing in many characters a close resemblance to it, may contain other ingredients besides flux in such proportions as to constitute them distinct species. This opinion is rendered more probable from the recent discovery of a mineral in Sweden, called petalite, which might easily be mistaken for a variety of quartz, but which contains a considerable portion of alumine, and two parts in the hundred of an alkali heretofore unknown. See Petalite, Addenda, and Rock-Crystal.

Quicksilver. See Mercury, Ores of.

Realgar. See Arsenic-Ores, and Realgar.

Red Antimony Ore. (See Antimony-Ores, and Red Antimony.) A variety of red antimony-ore, called tinderry, is described by Mr. Jamefon as occurring in delicate flexible leaves, which are opaque and friable, foil strongly, and swim on water. Tinderry contains a portion of silver.

Red Cobalt-Ore. (See Cobalt-Ores.) This species of ore is divided by Mr. Jamefon into three sub-species, earthy red cobalt-ore or cobalt ochre, flag red cobalt ochre, and radiated red cobalt-ore or cobalt bloom; Cobalt arseniaté acquisium, Hauy. The analysis of this ore by Bucholz gives:

<table>
<thead>
<tr>
<th>Cobalt</th>
<th>Arsenic acid</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>38</td>
<td>23</td>
</tr>
</tbody>
</table>

This ore has been found at Alva, in Stirlingshire, and at Tyndrum; also in lime-flone in Linlithgowshire, and at the Dolcoath mine in Cornwall. Slaggy red cobalt ochre has a muddy crimson-red colour, or dark hyacinth-red, which passes into chieftain-brown. It occurs in thin crusts, and sometimes reniform. It has a shining and refractive lustre, a conchoidal fracture, and is translucent, soft, and brittle.


Red Lead-ore, or Chromate of Lead. See Lead-Ores.

Red Magnesite-ore. See Manganese.

Red Silver-ore, or Ruby Silver, where read—before the blow-pipe on charcoal.

Reddy, Red Chalk, or Red Ochre. See Reddy.

Retinasphaltum. See Retinasphaltum.

Reussite, the name given to a salt which occurs in the country round Seltitz, and at Plun near Brux. It forms a mealy efflorescence, and is also crystallized in flat six-sided prisms and in acicular crystals. According to Reufs, it consists of:

<table>
<thead>
<tr>
<th>Sulphate of soda</th>
<th>Sulphate of magnesia</th>
<th>Muriate of magnesia</th>
<th>Sulphate of lime</th>
</tr>
</thead>
<tbody>
<tr>
<td>66.04</td>
<td>31.55</td>
<td>2.19</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Rhom Spar. See Brown Spar, Addenda.

Rock Butter. (See Rock Butter.) This mineral appears to be a sub-sulphate of alumine. It oozes from numerous rocks.

Rock Cork; Aberg Treps, Hauy. See Rock Cork.

Rock-crystal. (See Quartz.) This is the purest variety of quartz. Very large and brilliant rock-cryxals occur in various parts of Scotland. The smoke-grey or clove-brown crystals are called cairngorm, from a place in the upper part of Aberdeenshire, where they occur in alluvial soil along with beryl and topaz. The largest rock-crystals hitherto found come from the island of Madagascar. Faujas St. Fond mentions a crystal imported from thence into France, which weighed upwards of one hundred and fifty pounds. Very brilliant groups of rock-cryystal occur in Dauphiny. Vases of rock-crystal were highly prized by the ancients. A vase, broke by the emperor Nero in a fit of despair, was estimated at 15,000 livres. Different colours may be communicated to rock-crystals artificially, by heating them and plunging them into different-coloured solutions.

Rock-salt. (See Rock-salt.) According to the analysis of Dr. Henry, the rock-salt of Cheshire contains, in 1000 parts,

<table>
<thead>
<tr>
<th>Muriate of soda</th>
<th>Sulphate of lime</th>
<th>Muriate of magnesia</th>
<th>Muriate of lime</th>
<th>Insoluble matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.34</td>
<td>65</td>
<td>0.75</td>
<td>0.47</td>
<td>10</td>
</tr>
</tbody>
</table>

1000

Rock-wood, or Ligniform Aberg. See Asbestos.

Roe-stone, or Oolite; Chaux carbonatée globiforme, Hauy. See Roe-stone.

Rose Quartz, or Milk Quartz. See Quartz.

Rubellite, called Red Schorl, a variety of tourmaline. See Rubellite and Tourmaline.

Ruby, Oriental, or Red Sapphire. See Gems, and Saphire.

Ruby Spinelle. (See Gems and Ruby.) The spinel ruby is the common ruby of the jewellers. It differs from the oriental ruby in the form of its crystalization, and contains a portion of magnesia and chromic acid. The former is nearly unmixed alumine. When these two gems are cut, it is, however, difficult to distinguish them. The oriental ruby is harder than spinel. Though the prevailing colour of the common ruby or spinel is red, yet it is sometimes blue-green or yellowish-brown. The carmine-red is called the spinel ruby; the cochineal ruby is called the balais ruby, from Balachan, the Indian name of Pegu, where it is found. The specific gravity varies from 3.50 to 3.70; that of oriental ruby from 3.97 to 4.28. The latter is a true sapphire.

Rutile,
**MINERALOGY.**

Rutile, or Sphene; Titane oxijé, Haiiy. (See Rutile.) This mineral, which appears to be an analysis of a pure oxyd of titanium, (see Titanium,) is of a dark blood-red colour, or light-red and brownish-red. It occurs massive, difteminated, membranous, and in cryftals. The cryftals are rectangular four-fided prisms, oblique four-fided prisms, and also six and eight-fided prisms. The cryftals are small and often capillary. It occurs imbedded in druffy cavities, in granite, baffe, gneifs, mica-flate, chlore-flate and hornblende-flate, and in lime-flone. It has been found in the granite of Cairngorm, the lime-flone of Rannoch, and at Craig Caileach, near Killin, imbedded in quartz, also near Bedgallfe, in Caernarvonne.

Rutile, Titane fliéco calcaine, or Sphene. See Rutile and Sphene.

Sailhite. (See Sailhite.) Pyroxene laminaire gris verdâtre, Haiiy. According to Bournon, the primitive form of fahlite is a rectangular four-fided prism, having rectangular bases, which are inclined on the two opposite sides of the prism, so as to form angles of 109°15', and 73°45': hence he considers it as a distinct fpecies from augit. According to Jamefon, the cleavages of fahlite are five-fold, one parallel with the terminal planes, two with the lateral planes, and two with the diagonals of the prism; the three fides are made with great facility. The crofs fracture of fahlite is uneven and dull; that of augit, though uneven, generally inclines to conchoideal, and has a con siderable degree of lufpre.

Sal Ammoniac, Naive; Ammoniaque muriaté, Haiiy. (See Sal Ammoniac.) This salt is divided into two sub-fpecies by Werner, volca nic fah ammoniaci and conchoideal fah ammoniaci. The former occurs in fiffures, or coating volcanic rocks, and also in the vicinity of burning beds of coal. The latter occurs with sulphur, in indurated clay, or clay-flate, in Buc haria. According to Klaproth, it contains 25°50 of sulphate of ammonia, with 97°50 of the muriate.

Sappace, Kyanite; Dijthene, Haiiy. See Sappace, and Kyanite, Addenda.

Sapphire, Telef, and Corindon hyalin, Haiiy. The common forms of the cryftals of fapphire are the perfect fix-fided pyramid and fix-fided prism, or the double fix-fided pyramid. These forms are frequently variously modified by truncations on the angles and extremities. (See Gems, Sapphire, and Ruby, Addenda.) The red fapphire is the oriental ruby; it differs from the blue fapphire in its con tinuit parts, which, according to Che nevix, are,

| Silex  | -       | -       | 44 |
| Alumine | -       | -       | 30 |
| Lime   | -       | -       | 4  |
| Soda   | -       | -       | 6  |
| Pottaf | -       | -       | 0.25 |
| Iron   | -       | -       | 12.50 |
| Manganese | - | - | 0.05 |

According to Klaproth,

| Silex  | -       | -       | 49 |
| Alumine | -       | -       | 24 |
| Lime   | -       | -       | 10.50 |
| Magnefia | -     | -       | 5.75 |
| Soda   | -       | -       | 5.50 |
| Iron   | -       | -       | 6.50 |

Before the blow-pipe, faiourite melts on the edges and angles; but according to Mr. Jamefon it is not entirely fublie.

Scapolite, Paranthine, Haiiy. (See Scapolite.) This mineral has been divided by Mr. Jamefon into three sub-fpecies; radiated scapolite, foliated scapolite, and compact scapolite. Foliated scapolite has a three-fold and rather oblique-angular cleavage; the crofs fracture is small and fine-grained, uneven or small conchoideal. This mineral, besides occurring with the other sub-fpecies in Scandinavia, is found along with cholor in granitic maffes that are imbedded in compact felfpar, or white-flone, on the north-western ac tivity of the Saxong Erzgebirge. Compact green scapolite is the wenerite of Haiiy. It occurs both massive and cry stallized in rectangular four-fided prisms, acuminate by four planes set on the lateral edges. Compact red scapolite occurs along with the green sub-fpecies, but is of a blood-red colour. All the varieties of scapolite decay very readily on expooure to the air.

Schorl, Tourmaline noir, Haiiy. (See Schorl.) The con tinuit parts of schorl, as itated by Klaproth, vary considerably
MINERALOGY.

considerably from the analysis of Gerhard, which we have given, and are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
<td>307-75</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>34.50</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>Oxyd of iron with a trace of manganese</td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

The crystals of school are longitudinally streaked, and have externally a shining luster. It occurs in the granite rocks of Cornwall, and intermixed with quartz, when it forms a compound rock, known to Cornish miners by the name of coke. Very magnificent crystals of school have recently been discovered near Bovey Heathfield, in Devonshire. See Tournaline.

SCHILLER-Spar, Diallage metalloidó, Häiyy, occurs most frequently in laminae disseminated in serpentine, and is regarded by some mineralogists as crystallized serpentine. The colours are, olive-green, pinchbeck-brown, and yellowish-brown. The luster of the principal fracture is splendent and pseudo-metallic; the cross fracture is dull and glimmering. The cleavage is distinct in the direction of the laminae. According to Bournon, the primitive form is a rectangular four-sided prism, in which the bases are set on the broadest lateral planes, forming with them angles of 85° and 95°. The prism is divisible both in the direction of the lateral and terminal planes, but most easily parallel with the latter. Schiller-spar is translucent in thin lamina; it yields a greenish-grey streak, is fectile, and softer than hornblende.

SCHORLACEOUS Beryl. See Pycnite.
Selenite, or Crystallized Gypsum. See Gypsum.
Serpentine, Noble and Common. See Serpentine.
Shale, Coal-Clay and Bituminous Shale, a name given to the argillaceous strata which accompany coal. These consist of clay more or less indurated and fatty, and intermixed with a portion of carbonaceous or bituminous matter.
Siderite, a name given by some mineralogists to Rubellite; which fee.

SILVER-ORES. (See Silver.) A species of native silver occurs in Norway, which contains 28 parts in the 100 of gold, and is called aquiferous native silver. On account of the gold, its specific gravity is greater than native silver. Its other characters, except the colour, (which inclines to brays-yellow,) agree with native silver; which fee, under Silver-Ores.

An ore of silver containing bismuth has been found in one mine on the Schapbach, in the Black Forest. It is called bismuthic silver. It is a pale lead-grey, is soft, fectile, and easily frangible. Before the blow-pipe metallic globules ooze out, which, on the addition of borax, unite in one metallic button, which is brittle, and of a tin-white colour. It contains 27 parts of lead, 35 of bismuth, and 15 of sulphur, combined with a portion of iron and sulphur, and one part copper.

Cornous Silver-Ore, or Horn Silver, is divided by Mr. Jameson, in the last edition of his Mineralogy, into four sub-species; concoidal, radiated, common, and earthy cornous silver-ores.

Concoidal cornous Silver-Ore.—Its colours are greenish or greenish-white. It occurs massive in compact line-fone, at Guantahoygo in Peru; it has an adamantine luster, and is the purest kind of cornous silver known, containing

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Silver</td>
<td>-</td>
<td>76</td>
</tr>
<tr>
<td>Oxygen</td>
<td>-</td>
<td>7.6</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td>-</td>
<td>16.4</td>
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</tbody>
</table>

The radiated cornous Silver-Ore has a dark-green colour, and, like the preceding, has hitherto been found only in South America.

Common cornous Silver-Ore, (see Silver-Ores,) has been found in some of the mines in Cornwall, particularly at Huel-Mexico, and in a mine near Peranzabula, on the north-east of Cornwall. In the analysis of this ore, we have stated the constituent parts at 68 of silver, and 28 of muriatic acid; but 6 parts of the latter are oxygen.

Earthy cornous Silver-Ore is very soft, and almost friable. This mineral is an intermixture of cornous silver-ore and alumine.

Earthy Silver-Glance appears to be a decomposing sulphuret of silver. It has a blue-black colour, and varies from friable to solid; it is dull or glimmering, but yields a metallic streak; it occurs with other ores of silver in veins.

Under the localities of silver in England, in the article Silver-Ores, for Benallith r. Beerralten, Devonshire. One of the richest repositories of silver is the West Duche Mine, on the banks of the Tamor, above Plymouth. Silver-ores occur there in regular veins, but are also disseminated in nodules, through the rock itself, which is killed or clay-flake. The ores are, native capillary silver in considerable branches, vitreous silver-ore, black silver, and ruby silver-ore. Under the article Silver, we have given the annual quantity of gold and silver obtained in Europe, South America, and part of Asia, as given by Humboldt, in killogrammes, which reduced to the value of the pound sterling is as under:

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<tbody>
<tr>
<td>Europe</td>
<td>178,697</td>
<td>468,177</td>
</tr>
<tr>
<td>Northern Asia</td>
<td>74,124</td>
<td>192,066</td>
</tr>
<tr>
<td>America</td>
<td>2,382,315</td>
<td>7,671,830</td>
</tr>
</tbody>
</table>

£2,695,436 £7,733,973

Total annual value 10,368,109l.; a sum not equal to the payment of one-half of the interest of the national debt of Great Britain!

SLATE, or Slate-Clay, Werner. See Slate.
Slate-Spar, Chaux carbonate nature, Fr. (See Slate-Spar.) Though this is made a distinct species of the limestone family by some mineralogists, it is composed of carbonate of lime with an admixture of about three or four parts in the hundred of manganese or iron with water, to which probably its nacre luster may be owing. It occurs in some parts of Cornwall, and in Scotland.

SILKENSIDES, a name given by the Derbyshire miners to galena or lead-glance, when it forms a smooth polished surface or lining to veins.

SMARAGDITE, green diallage; Diallage verte, Häiyy. See Diallage.

SCAF-STONE, a variety of fletite, is found in Cornwall, and
and extensively used in the porcelain manufacture at Wor
certer. It has a milk-white or greenish-grey colour, mot-
ted with a muddy-purple; it is very susceptible to the touch,
yields to the nail, and falls to pieces in hot water. Before the
blow-pipe, it is friable into a somewhat translucent enamel.
According to the analysis of Klaproth, it contains

<table>
<thead>
<tr>
<th>Material</th>
<th>MOH</th>
<th>Density</th>
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<tbody>
<tr>
<td>Silex</td>
<td>65</td>
<td>1.52</td>
</tr>
<tr>
<td>Alumine</td>
<td>45</td>
<td>1.35</td>
</tr>
<tr>
<td>Magnesia</td>
<td>24.75</td>
<td>3.55</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>0.5</td>
<td>-</td>
</tr>
<tr>
<td>Potash</td>
<td>0.75</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>98.75</td>
<td></td>
</tr>
</tbody>
</table>

Under the article Steatite, it is stated to differ from com-
mon flint by the absence of alumine; it should have been
by the excess of alumine. Some varieties of flintite scarcely
contain a trace of the latter earth.

Soda, Natron, or Natron. See Natron, Addenda.

Sodalite. (See Sodalite.) This mineral is classified by
Mr. Jamefon with the felspar family, on account of its ex-
ternal characters; it differs from felspar in the proportions
of its constituent parts, and soda supplies the place of potash,
which is a constituent of most felspars.

Sommite, or Nepheline. See Sommite and Nepheline,
Addenda.


Sphene. See Sphene, Rutile, and Titanum.

Spinel. See Gem, Ruby, and Spinel.

Spodumene. (See Spodumene.) According to D’An-
drada, this mineral before the blow-pipe事实 separates into
gold-coloured scales, and then into a kind of powder or ash.
It is recently found to contain 8 per cent. of the new
alkali lithia.

Staurolite, or Grenatite. See Staurolite and Grena-
tite, Addenda.

Streptolite, the name given by Haiiyto staurolite.

Steatite. See Steatite and Soap-stone, Addenda.

Stilbite. See Zeolite.

Striped Jaffier. See Jasper.

Strotianite, or Strotius; Strontian carbonatre. See Strotianite.

Surfat, or Cobalt, of Copper, of Iron, of Lead, of Manganese, of Zinc. See the ores of each of these metals, where the native metallic are described.

Sulphur of Soda, Natron. See Soda.

Sulphur, Common and Volcanic. See Sulphur.

Sulphures, Natron, are combinations of the different
metals with sulphur. See Pyrites and the different metals.

Surfur, or Fibrous Brown Coal, or Bituminous Wood, Fibres, Fr. See Coal and Wood-Coal.

Swine-stone, or Flattet Lime-stone. See Swine-stone.

Tabular Spar. Spath en Tables, Haiiy. See Tabu-
lar Spar.

Talc. See Talc.

Tantalite. See Tantalite.

Telesia, the name given by Haiiy to the sapphire.

Tellurium Ores, and Tellurium. See Tellurium.

Thallite, or Epidote. See Thallite.

Thummerstone, or Axinite. See Thummerstone.

Tile-Ore, Earthy and Indurated, an ore of copper (see Copper); the latter is considered by Werner an intimate combination of red copper-ore and brown iron ochre, con-

aining from 10 to 50 per cent. of copper; the red varieties
contain the greatest quantity of copper. The dark-brown
variety, on account of the resemblance of its fracture to
pitch, has been called pitch-ore (Faberis, Werner.)

Tin-stone. See Tin.

Tin Pyrites, or Bell-Metal Ore. See Tin.

Titanium. See Titanium.

Topaz, Topaz, Fr. See Topaz and Gem.

Tourmaline, Tourmaline, and Le fibro electrifique, Fr. See Tourmaline.

Tremolite, Grammatite, Haiiy. See Tremolite.

Triphol, or Rotting-stone. See Triphol.

Tufa. See Tufa.

Tungsten. See Tungsten.

Variegated Copper-Ore, Cuivre purieux etpavique, Haiiy, a native sulphurifer of copper, which has a variegated or iridescent tarnish. See Copper-Ores.

Vesuvian, Idocrase, Haiiy. (See Vesuvian.) The primit-
ive form of the crystals of Vesuvian is a right prism with
square bases, differing little from the cube. Vesuvian is cut
for ornamental purposes by the lapidaries at Naples, and is
called the chrystalolite of Vesuvius.

Umbare, Argile occufa buen, Fr. See Umbare.

Uran Mica, or Uranite, and Uran Ochre. See Ur-

IUM, Ores of.

Wacke, or Wacken. See Wacke.

Wad. See Wad and Manganese.

Wavellite, or Hydargillite, Diaspare, Haiiy. See Wavellite.

Whet-Slate, or Wheatslate, Neverculrite, Fr. See Slate and Wheat-slate.

White Antimony-Ore, White Copper-Ore, White Mangan-
"eke-Ore, White Silver-Ore, and White Vitriol or Sulphate of
Zinc. See each of these metals, and Ores of.

Witherite, or Carbonate of Barytes. See Witherite
and Barytes.

Wolfman, Schelol Ferrugine, Haiiy. (See Wolfram.)
This mineral occurs most abundantly in many of the mines
of Cornwall, but has not yet been applied to any use.

Yenate, Liegerät, Werner. See Yenate.

Yttero-Tantalite. See Tantalite and Yttero-Tan-

talite.

Zeolite. See Zeolite.

Zinc. See Zinc, Ores of.

Zircone and Zirconite. See Zircone.

Zoisite. See Zoisite.

MINGRELLA, l. 12, after gom, add—a kind of paife
made of. At the close, add—According to Reineggies, it
contains four millions of souls, and annually exports 12,000
flaves.

MINKALLI, an African term, denoting a quantity of
gold, nearly equal to 10,000 florins.

MINOT, in Geography, a town of America, in the dis-
trict of Maine, and county of Cumberland, having 2020
inhabitants.

MIRZIN, r. Wolfein.

MODBURY, l. 33, r. 1811—1890—863 males; l. 34,
1027 females, 190 families, and 156.

MOFFAT, col. 2, l. 13, r. 1811; l. 14, r. 1824
persons, occupying 334 houses; 850 being males, and 974
females.

MODOCKS, a denomination given to a mob of dis-
orderly people, who traversed the streets of London at
night,
night, and amused themselves with wounding and disfiguring the men, and indecently exposing the women, in the year 1711. A reward of 100 d. was offered by royal proclamation for apprehending any one of them.

MOLD, l. 6, r. 181, the parish, &c. 5083 persons, occupying 1026 houses; 2495 being males, and 2618 females: of whom 217 families are employed in trade and manufactures, and 180 in agriculture.

MOLE. See N. E. Vol.


POLYCARPA and HAGAEA.

MOLTON, South, col. i. 15, r. 1811-520-2739.

Molton, North, an adjoining parish, containing 329 houses, and 1526 inhabitants.

MOLYBDENA. See Mineralogy, Addenda.

MOLYBDENUM, in Chemistry. The specific gravity of this metal, according to Hjelm, is 7.400; but according to Bucholz, who, from the greater heat he employed, obtained it in a more compact state, it is as high as 8.611. According to the experiments of this latter chemist, there are three oxides of this metal, the brown protoxide, the blue or molybdous acid, and the white or molybdic acid. Dr. Thomson, from the experiments of Bucholz, deduces the weight of the atom of this metal to be 60.

MONAHAN, or Monaghan. Add—containing 725 inhabitants.

MONEY. See Political Economy.

MONFALOUT, r. See Manfalout.

MONKTON, l. 2, r. 1248.

MONMOUTH, l. 5, r. even for fix; l. 4, r. 22,150—1501.—Alfo, a town of the district of Maine, in the county of Kennebec, containing 1262 inhabitants.

Monmouth, col. 3, l. 37, r. 1811; l. 38, r. 3393. Add—The number of houses is 661; of which 1630, and of females 1873, of whom 375 families are employed in trade and manufactures, and 146 in agriculture.

MONMOUTHSHIRE, l. 10.—In 1811, the county was returned as containing 11,766 houses, and 62,147 persons; 30,987 males, and 31,140 females: 5815 employed in agriculture, and 4812 in trade, manufactures, and handicraft.

MONONGALIA, l. 2, r. 12,793 persons, of whom 351 were slaves in 1810.

MONOPTERUS, in Ichthyology, a genus of fishes of the order Apodes; the characters of which are, that the body is anguilliform, the nostrils placed between the eyes, and the tail caudal. The only animal of this genus hitherto discovered is the M. Javanicus, blackish, with a very sharp-pointed tail. It is a native of the Indian seas, and is very common about the coasts of Java, where it is considered as excellent food.

MONROE. Add—containing 5444 inhabitants, of whom 376 were slaves in 1810.

MONSON. Add—containing 1674 inhabitants.

Vol. XXIV.

MONTAGUE, Edward, col. 2, l. 8, for fine ships.

Montague, l. 4, r. 934.

Montague. See Montague.

MONTENEGRIN, or called from the Monte Negro, or Black mountain, near Cantaro, have been reckoned amongst the most daring inhabitants of Dalmatia; which fece. The whole number of these, who are scattered over mountains, has been estimated at about 60,000. All profess the Greek religion, but with few remains of superstitious. The Morlacs, and other inland tribes of Dalmatia, are honell and sincere barbarians, and the drels of their vaivodes somewhat resembles the Hungarian. The general peace of Europe has restored tranquility and present security to them.

MONTGOMERY, in America, l. 3, r. 2954, of whom 747 were slaves in 1810; l. 6, r. 41,214, of whom 712 were slaves; l. 10, r. 237; l. 12, r. 595; l. 14, r. 39; l. 15, r. 29,793; l. 16, add—containing 580 inhabitants; l. 17, having 2603 inhabitants; l. 18, r. 8430; l. 19, r. 1666 houses; l. 21, r. 8490 inhabitants, of whom 1099 were slaves; l. 22, r. 15,768; l. 27, r. 28, r. 8026 inhabitants, of whom 662 are slaves; l. 29, r. 12,650 inhabitants, of whom 1691 are slaves. Add—Alfo, a town of Somerset county, in New Jersey, having 2282 inhabitants.—Alfo, a township of Franklin county, in Ohio, having 556 inhabitants.—Alfo, a county of Ohio, containing 7 townships, and 7722 inhabitants.

Montgomery, in Wales, col. 2, l. 35, r. 1811; l. 36, the borough and 322,442 males, and 430 females.

MONTGOMERYSHIRE, col. 6, l. ult. r. 1811—51931—25,375—26,558. Col. 7, l. 1, r. 3164 families; l. 3, r. 6360.

MONTICELLO, a town of Georgia, in Randolph county, having 89 inhabitants.

MONIQUE, a town of Suffolk county, in New Jersey, containing 661 inhabitants.

MONTROSE. In 1811 the burghe and parish contained 1064 houses, and 8955 persons; viz. 3857 males, and 5118 females: 170 families were employed in agriculture, and 1529 in trade, manufactures, and handicraft.

MONTVILLE, l. 5, r. 2187.—Alfo, a town in Maine, in Lincoln county, with 864 inhabitants.

Montville Plantation, a township of the same, having 130 inhabitants.

MOON, a town of Alleghany county, in Pennsylvania, having 1622 inhabitants.

Moon, Half, a township in Centre county, in Pennsylvania, having 560 inhabitants.

Moon, Ferry and Second, two townships of Beaver county, in the same state, the former having 1035, and the latter 1245 inhabitants.

MOONSHEE, an Indian term signifying a letter-writer or secretary, and applied by Europeans to the native who instructs them in the Persian language.

MONSSTERLING, in Geography, a township of Kentucky, in Montgomery county, with 325 persons, of whom 222 were slaves in 1810.

MOORE, a township of Northampton county, in Pennsylvania, having 1108 inhabitants.

MOOSH, the ancient Moxoene, called also Daran, a town of Armenia, occupying a small eminence, washed by the Euphrates, on which is a bridge of fifteen arches: badly built and thinly inhabited; but the adjoining country is fertile and populous. The natives of this district, which is one of the Turkifh pachalics of Armenia, are a degenerate race, and paid to amount to 80,000 souls; 12,000 of whom are Yezedii. Considerable quantities of tobacco and manna are exported from hence.

MORAYSHIRE, col. 4, l. 32, r. 1811—6268—28,108; viz. 12,015 males, and 15,093 females: l. 32, r. 2633 families; l. 34, r. 1896.

MORELAND, l. 2, having 400—other having 1092 inhabitants.

MORETON-HAMPSTEAD. In 1811 this parish contained 357 houses, and 1653 persons; viz. 770 males, and
883 females: 253 families being employed in agriculture, and 43 in trade, manufactures, &c.

Moreton in the Marsh. In 1811 this parish contained 194 houses, and 528 persons; viz. 457 males, and 471 females: 60 families being employed in agriculture, and 91 in trade, manufactures, &c.

MORRISTOWN, a town of Chittenden county, in Vermont, having 405 inhabitants.

MORGAN, a town of Orleans county, in Vermont, having 135 inhabitants.—Also, a township of Greene county, in Pennsylvania, having 1621 inhabitants.—Also, a township of Knox county, in Ohio, having 388 inhabitants.—Also, a county of Georgia, having 2294 inhabitants.

MORIEVILLE PLANTATION, a township of Maine, in the county of Hancock, having 224 inhabitants.

MOROKINNE, r. MOROKINNE or MOROTINNE.

MOROXYLIC Acid, in Chemiftry, a name given by Klaproth to an acid principle obtained from a saline exudation from the morus alba, collected by Dr. Thompson in Sicily. This exudation contained the acid in question in combination with lime. When separated, it was found to possess the following properties:—It exists in the form of needle-like crystals, having the taste of fucinic acid. It is not altered by exposure to the air. It dissolves readily in water and alcohol, and does not, like the moroxylate of lime, precipitate the metallic solutions. It is volatile, and may be sublimed without change; hence this is probably the best mode of obtaining it in a state of purity. The moroxylates are little known, and do not appear to possess remarkable properties.

MORPETH. In 1811 the borough contained 464 houses, and 3244 persons; viz. 1470 males, and 1774 females: 77 families being employed in agriculture, and 529 in trade, manufactures, or handicraft.

MORPHIA, the name which has been given to an alkaline principle exuding in opium; the descripion of which, and of the other principles exuding with it, will be found under opium. See Opium.

MORRIS, l. 3, for five r. ten. Col. 2, l. 6, r. 21, 828—856 were slaves in 1810.—Also, a township of Washington county, in Pennsylvania, having 1759 inhabitants.—Also, a township of Greene county, having 944 inhabitants.

MORRISTOWN, l. 4, r. and in 1810, 3753 inhabitants, 214 being slaves.—Also, a town of Orleans county, in Vermont, having 550 inhabitants.

MORRISVILLE, l. 2, r. Bucks; add; having 961 inhabitants.

MOLLACE. In 1811 the parish contained 346 houses, and 2021 persons; viz. 832 males, and 1189 females.

MOSSE, l. 2, after Nineveh, add—though others think that the village of Nuna, on the opposite bank of the Tigris, pretends the position of this ancient city. It is situated in the pachalic of Bagdad; dele in the province of Dibar-kir, situated:—l. 12, r. 7,—The inhabitants are said to amount to 35,000 souls.

MOTACILLA, r. RUBECULA.

MOTHER-KILL. Add—containing 7445 inhabitants.

MOUTONBOROUGH. Add.—It contained, by the census of 1810, 994 persons.

MOUNT HOLLY, l. 3, r. 922.

MOUNT JEFF, after Lancaster r. county, having 1551; at the close, add:—having 636 inhabitants.

MOUNT PLEASANT, l. 4, add:—having 1105 persons.—Also, a township of Wayne county, with 522 persons.—Also, a township of Washington county, having 1165 inhabitants.—Also, a township of the same state, in Westmoreland county, having 1788 inhabitants.—Also, a township of Jefferson county, in Ohio, with 846 persons.

MOUNT Tabor, a town of Rutland county, in Vermont, with 209 inhabitants.

MOUNT VERNON. Add—containing 1098 inhabitants.—Also, a town of Hillborough county, in New Hampshire, containing 762 persons.

MOULTAGU. Add—See Montague.

MOUNTAIN CORK. See Mineralogy, Aidenda.

MOUNTAINS, col. 7, under Ireland, instead of l. 3, infer.—Siebe, Donard, a mountain in the county of Down—2500. Col. 13, l. 10, r. Varemus.

MUCILAGE. Chemical Properties of. See Gum.

MUCOUS Acid, in Chemiftry. See Salalptic Acid.

MUCOUS Membrane, &c. See Membrane.

MUMBO-JUMBO, a kind of bugbear dressed in a masquerade habit, formed of the bark of trees, and suspended upon a tree at the entrance of the Mandingo towns in Africa. It is much employed by the Pagan natives in keeping their women in subjection; for as the Khairs, or infidels, are not restricted in the number of their wives, every one marries as many as he can conveniently maintain; and as it frequently happens that the ladies disagree, family quarrels sometimes rise to such a height, that the authority of a husband can no longer preserve peace in his household. In such cafes, the interposition of Mumbo-Jumbo is called for, and is always devoured. This strange minister of justice, who is supposed to be either the husband himself, or some person instructed by him, disguised in the above-mentioned dress, and armed with the rod of public authority, announces his coming, when called for, by loud and dismal screams in the woods near the town. He begins the pantomime at the approach of night, and as soon as it is dark enters the town, and proceeds to the bentang (a kind of flag erected in every town, answering the purpose of a town-hall), at which all the inhabitants immediately assemble. Every married female, not knowing for whom the viisit is intended, is alarmed, but when summoned must appear; and the ceremony commences with fongs and dances, which continue till midnight, about which time Mumbo fixes on the offender. This unfortunate victim being thereupon immediately seized, is stripped naked, tied to a poll, and feverly scourged with Mumbo’s rod, amidst the shouts and derision of the whole assembly; and it is remarkable, that the rest of the women are the loudest in their exclamations on this occasion against their unhappy sifter. Day-light terminates this indecent and unmauly revel.

MUN, col. 2, l. 3 from bottom, for many-mothered, for r. many-mothered fon.

MURANA, col. 3, r. Myrus.

MURIMATE of ammonia. See Sal Ammoniac.

MURIATIC Acid, Muriates, in Chemiftry. See Chlorine.

MUSCI, col. 8, l. 18, r. Shrinks; l. 7 from bottom, r. exfus.

MUSHROOMS, Chemical Properties of. See Fungi.

MUSKINGUM, l. 5, add.—This county has 11 townships, and 10030 inhabitants.

MUSOPHAGA, PLANTAIN-EATER, in Ornithology, a genus of birds of the Pice order; the characters of which are, bill stout, triangular; the upper mandible elevated at the base, above the front; both mandibles dentated at the edges; nokrls in the middle of the bill; tongue entire, thickish; feet with three toes before and one behind. This genus is constituted by the blackish-violet plantain-eater, with crimson crown and quill-feathers, and at white stripe beneath the eyes. The bird, which is highly elegant, is
MYL

of African origin, and is found in the province of Acre in Guinea, and is said to live principally on the fruit of the mufa or plantain-tree. Dr. Shaw, in the Museum Leverianum, has described this bird as a species of cuckoo, under the name of Cuculus regius; but in his Zoology it is a distinct genus.

MUSTELA, col. 3, under B. r. BARBARA, Guiana weafel; l. 3, r. Guiana.

MUSTELA, in Bones, in memory of Mr. Muifol, who wrote, in Phil. Tran. v. 63, one " New Observations upon Vegetation."—Sprengel Tr. of Linn. Soc. v. 6. 152. t. 13.—This plant is said to differ from Eupatorium, (fee that article,) in having five minute scales accompanying the brilfly feed-crown. How far such exit in any Eupatorium, or not, and whether they ought to make a generic distinction, merits inquiry.

MYLOCARYUM, from μυλος, a mill, and καρυων, a nut, alluding to the four spreading wings of the feed.—Wild. Enum. 454. Pursh 303. (Walteriana; Frazer's Cat.)—Clafs and order, Decandria Monogynia. Nat. Ord. Erice, Jiff.


MYT


MYOXUS. At the close, add—Dr. Shaw enumerates some other fpecies, such as the Chryfurus, or gilt-tailed D, the M. guerlingus, or guerlinguet, and the African, or earlfs Dormont.

MYRIANDRUS. Add—According to Xenophon, it was a Phocian city, a mart-town, and many merchant-flips lay at anchor before it.

MYRICIN, in Chemifry, a name given by Dr. John to the infusion which remains after bees-wax, or the wax of the myricia cordifolia, has been heated with alcohol. This infusion is soluble in water, ether, and alcohol, both hot and cold. It is soluble in the fixed and volatile oils, and does not precipitate from the former of thee. It melts between 100° and 140°, and is somewhat glutinous, but of the conftence of wax. Its fp. gr. is 0.900.

MYTHOLOGY of the Hindoos, l. 26 from bottom, for flowers r. flores.

N.

NACHITOCHES, l. 2, after Orleans, add—and in the territory of Orleans; its inhabitants in 1810 being 2870.

NACOGDOCHES, a small town of Louisiana, situated in N. lat. 31° 27', W. long. 24° 17', on the Arroyo de la Nana, in a beautiful, healthy, well-watered country. This small town, and a few farms in the vicinity, are hitherto the only improvement made by the Spanish emigrants after the revolution of 98 years. A tribe of Indians, called Nacadoes, resides about 30 miles N. of Nacogdoches, upon the head-waters of the Angelina, where they were found near a century ago by the French and Spaniards. The Nacadoes are a poor inoffentive race, in peace with all their neighbours, both white and black.

NAGA, a name of the Hindoo mythological serpent, otherwise called Sija; which fee.

NAGANTEKA, in Hindoo Mythology, is a name of the hypogrii Garuda, the vehicle of the god Vishnu. It means the destroyer of ferpents. Another of its names is Sufervas, which fee.

NAIRIT, is one of the eight regents of the winds, or points of the heavens. He rules the fourth, west quarter, and is subordinate to Indra, regent of the firmament. (See Indra.) These rulers of the cardinal and intermediate points are sometimes called Maru (which fee). See also Virupaksha, meaning a difagreeable countenance.

Another of his names is Karbara. He has a sakti or conflfort affigned him, usually named Nirriti; which fee.

NAIRN, l. ult. for 632 r. 613.

NAIRNSHIRE, col. 2, l. 46, number of houses was 1746, and the inhabitants, &c.

NAKAL, one of the champions of the Hindoo heroic poem, entitled the Mahabharat (which fee). As that poem is supposed to be allegorical, and to reprefent the conflicts between man's virtues and vices, Nakal, one of the five sons of Pandu, is said to be a perfonification of temperance, and is made the twin-brother of Sahadeo, or chaflty. Other commentators make them to repreffent beauty and wisdom. Their mother was Maderi, a wife of Pandu; which fee.

NAKSHATRA, in Astronomy, is the name given by the Hindoos to the manifons which they affign to the moon. They seem to be the same, though not exactly coinciding, with the lunar ratures of the Arabians, which they call marzil. The " Nakshatras, or alteriims, marking the moon's path," are twenty-seven or twenty-eight in number. A table of them is given in the ninth volume of the Asiatic Reaches, by Mr. Colebrooke, the president of the Asiatic Society. See also the second volume of the fame work, together with the Indian zodiac, accompanied by an effay on its antiquity, by fr W. Jones.

The Hindoos affcribe the invention of their solar and lunar
NAR

Lunar zodiacs to Daksha, who is mythologically represented as a son of Brahma, and they then give a free rein to their poetical imaginations, representing the Nakhathras as the daughters of Daksha.

NALA, in Hindo Romance, is a periphrase of considerable import, though described as an ape. Others begat by the divine architect Vīsnučarma (which see); and he is said in the Ramayana to have been the builder of Rama's bridge, usually called Adam's bridge, from the continent to the island of Ceylon, or Lanka. See Ceylon and Lanka.

NAMUKI, is the name of a friend and companion of Indra, the regent of the firmament.

NANCEmond. See NANCEMOND.

NANDANA, the name of the garden, or city, assigned by Hindoo fabulists for the delightful residence of their demigod Indra, the regent of the firmament. (See Indra.) There are four cities or gardens of this name, and three of them are said to belong to Gandeh, or Pattear. One of them is called Sva-nandana-puri, the self-delighting city; nandana meaning delightful or happy.

NANDI, in Hindoo Mythology, is the name of the bull on which the god Siva rides. The bull, with the Hindoos, is the symbol of divine justice, as it is able of generation or production. See Siva.

NANCEMOND, l. 4, r. 10; 324—4462.

NANTICOKE, l. 2, r. 2843 inhabitants, including 192 slaves in 1810.

NANTMILL for NANTRILL, l. 2, add—the former contains 1544, and the latter 1188 inhabitants.

NANTUCKET, l. 13, r. 6807.

NARAKA, one of the receptacles for sinners, or hells of the Hindoos. Of these, they have at least seventy-one; and their names are given in the Inf. of Menu, c. iv. v. 88, 89, 90.

Naramedha, a term in the Sanskrit language signifying the facrice of a man. It cannot be doubted that human sacrifices were formerly offered by some tribes of Hindoos, although it is said, and may be reasonably believed, that in these days the practice is wholly discontinued. (See Ruman.)

Tour goddes Parvati, or Bhavani, the consort of Siva, under her name of kali, or black goddes, these offerings, it would appear, were usually, if not always, made. The rules and regulations for this horrid facrice are laid down in a chapter, emphatically called the fanuginary chapter of the Kalika-Purana, which has been translated by Mr. Blaquiere, and published in the fifth volume of the Asiatic Recherches, art. xxiii. No religious rite can be more minutely ordained and detailed.

Although it must appear evident, that human sacrifices were formerly legal and practised among Hindoos, they are most pointedly prohibited in very ancient, as well as in more modern books; such prohibition is, indeed, a farther, and of itself sufficient proof of the existence of the practice. In the Brahma Purana, (see Purana) every Naramedha, or manfacrice, is expressly forbidden; and in the fifth book of the Sri-Bheegasut, (see that article) Sir W. Jones has pointed out the following emphatical words: "Whatever men in this world facrice human victims, and whatever women eat the flesh of male cattle, those men and those women shall the animals hereafter torment in the mansions of Yama, (see Yama,) and, like slaughtering giants, having cleaved their limbs with axes, shall quaff their blood." (See Asiat. Recherches, vol. iii.)

In the first Veda an emblematical or vicarial facrice is ordained, in which men and animals are the victims, but are releaved after certain ceremonies.

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NARASINGHA, in Mythology, is the designation of the fourth avatar or incarnation of the Hindoo deity Vishnu. It means literally man-lion, such being the form in which this dect is related to have taken place.

Sir W. Jones furnishes that this avatar, and the following of Vamanara, (see Vamanavatar) were allegorical references to the two prehuman monarchs Namrod and Belus, under the names of Hiranayasakipu and Beli, the former name meaning with a golden axe; or, according to other authorities, clad in gold. Hind. Panth. Af. Ref.

The three avatars, or dect of Vishnu on earth, preceded that which is the subject of this article, were the Matya or fish, the Kuru or tortoise, and the Varaha or the boar; under each of which words, having the common denomination of avata or pell, some account of them will be respectively found. A list of the ten grand dect, or dasavatara, will be found under the article VishnU. This is sometimes written Nri Sinha.

Narasinh, Narasimha, or Nrsinbhi, is the name given to the Hindoo goddes Lakshmi, who became thus incarnated to accompany her lord Vishnu in his avatar or dect of Narasinha, as sufficiently explained under that article, and the others thence referred to.

Narayana, a periphrastic of rather a bold and apparently reprehensible nature. "The waters are called nar, because they were the first production of Nara, or the Spirit of God; and since they were his first ayens, or place of motion, he is thence named Narayana, or moving on the waters." (See Menu.)

On the whole, Narayana seems to refer in character more to Vishnu than to any other of the Hindoo deities.

Narayan, a name and form of the Hindoo goddes Lakshmi. In this character, she is considered as the Sakti or confort of Narayana; which see, and Matth.

NARBETH, l. 9, r. 388.

Nareda, or Narada, in Hindoo Mythology, a periphrase among the Hindoos, deemed the mythological offspring of Brahma and Sarawati. In the popular histories of Krishna, Narada is represented as his humble friend, on whom hepalads many practical and whimsical jokes, metamorphosing him into a woman, &c. But in more serious books, his character is more corresponding with the magnificence of his origin. He is represented as a wife legislator, great in arms, arts, and eloquence; and, indeed, of such historical celebrity, that his actions are the subject of a Purana, named after him; some account of which is given under Purana. He was also an astronomer, and an exquisite musician. Hence Sarawati, the patrons of science and harmony, is said to have been his mother. He farther invented the vina, a sort of lute, which sir W. Jones remarks as a singular fact, otherwise called katepni, having the name meaning ejoyd; and Narada being also a frequent messenger of the gods, to one another, or to favoured mortals. His character, in these and other points, resembles that of Hermes, or Mercury.

NASH, l. 2, r. 7268—2897.

Nastick, in Phillips, the name of a sceptical sect of Hindoos. The word in the Sanskrit tongue means negative, and is intended to designate those who do not believe the Veda. Individuals of more orthodox sects call the Nasticks, materialists and atheists.

Nasturtium, in Botany, (see our former article) is now adopted to designate the Water-cres and its allies, separated by Mr. Brown from Sismbrum, (see that article;) sect. 1.—Br. in Ait. Hort. Kew. v. 4. 169.—Clafs 4 E.

Eff. Ch. Ped. nearly cylindrical; valves concave, without rib or keel.

*N. officinalis*, (Sisyfr. Naturtium; Linn. &c.), with *fleshyfr., terryfr., amphibus, pyrenicum*, and *faggittare*, are the species mentioned in Hort. Kew. We have already described all but *pyrenicum*, which is a well-known species.

NATICK, 1. * adv. r. in 1810, contained 766.

NATRON. See *Mineralogy, Addenda*.

NATUNZ, in a town of Peria, in the province of Irak, 63 miles from Iphshon, and 43 from Cuthan, situated on a very delightful spot, in a valley surrounded by high and rugged mountains, and famous for the salubrity of its climate. It is inhabited by Jews and handfome females. It has a fort in the centre of the valley, an excellent warm bath, and an old mosque, with a very handsome mineral, said to have been built 300 years ago.

NAVY. Add—having 56 inhabitants.

NAXIA, 1. from bottom, after villages, add—Dr. Clarke (in vol. vi. of his Travels) states the whole population of the island, including women, at 18,000 persons, about 3000 of whom are Latins, and the rest Greeks.

NAZARETH, 2. at the close, 1. 34. add—Lower Nazareth is a township containing 475, and Upper Nazareth is a township in the same county and state, containing 535 inhabitants.

NEATH, col. 2, 1. 5. r. Saturday for Thursday; 1. 6. add—It has three fairs; 1. 12. r. was for is.

NECYDALIS, Minor, add—in fields and about hedges in the summer months. *Cruella*, add—in woods during the summer months.

NEEDHAM, 1. 7. r. 1897.

NEJIFF, or Meshed Ali, a holy city, being the supposed burying-place of the caliph Ali, a town of the pachalic of Bagdad, nine furlongs from Hilleh, and four miles from Kufa, situated on a hill, at the bottom of which is an artificial lake. It was founded by Alexander the Great, and bore the name of Alexandria, which was afterwards changed into that of Hira, when it became the residence of a dynasty of Arabian princes, who fought under the Parthian banners against the emperors of Rome. Nejiff is not so large as Kerbela, but better built, and defended by a good wall, deep ditch, and lofty towers, lately renewed, under the apprehension of an attack from the Wahabees, who extend their ravages to the gates of the town. The tomb and mosque of Ali occupy an ample space in the middle of the city, and form a handsome structure, within a high wall, which an infidel subjects himself to death for attempting to pass. The governor of Meshed Ali is a Turk, but the population, not easily estimated on account of the confiding influx of pilgrims, is like that of Kerbela, chiefly composed of Persian fanatics. The relics of almost all persons of rank are transported from the most remote parts of Persia to be interred either here, or at Kerbela, Kazameen, Koom, or Meshed in Khorasan.

NELSON, 1. 2. r. 184, 579 —2908. Add—Alf, a county of Virginia, containing 968 inhabitants, of whom 467 were slaves in 1810.


Eff. Ch. Calyx in five deep segments. Corolla spurred at the base; throat closed by the palate. Capsule compressed, of two cells, and two boat-like valves; partition linear, covered with seeds.


2. *N. bicornis*. Horned Nemedia. Ait. n. 2. See Antirrhinum, n. 24. (Linaria; Burm. Ait. vol. vi. t. 75, f. 3.)—Leaves lanceolate, with tooth-like serratures. Clutfer terminal, rather lax.—From the same country. Annual. The specific name applies to the capsule.


NEPANESE, in Geography, a townhip of Lycoming county, in Pennsylvania, having 298 inhabitants.

NEPER, 1. 1. 2. 22 from bottom, for Nepé's rods r. Nepé's bones.

NEPHELINE, or Somerite. See Mineralogy, Addenda.

NEPHRITE. See Mineralogy, Addenda.

NERANTEK, in Hindoo Mythology, is the name of a malignant demon, mentioned often in their heroic poems, slain by Kriyuna, and by other divine warriors. The name generally means destroyer of men.

NERKA, one of the many hells of the Hindoos. See Naraka.

NEROS, in Chronology, an ancient Chaldean period of 600 years, and equal to the Sosos of 60 years multiplied by 10.

NESENPACK, in Geography, a township of Luzerne county, containing 460 inhabitants.

NESEHNACK, a township of Mercer county, in Pennsylvania, having 700 inhabitants.

NETCHEZ, or western branch of the Sabine, a river of Louisiana, formed from the united streams of the Ange- linia, Attoquaque, Nena, and the Attacocit. The Netchez, though not so long as the Sabine, exceeds it as to quantity of water. The lands watered by this river, and its tributaries, are of superior quality to the country on the Sabine; but barren compared with those on the margin of many rivers in Louisiana.

NETTING. Add—The netting is used in different parts of a ship; thus, the *boarding-netting* is thrown over the hatches to prevent the enemies boarding. *Bowsprit-netting* is fastened near the outer end of the bowsprit, to the man-ropes or hores, to flow away the fore-topmasts, jib and jib. *Bowsprit quarter and waist nettings* are used to keep the hammers in the flanks. *Head-netting* is fastened to the horset and upper rail, to prevent the men from falling overboard. *Quarter-deck netting* is suspended over the officers' heads, to prevent any thing falling thereon. *Top-netting* is fastened to the rail, throuws, and top, to prevent the men from falling.

NEWARK, in America, 1. 2. add—having 88 inhabitants; 1. 12. add—and in 1810 contained 8000 inhabitants, of whom 360 were slaves.

NEW BRAINTREE, 1. 2, after Worcester, infelt—Massachu-
NEWBURY, or NEWBURY, l. 2, add.—It contained, in 1810, 13,604 persons, of whom 4006 were males; l. 3, r. 1706; l. 10, r. 1365; l. 13, r. 5176.

NEW CANAAN, a town of Fairfield county, in Connecticut, containing 1599 persons.

NEWCASTLE, l. 5, r. 9 hundred, and 24,429; l. 6, r. 1087; l. 16, add.—It contained 2340 inhabitants, including 1748 males; l. 19, r. 592; l. 26, r. 1232. At the close, add.—Alfo, a township of Muskingum county, in Ohio, containing 370 persons.

NEWCASTLE-in-EMLYN, col. 2, l. 2, for Saturday r. Friday. Add.—A few miles below the town is a beautiful salmon- leap.

NEW CHESTER. Add.—containing 895 inhabitants.

NEW DURHAM, a town of Strafford county, in New Hampshire, having 888 inhabitants.

NEW FAIRFIELD, a town of Connecticut, in the county of Fairfield, having 772 inhabitants.

NEW-FANE, l. 3, r. 1276.

NEWFIELD, a town in Maine, in the county of York, with 815 inhabitants.

NEW GRANTHAM. Add.—containing 864 inhabitants.

NEW HAMPSHIRE. Add.—See United States.

NEW HAMPTON, l. 4, add.—and contains 1293 inhabitants.

NEW HARTFORD. Add.—containing 1507 inhabitants.

NEW HAVEN, in America, l. 4, r. 18; l. 5, r. 1810; containing 37,064 persons. For other particulars, besides those which have been mentioned, see New Haven, and United States.

NEWINGTON, l. 3, r. 508.

NEWINGTON, Stoke, a village of the county of Middlesex, in the Finchbury division of Essex hundred, and parish of St. Mary’s. In 1811 the parish contained 342 houses, and 2149 persons; viz. 990 males, and 1159 females.

NEW KENT, l. 3, r. 6478 inhabitants, of whom 3725 were males in 1810.

NEWLIN. Add.—containing 780 inhabitants.

NEW LONDON, l. 4, r. 14; l. 6, r. 1810—34,707—77; l. 14, r. 3238; l. 26, r. 692. At the close, add.—Alfo, a township of Pennsylvania, in Chester county, containing 1018 persons.

NEW MARKET, in America, l. 3, r. 1651. Col. 2, l. 1, add.—Alfo, a township of Highland county, in Ohio, containing 978 inhabitants.

NEW MILFORD, l. 7, add.—In 1810, the inhabitants were 5573. At the close, add—It has 797 inhabitants.

NEWPORT, in Cornwall. In 1811, the parish of St. Stephen’s contained 159 houses, and 856 persons; viz. 433 males, and 423 females.

NEWPORT, col. 1, l. 4, r. 1427; l. 7, r. 16,294; l. 19, r. 7907. Col. 2, l. 9, add.—containing 566 inhabitants. Add.—Alfo, a township of Washington county, in Ohio, having 323 inhabitants.

NEWRY, a township of the district of Maine, in the county of Oxford, having 202 inhabitants.

NEWTON, l. 3, r. 1709; l. 5, add.—Alfo, a township in Bucks county, having 902 inhabitants:—l. 8, r. 454; add.—Alfo, a township of Delaware county, in Pennsylvania, containing 601 inhabitants.—Alfo, a township of Cumberland county, in the same state, having 1312 inhabitants.—Alfo, a township of Miami county, in Ohio, having 556 inhabitants.—Alfo, a township of Muskingum county, in Ohio, having 802 inhabitants.—Alfo, a township of Trumbull county, in Ohio, having 490 inhabitants.

NEWTON-NOTTAGE, a parish formed by the hamlets of Newton and Nottage, situated in the county of Glamorgan, near the Bristol Channel. In 1811, the former hamlet, at a small distance from Pyle, that lies in the road between Cowbridge and Neath, contained 55 houses, and 254 persons; viz. 117 males, and 137 females: and the latter contained 43 houses, and 217 persons; viz. 107 males, and 110 females.

NEWTOWN, l. 3, containing 2834 persons; l. 14, having 1951 inhabitants; l. 17, and 2082 persons; l. 25, add.—See Newton; l. 27, add.—See also Newton.

NEW VINEYARD, l. 1, for Kennebec r. Someret. Add.—containing 484 inhabitants.

NEW YORK. See New York.

NIAGARA, l. 1, infert—a county, &c. l. 2, add.—the county including 8971 inhabitants.

NIBBED-HOOKS, in Rope-making, are iron winches used to hang the yarn on to harden, and to lay small ropes on.

NICHOLAS, l. 2, r. 4338 inhabitants, 569 being males.

NICKEL, in Chemistry. The weight of an atom of this metal, according to the recent determinations of Dr. Thomson, is 33.75, from which datum the composition of its falls may be easily ascertained. See Atomic Theory.

At the end of the article in the Cyclopaedia, add.—From the experiments of Tapperti, it appears that preparations of nickel poiffes poisonous properties.

NICKEL-ORE. See Mineralogy, Addenda.

NICOTIN, in Chemistry, the name which has been given to a peculiar principle in the leaves of the Nicotiana Latifolia, or Tobacco, and to which that plant owes its peculiar properties. This substance was obtained by Vauquelin from the juice, by a process sufficiently complicated. When pure it is colourless. It has an acrid taste, and the peculiar smell which distinguishes tobacco. It occasiona violent freezing. It is soluble both in alcohol and water; the solutions are colourless, and distinguished by the peculiar taste and smell of nicotine. It is precipitated from its solutions by tincture of nut-galls. It is volatile, and somewhat resembles in short the volatile oils in its properties. It poiffises poisonous properties. See further in the Annales de Chemie, lxxxi. 139.

NIGER. Add.—It has been supposed that the Niger terminates in the Nile; but this hypothesis, though maintained by several modern travellers, viz. Hornemann, Jackson, &c. is the most unfounded of any, and the least conformant with acknowledged facts. The supposition adopted by Mr. Park is, that the Niger terminates in the river Congo, or, as it is sometimes called, the Zaire; which see. Another supposition, respecting the termination of the Niger, is that of a German geographer, Mr. Reichard, published in the “Ephemerides Geographiques,” in August 1808, who represents the Niger, after reaching Wangara, as seeking a direction towards the south, and being joined by other rivers from that part of Africa, taking a great turn from thence towards the south-west, and pursuiving its course until it approaches the north-eastern extremity of the gulf of Guinea, whence it divides and discharges itself by different channels into the Atlantic; after having formed a great Delta, of which the Rio del Rey constitutes the estuary of the Rio Formoso, and Benin river the western branch.

N'LA, in Mythology, is one of the many names of the Hindu goddes Parvati. The word means blue or dark-azure, and is one of the Sanscrit names for the Nile, as is also Kali.

NILAKANTHA, a name of the god Siva, meaning blue-throated, similar to Shitakantha, or Shitakoontha, under which word some account is given of the origin, &c. of the apellation.

NILE, in Geography, a town of Ohio, in the county of Scioto, having 3,360 inhabitants.

NIMMISHITAN, a township of Ohio, in Stark county, having 385 inhabitants.

NIODER, in Ancient Mythology, was, according to the historians who acquire in the authority of Diodorus Siculus and Apollodorus, the daughter of Tantalus, and sister of Pelops. Pelops, removing from Phrygia, carried his sifter with him to that part of Greece which afterwards took his name; and for the security of his new dominions, married her to Amphion, a prince eminently powerful and eloquent, who fortified Thebes with walls. Niobe became, in consequence of that marriage, the mother of a numerous progeny; and was thus led to despise Latona, who in revenge induced Apollo and Diana to put all her children to death, in the manner related by Ovid and Phytarch. This epistle, as it is said by some writers, contains a history no less true than tragic. The city of Thebes was defolated by a pestilence, which destroyed all Niobe's children; and as contagious distempers have been attributed to the immediate heat of the sun, it was reported that Apollo flew them with his darts. Niobe, after the death of her children, and husband, who, overpowered with grief, destroyed himself, returned to Lydia, and ended her days near mount Sipylos, upon which was seen, according to Pauflanias, a rock that, viewed at a distance, resembled a woman in deep melancholy and distress. Sophocles, in his Antigone, says, that this princess was not at first transformed into a stone; but that the gods, at her request, granted her that favour afterwards. The fame poet, in his Electra, says, that Niobe sheds tears in a tomb of stone.

NIPPER, in Rope-making, is formed of two flat plates, through which the yarn passes from the tar-kettle, which are so adjusted by weights and a lever, that the yarn receives no more tar than is required, and what is squeezed out drops into a trough and returns into the kettle.

NIRRITI, is the name of a Hindu deity, comfort or father of Nirit or Nairit. (See the latter article.) She shares with her husband the regency of the south-west quarter of the heavens.

NISHAPOUR, anciently the greatest and richest city of Khorasan in Persia, and one of the four royal cities of the province, is seated on a plain, formerly irrigated by about 12,000 aqueducts, which have fallen into decay. It is said to have been founded by Taimuras, and destroyed by Alexander the Great. After the lapse of many years, it was rebuilt by Sapor I., and its statue was seen in it till the Arabs destroyed it. This city was taken in the 548th year of the Hegira by the Tartars, who completely ruined it, that when the original inhabitants returned to the possession of it, they could not distinguish their own houses. After having regained its former splendour, it was again taken and pillaged by the Tartars under Gengis Khan; so that the present inhabitants do not exceed the number of 15,000. The ruins of the city are nearly ten furlongs in circumference. It is at present subject to the dominion of the king of Persia, and has nine districts dependent upon it, each of which has about ten walled villages. The fruits are abundant and delicious.

NITRE, Native. See Mineralogy, Addenda.

NITRIC ACID, NITRATES, &c. in Chemistry. The correct proportions in which azote and oxygen combine, will be found in the tables appended to ATOMIC THEORY, to which therefore we refer our readers. We shall only state here the composition of nitric acid, which is azote oxygen + 1 atom azote: hence the weight of its azote is 67-5, from which datum the composition of the nitrates can be accurately determined.


Ten species are described, all shrubs, natives of hills at the Cape of Good Hope. Leaves scattered, doubly pinnatifid, thread-shaped; the upper ones, in fix of the species, undivided and flat. Flowers (piket, capitate, bracteated, purplish.—Four species are mentioned in Hort. Kew.


3. N. spicata, and N. crithmifolia, the latter P. Lagos; Andr. Repof. t. 243, have all the leaves doubly pinnatifid.

NOBLEBOROUGH, l. 3, r. 1206.

NOCK, the foemft upper corner of boomsails, and of stayfoils cut with a square tare.

NOCKAMIXON, l. 2, r. 1290.

NOCTURN, LITURGIC, the divine office of the night, as distinguished from that of the day. The latter consists of the seven canonical hours, the former of three noontimes, each consisting of several psalms, lefions, &c.; and it was heretofore customary to interrupt the sleep three different times for the performance of them.

NOOTH'S Apparatus. See Laboratory.

NORFOLK, col. 2, l. 15, add.—By the parliamentary returns in 1811, this county contained 33,000 square miles, 3 foothills, viz. king's Lynn, Titchford, and Great Yarmouth, and one city, viz. Norwich; 6,774 houses, occupied by 3,999 persons; 138,089 being males, and 153,910 females; of whom 31,454 families are employed in agriculture, and 25,082 in trade and manufactures.

NORFOLK, in America, l. 4, r. 22; l. 6, r. 31,245; l. 8, r. 18,579-567; l. 4 from bottom, r. 1441.

NORMAN. Add.—Allo, a square or of oak, or short carving, fixed through the head of the rudder of East India ships, to prevent the loss of the rudder, in case of its being unhitched. Allo, a short wooden bar with a head, used in one of the holes of the windlass when there is little strain on the cable.

NORRIDGEWOCK, l. 2, add—and county of Somerset; l. 3, r. 880.

NORTH BEAVER. See BEAVER.
NOR

NORTH-WEST Fort, a hundred of Suffolk county, in the state of Delaware, containing 3293 persons, of whom 38 were slaves in 1810.

NORTH-WEST Passage, l. 15; after Labrador coast, add—nor of the Corteles of Portugal in 1500, nor of the Cartiers and others from France in 1568 and 1534; nor of Gomez, &c. from Spain in 1524, &c. nor of Sir Hugh Willoughby in 1533, of Richard Chancellor and Steven Burrough in 1555 and 1556—l. 19, such as Edward Fen ton in 1577, Arthur Pet and Charles Jenkinson in 1580, sir Humphry Gilbert in 1583, John Davis in 1585, 1586, and 1587, Cornelis Cornelison, Brands Vibrants, and William Barentz in the United Provinces, in 1595 and 1596, William Adams in 1596, George Wy emouth in 1602; James Hall in 1605—7, John Knight in 1606, Henry Hudson in 1607—9—10, sir Thomas Batlon in 1612, James Hall in 1612, Gibbons in 1614, Robert Bylot in 1615, Bylot and William Baffin in 1616, Jens Mank, a Dane, in 1619—20, and, after the failure of Samuel Hearne in 1760, 1770, Conflation John Philp (lord Mulgrave) in 1775, captain Cook, &c. Col. 2, l. 59; add—our limits will not allow our detailing the voyages of captain (now admiral) Lovewen, lieutenant Egede, and lieutenant Rothé, Danes, in 1786 and 1787, nor the travels of Alexander Mackenzie in 1789, nor the travels of Charles Duncan in 1790 and 1791, nor the discoveries made by the Ruffians on the northern coast of Siberia during the 18th century, nor the voyages for further discovery, undertaken in the early part of the 19th century by lieutenant Kotzebue in 1815 to 1818, of John Ross, David Buchan, William Edward Perry, and John Franklin in 1818. Add to the references—Barrow's Chronological History of Voyages into the Arctic Regions, &c. 8vo, London, 1818.

NORTHAMPTON, col. 9, l. 7, for 1623 r. 1756.

NORTHAMPTON, in America, l. 4, r. 32—38,415; l. 5, r. 1756; l. 6, r. 710; l. 10, r. 13082; l. 11, r. 7258; l. 17, r. 7454; l. 18, r. 3350. Col. 2, l. 2, r. 2631. Add at the close—In 1810 it contained 4717 inhabitants.

NORTHAMPTONSHIRE, l. 24, r. 28,318. Add—68,279 being males, and 73,074 females, of whom 14,100 families were employed in trade and manufactures, and 15,235 in agriculture.

NORTHBOURGH, l. 3, r. 794.

NORTHBRIDGE, l. 3, r. 713.

NORTHFIELD, l. 3, r. 426; l. 6, r. 1218; l. 10, r. 1057.

NORTH HAMPTON, l. 2, r. 651.

NORTH HAVEN, l. 4, r. 1239.

NORTH HERO. See Hero.

NORTH KINGSTOWN, l. 5, r. 2957; l. 6, r. 7 slaves in 1810.

NORTHER PORT, l. 2, r. 780.

NORTH STANNINGTON, a township of New London county, in Connecticut, having 2524 persons.

NORTHUMBERLAND, in America, l. 1, for Grafton r. Coos; l. 4, r. 281; l. 7, r. 26, r. 36,537; l. 15, r. 8388 inhabitants, of whom 3847 were slaves in 1810.

NORTHWOOD, l. 5, r. 1595.

NORTH YARMOUTH, l. 5, r. 3295.

NORTON, l. 3, r. 1596.

NORTHWALK, col. 2, l. 1, r. 2983.

NORWAY, l. 3, r. Oxford; l. 4, r. 1010.

NORWEGIAN, a township of Berks county, in Pennsylvania, having 415 inhabitants.

NORTHWICH, col. 7, l. 39; add—By the parliamentary returns in 1811, the city of Norwich contained 8336 houses, occupied by 37,256 persons; the males being 15,664, and the females 21,592: of whom 8410 families were employed in trade, manufactures, and handicraft, and 388 in agriculture.

NORWICH, in America, l. 3, r. 1812; l. 5, r. 968; l. 17, r. 2976 inhabitants. Norwich, except the city, contains 552 inhabitants.


Eff. Ch. Valves of the pod horned at the back, near the top. Cotyledons accumbent. Calyx nearly erect, equal at the base.

1. N. canariensis. Canary Horn-cress. Ait. n. 1. (Ery simum bicorne; Ait. ed. 1. v. 3. 304. Wild. Sp. Pl. v. 3. 514.)—Brought by Mr. Masson, from the Canary islands. A small, branched, annual plant, covered with close bristles; the leaves lanceolate, entire; flowers yellow, minute.

NOTTINGHAM, in America, l. 3, r. 1063; l. 6, r. containing 2615 inhabitants. Add—Alto, a township of Washington county, in Pennsylvania, having 2037 inhabitants. Alto, a township of Ohio, in Tuftacaw county, having 452 inhabitants. Col. 2, l. 2, r. 1376.

NOTTINGHAMSHIRE, l. 16, r. 31,544; l. 17, after number, add—the males being 79,057, and females 85,843.

NOTTOWAY, a county of Virginia, containing 9273 inhabitants, of whom, in 1810, 6568 were slaves.

NUMBERS, col. 2, l. 2, after “a” and 220 + infect “220 +.,” Col. 18, &c. x^2 = - x.

4.

NUMBERS, Planetary, col. 5, l. 10, for 25d 24h 8m r. 25d 1h 8m. Col. 6, l. 17 from bottom, for successful r. suc cessive. Col. 21, l. 26, for 2064, 2064.

4355 3355

NUX VOMICA, Chemical Properties of. MM. Pelletier and Caventon, in analyzing the nux vomica and St. Ignatius's bean, observed a new vegetable alkaline substance, having the following properties.

It is slightly soluble in water, very soluble in alcohol, reffores the colour of turnifole after it has been reddened with an acid, does not redden turmeric, combines with acids which it furatates, and forms with them cryflalizable salts. The discoverers have suggested the name: Vauqueline for this substance, in honour of the celebrated chemist Vau quelin, who is laid to have first discovered the alkaline properties of a substance obtained by him from the dophine alpina.

NYCTERIUM, in Botany, a genus entirely artificial, made by Ventenat in Hort. Malmaign. 85; out of such species of SOLANUM, (fee that article,) as have irregular flowers.—Sims in Curt. Mag. 1801.—M. Dunal has very judiciously, as we presume to think, kept Solanum entire.
OIL

OAKHAM, in America, l. 3. r. 848.

OBSIDIAN. See Mineralogy, Addenda.

OCATAHOOTA, in Geography, a parish of New Orleans, in Louisiana, resembling in its foil and produce Ouachita; which see.

OCTOMERIA, in Botany, one of a portion, or supply, because of the eight malleus of pollen.—Brown in Ait. Hort. Kew. v. 5. 211.—Clás and order, Gymnandra Monandria. Nat. Ord. Orobideae.

Eff. Ch. Lip articulated with a kind of claw which bears the petals. Anther a moveable deciduous lid. Malleus of pollen eight.

We know not of how many species this genus is composed. One only occurs in Hort. Kew.

1. O. graminifolia. Grass-leaved Octomeria. Ait. n. 1. (Dendrobium graminifolium; Willd. Sp. Pl. v. 4. 135. Epidendrum graminifolium; Linn. Sp. Pl. 1355. Hellevborne graminea repens biflora; Plum. Ic. 1711. t. 176. f. 1. )—Stem elongated, bearing one lanceolate leaf, and a pair of itselfed flowers. Root creeping.—Native of the West Indies; imported by Rear Admiral Bligh, in 1793. Few botanists have gathered or examined this plant. Burmann, without much fagacity, thought it a Convallaria.

OGHAM, col. 3, l. 30, for Dixfrt r. Dixfrd, and for bnfîdth r. bnsîdth.

OGETHEROE, l. 3, containing, with its town Lexington, 12,297 inhabitants, of whom the slaves in the county are 5,232, and in the town 113.

OHIO, l. 8, add—Bradbury, in his "Travels," estimates the area of the Ohio flate at 43,380 square miles, and its population at 230,766 souls: so that by this statement there was, in 1810, only one inhabitant in one and a half square mile, and allowing 640 acres to the square mile, one inhabitant in every 900 acres. At the close, add—For a later and more correct account of the number of counties and amount of population in this state, see United States. Col. 5, l. 3 from bottom, add—This river derives its waters from an area of 108,464 square miles, four times the extent of England and Wales, the surface of which is suppos'd to be 49,450 square miles, and comprehended between the parallels of 35 and 43 degrees of latitude.

Ohio, county of Virginia, l. 4, r. 8475 inhabitants, of whom 440 were slaves in 1810; l. 6, r. 3682; l. 7, r. 497. Add—Also, a township of Allegheny county, in Pennsylvania, having 832 inhabitants.—Also, a township of Beaver county, in Pennsylvania, having 1128 inhabitants.—Also, a town of Ohio, in the county of Clermont, having 1803 inhabitants.—Also, a town of Gallia county, in Ohio, having 350 persons.—Also, a township of Knox county, in Indiana territory.

OIL of Caraway, l. 1, for Carua r. Carum.

OPELOUSAS,

OIL CREEK. Add—Alfo, a township of Crawford county, in Pennsylvania, having 340 inhabitants.

OLEA, l. 4 from bottom, for Calyx r. Corolla.

OLEFIANT GAS, Chemical Composition of. See Atomic Theory and Carbon.

OLEIC ACID, in Chemistry, obtained by Chevreul from a soap made by digesting hog's-lard in potash ley. When this soap is put into water, a portion was deposited in pearl-coloured scales, which was the margarate of potash. (See Margaric Acid.) Another portion, consisting of the oleate of potash, mixed with some margarate of potash, remained in solution. These two were then separated, and the oleic acid obtained in a flake of purity. Oleic acid when pure is an oily fluid, without taste or smell. But most commonly it has a rancid odour, and a yellow or brown colour, somewhat resembling olive-oil. Its specific gravity is .899. Sometimes it remains liquid at 35°, though other varieties of it congeal at 45°, or even higher. When congealed it crystallizes in needles. It reddens litmus with great energy. It is insoluble in water, but very soluble in alcohol. It combines readily with the alkalis and earths, forming farts, or rather foaps, none of which possess very remarkable properties. Dr. Thomson, from Chevreul's experiments, estimates the weight of its atom at 356. It may be obtained from most other animal fats as well as hog's-lard.

OLEY, in Geography, a township of Berks county, in Pennsylvania, having 1284 inhabitants.

OLIVINE. See Olivine, and Mineralogy, Addenda.

O' M, col. 5, l. 31, for reseachers r. reseachers; l. 42, r. monofyllabic; l. 4 from bottom, dele of, and r. one of their. Col. 6, l. 24, r. composed of a, &c.

ONELEG, in Geography, a township of Ohio, in Tuscarawas, having 610 inhabitants.

ONONDAGA, l. 16, r. 25, 987, of whom, in 1810, 50 were slaves.

ONSLOW, l. 3, r. 669—2299.

ONTARIO, l. 3, l. number of inhabitants in 1810 was 43,032, of whom 212 were slaves.

OPÆTHUS, Touraco, in Ornithology, a genus of birds of the order of Picae; the characters of which are, beak short, convex above, rather bent, compressed laterally, and denticulated from the middle to the tip; nostrils covered with short silky feathers; feet simple, with two toes before and two behind. One species of this genus is known, which is a native of Africa, and one of the most beautiful of the birds that are found in that quarter of the globe. It feeds on fruits, is easily tamed, and capable, as it is said, of turning its exterior hinder toe either backwards or forwards. This is the Cuculus Varus of the Linnean sytem. Shaw.

OPAL. See Mineralogy, Addenda.
OPELOUSAS, in Geography, a county and parish of the territory of Orleans, containing, in 1810, 50,48 inhabitants. This territory presents a great variety of soil, or, if we except the cactus tree and orange tree, the cultivation of most valuable vegetables has succeeded. Cotton, indigo, and tobacco, have been and now is the staple commodity of the country; to which we may add, cattle, hides, leather, cheese, and pork.

OPHIDIIU, l. 25, add—See Dr. Broussonet's description of this fish in the Phil. Trans. vol. lxxi.


OPium, Chemical Properties of. M. Deroine, in 1803, published an analysis of opium, in which he announced the existence of a peculiar crystalizable substance to which that drug owes its narcotic properties, whence it was named the Narcotic Principle (which see). Soon afterwards, M. Sertuirner published an analysis of the same substance, but the results of the two chemists were so different, as to render both doubtful. This latter chemist, however, pursued the subject, and at length succeeded in separating a peculiar substance from opium, which he denominated morphia. It is to this principle that opium owes its narcotic properties; and the narcotics principle of Deroine, according to Sertuirner, is a compound of morphia, and a peculiar acid called the meconic, which opium contains. This latter circumstance, however, has since been called in question by Robiquet.

According to Sertuirner, morphia occurs in opium combined with meconic acid. There are different methods of separating morphia from opium. Sertuirner effected it by adding acetic acid, and thus forming an impure acetate of morphia. The acetic acid was then separated by ammonia, and the morphia thus obtained purified by means of alcohol. Others, after separating the extraneous matter as much as possible, add at once to the watery solution of opium pure ammonia, to precipitate the morphia, which is to be purified as before.

Morphia thus obtained is crystallized in the form of double four-sided pyramids, whose faces are squares or rectangles, and sometimes of four-sided prisms with trapezoidal bases. It diffuses in eighty-two times its weight of boiling water, and the solution on cooling deposits regular colourless transparent crystals. It is soluble in thirty-six times its weight of boiling alcohol, in forty-two times its weight of cold alcohol, and in eight times its weight of sulphuric ether. All these solutions change the infusion of Brazil wood to violet, and the tincture of rhubarb to brown, thus denoting distinct alkaline properties. They have a bitter and peculiar astrignent taste; and the saturated solutions, when rubbed upon the skin, leave a red mark. It acts with great energy on the animal economy. Half a grain being swallowed by a young man of seventeen, produced a flushing in the face and an augmentation of the mucular energy; another half grain being swallowed half an hour afterwards, occasioned a dull pain in the head, giddiness, stupor, and nausea. A third half grain aggravated the symptoms so much, that Sertuirner became alarmed, and made his patient swallow a quantity of vinegar. But the symptoms were rather aggravated and continued all night, though they were removed the next morning by the use of magnesia.

Morphia readily combines with the different acids, neutralizes them, and thus forms salts, of the properties of which the following is a brief summary. The carbonate of morphia crystallizes in short prisms. The acetate of morphia crystallizes, but is very soluble in water. The sulphate of morphia is likewise very soluble. The muriate of morphia affhnes a plume appearance, and is much less soluble than any of the other salts of morphia. The nitrate of morphia crystallizes in prisms.

Dr. Thomson estimates the weight of the atom of morphia, from the experiments of Choulant, at 58.5; but this probably differs considerably from the truth.

Meconic Acid.—This acid may be obtained from the infusion of the plant after the morphia has been separated by ammonia as above-mentioned, by adding muriate of barytes as long as any precipitate falls, which is moneionate of barytes. To obtain the meconic acid from this salt, M. Choulant triturated it in a mortar with its own weight of glaffy boric acid. This mixture being put into a small glass flask exposed gradually to heat in a sand-bath, the meconic acid sublimed in the flates of fine white flakes or plates.

Meconic acid thus obtained has a strong four taste, which leaves behind it an impression of bitterness. It is readily soluble in water, alcohol, and ether. It reddens the greater number of vegetable blues, and changes the solution of iron to a cherry-red colour; when these solutions are heated, the iron is precipitated in the flate of protosyoxy. This acid unites with the different bases forming meconiates. The meconiate of potash crystallizes in four-sided tables, and is soluble in twice its weight of water. The meconiate of soda crystallizes in soft prisms, and is soluble in five times its weight of water. It seems to effloresce. The meconiate of ammonia crystallizes in star-form needles, which when sublimed lose their water of crystallization, and assume the form of scales. The meconiate of lime crystallizes in prisms, and is soluble in eight times its weight of water. Dr. Thomson estimates the weight of the atoms of this acid, from the experiments of Choulant, at 27.5; but this can only be considered as an approximation.

Such is a brief account of the principles which chemists have lately detected in opium, and which, from the importance of the subject, we have thought proper to insert here.

ORANGE, l. 2, r. 25.247. Col. 2, l. 4. r. 1686; l. 7, r. 2291; l. 11, r. 794; l. 13, r. 34.347; l. 14, r. 946; l. 22.—The number of inhabitants in 1810 was 2266, including 48 slaves; l. 27, r. 12323 inhabitants, of whom 6516 were slaves in 1810.

ORANGEBURG, l. 6, r. 13.229-6564.

ORES, Chemical Analyses of. See Analysis.

ORFA, in Geography, the present name of the ancient Edessa (which see), from which the pachalic of Orfa derives its appellation. This pachalic is almost entirely encircled by the windings of the Euphrates and the river Khabour, and occupies a considerable portion of the most barren part of Melopotamia. In the early ages of the Roman empire, this division of Melopotamia bore the name of Otbohne. It had fulfilled 843 years as an independent kingdom, when it was reduced under the form of a province by the Caracalla, who led Abgarus, the last of its kings, in chains...
chains to Rome. The city of this name, after the expulsion of the princes of Orhoene, became a Roman colony, and was regarded as one of the bulwarks of Mepopotamia against the Parthians and Persians. It was the residence of the Courtneys, counts of Edessa; and fell, together with the adjoining territory, into the hands of Zangi and Salllahadene. In the thirteenth century it was sacked by the Moguls, and by Timur in the 84th year of the Hegira. It is now subject to the grand feignor, and the residence of a pacha of two tails. It is situated in a barren country, 232 miles from Diarbekr, surrounded by a stone-wall, defended by a citadel, and a broad deep ditch. The houses are well built, and the inhabitants, composed of Turks, Arabs, Armenians, Jews, and Neflians, amount to about 20,000 souls. The chief ornaments of the city are, a magnificent mosque, consecrated to Abraham, and the cathedral of the Armenians, now fallen to decay. On an adjoining mountain are the ruins of a building, called the palace of Ninrood, and several extraordinary subterraneous apartments, apparently very ancient. McKimine's Peria.

**ORFORD.** Add—It contains 860 inhabitants.

**ORLANDO.** See **LASSUS.**

**ORLEANS.** L. 4r. 23; l. 10, r. 5820; l. ult. and in 1810 of 12148 persons.

**ORLEANS.** New, l. 3, enter 105 miles, &c.; l. 3, add— or, by the statement of Mr. Darby, N. Lat. 28° 37'. W. long. 9° 8'. At the close, add—By the census of 1810, it is stated as comprising the following counties: viz. Orleans, German Coafi, Acadia, La Fourche, Iberville, Point Coupee, Concordia, Ouachita, Rapides, Natchitoches, Opelousas, and Arkansas, which include a number of parishes, and a population of 57,656 souls. The city and suburbs of New Orleans contained 17,242, and its precincts 7310: the number of slaves in the former is stated at 5901, in the latter at 4863. Since the census of 1810, there has been a rapid increase of population. Mr. Darby, in his "Description of Louisiana," published in 1816, states, that 1000 may be added for the annual increase, so that the present population may be estimated at more than 23,242 persons. No city perhaps on the globe, he says, presents a greater contrast of national manners, languages, and complexion, than New Orleans. The proportion between the whites and men of mixed cast or black is nearly equal. Among the whites, the French are hitherto most numerous and wealthy; next to these are the Anglo-Americans; and lastly, the natives of the British islands. Here are but few Spaniards and Portuguese, face Indians, and dispersed individuals of all the nations of Europe. For a further account, see **UNITED STATES.**


**Eff. Chi. Lip stiff, hooded, united to the base of the column.** Calyx and petals converging. Anther a moveable deciduous lid. Maffes of pollen four, oblique, furrowed behind.


**ORONO.** Add—The township in the district of Maine, and county of Hancock, has 351 inhabitants.

**ORRERY.** Col. 28, l. 17, for taken from r. taken for. Col. 42, l. ult. for under r. over. Col. 44, l. 9, for lays r. lies.

**OSAGES.** Add—See WASHASHA.

**OSMAZOME, in Chemistry.** See **BLOOD AND FLUIDS, Animal.**

**ORSINGTON, l. ult. r. 1341.**

**OSNABURG, a township of Ohio, in Stark county, having 301 inhabitants.**

**OSSEIME, l. 2, r. 1205.**

**OSSEPEE Gore, a township of the same state and county, having 125 persons.**

**OTAHITE, l. 6 from the end, add—From a survey made by captain Wilfon in this voyage, he estimates the whole number as not exceeding 16,050 persons; and Turnbull, in his "Voyage round the World," performed from 1790 to 1804, says, that they cannot now be estimated at more than 5000.**

**OTALGIA, derived from Gr. oTive, the ear, and paxv, pain, signifies the disorder, which, in plain English, is generally called the ear-ache.** The pain may be confined to one ear, or affect both these organs with different degrees of severity. It may be either of a burning, shooting, pricking, piercing, throbbing, or gnawing description; or it may consist of an unpleasant sensation of whistling in the ear, of a ringing of bells (see Tinnitus Aurium), a continual humming noise, &c.; the complaint in such instances usually depending upon irritation of the nerves of the ear.

According to the nature and situation of the disease, the pain may affect either the outer part of the ear, the meatus auditorius externus, the cheeks and temples, or the internal parts of the organ, the cavity of the tympanum, the labyrinth, and the auditory nerve itself. Otalgia is divided into several species, which are determined by the nature of their particular causes. Califon mentions five varieties of the disorder; viz. the otalgia inflammatoria, catarrhalis, purulenta, metastatica, (a cafe which the modern doctrines in pathology hardly allow us to admit,) and the otalgia a corporis alinis intrusus.

The inflammatory form of the complaint, when seated in the external parts, is indicated by the common symptoms of inflammation, as heat, swelling, and redness, extending over the lobe of the ear, and the adjoining part of the cheek, attended with a diminution in the diameter of the meatus auditorius, and a consequent dulness in the power of hearing. But when the inflammation is seated in the internal ear, it is accompanied with acute fever, exacerbating pain in the deeper part of the organ, exquisite sensibility to the slightest noise, intolerance of sounds, refulfections, sometimes a great deal of delirium, convulsions, and coldness of the extremities, and, according to the accounts of several respectable writers, the diseased may even have a fatal termination.

The otalgia catarrhalis is preceded by the usual symptoms of a cold, which is very frequently the consequence of an exposure of the head to a current of wind, or of the feet to damp, at a period when they are much heated. This ear-ache is commonly characterized by much milder symptoms than other varieties of the complaint; the swelling of the parts about the ear is not considerable; the nose discharges a vast quantity of mucus; the patient is troubled with cough and tooth-ache; and not unfrequently an enlargement
enlargement of the neighbouring glands is conjoined with the catarrhal swelling of the fauces.

The inflammatory otalgia sometimes terminates in the formation of an abscess, which may be superficial, being then sufficiently manifest from the presence of the ordinary symptoms of a cutaneous collection of matter. In this case, the fever and pain abate as soon as the abscess is opened, or has spontaneously burst, and the pus has been discharged. In other examples, the matter forms more deeply in the cavity of the tympanum, and it either makes its way outward by ulceration of the membrane tympani, or, in a more favourable way, through the Eustachian tube. When the abscess occupies a still deeper situation, that is to say, when the matter collects in the labyrinth, a necrosis of the bones often follows, the abscess either discharging itself into the cavity of the tympanum, or becoming diffused under the pericranium.

The otalgia curvis may originate from a caries, or rather a necrosis of the temporal bone, or, sympathetically, from a caries of one of the teeth. As the communicating branches of the facial nerve are affected, we see why paralysis of the muscles of the face is a frequent concomitant of this species of otalgia.

The otalgia from extraneous substances in the ear, as maizes of hardened cerumen, infects, the lodgment of any small body, like a pea, &c. may be suspected from the account which the patient will give of his case; but it may be clearly ascertained by examining the state of the meatus auditorius in a strong light, and by the use of a probe. An obstruction or compaction of the Eustachian tube may also become a cause of otalgia, as Callien afferted, by confining fluids in the tympanum.

From what has been stated, it is obvious that although otalgia may indeed at times be an idiopathic disorder, it is more commonly only symptomatic, in which last circumstance it necessarily requires for its relief the same means which are proper for the cure of the primary disease, of which it is merely the effect.

In otalgia, the prognosis generally differs according to the seat of the disease, its nature and violence, and the ease or difficulty of removing the cause. The following circumstances are more or less favorable to the prognosis, according to the case.

Young persons usually suffer more severely from ear-ache than older subjects, and experience more serious degrees of indisposition from the complaint. The internal inflammatory otalgia which produces suppuration affects the trunk of the auditory nerve itself, and discharges its matter within the cranium, may destroy the patient in a few days, if we are to credit the observations of Callien. A subsidence of the inflammation, as indicated by a remission of the fever and pain, and a speedy evacuation of the matter by the rupture of the abscesses, are events which augur a favourable termination of the disorder. When suppuration has occurred in the cavity of the ear, and the abscess uncomplicated with any carious affection has burst and discharged itself through the meatus auditory externus, the disorder may prove no more dangerous than any other simple abscesses. For the most part, after every severe attack of otalgia a degree of deafness remains, and this happens with still greater certainty when the case has been attended with suppuration.

The treatment of the various forms of ear-ache must of course depend upon the nature of the causes of the disorder. In general, however, if inflammation exist in the organ, it is to be opposed by the active employment of antiphlogistic remedies, especially topical bleeding with leeches, venesection, gentle purgatives, and anodyne fomentations. When matter is collected, the bursting of the abscesses should be accelerated with emollient applications, or an opening should be made with a lancet. In such circumstances, the ear should be frequently cleansed by means of injections, which, generally speaking, ought to be of a simple unirritating kind. Foreign bodies must be extracted. A morbid sensitiveness in the nerves of the ear must be lessened by suitable internal and external remedies, the use of opium, anodyne fomentations, the exhibition of conium or fras/minum, the introduction of a drost of soft cotton into the meatus auditorius, dipt in a mixture of olive-oil and laudanum, or the tinctura camphora, a perpetual blister in the vicinity of the ear, &c.

OTIS, in Geography, a town of Berkshire county, in Massachusetts, containing 1,111 inhabitants.

OTSEGO, l. 6, r. 38,802 inhabitants, of whom 74 are slaves.

OUACHITTA, a county and parish of the territory of Orleans, which, in 1810, contained 1,077 inhabitants. The lakes of this territory are, cotton, tobacco, lumber, and peltries. Ouachita river is not navigable in autumn, when the waters are low, for any vessels above the size of canoes.

OVERTON. Add—Allo, a county of West Tennesse, containing 564,3 inhabitants, of whom 355 are slaves.

OUGEN, col. 6, l. 39, for here r. yest.

OUNDLE. In 1811, the parish of Oundle contained 362 houses, and 1,833 persons; 821 males, and 1,012 females: 62 families being employed in agriculture, and 302 in trade, manufactures, and handicraft.

OWNHEY, col. 2, l. 18. Its height is estimated at no less than 18,400 feet.

OXALIC Acid, in Chemistry. The last analysis of this acid is by Berzelius. According to him, it is compos'd of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>2.44</td>
</tr>
<tr>
<td>Carbon</td>
<td>33.22</td>
</tr>
<tr>
<td>Oxygen</td>
<td>66.53</td>
</tr>
</tbody>
</table>

which nearly corresponds with \( \frac{1}{4} \)th atom hydrogen + 2 atoms carbon + 3 atoms oxygen. But there are some doubts if even this determination be correct.

OXFORD, in America, l. 3, r. 1277; l. 5, r. 1,453.

Col. 2, l. 5, r. 1810, 2,470 inhabitants, including 36 slaves; l. 6, r. 767; l. 15, r. 700 inhabitants; and another, called Lower Oxford, with 709 inhabitants. Allo, a township of Ohio, in Guernsey county, having 440 persons. Allo, a township of Ohio, in Tuscarawas county, having 271 inhabitants.

OXYGEN Gas, in Chemistry. According to the most recent determinations, the specific gravity of this gas is 1.111; and 100 cubic inches of it, at a mean temperature of 150 degrees, and 760 mm. pressure, will weigh 38,883 grains. See Aromat Theory.

OXYGENIZED Acids. M. Thenard has recently been enabled to combine oxygen with acids almost to an unlimited extent, chiefly by means of the peroxide of barium. His general method was, to dissolve the peroxide of the acid intended to be oxygenized, and afterward to separate the barytes by means of sulphuric acid; the oxygen was thus transferred from the peroxide of barium to the acid, and by repeating the operation he found that additional doses could be added. In this way, he oxygenized the nitric, muriatic, phosphoric, and other acids, and by taking advantage of its other properties, the muriatic acid in particular was oxygenized, even so far as to contain 64 atoms of
OXY

of oxygen to 1 of muriatic acid. These oxygenized acids combine with the different bases, and neutralize them; but they are by no means permanent, readily giving off their superfluous oxygen upon the application of heat, &c. The oxygenized muriatic acid also is decomposed by the oxyd of silver, chloride of silver is formed, and the oxygen is set at liberty.

By similar methods, M. Thenard has been able to combine additional doses of oxygen with many of the metallic oxys. See Annales de Chimie et Physique, vols. viii. and ix.

OXYMURIATIC Acid. See Chlorine.

OXYPRUSSIC Acid. See Cyanogen and Prussic Acid.

P.

Vol. XXVI.

PACKERSFIELD, 1. 3, r. 1076.

PACOLET. Add—Also, a town of Rutland county, in Vermont, containing 2233 inhabitants.

PADMA, l. 2, del of.

PAINT, in Geography, a township of Fayette county, in Ohio, having 334 persons.—Also, a township of High- land county, in Ohio, with 775 inhabitants.

PAINTING in Enamel. Of all the various mediums of painting none is so durable as enamel, since time, which destroys all other things, alters neither its beauty nor its brilliancy; and that this great advantage may not be too easily attained, it may be laid, also, that no other method of painting unites in itself so many difficulties in the execution.

Enamel painting differs from every other kind of painting, in employing, as a vehicle for the colours, glafs or some vitreous body, to hold the parts together, and fix them to the ground on which they are laid. This being mixed with the colours, and fused or melted by means of heat, becomes fluid; and having incorporated with the colours, forms together with them a hard shining mass. This vitreous body, called flux, is to an enamel picture what oil, gum, or varnish, is in the other modes of painting, as by its means the work acquires its full degree of brilliancy and depth. See Flux.

The quality of the flux is an object of the greatest consideration to the enamel painter; when it is easily fusible, it is called soft; and when it requires a greater degree of heat, it is called hard; these terms are applied as well to the enamel grounds, and the other vitreous substanstes employed, as to the fluxes. It is essential that the fluxes compounded with the different colours should be of the same degree of hardness, or nearly so: as otherwise none, from being too soft, would be destroyed by the fire; while others, from having the contrary defect, would not be fixed to the plate, nor acquire their proper colour. It is necessary too, that the plate or enamel ground on which the picture is painted should be harder than the colours; for if they both melted with the same degree of heat, they would necessarily run together, and render the work indistinguishable.

The ground-work of the enamel plate is metal. Gold and copper are those chiefly employed. For small plates, where great neatness and delicacy are necessary, gold is preferable, on account of its not blistering round the edges in the fire, as is the case with copper: for large plates, copper is preferred, not only on account of the difference of expense between it and gold, but because it is found from experience to be better: gold being a much softer metal than copper, the plate, if of any size, is not found to retain its original form, in passing through the fire, so well, when made of it, as when it has copper for its bases.

The form of the enamel plate is slightly convex; if it were made quite flat, in passing through the fire repeatedly it would become concave. It is on this account that gold is not proper for large plates, being heavier as well as softer than copper: its own weight added to that of the enamel would naturally tend, while in a state of fusion, to sink them in the middle, and render the surface warped and uneven, unless they experienced resistance from the back, which would most probably occasion the destruction of the whole.

When platina was first discovered, it was imagined, from its great difficulty of fusion, that it would be of essential service in the making of enamel plates, but it was found to be useless for that purpose: as, although a plate made of it passed through the fire with its form unaltered in the highest degree, there was found wanting that union between the enamels and the metal on which it is laid, that is so necessary to ensure its safety, since a slight shock was sufficient to separate them and leave the platina quite free from the enamel. With gold and copper it is quite different, it is hardly possible to free the gold entirely from the enamel, and so strict is its adhesion to the copper, that if broken it invariably brings a lamen of the copper with it. The mode of preparing the enamel plate for painting is exactly similar to that for watch and clock dialing (see Enamelling), with this exception, that over the enamel is passed a softer body, a flux for the purpose of incorporating with the colours laid on: this flux should agree with every colour used.

The colours used in enamel painting are all prepared from metals, earths, or other mineral bodies, mixed and melted with certain proportions of flux, which, when fused, discover the colours, and fix them to the plate. The colours of the enamel painter are few, and his palette, when compared to that of other artists, of the most discouraging description, many of them appearing very different before and after passing the fire. This is indeed one of his greatest difficulties, and one which requires the greatest practice to overcome.
The colours used in enamel are few and simple, and from them the different tints should be made by the artist himself, (and not by the colour-maker, as used to be the case,) in the same manner as in any other way of painting. They are, white, yellows, rose-colours or reds, browns, blues, and blacks. The white is prepared from tin; the yellows from silver, antimony, and from some ochres; the rose-colours from good; the blues from cobalt; and the browns and blacks from iron. A red may be prepared from iron, and a green from copper, but these will not agree with the other colours. A green cobalt has been lately found in some parts of Germany, from which a green may be made, as also one from the chrome; but neither is found to be in any respect better than that which may be made from blue and yellow, and it is therefore unnecessary to encumber the palette with them. No colour should be admitted till, from repeated experiment, it has been found to agree with every other in every possible combination.

The oils employed are essentiai, and they are such as on application to the fire evaporate with a flight degree of heat; for this purpose, the oil of spike lavender is the best. The oil of amber is used to keep the colours moist for the day's use, as it does not evaporate before exposure to heat. A thick oil of turpentine is likewise used for the purpose of binding the colours together, and making them work more pleasantly; this however must be done with the greatest caution, as if used too freely it will not escape in the fire, and will occasion corrosion.

The last proceeds which the enamel picture undergoes is that of passing the fire: this is done after every painting, and is very often necessary; as without it the artist cannot tell the real state of his work. The fire for this purpose is of the same utility to the enamel painter, as a proof of his plate is to the engraver; it tells him what he has accomplished, and points out to him what remains to be done. The last time of passing through the fire is, as may naturally be supposed, a moment of great anxiety to the artist, as he may, in an instant, witness the destruction of his picture, and fee the labour of months rendered unavailing, by the enamel ground opening and throwing a crack across his work. This accident may sometimes be repaired, but never without great labour. The mode of firing the picture is exactly similar to that used in the making of the clock plates. See Enamelling.

The history of enamel painting is involved in the greatest obscurity; of its antiquity, we have ample testimony in the account which Diodorus Siculus gives of the painted walls executed by the command of Semiramis, in her city of Babylon. At this time, enamel painting had attained the highest eminence to which any art can aspire; when it was made the engine of policy, and the instrument of religion; when it was employed to commemorate the heroic deeds of the living, and celebrate the virtues of the dead. How long it retained this elevation we know not, but it is probable it was extemned while Babylon remained, and, like that majestic city, was overwhelmed with such entire ruin, as feecely to leave a wreck behind.

The coloured beads which envelope the mummies, and the painted idols of the Egyptians, prove that this art was not unknown to that extraordinary people; although nothing which exactly deferves the name of painting has descended to us.

To the Greeks it was known, as is evident from their painted vases, which although generally executed in one or two colours, yet furnished some instances in which, departing from this simplicity, they have displayed a variety of colours with great successe.
By the Romans, if this art were not unknown to them, which, considering their intimate knowledge of the acquirements of the Greeks, is not probable, it was at least unpractised: sculpture with them seems to have superseded painting in the decoration of their vases, the embellishing of their sarcophagi, and for all ornamental purposes.

Some ornaments which have reached our time indicate that the Saxons were not unacquainted with the art of enamel; and in the tomb of Edward the Confessor are many specimens of coloured glass. Other monuments of a subsequent period prove that the art regularly declined, although with varied successes, at different intervals; but in the tomb of Edward III. John of Eltham, and some others of that period in Westminster Abbey, are striking instances of the art of enamelling. On the monument of the king, the coats of arms are enamelled in their proper colours on thick plates of copper; and the armour of the warrior is curiously ornamented with an enamelled pattern of blue, white, and gold.

These remarks may be said more properly to relate to the practice of enamelling than to the art of enamel painting, and are only mentioned here to prove that it was never entirely lost fight of; although it was long after that it became enamel painting, as that term is now understood.

In the sixteenth century, ornamental works of considerable dimensions were executed: every one conversant with the arts must be acquainted with the painted dials called Raffaelle ware, copied from the designs of that immortal painter and his disciple Jusep Romano: these are, strictly speaking, legitimate enamel pictures, executed on a ground prepared as it is at present, and differing only in the shape. They are generally painted in two colours.

Enamel painting seems long to have remained in this state, and there are but few examples where a variety of colours was used until the time of Petitot, who died in the latter end of the seventeenth century. He is the first painter in enamel of whom any particular mention is made: he was in this country in the reign of Charles I. His pictures are of a small size, not exceeding two or three inches; they are very highly and beautifully finished, but certainly not deserving the distinguishing commendation bestowed on them by Pilkington, who says, that if they were magnified to the size of life, the pictures of Vandyck would suffer by the comparison. His best pictures were copied from that master, and are of a small size: his portrait of lady Southampton, a whole length after Vandyck, in the duke of Devonshire’s collection, the largest picture he ever painted, is certainly not among his best. His works have too much that particoloured appearance, for which enamel painting has by persons of true taste been so justly censured. The reputation of Petitot was no doubt owing to the novelty of his pursuit, as he has since been much surpassed. His son practised the same art when his father quitted this country, and his pictures are now generally taken for those of his father.

No farther mention is made of enamel painting until the reign of queen Anne, when Boit, who polished very little ability, appeared: he did not practise long in this country. He had the honour, however, of instructing Zincke, who far surpassed not only his master but Petitot. Although his pictures are not so highly finished, his work has the least of that parti-coloured effect, and consequently more the appearance of nature, than those of his great predecessor. Petitot’s best works were copied from Vandyck, those of Zincke from Kneller. Meyer, who chiefly painted in water-colours, commenced enamel painting on the decline of Zincke; as he applied but little to this branch of art, he could not be expected greatly to excel: his principal work, the portrait of the marquis of Granby, in the king’s collection, though polished of considerable ability and sweetness in the execution, has too much of the defects of early enamels, and by no means conveys an idea of the fyle of the great original from whom it is copied, sir Joshua Reynolds. The best pictures of Meyer are inferior to those of Zincke. Spencer’s pictures, as far as they go, are very beautiful both in colour and execution; but he, as well as all other enamel painters, confined his efforts to a very small scale, and either did not with or thought it impossible to obtain depth and richness; his pictures, therefore, are little more than beginnings. The other professed of this art, of this period, were Hole, who afterwards became a portrait-painter in oil, Spicer, Burch, and Craft. Craft is only mentioned here to caution future enamel painters against an error into which he fell,—of painting on an enamel ground without the addition of a flux. The flux being hotter than the enamel incorporates more readily with the colours, and gives that melting softness to the tints so peculiar to enamel painting. By omitting this, he deprived himself of one of his greatest advantages; and the consequence is, that instead of great delicacy and finishing, his pictures appear hard, crude, and inharmonious.

Stubbs, an animal painter in oil, a comparative anatomist, and eminent as either, was also a painter in enamel. Unfortunately he took up this branch of art on too confined a principle, considering rather its durability than that excellence which alone can render durability truly estimable. His pictures are painted on plates made of Wedgwood’s ware, and he prided himself on being the maker of his colours, which are, however, of the most ordinary kind. Now, although it is defirable that the artist should know how to make his own colours, it is equally certain, that if he can get them made for him, it is much better to do so than to employ his own time in preparing the means, when it should be directed to the accomplishment of the end. Neither the material on which he worked, nor the colours with which he painted, were calculated to bear more than two or three fires, consequently great perfection could not be expected; and although they might tolerably well answer his purpose for the painting of animals, it is certain that his pictures in oil are in every respect inferior to those he executed in enamel.

We have now brought enamel painting down to our own time, when such great improvements have been made by the exertions of a living artist, Bone, as to render it an era in the art; that he is living, must be our apology for not entering into a full discussion of his merits: but it must be said, that by his endeavours, aided by the liberal encouragement of that true lover and magnificent patron of the arts of his country, the Prince Regent, from a mere mechanical labour, enamel painting has become a highly useful branch of a liberal art; no longer confined to things merely ornamental, no longer differing from every other mode of painting, as much in its effect as process, it now assumes the appearance of highly-finished oil-painting, with the advantage of perpetual durability. As enamel painting from its nature must be always copied, the style of the original should be perfectly observed, as to convey an instantaneous recollection of the painter. In this respect, the works of Bone are pre-eminent; whether the severity of Leonardo, the purity of Raffaelle, the glow of Titian, or the splendour of Rubens, is enframed to his pencil, each is alike successfully portrayed. To the admirers of that ornament of our country and of the arts, Reynolds, this must appear in its full force; and it must afford them great pleasure.
pleasure to find, that such close imperishable copies of the
rare and justly valued pictures of this great master can thus
be transmitted to posterity.

Of the advantages of the science of painting, it will be super-
fuous to speak, they are so obvious as to occur to the
most superficial observer. Its unalterable durability is
alone sufficient to counterbalance every disadvantage to
which it is subject: to point for eternity is the peculiar
province of the painter. To him the hyperbolical
compliment which Pope paid to Jarvis is justly due:

"Beauty, frail flower, which every season fears,
Bloom in his colours for a thousand years."

How often have we mingled pity with our admiration of
the fine works of the great masters, coloured in particular,
when we have observed the dreadful ravages of time on
their pictures. By enamel painting this disadvantage is
removed; by means of this art, posterity will become
acquainted with the real merits of their predecessors; and
those works which must of necessity decay, will be preferred
in all their original splendour. How invaluable at present
would the portraits of the illustrious characters of Greece
and Rome appear! Had enamel painting been known as
it is practiced at present, we should not now have to seek
their imperfect remembrances in buffs and gems.

Thus has this art, sometimes shining forth in full
splendour, sometimes nearly merged in obscurity, sur-
vised the lapse of ages, and descended to the nineteenth
century, whose enlightened policy and liberal patronage
will never allow it to be again disregarded; but will employ
the talents of the enamel painter in the way which they can be
best employed, by preferring for futurity the portraits of
our illustrious ancestors, whose deeds have conferred an
honour on their country; and in handing down to posterity
the remembrances of our great contemporaries, and in per-
petuating the best efforts of native genius. See Enamel-
ing.

Painting of Clocks and Watches. See the preceding
article, and EnameUing.

PAISLEY, col. 4, l. 21, for salutis r. saluation.

PALAVER, an African term denoting a court of jus-
tice, or a public meeting of any kind.

PALERMO, in Geography, a town of America, in
Maine, and county of Lincoln, having 761 inhabitants.

PALLADIUM, in Chymistry. According to the recent
determinations of Dr. Thomson, the weight of the atom of
this metal is 79, oxygen being 16; though this, perhaps, is
not to be depended on, but as an approximation.

Palladium. See Mineralogy, Addenda.

PALMA, Giacopo, in Biography, called the Younger,
to distinguish him from his great uncle, has been styled by
Lanzi, "the last painter of the good and the first of the
bad epochs of the art of Venice." He was born in 1544,
the son of Antonio Palma, an obscure painter, who first
taught him the little he knew, and encouraged him to study
the works of others, particularly those of Tintoretto and
Titian. At the age of fifteen, he obtained the patronage of
the duke of Urbino, who sent him to Rome, and maintained
him there for eight years, during which time he employed
himself in copying the works of M. Angelo, of Raphael,
and above all, of Polidoro, and was employed by the pope
to adorn one of the rooms of the Vatican.

On his return to Venice he found but little employment,
Tintoretto and Paolo Veronese occupying the places of
renew, and being engaged in all the public works. Their
disagreement with a celebrated architect and sculptor,
named Vittoria, furnished Palma with a patron, who endeav-
ouring to lower the esteem of his enemies, used his utmost
efforts to establish the rival painter, afforded him with his
advice, and found him employment. Their united en-
daevours failed however of success, and Palma was obliged
to be contented to hold the third rank in the art till their
deaths left him without a rival. He had, in the mean time,
painted in competition with them both, and produced very
excellent works.

When he was left alone and was much employed, he
relaxed from the care and diligence he had formerly used,
and his works became light in execution, so much so that
Cefare d'Apina, remarking upon the lightness of the
style in which he painted, observed, that he meant to make
some stay at Venice, to learn of him to make such admirable
sketches. When price and time, however, were left to his
own discretion, in which he did not abound, he produced
some works worthy of his former fame; such as the altar-
piece at the church of S. Cosmo and Damiano; the cele-
brated naval battle of Francisco Bembo, in the public
palace; the Saint Apollonia at Cremona, &c. The com-
positions of the younger Palma are more disinguishable for
their copiousness than the judgment with which they are
conducted, and his design is more bold than correct. His
colouring is more vivid than true, but is deservedly admired
for its richness, fineness, and freshness.

PALMER, in Geography, l. 4, r. 1114.

PALMYRA, a township of Maine, in the county of
tomfort, having 117 inhabitants.—Allo, a township of
Wayne county, in Pennsylvania, having 336 inhabitants.—
Allo, a township of Knox county, in the Indiana territory.

PALOMINO Y VELASCO, Don Antonio, in Bio-
ography, a Spanish painter, born in Valencia, in 1653.
He studied at Cordova in grammar, philosophy, theology, and
jurisdiction; the elements of his art he acquired of Don
Juan de Valdes Seal, and to acquaint himself with the
styles of the different schools, he went to Madrid in 1678.
Here he painted the gallery del Cierzo, and pleased the
king and the minister, and in 1688 he was made painter
to the king. He was overwhelmed with commissions, for
many of which he made only the designs; but whatever
was begun and terminated by himself in fresco, or in oil,
polettes invention, design, and colour, in the effential,
and taille and science in the ornamental parts. His style
was certainly more adapted to the demands of the epoch in
which he lived, than to those of the preceding one, and
probably would not have obtained from Murillo the praises
lavished on it by Luca Jordan.

Palomino may be considered as the Vafari of Spain,
as copious, as credulous, and as negligent of dates, too
garrulous for energy, and too indefinite for the delineation
of character, but eminently useful with the emendations of
modern and more accurate biographers.

His literary work is divided into three parts, theoretical,
practical, and biographical. The first part bear one title,
viz. "El Parnaso Espanol Pittresco y escala optica." The third
part, distinguished by that of "El Parnaso Espanol Pittresco
laureada, &c." Madrid, 1724, though perhaps only intended
as an appendix to the two former, is by far the
most important and interrelling.

PALOU, or PALO, l. ult. add—palacial of Erzerom,
 situated on the edge of a mountain and the banks of the
Euphrates: the population amounts to about 8000 souls,
Turks, Armenians, and Kurds: the river here is very rapid,
and from the bad construction of the bridges made of wood,
whole caravans have been swept away after the melting of
the snow. The district of Palo is four days' journey in
length and two in breadth.

PANDEANS,
PANDEANS, a title given to itinerant companies of Italian musicians, who perform on the Syrinx or Pan's pipes of different pitches with their mouths, and accompany themselves on different instruments with their hands and feet.

The lowest set of reeds (the septem discrimina vocum of Virgil) is called the contra basset, or double-bass; the next fogato, or bassoon; the third, feuienty, is the tenor or second treble; and the fourth, or highest range of pipes, the first treble: so that in the aggregate there is a complete scale of four octaves, and they never play in less than three or four parts. The instrumens with which they accompany themselves with their hands are the cymbals, the triangui, the double drum beat at both ends, the mezza luna, a Turkish instrumemt, and the tambour de barque.

The reeds or pipes are fastened under the chin of the performer, and the lip of the player runs from one to the other with seening facility, without moving the instrument by manual assistance. (El supr talamus unce percurrere liber, Lucr. Tu.) The music which these people perform is very gay and pleasing. One of the company with whom we conversed told us that they were Milanese peasants and villagers, not allowed to stroll into great cities: which accounts for our never having heard them in their own country, nor any of our friends who have made the tour of Italy, and remained there some years.

The ufe which these ingenious people have made of Pan's pipes, by playing in troops and in different parts, is beating the ancients at their own weapons. The Grecian shepherds of Theocritus, and the Roman of Virgil, contend in dialogue, but never perform in parts.

It will be observed, that some of the performers, particularly the first treble, have more than seven pipes, which enables them to extend the melody beyond the feventy. PANIS. Add—See TOWIACHES.

PANTING, in Physiology. See LUNGs.

PANTON. Add—containing 520 inhabitants.

PAPER CURRENCY, l. 8 from the end, de.de where; l. 5, infer—not.

PAR. Of Exchange, col. 2, l. 24, for fois r. lefs.

PARADISE, l. 2, r. 1548.

PARASANG. Add—The farfang at a mean was little short of 3½ British miles. The parasang of Xenophon was no more than 3 Roman miles, or 2:78 British miles. Herodotus and Xenophon say, that the parasang consisted of 30 stadia; and as there may be supposed to have been of the Grecian itinerary standard, the parasang would be equal to 2:9 British miles, or 3½ only longer than that of the Arabians. Remull's Illustration of the Expedition of Cyrus.

PARHELION, col. 2, ft. 23, 24: l. 1, 14, r. 1320.

PARIS, in America, l. 13, r. Oxford for Cumberland.

PARIYATEKA, l. 12, for This. R. There.

PARK, Mungo, in Biography, a celebrated traveller, was the son of a farmer on the banks of the Yarrow, near the town of Selkirk, in Scotland, and born on the 10th of September 1771. After having received the first rudiments of education in his father's family, he was removed to a grammar-school at Selkirk, where he remained for a considerable number of years, and where he was distingished by his application and improvement. At this early period, though he was sedate, studious, and thoughtful, he manifested traces of that ardent and adventurous disposition which formed his distinguishing character in future life. Preferring the medical to the ecclesiastical profession, for which he was originally designed, he was bound apprentice, at the age of 15, to Mr. Anderson, a respectable surgeon at Selkirk; and after residing with him for three years, he removed in 1789 to Edinburgh, where he attended the usual medical lectures during three successive sessions. In this situation he distinguished himself among his fellow-students, by ardour and fidelity in the prosecution of his studies, and by particular attention, during his summer vacations, to botanical pursuits, in which he was assisted by his brother-in-law, Mr. James Dickson. Upon his removal to London, this eminent botanist introduced him to Sir Joseph Banks, by whose recommendation he was appointed assistant-surgeon to the Worcesters. East Indians. In 1792 he failed for Benecoola, and having availed himself of the opportunities for scientific researches, which this voyage afforded him, the result of his inquiries and observations was communicated, after his return, to the Linnean Society, and published in the third volume of their Transactions. Some years prior to this period, a society had been formed with a view of promoting discoveries in the interior parts of Africa, of which we have already given a brief account under the article AFRICAN ASSOCIATION; and several persons had been employed in accomplishing the laudable purposes for which this society was established. Among these, we may reckon Meffrs. Ledyard and Lucas, major Houghton, and Mr. Hornemann, who fell sacrifices either to the severity of the climate, the fatigue of the service, or the violence of the natives. The Society, though disposed to afford liberal encouragement to any person who was qualified for this undertaking, and who had at the same time resolution sufficient to engage in it, with the prospects which that experience presented to view, found themselves at a loss for a person in every respect fit for this hazardous mission. At this interesting period Mr. Park returned from India, and no person could have been found better qualified for such an adventurous office. Sir Joseph Banks, the distinguished patron of genius and science, had been his friend, and with him Mr. Park was in habits of frequent and intimate intercourse. Thus circumstanced he offered his services, and they were accepted. Having received his final instructions from the Society, he set sail from Portsmouth on the 22d of May 1795, and on the 21st of June landed at Jullifree, a small town near the mouth of the river Gambia, whence he proceeded to Pifania, where he was hospitably received by Dr. Laidley, to whom he had letters of recommendation. For an account of his progress, see the articles AFRICA and AFRICAN ASSOCIATION. Upon his return, he was received with cordial congratulation, both by his friends and the gentlemen of the African Association; and he was allowed to publish an account of his travels for his own benefit. In the mean while, Mr. Bryan Edwards, secretary of the Association, printed and distributed among the subscribers an abstract of the Travels from Mr. Park's papers. To this attraéct was annexed an important Memoir by major Rennell, containing geographical illustrations of Park's journey; and this, by Mr. R.'s permission, formed a valuable appendage to the fourth edition of the Travels. In the spring of 1798, government having it in contemplation to obtain a complete survey of New Holland, applied to Mr. Park for this purpose; but the proposed plan was never executed. The remainder of this year was spent by Mr. Park in visiting his friends in Scotland, and arranging the materials of his Travels. Towards the close of this year he returned to London, and devoted the principal part of his time to the correction of his MSS., which he committed to the press in the spring of the year 1799. The work, as soon as it was published, commanded an extensive and rapid sale, both on account of the interesting information which it contained, and the general elegance of its composition. An abstract of Mr. Park's discoveries, with
with regard to the easterly course and magnitude of the Niger, the large and populous towns and villages that occupy the interior parts of Africa, the discriminating character of the negroes, contrasted against that of the Moors, and the civilization of the inhabitants of the interior, beyond the influence of the slave-trade, compared with that of those who are situated near the coast, and a variety of other particulars relating to the soil and productions of the country, and the manners and habits of its inhabitants, has been already given under the articles AFRICA, MOROCCO, NIGER, &c. so that we need not here enlarge. The curiosity of the public was amply gratified, and the name and work of Mr. Park became singularly popular, though neither the one nor the other altogether escaped censure. The slave-trade was at this time a subject of general reprobaton, and attempts were repeatedly renewed for the abolition of it. It was, therefore, natural to imagine, that in a work of this kind, the author would have availed himself of the opportunities which his narrative afforded him, of expressing his decided disapprobation of this nefarious species of commerce: more especially as it was well known to many of Mr. Park's intimate and confidential friends, that in conversation he had frequently declared his abhorrence of slavery and the slave-trade. Nor was it sufficient to allege, as some of his advocates have done, that he considered the abolition of the slave-trade as a measure of state policy; and that it would be improper for him to give an opinion on a subject which was at this time under the deliberation of the legislature. This neutrality on his part, to say the least of it, led persons, who did not know his real sentiments, to reckon him among those who were hostile to the abolition; and his authority was triumphantly appealed to by the advocates of the slave-trade. Whilft he seems to have studiously avoided giving an opinion on the pernicious influence of this trade, he states facts which have been cited and strongly urged in favour of its abolition. In order to account for this kind of inconsistency without impeaching his integrity, we should recollect how he was circumstanced whilft he was preparing and publishing his narrative. "He was then," says a candid biographer, "a young man, inexperienced in literary composition, and in a great measure dependent, as to the prospects of his future life, upon the success of his intended publication. His friend and adviser, Mr. Bryan Edwards," (a Weit India planter, and a systematic advocate of the slave-trade in the House of Commons,) "was a man of letters and of the world, who held a distinguished place in society, and was besides a leading member of the African Association, to which Park owed every thing, and with which his fate and fortunes were still intimately connected. It is difficult to estimate the degree of authority which a peron possessing these advantages, and of a strong and decisive character, must necessarily have had over the mind of a young man, in the situation which has now been described. Suggestions coming from such a quarter must have been almost equivalent to commands; and instead of severally animadverting on the extent of Park's compliances, we ought, perhaps, rather to be surprized, that more was not yielded to an influence which must have been nearly unlimited." Mr. Park is known to have regretted that some parts of his publication, relating to the slave-trade, had been misunderstood, and applied in a sense which it was not intended they should have been. The writer of this sketch of his life knew, from personal intercourse, that he lamented any fulfilment of his integrity should attach to this part of his publication; and we can well imagine, that he did not perceive the bias of his mind, or the causes that produced it, which were apparent to every one besides himself. Such a bias would naturally result from the assistance afforded by Mr. Edwards in the composition of Mr. Park's work, and from the influence attending the connection that subsisted between them. How far Mr. Edwards's assistance might extend, it is difficult to say: but of this we are certain, that it was not such as to affect the authenticity of the work itself, or the literary reputation of Mr. Park; we regret, however, that in deference to Mr. Edwards's judgment or authority, Mr. Park should admit into his narrative some reflections pertaining to the slave-trade, which should have given occasion for concluding that he was friendly to its continuance, or that he should have omitted any favourable opportunity that occurred for expressing in an explicit manner his real sentiments concerning it. But it is now needless to pursue this kind of diffusion. The narration of Mr. Park, written as we have reason to believe by himself, entitles him to respect as an author; but he has other more unequivocal claims to grateful and honourable remembrance, as a person who hazarded much in making geographical discoveries, and who maintained in traversing unknown countries, and in very trying situations, a degree of firmness and self-possession that has seldom or ever been surpassed.

After the publication of his Travels, he returned to Scotland in the summer of 1799; and on the 2d of August in that year, he married a daughter of Mr. Anderdon of Selkirk, with whom he had served his apprenticeship. In the month of October 1801, he settled at Peebles, with a full purpose of pursuing his medical profession; but as he devoted much of his time and attention to the poor, the profits of his labours were inconsiderable; nor could he far bear wishing for a change of situation that would be more advantageous. His views, however, were directed towards a second African mission. A prospect of this kind was presented to him by a letter from Sir Joseph Banks, soon after the signature of the preliminaries of peace with France, in October 1801; but it was not till the autumn of the year 1803, that a specific proposal was made to him for this purpose. Previously disposed to accept it, he did not long hesitate in announcing his purpose; and, accordingly, he took leave of his friends, and left Scotland in December 1803, confidently expecting that he should soon embark for the coast of Africa. A variety of circumstances occurred which threatened the total failure of the expedition; however, in a course of time all difficulties were obviated; the objects and plan of the undertaking were settled to the satisfaction of Mr. Park, and he received a commission from government in January 1805, for conducting and executing it. To himself was granted a brevet commission of a captain in the navy, and to his friend Mr. Alexander Anderdon a similar commission of lieutenant; and Mr. Scott was appointed to attend him as a draughtsman. He was empowered to enlist at Goree any number of the garrison that would be necessary for his purpose, not exceeding 45, with such fortunes as would induce them cheerfully to accompany him. From Goree he was directed to proceed up the river Gambia, and thence, croosing over to the Senegal, to march by such routes as he should find most eligible to the banks of the Niger. The great object of his journey was to pursue the course of this river as far as it could be traced; to establish a communication and intercourse with the different nations on the banks; to obtain all the knowledge in his power respecting them; and to ascertain various points which he had stated in his Memoir. Mr. Park was empowered to draw for any sum which he might want, not exceeding 5000.

When the preparations for the expedition were completed, Messrs. Park, Anderdon, and Scott, proceeded to Portsmouth,
mouth, and being there joined by four or five artificers from the dock-yards appointed for the service, they set sail on the 30th of January 1805, and on the 28th of March arrived at Goree. On the 27th of April 1805, Mr. Park took his departure from Kaye, a small town on the Gambia, a little below Piania, having previously engaged a Mandingo prieft, named Ifaco, who was also a travelling merchant, and much accustomed to long inland journeys to serve as a guide to his caravan. On the 11th of May, he arrived at Madina, the capital of the kingdom of Woolli, and on the 14th he reached Kuffa, on the banks of the Gambia, where the river is about 100 yards broad, and has a regular tide. On the 18th, he crossed the river Nirkoo, 60 feet broad four feet deep, flowing at the rate of two miles an hour, and with a heat at two o'clock of 94° Fahrenheit, and arrived at Jallacotta, the first town of Tendico, at sun-fet. On the 20th reached Tendico or Tamibco, a village belonging to Jallacotta, lat. 13° 53', half a mile from which is a pretty large town, called Bady. May 21st at eight, halted at Jeningalla, near Buffa or Kabatenda. On the 24th, floated at Manifara, which consists of three towns, contiguous to each other, and distant from the village of Nittakaara, on the north bank of the Gambia, a mile and a half due south. Next day entered the Tenda or Samakara wildermefs, and halted at Sooteetaba, lat. 13° 33' 33", after leaving this place, crossed the first range of hills, which afforded a beautiful route and prospect. On the 26th reached Bee creek, lat. 13° 32' 45", W. long. 10° 59', where men and beasts were attacked by an immense number of bees, who seemed for a time to have completely terminated their journey. Arrived at Sibilkillin, after travelling four miles, on the 27th; and on the 28th, arrived at Badoo, a small town, consisting of about 500 huts, near which is another town of the same name; but the two towns are distinguished by the names of Samanding and Sanfuna, at each of which customs are demanded of all carriages or caravans, lat. 13° 32'. From Badoo proceeded to Tambahunda, about four miles east of it, and about four miles distant from the river Gambia, south of Badoo: leaving Tambahunda on the 30th, entered the woods, and at dark arrived at Tabba Gee, which was left at day-break the 31st of May, and halted during the heat of the day at a small village, called Mambiri. On the 1st of June, arrived at Jilfundu, a considerable trading town, containing about 2000 persons, who trade on credit, and are called "Juli," by way of distinction from the Slates, who trades with his own capital. At this place, lat. 13° 33', they are extortionately taxed by Mina Kuffa, who is reckoned one of the most avaricious chiefs on the road. On the 4th of June, arrived at Banierle, a Mahometan town, whose chief, Fodi Brisha, was one of the most friendly men they met with, lat. 13° 35'. The kingdom of Dentila is famous for its iron; and the flux used for smelting it is the ashes of the bark of the kingfisher. On the 7th of June, in progression of their journey, crossed the bed of a stream that runs towards the Falame river, called Samako, on account of the vast herds of elephants which wander themselves in it during the rains. At noon of the 8th, reached Madina, and halted by the side of Falame river; in the evening went to Satado, on the middle east of the river. On the 10th reached a small town called Shondo at sun-fet; here they were alarmed by a tornado, which was the commencement of the rainy season, and extremely pernicious to the attendants on the expedition.

In the vicinity of this town are four gold-mines, which were inspected, and which afforded occasion for witnessing the expeditionsmode practised by the female natives, for separating the particles of gold from the sand. Leaving Shondo on the 12th, they travelled along the bottom of the Konkodoo mountains, which are very steep precipices of rock, from 80 to 200 or 300 feet high, and at noon reached Dindikoo, near which are gold-pits. On the 13th, they arrived at a small village called Fanka, four miles N.W. from Binlingalla, lat. 13° 22' 30".

On the 15th, they proceeded from Fanka to the delightful village of Toombin, and on the 17th travelled from Serimana to Fajemmla, a small village, fortified with a high wall, the chief of which is the most powerful in Konkodoo, and has in subjection the whole country from Toombin to the Ba Bing. At Fajemmla, N. lat. 13° 35', the customs paid to the chief are very high. On the 20th, they arrived at an almost deserted village, called Necakalla, close to the Ba Lee or Honey river, where they saw two crocodiles and an incredible number of large fish. On the 21st, they passed the village of Boo tormentooran, and halted for the night at the village of Doggkotta; and the next day they observed many very picturesque and rocky hills during their march, and in the evening halted at the village of Talting, situated on the summit of the ascent which separates the Ba Lee from the Ba Bing. On the 23d, they arrived at the village of Gimba, or Kimba; and about noon reached Sullo, an unvallewed village, at the bottom of a rocky hill, at which place horse-flesh is much valued as food, and where they observed on the adjacent rocks numbers of large monkeys. On the next day, they arrived at Seocoa, lat. 13° 27' 26", and here they halted on the 25th. On the following day, they arrived at the village of Konkrom, about seven miles east of Seocoa, W. long. 8° 0', near the river Ba Bing, a large river quite navigable, and which they crossed in canoes on the 27th; and on the next day, they passed by several heaps of stone, precisely the same with those that are called in Scotland cairns. In pursuing their march, they were alarmed by herds of lions and wolves, and on the 30th, reached a small town, called Kandy. On the 2d of July, they arrived at Koeena, a village encompassed by a wall, and where they were terrified by the roaring and affright of several young lions. On the 3d, they arrived, after a march of six miles, at Koombandi; and at sun-fet reached Fonilla, a small walled village, on the banks of the Wonda, which they crossed on the 4th in canoes, Ifaco having had a surprizing escape from the jaws of a crocodile. On the 5th, they arrived at a village called Boodlinkoombo, sometimes Moaiaharra; and on the 10th, left this village; and eight miles N.E. passed the village of Serrabobo, and a little before sun-fet reached Sabooloo, (Dooty Matta,) a scattered unvallewed village, lat. 13° 50'. From Sabooloo, or Mallahoo, they purfued their march on the 11th to Keminoom, or Maniakorro, a walled town, strongly fortified, lat. 14°; near which the river Ba Lee runs with great velocity, and breaks into small cataracts. This place is notorious for theft and impudence, and they were glad to leave it on the 13th, and to pursue their march by a walled village, called Numbaoo, to the banks of the Ba Woolimma, where they arrived on the 19th; and having crossed the river by means of a wooden bridge of singular construction, they reached Mareena on the 21st, where they suffered depredation; and on the 22d, they arrived at Bangaff, six miles from Mareena, a large town, four or five times larger than Maniakorro, and fortified in a similar manner. On the 27th, they arrived at Nummafooloo, a large but much ruined town, and which they left on the 30th.
31st, they halted at Sobee, a town, the walled part of which serves as a citadel. On the 2d of August, they halted at Bandalung; and on the 3d, at Bandaloo; and on the 4th reached Koolhori, a town partly walled, but having the greater part of its huts without the walls. On the 6th, they reached Ganifarra, a small beggarly village. On the 9th, they crossed the Ba Woolli, a very deep river, flowing at the rate of four or five miles per hour. They pursued their route, until on the 13th, those of them who survived reached Koomikoomi, where they halted; lat. 13° 16' 26". On the 15th, they reached Doombilla, where Mr. Park met with an old friend, Karfa Taura, a worthy negro whom he had known, and whose kindnotes he had experienced in his former travels. From Doombilla, they proceeded on the 18th to Toniba, and from thence they ascended the mountains south of it, till having attained the summit of the ridge which separates the Niger from the remote branches of the Senegal, Mr. Park had the satisfaction of once more seeing the Niger rolling its immense stream along the plains. But this satisfaction was accompanied by the mortifying reflection, that three-fourths of the soldiers had died on their march, and that in their weakly state, they had no carpenters to build the boats in which they proposed to prosecute their discoveries. It was, however, a pleasing consideration, that in conducting a party of Europeans, with immense baggage, through an extent of more than 500 miles, he had always been able to preserve the most friendly terms with the natives; and hence he was warranted to infer, that with common prudence, any quantity of merchandise may be transported from the Gambia to the Niger, without danger of being robbed by the natives; and that this journey may be performed in the dry season, with a probability of not loosing more than three or at most four out of fifty. But Mr. Park was unfortunate in undertaking such a journey with the prospect of the rainy season, and the event proved, that this feafoo fort in before his journey to the Niger was more than half completed. The effect produced on the health of the soldiers by a violent rain, preceded and accompanied by tornadoes, on the 15th of June, was almost incalculable; twelve of them at once were dangerously ill, and from this time, the great mortality commenced, which was ultimately fatal to the expedition. When he reached the Niger at Bambakoo, where the river begins to be navigable, on the 19th of August, there remained out of thirty-four soldiers and four carpenters, who left the Gambia, only six soldiers and one carpenter, and the principal persons who composed the expedition, besides Mr. Park himself, were three, viz. Mr. Anderson, Mr. Scott, and lieutenant Martyn, who were more or less affected by the disease of the climate; the two former very seriously, so that Mr. Scott was left behind at Koomikoomi, and died without reaching the Niger. Mr. Park had been slightly affected, and it is wonderful, that the anxiety and fatigue which he must have experienced did not break down both his spirits and his strength.

Having arrived at the Niger, Mr. Park, and the few companions that remained, embarked in a canoe on the 22d of August, and were borne away by the current at the rate of about five knots per hour. The river is at the point of embarkation an English mile broad, and at the rapids, of which there are three principal ones, it spreads out to nearly twice that breadth. On the 23d, they arrived at Marraboo, where they were joined by those who came by land. Isaaco was immediately dispatched to Sego, the capital of Bambara, to negotiate with Manfong, the sovereign, for a free passage through his dominions, and whilst Mr. Park waited for his return, he was feized with the dysentery, that threatened the termination of all his projects. But by the aid of medicine and the advantage of a good constitution, he was soon restored to health. Many difficulties and delays occurred in the negotiation, which was conducted on the part of Mr. Park with singular judgment and address; but at length, after many unfavourable rumours, which kept his mind in a state of diffuelling suspense, Manfong deputed a messenger to conduct him towards Sego. Under his escort, he left Koolkoro (N. lat. 12° 52') on the 13th of September, and enjoyed the beautiful views which his voyage afforded him; "the river," as he says, "being sometimes so smooth as a mirror, at other times ruffled with a gentle breeze, but at all times sweeping us along at the rate of six or seven miles per hour." On the 14th, they departed from Deena, where they had lodged, and arrived at Yamina, (lat. 13° 15') where they halted on the 15th; and on the 16th reached Samee (lat. 13° 17'). A deputation of Manfong's friends visited Mr. Park, in order to hear from himself a statement of his views and purports in the voyage he was undertaking. His statement was satisfactory to the grandees that had executed this commission, and Mr. Park was assured of permission to pursue his voyage, and of protection from Manfong as far as his power extended. The king and his courtiers were much gratified by the presents which they received on the occasion. Accordingly, on the 26th of September, Mr. Park proceeded from Samee to Sanfandung; which fee. Here he intended to provide a proper relief for his further navigation down the Niger; but it was with difficulty that he procured from Manfong and his son, in return for the presents he had given them, two decayed canoes, which merely afforded him materials for constructing with his own hands, and some assistance from one of the surviving soldiers, a flat-bottomed boat, to which he gave the foundling title of His Majesty's Schooner, the Joliba. In the meanwhile, Mr. Park was informed of the death of Mr. Scott, and he had now occasion to lament the loss of his friend Mr. Anderson, who died, after a lingering attack of four months, on the 26th of October. The sensibility he expressed on this occasion did honour to his feelings, and yet considering his present perilous situation, and the dreary and discouraging prospects which presented themselves with regard to the projects of his undertaking, he must polls a very high degree of equanimity,自制力, and self-possession. On the 16th of November, the schooner having been completed, and every thing in Mr. Park's power to command being ready for the voyage, he clofes his journal; and in the course of the succeeding days previous to his embarkation, which was on the 19th, he wrote several letters to his friends and kindred in England and Scotland. In these letters, we discover traces of that deliberate and inflexible resolution, without effort or ostentation, which proved a distinguishing feature of his character. From this period, we have no strictly authentic information concerning Mr. Park, or the progress and termination of his expedition. In the course of the year 1866, conjectures and reports agitated the public mind; and the agitation was aggravated, by intelligence communicated by the native traders from the interior of Africa to the British settlements on the coast; whence it was concluded, that Mr. Park and his companions were killed. In consequence of these unsatisfactory and alarming rumours, lieutenant colonel Maxwell, then governor of Senegal, obtained permission from government to engage a proper person to investigate and ascertain the truth of these
rumours. Accordingly, he engaged Iiacao, Mr. Park's
guide, to conduct this business. In January 1810,
Iiacao left Senegal, and returned on the 1st of September,
1811, fully confirming the reports of Mr. Park's death.
His journal, including another from Amadi Fatouma, the
guide who had accompanied Park from Sanfanding down
the Niger, was delivered to the governor, and transmitted
by him, after having been translated from Arabic to
English, to the secretary of state for the colonial depart-
ment. From Amadi Fatouma's journal we learn, that
the conductors of the expedition went from Sanfanding to
Silla, where Mr. Park had ended his first voyage; and
that from thence, Mr. Park, Martyn, three other white
men, three slaves, and Amadi, as guide and interpreter,
were in number, proceeded in a canoe to Gima; and as
they passed Sibby, or Dibbie, they were attacked by an
armed force in three canoes, which they repulsed. Again
at Rakbara, or Kabra, they repelled another assault; and in
passing Tombuctoo, they refilled another familiar attack,
escaping by force and by the slaughter of many of the natives.
As they advanced, the number of hostile canoes increased,
until at length it amounted to 60, and in self-defence they
killed a very considerable number of persons; their
own number being now reduced by the death of one of
the white men to eight. At length having passed
Kaffo and Gourmou, and having supplied themselves with
provisions, they entered the country of Haouffal.
The king of the country having received information from
the chief of Yaour, a village in this district, that the white men
had departed without giving them any presents, sent an
army to a village called Bouiffa, near the side of the river,
which was posted on the top of a rock that traversed the
river, in which rock there was a large cleft or opening,
that admitted the water to pass in a strong current; and
when Mr. Park arrived at this opening and attempted to
pass, he was attacked with lances, pikes, arrows, and stones;
again which he for some time resolutely defended himself,
till at length, overpowered by numbers and fatigue,
and unable to keep up the canoe against the current, Mr. Park
laid hold of one of the white men and jumped into the
water; Mr. Martyn did the same, and they were drowned in
the stream in attempting to escape. One canoe was
left, and they took him and the canoe, and carried them to the
king. Amadi, after having been kept in prison for three
months, was released; and obtained information from the
surviving slave, concerning the manner in which Mr. Park
and his companions had died. Nothing was left in the canoe
but a sword-belt, of which the king had made a girdle for
his horse; and this belt Iiacao afterwards recovered.
Amadi, according to Iiacao's report, was a good upright
man, and delivered the above account to him on oath, nor
could he have any interest in deceiving him. From
circumstances it is concluded that Mr. Park died four
months after his departure from Sanfanding.

On Mr. Park's disposition and character it is needless to
enhance, after the detail of the principal transactions
and events of his life given in this article and the article Africa.
In private life his conduct was exemplary, as a son, a
husband, and a father. As to his perfon, he was about six
feet high, and well proportioned. His whole aspect was
mellifluous and his corporeal frame robust and active; and in
fit for great exertion, and for enduring severe hardships.
His family consist of three sons and one daughter, who
with their mother survived to lament the loss of him. See
the second volume of his Travels, a new edition of which
was published in 1816. Svo. For some other particulars,
we refer to the articles Africa, Niger, and Zaire.
thofe of any other ftringed instrument played with the naked fingers; that it is more touching and proper to express tenderness and grief than other affections of the heart; that the ftrings muff be moderately fluck, otherwise the muflc would be as confufed as on the harpsichord or pianoforte without dampers; and, fubly, the author of the article (the comte de Hoghenfki) fays, that the Irish, of all the people in the world, are thofe reputed to perform the fift on the harps of their country.

**PEDILUVIUM**, in Medicine, from pedes, the feet, and lava, I wash, a bathing or immersion of the feet in warm water.

The older practitioners reftored to the pediluvium in a variety of difeafes upon hyfhopatical principles; conceiving that, by drawing the blood into the veffels of the feet, it relieved dilfant organs, as the head or lungs, which were overcharged by a ftate of inflammation in congestion; hence it was recommended in apoplexy, pleury, and other topical affections of dilfart parts. This doctrine of revulfion, however, as applied to the operation of the pediluvium, is more questionable than under any other application of it; for as, like the general warm-bath, it somewhat accelerates the general circulation, it might be a doubtfuil remedy in cafes where the motion of the heart and arteries is already too great.

The operation of the pediluvium is, in fact, simply that of a partial warm-bath; and with great fpeed limited to thofe disorders in which more general remedy is indicated; being more practicable and easy expedient, though necessarily much less effective in its influence. The most valuable and common application of the pediluvium is at the onft of febrile difeafes, while a certain degree of chillinefs is prefent. Used in this ftate previous to going to bed, it contributes, by moderately exciting the heart and arteries, to equalize the circulation, and determine the blood to the ftomach, whence a flight diaphoresis often follows its use under these circumstances. Thus the attack of a commencing catarrh or rheumatism is often warded off by the ufe of pediluvium, aided by other proper means; and to this kind of treatment its operation is probably to be limited. In the more advanced ftage of febrile difeafes, especially when there is delirium, or a general heat, its advantages are very problematical.

**PEDRICK ISLAND**, in Geography, a township of Plymouth county, in Maffachufetts, having 7 perfons.

**PEELING**, l. 2, r. 203.

**PEEPEC**, a township of Ohio, in Rofs county, containing 670 perfons.

**PEGYSENT**, a town of Maine, in the county of Cumberland, having 805 inhabitants.

**PHELAM**, l. 3, r. 1185; l. 7, r. 998.

**PEmbroke**, in America, l. 3, r. 2051. Col. 2, l. 2, r. 1153.

**PENCADER**, a hundred of Newcalfte county, in the district of Delaware, having 1865 perfons.

**PENDLETON**, l. 4, r. 439; inhabitants, of whom 202 are felves; l. 6, r. 22,897; l. 23, r. 3485. Col. 2, l. 1, r. 2040; l. 2, r. 346.

**Pendulum**, col. 10, l. 16, add—The latel and most correct experiments that have been made for determining the length of the pendulum vibrating feconds are thofe of captain Kater. Thefe experiments were performed with a pendulum constructed on the following principle: In illustrating this principle he flates, as a known fact, that the centres of fulpenfion and oscillation are reciprocal; or, in other words, that if a body be fo suspended by its centre of oscillation, its former point of fulpenfion becomes the centre of oscillation, and the vibrations in both positions will be performed in equal times. As the diftance of the centre of oscillation from the point of fulpenfion depends on the figure of the body employed, if the arrangement of its particles be changed, the place of the centre of oscillation will also fuffer a change. Suppose then a body to be furnished with a point of fulpenfion, and another point on which it may vibrate, to be fixed as nearly as can be estimated in the centre of oscillation, and in a line with the point of fulpenfion and centre of gravity. If the vibrations in each position should not be equal in equal times, they may be readily made fo, by shifting a moveable weight, with which the body is to be furnished, in a line between the centres of fulpenfion and oscillation; when the diftance between the two points about which the vibrations were performed being measured, the length of a fimple pendulum, and the time of its vibration, will at once be known, uninfuenced by any irregularity of definity or figure. This principle being adopted for the conftuction of the pendulum, the next objed of importance is to felect a mode of fulpenfion equally free from objection. For this purpose a knife-edge was preferred, and the grounds of preference are hereby stated. The pendulum is formed of a bar of plate bras, an inch and a half wide and one-eight of an inch thick. Through this bar two triangular holes are made at the diftance of three-quarters of an inch from each other, to admit the knife-edges. Four strong knees of hammered bras, of the fame width as the bar, fix inches long, and three-quarters of an inch thick, are firmly screwed by pairs to each end of the bar, in fuch a manner, that when the knife-edges are paffed through the triangular apertures, their backs may bear readily against the perfectly plane surfaces of the bras knees, which are formed as nearly as poffible at right angles to the bar, which is cut of fuch a length, that its ends may be short of the extremities of the knee-pieces about two inches. Two slips of deal 17 inches long, and of the fame thicknefs as the bar, are inferted in the spaces thus left between the knee-pieces, and are firmly secured there by pins and fcrews. These slips of deal are only half the width of the bar; they are fainted black, and in the extremity of each a small whale-bone point is inferted, for the poffe of indicating the extent of the arc of vibration. A cylindrical weight of bras, in diameter three inches and a half, and an inch and a quarter thick, and weighing about 2 lbs. 7 oz., has a rectangular opening in the direction of its diameter, to admit the knee-piece of one end of the pendulum. This weight being paffed on the pendulum, is fo thoroughly secured there by means of a conical pin fitting an opening made through the weight and knee-pieces, as to render any change of position impossible. A second weight of about seven ounces and a half is made to slide on the bar near the knife-edge at the opposite end; and this weight may be fixed at any diftance on the bar by two fcrews with which it is furnished. A third weight, or slider of four ounces, is moveable along the bar, and is capable of nice adjuftment by means of a fcrew fixed to a clamp, which clamp is included in the weight. This slider is deigned to move near the centre of the bar; and it has an opening, through which may be feen divisions, each equal to one-twentieth of an inch, engraved on the bar; and a line is drawn on the edge of the opening to ferve as an index for determining the diftance of the slider from the middle of the bar. The knife-edges are made of that kind of fteel prepared in India, and called wootz. Their form is triangular, and their length an inch and three-quarters. They were ground on a plane tool, so as to ensure their having a perfectly ftraight edge. They were then carefully finned on a plane green bone.
home, giving them such an inclination as to make the angle on which the vibrations are performed about 120 degrees. Before the knife-edges were hardened, each was tapped half-way through, near the extremities, to receive two screws, which being palled through the knee-pieces, drew the knife-edges into close contact with them; the surfaces of both having been previously ground together to guard against any strain which might injure their figure. For the description of the support and other apparatus of this pendulum, illustrated by drawings, and the method of determining the experiments, and certain other observations, our limits require us to refer to the Phil. Trans. for the year 1818, pt. 1.

From his experiments and observations, Captain Keeler concludes, that the length of the pendulum vibrating seconds in vacuo at the level of the sea, measured at the temperature of 62° of Fahrenheit, appears to be

By frr. G. Shuckburgh's standard - 39.13860

By general Roy's scale - 39.13717

By Bird's parliamentary standard - 39.13842

The latitude of the place of observation being 51° 31' 8" N.

PENKEL. In 1811, this township contained 196 houses, and 923 persons; viz. 438 males, and 485 females.

PENN's r. 1, 2, r. 3798. Add—Alto, a township of Northumberland county, having 2072 inhabitants.

Penn's Neck, r. 1, 2, add—Upper Pen's Neck contains 1638, and the Lower 1165 inhabitants.

PENN'SBOROUGH, East. Add—containing 2365 persons.

PENN'SBOROUGH, West. Add—It contains 1264 persons.

PENNSYLVANIA, r. 7, add—By the census of 1810, the number of counties is 43; the five following counties having been added; viz. Cambria, Indiana, Clearfield, Jefferson, Tioga, Potter, McKean; and the city and county of Philadelphia being separated. The number of inhabitants is stated to be 816,091, including 795 slaves. See each county, and United States.

PENOBSCOT, r. 5, r. 1302.

POCONO, a township of St. Clair, in the Illinois terri-

tory, having 93 inhabitants.

PEPPERELL, r. 4, r. 1333.

PEQUANOCK—Add—containing 3853 inhabitants.

PERCHLORIC ACID, in Chemistry. See Chlorine.

PERGASTE. See Mineralogy, Addenda.

PERICARDIUM, see chemical Composition of.

See FLUIDS, Animal.

PERQUINS, r. 5, r. 6052—2017.

PERIA, col. 8, l. 18 from bottom, r. See Persian Language. Col. 13, l. 12 from bottom, r. Kejer. At the end, r. Kinner's.

PERSIAN GULF, &c. l. 1, for Omar r. Oman.

PERSON, r. 2, r. 6442; l. 5, r. 2573.

PERSPECTIVE, col. 4, l. 2, for plane r. line, and infert radial before parallel; l. 13, for parallel lines r. parallel planes; l. 10, for point r. line. Probs. xxii. Meth. 1. l. 12 and 13, the lines which should have been drawn from Q to e and d are in the plate improperly drawn from the point 3. Method 8. l. 3, r. representation. Method 11. l. 13, for and r. d.

PERTH, col. 4, l. 23 from bottom, for 4715 r. 4510; and after 16,948 inhabitants, r. viz. 7687 males, and 9261 females.

PERTH-AMBOY, l. 11, r. 815 inhabitants.

PERTHSHIRE. In 1811 this shire contained (ex-
clusive of the town) 21,894 houses, and 116,975 persons;
given every other night for four or five nights, for horses affected with gravel. Mr. White directs a composition of 6 oz. of levigated antimony, 8 oz. of flowers of sulphur, mixed with treacle, to be made into 8 balls;—or, 4 oz. of powdered rosin, 3 oz. of nitre, 1 oz. of tartarified antimony, mixed with treacle, and divided into 8 balls;—or, 3 oz. of unwashed calx of antimony, 2 drs. of calomel, and 4 oz. of powdered aniseeds, mixed with treacle, and divided into 8 doses;—or, ⅜ dr. of calomel, 1 dr. of aloes, 2 drs. of Caliile foap, 30 drops of oil of juniper, and ⅜. oz. of powdered aniseeds, made into a ball with syrup, which serves for one dose, and which Mr. W. calls the “mercurial” alternative.

Mr. Taplin recommends levigated antimony, flowers of sulphur, and nitre, of each 3 oz., 10 oz. of Caliile foap, 3 drs. of oil of juniper, formed into a mafs with honey q.s.; and divided into 12 balls, and one to be given every morning or for three or more weeks, in cafes of gravel, after purging with a common ball;—or, milk of sulphur, prepared antimony, cream of tartar, cinnabar of antimony, of each 5 oz., 4 oz. of Æthiops' mineral, and honey q.s.; and the mafs divided into 12 balls, one of which should be given every morning, for a month, in the farcy.

Purging balls are prepared, according to the directions of Mr. Taplin, of 1 oz. of fococotan aloe, 2 drs. of rhubarb, jalap, and cream of tartar, of each 1 dr., 2 scruples of ginger, oil of cloves and oyl of aniseed, of each 20 drops, and fyrup of buckthorn q.s. Mr. White orders 5 drs. of fococotan aloe, 2 drs. of prepared astron, 1 dr. of aromatic powder, 10 drops of oil of caraway, and fyrup q.s.;—or, 7 drs. of fococotan aloe, ¼ oz. of Caliile foap, 1 dr. of ginger, and 10 drops of oil of caraway, with fyrup q.s.;—or, 1 oz. of fococotan aloe, 2 drs. of prepared astron, 1 dr. of aromatic powder, 10 drops of oil of aniseeds, and fyrup q.s. Mr. White allows us, that the second of his compositions is generally sufficient for strong horses, and that he has never had occasion for a more active purge than the ball. Mr. Ryding directs 6 drs. of Barbadoes aloe, 1 scruple of ginger, and soft-foap q.s.;—or, ⅔ oz. of Barbadoes aloe, 1 dr. of calomel, and mucilage of gum arabic q.s. The first he calls a mild purging ball, and the latter the mercurial purging ball. Mr. J. Lawrence directs 2 or 3 balls to be made of the following ingredients; ⅔ oz. from 12 to 14 drs. of fococotan aloe, from 1 to 2 oz. of cream of tartar, a tea-spoonful of powdered ginger, a table-spoonful of olive-oil, and fyrup of buckthorn or treacle, q.s. Mr. R. Lawrence, for the same purpose, orders 9 drs. of Barbadoes aloe, and 1 dr. of ginger, to be formed into a ball with fyrup or treacle.

Diuretic balls are prepared by Mr. R. Lawrence of ½ oz. of Venice turpentine, 2 drs. of tartarified antimony, and 1 oz. of liquorice-powder, with treacle. By Mr. White, they are made to consist of 4 oz. of Caliile foap, and powdered rosin and nitre, of each 2 oz., ⅓ oz. of oil of juniper, linedine-powder, and fyrup q.s. This mafs for strong horses is divided into 6 balls, but for weak ones into 8:—or, the fame balls may be prepared of 4 oz. of Caliile foap, 2 oz. of Venice turpentine, and powdered aniseeds, and treacle, q.s. fo as to form 6 balls;—or, balls from 1 to 1½ oz. are prepared, according to Mr. Ryding's directions, of yellow rosin, Caliile foap, and Venice turpentine, of each 1 lb. divided slowly over the fire and formed into a mafs. Thefe balls, he fays, are excellent diuretics, and may be given in grippes, in glided legs, gravel, or in difeafes of the eye, &c.

Cordial balls are prepared by the fame of 2 oz. of grains of paradylfe, finely powdered, ginger and canella alba, of each ⅜ oz., aniseeds and caraway-seeds, of each 1 ½ oz., 2 oz. of liquorice-powder, and honey q.s.; to be given occasionally. By Mr. White, thefe balls are prepared by making a mafs with treacle of cummin-seeds, aniseeds, caraway-seeds, of each ½ oz., and 2 oz. of ginger; and they are given in the quantity of about 2 oz.;—or, they may be made of aniseeds, caraway-seeds, moit fennel-seeds, or liquorice-powder, of each 4 oz., ginger and cafea, of each 1 ½ oz., made into a mafs with honey, and given in a dose of about 2 oz.

Affinuent balls are prepared by Mr. Taplin's directions of 6 drs. of diafcorum, gum arabic, prepared chalk, and Armenian bole, of each ½ oz., 1 dr. of ginger, 40 drops of oil of aniseed, with fyrup q.s.; they are given in cafes of lownefs or fcurfing, and repeated every 6, 8, or 12 hours, as the cafe may require. For this purpofe balls may be prepared of rhubarb, and compound powder of gum tragacanth, of each ⅔ oz., colombo and ginger, of each 1 dr., 15 grs. of opium, 6 drs. of orange-peel, and fyrup of poppies; the ball to be repeated in 12, 18, or 24 hours;—or, 1 oz. of mithridate, Armenian bole, gum arabic, and prepared chalk, of each ⅔ oz., 2 drs. of ginger, and fyrup of poppies, may form a ball.

Refractive ball is formed, according to Mr. Ryding, of ½ lb. of Peruvian bark, 2 oz. of grains of paradylfe, gentian, and colombo, of each 3 oz., and honey q.s.; the mafs is to be divided into 16 balls, and one to be given every morning in cafes of indigention or lofs of appetite. Mr. Taplin directs a ball for this purpofe to be made of 4 oz. of Peruvian bark, 2 oz. of mithridate (or diafcorum), canella alba, snake-root, and camomile, of each, in powder, 10 oz., or formed into a mafs with honey q.s.; and divided into 6 balls, one to be given night and morning;—or, ⅔ oz. of Venice treacle, 6 drs. of Peruvian bark, colombo, and camomile, of each 2 drs., 25 drops of oil of caraway, and honey q.s.

Disphoritic balls are formed, according to Mr. White's directions, of 1 dr. of opium, 2 drs. of camphor, 3 drs. of tartarified antimony, ⅔ oz. of powdered aniseeds, and fyrup q.s.

PHASIS, l. 9, infect—it is at the town of Serpasa that it becomes navigable, and after collecting the streams of the plain of Mingrelia, it enters the Black fea. It pursues a course of 500 miles, 40 of which are navigable for large vessels. At its discharge into the fea, it has a small woody ifland in the midit of the channel.

PHASMA, in Entomolog, genus of insects formed from some of the Linnaee Mantes, and differing from that genus in having all the legs equally formed for walking, and without the falcforn joint that diftinguifhes the fore-legs in mantes. The characters are, head large, antena fylforn, eyes small, rounded; stemmas three between the eyes; wings four, membranoufe; the upper pair abbreviated, the lower pleated; and feet formed for walking. They feed entirely on vegetable food. The molt remarkable is the P. gigas or M. gigas of Lineus. It is a native of the ifland of Amboina. Another extraordinary species is the P. dilatatum, defcribed in the 4th volume of the Transactions of the Linnaean Society. Some infects of this genus, as well as thofe of the mantis, have their upper wings reftembling the leaves of trees; nature having thus provided for their fecurity againft the attacks of birds, and as well as for the more ready attainment of their prey. The female of the P. fucifolium has no under wings.

PHILADELPHIA, l. 6, r. 19.; 1. 7, r. contained, in 1810, 57,488 inhabitants. Add—Allo, the metropolis of Pennsylvania, and now a dinct county, containing 14 wards, and, by the census of 1810, 53,722 inhabitants.

PHILADELPHIA Store, l. 3, after city, add—in Asia.

PHILIP S
PHILIPSBURG, a town of York county, in Maine, with 1427 inhabitants.

PHILOSOPHER'S STONE, l. 23 from the end, r. should not be enceraged.

PHLOGISTON, l. 19, r. now said to be separaged.

PHOCA, l. 4, r. fix (or four, Shaw).

PHOSPHATE of Copper, in Mineralogy. See Mineralogy, Addenda.

PHOSPHORE. See Mineralogy, Addenda.

PHOSPHORUS, Phosphoric Acid, Phosphates, &c. in Chemistry. According to the most recent determination of Dr. Thomson, the weight of the atom of phosphorus is 15, that of phosphoric acid 25, and that of phospboric acid 35. A good deal of doubt, however, still hangs over this principle and its compounds. The hypophosphorous acid, discovered by Dulong, and which is formed when phosphuret of barytes is dissolved in water, appears to contain less oxygen than either the phospborous or phosphoric acid, and was formerly considered as the protoxyl or first compound of phosphorus and oxygen. Dr. T., however, is lately disposed to consider the hypophosphorous acid as a compound of 2 atoms phosphorous + 1 atom oxygen; but this is by no means ascertained. We may also observe, that all the ball analyses of the phospberettes shew that the weight of the atom of phospboric acid lies between 40 and 45.

We may mention here, that Dulong observed an acid formed during the slow combustion of phosphorus, composed, as he supposed, of 1 atom phosphoric acid + 1 atom oxygen, and which he has named phospbhoric acid. (Phragm. Minor. l. 6, r. N.W.; l. 20, r. Alexandria, From. Col. 3, 18, r. Podarcis.)

PICA. At the closet, add—See Aves, Classification, and Natural History.

PICROLITE. See Mineralogy, Addenda.

PICROMEL, in Chemistry. See Bile.

PIGMENTS. Add—The results of sir Humphry Davy's late experiments on the colours used by the ancients as pigments are as follow. The red colours which they employed he found to be red-lead, vermilion, and iron ochre. The yellows were yellow ochre, in some cafes mixed with chalk, in others with red-lead. The anciently used umber and masonic as yellow paints. The blues were a pounded glafs, composed of soda, lime, and oxys of copper. Indigo was likewise employed by the ancients, and they coloured blue glafs with cobalt. The greens were compounds containing copper; sometimes the carbonate mixed with chalk; sometimes with blue glafs. In some cafes, they confined of the green-earth of Verona. Verdigris was likewise used by the ancients. The purple colour found in the baths of Titus, was an animal or vegetable matter combined with alumina. The blacks were charcoal; the brown ochres; the white chalk or clay. White-lead was likewise known to the ancient painters.

PILKINGTON, l. 1, r. 18, after Lancashire, add—in the hundred of Salford, and parish of Peelwick, containing 7353 persons, occupying 1196 houses, of whom 1223 are employed in trade and manufactures, and 166 in agriculture.

PILLORY. This kind of punishment is now abolished in England.

PITCH-STONE. See Mineralogy, Addenda.

PITT, in America, l. 2, add—of whom 5589 were slaves in 1810.

PITTSTOWN. Add, at the closet—containing 694 persons.

PIITTSVLANIA, l. 2, add—of whom 6312 were slaves.

PLANE-Tree, for Plantanus v. Platanus.

PLANET, col. 20, l. 6 from bottom, for 365 days, hours and minutes, r. 365 days.

PLANETARIUM, col. 20, l. 3 from bottom, for Jupiter's r. Saturn's. Col. 23, l. 15 from bottom, for 23° 32' 59" r. 23° 59' 59".

PLAQUEMINA, in Geography, a parish of the county of Orleans, in the territory of Orleans, containing 1549 persons. The soil of this parish is well adapted to the cultivation of the sugar-cane, and some of the largest sugar estates yet formed on the Mississippi are within its limits, so that sugar is its staple commodity. The important port of Fort St. Philip is one of the defences of Louisiana.

PLASANIA. See Mineralogy, Addenda.

PLATINUM, in Chemistry. Dr. Thomson concludes, from the few experiments that have been made on this metal and its compounds, that the weight of its atom is 226.25.

PLATYSTACUS, in Ichthyology, a genus of abdominal fishes, imported by Dr. Bloch, and nearly allied to that of Silurus. Its generic characters are, that it has the habit of silurus, mouth beneath, bearded with cirri, body scaleless, depressed, tail long, compressed. Dr. Shaw enumerates and describes the following species, viz. cyathophorus, with fix beards, and ventral acetabula, the Silurus spp. of Linnaeus, a native of the Indian seas and rivers Lancus, with eight beards and smooth abdomen, differing perhaps only in fix from the former; verrucosus, or warted brown P., marked above by longitudinal warty lines, with short anal fin, similar to the last, but smaller and of a beads elongated form; a native of the Indian seas; anguillaris, or eel-shaped brown P., with longitudinal white stripes, and the second dorsal, anal, and caudal fin united, form beads bold in front that of the preceding species, having eight instead of five beards; a native of the Indian seas.

PLEASANT, in Geography, l. 2, r. 1246. Add—Alfo, a township in Franklin county, having 159 inhabitants.

PLEASANT, Mount. Add—a township in Madison county, having 326 inhabitants.

PLUMSTEAD, l. 2, in Bucks county, having 1407 inhabitants.

PLUTONIUM, in Chemistry, a name given by Dr. Clarke to the suppressed metallic balls of barytes. See Barytes and Blow-Fire.

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POGONIUS, in Ornithology, a genus of birds of the order Pice; the characters of which are, beak large, thick, dilated at the base, with the upper mandible bidentate on both sides; nostrils covered with bristles, feet lineate, with two toes before and two behind. This genus is given three species, all inhabitants of Africa; viz. fulicaris, or groove-beaked, the blue-black P. with throat, neck, belly, and an obscure stripe on the wings, scarlet, fides yellowish, back with a white spot, quills dark-brown, upper mandible with one longitudinal, under with many transverse grooves; inhabits about the coast of Barbary; leucophris, or smooth-beaked black P., with throat, neck, breast, abdomen, and a stripe on the wings, scarlet, back with a white spot, crown of the head variegated with scarlet; beak smooth, not grooved; the buccus dubius B. of Latham; nicollii, or brown P., whitish beneath, head, neck, throat, and spots on the breast, scarlet; interior wing-quills externally margined with pale; beak smooth, not grooved. Shaw.
POINT, in Geography, a township of Northumberland county, in Pennsylvania, having 431 persons.

POINTE COUEPE, a county and parish of New Orleans, containing 4539 persons.

POIRET, See THEOSOPHISTS.

POISON, col. 3, l. 15 from bottom, for verus R. berus.

POLAND, col. 9, l. 31, add—From a flatitical account of Poland, published at Warsaw, it appears, that this kingdom in its present state contains 1291 square miles, (of 15 to a degree,) 481 towns, 22,604 villages, and a population of 5,732,374 persons, of whom 219,442 are Jews.

Poland, in America, col. 2, l. 2, r. 850. Add—Alto, a township of the county of Trumbull, in Ohio, with 827 inhabitants.

POLARITY of Light. See Light.

POLARIZATION, in Optics, a term which has been lately applied to that change which takes place in the direction of rays that pass through certain crystals, and which derives this appellation from its analogy to magnetic phenomena. It was first suggested by the modifications of light discovered by M. Malus (see Light), and has since been investigated with equal ingenuity and diligence by Dr. Brewster. For his numerous communications on this subject to the Royal Society, he was honoured with the Copleyan medal.

POLASKI, in Geography, a county of Georgia, containing 2691 inhabitants, of whom 528 were slaves in 1810.

POLE, l. 2, add—the fourth son of the countes of Salisbury, who was cruelly and unjustly beheaded by Henry VIII., and whose father, the duke of Florence, was drowned in a butt of maltwine by his son.

POLOPHILUS, CoucAL, in Ornithology, a genus of birds of the order Picæ; the characters of which are, beak strong, slightly incurved, nostrils straight, elongated, feet simple, two toes pointing forward, the exterior being the largest, two toes turning backwards, the interior furnished with a very long claw. The Coucals, so first called by Vaillant, form a most beautiful tribe of birds. They divide in woods, feed on insects and fruits, and construct their nests in trees, and (contrary to the manners of cuckscoos) bring up their young, from which circumstance their generic name is derived. Shaw.

POLYPTERUS, in Ichthyology, a genus of the abdominal fishes; the character of which is, that the gill-membrane is single-rayed, and the dorsal fins numerous. This fish constitutes a new and remarkable genus, and was first scientifically described by M. E. Geoffroy, who considered it as forming a connecting link between the oblong and the cartilaginous fishes. It seems most nearly allied to the genus Elox. It is known to the Egyptians by the name of Biche, among whom it is rare, and supposed in general to inhabit the depths of the Nile among the soft mud. Its flesh is white and savoury, though it is hardly possible to open its skin with a knife; and therefore this fish is first boiled, and its skin drawn off whole. It's specific name is Niloticus, and it is characterised as the green P., with the abdomen spotted with black. Shaw.

PONT-VOLANT, delie the description, and let the reference remain.

PORANTHERA, in Botany, from pears, a pure, and anthier, an anther.—Rudge Tr. of Linn. Soc. v. 10. 322.


1. P. cricifolia. Rudge as above, t. 22. f. 2.—Native of New South Wales. Dr. White. A very extraordinary little plant. Stem branched, round, leafy, four to five inches high. Leaves scattered, numerous, linear, glaucous. Flowers coromycose, minute, white. The dried specimens resemble some small kind of Lepidium.

PORCELAIN, col. 24, l. 31, r. in a melted flate.

PORCELAIN Jasper. See Minerology, Addedenda.

PORCILLA, in Botany, so called by Ruiz and Pavon, in honour of Don Antonio Porcela, a Spaniard, whom they celebrate, in the highest terms, as a promoter of botanical pursuits. Our readers for adopting this name, in preference to any other, for the genus we are about to describe, may be found under the article ASIMA. Thus we preface to consider the Affamina and Porcella of De Candolle as one and the same genus, may require a still further apology, and we shall presently give it, as far as we are able.—“Ruiz et Pavon Fl. Peru. v. 1. 144. Prodr. 84. t. 16. Dunal Annonce. 85.” De Cand. Syd. v. 1. 480. “Perf. Syn. v. 2. 95.” Pursh 383. (Affamina; Adans. Farn. v. 2. 365. Dunal Annonce. 81. De Cand. Syd. v. 1. 478. Orchidocarpum; Mich. Bor.-Amer. v. 1. 329. Annexe spec. Linn. Juss. Gen. Willd. Ait. &c.).—Clafs and order, Polyandra Polygynia. Nat. Ord. Conandtes, Linn. Annonce. Juss. Annexes. De Cand.

Gen. Ch. Cal. Perianth inferior, of one leaf, in three deep, equal, ovate, concave, permanent segments. Cor. Petals five, unequal, in two rows, stellate, ovato-oblong, spreading, coriaceous; the three innermost either larger or smaller than the rest. Stam. Filaments scarcely any; anthers very numerous, nearly stellate on the convex receptacle, oblong, bristling at each side. Pfll. Germinis from three to six, ovato-oblong, sessile, fyles none; frigues oblong. Peric. Berries as many as the germines, sessile, crowded, ovato or nearly cylindric, more or less succulent, of one cell. Seeds numerous, elliptic-oblong, ranged transversely in a double row, inferior into the inner margin. Eff. Ch. Calyx inferior, deeply three-cleft. Petals five, ovato-oblong, spreading, in a double row, unequal. Germines oblong. Stigma sessile, obtuse. Berries sessile, of one cell, with many seeds.

A shrubly or arboreous genus, with oblong, undivided, deciduous leaves, and axillary, nearly solitary flowers, either sessile or stalked, in some instances expanded before the foliage. All the species are natives of the cooler parts of America. The able professor De Candolle separates Affamina of Adanson from Porcella of the Fl. Peruv., the latter having its three inner petals rather the largest, the fruit more cylindrical and coriaceous, the seeds in a double row. In Affamina the three outer petals are much the largest, and the fruit more ovate. But the seeds are likewise in a double row in one species at least of this genus, the tribola, as De Candolle, on the authority of Ehret, admits; and the comparative size of the inner and outer petals, different in different species of Affamina, can hardly be much relied on, nor is this admitted by De Candolle among his most essential characters, p. 465. The more or less cylindrical or ovate form of the fruit will not, surely, be infested on; nor can that of the original Porcella differ essentially in substance from the others, being like them succulent and eatable.

tainous woods in Peru. A tall and very handsome tree, forty ells in height, with greyish, rugged, minutely dotted branches. Leaves alternate, on short stalks, oblong-lanceolate, rounded at the base, entire, shiny on both sides, shining above. Stalks axillary, several together, drooping, thickened upwards, each bearing one or more yellowish-white flowers, about an inch in diameter. Berries cylindrical, tumid, rather coriaceous, but juicy and eatable, each marked with a longitudinal seam. Seeds oblong-kidney-shaped, compressed in two rows. The leaves afford a yellow dye.

2. P. parviflora. Small-flowered Porcelain. Pursh n. 2. (Afinima parviflora; De Cand. Syll. v. 1. 478. "Dunal Anon. 82. t. 9." Orchidocarpum parviflorum; Mich. Boreal.-Amer. v. 1. 329.)—Leaves obovate-wedge-shaped, pointed, clothed with rusty down below, as well as the young branches. Flowers small. Outer petals long, scarcely twice the length of the calyx. In shady woods, near rivers and lakes, from Virginia to Georgia, flowering in April and May. A low shrub, sometimes not above two feet high when in full fruit. Flowers small, dark purple. Pursh. Branches smooth, slightly rugose; when young leafy, and covered with reddish pubescence. Leaves on very short stalks; acute at the base; ribbed and downy beneath; smooth and green above. Flowers nearly or quite seife, coming before the leaves, from the axillary scapes of last year's foliage. Their stalks, if any, as well as the outides of the calyx and corolla, are clothed with reddish down. Berries two or three from each flower, aggregate, ovate, smooth, rather seife, "the size of a plum." De Candolle.

3. P. triloba. Three-leaved Porcelain. Pursh n. 1. (Afinima triloba; De Cand. Syll. v. 1. 479. "Dunal Anon. 83." Anons triloba; Linnae. Sp. Pl. 758. Willd. Sp. Pl. v. 2. 1267. Ait. Hort. Kew. v. 3. 335. A. folinis lanceolatis, fructibus trifidis; Mill. Ilc. v. 1. 23. t. 35. A. fructu luteoente lavi, ferotum arietiis referente; Catech. Carol. v. 2. t. 85. Trew Ehret 1. t. 5. Dulham. Arb.v. 1. 60. t. 19. 20. Orchidocarpum arizematicum; Mich. Boreal.-Amer. v. 1. 329.)—Leaves elliptic-oblong, pointed at each end, nearly smooth, as well as the young branches. Flowers small. Outer petals roundish-ovate, four times the length of the calyx. On the overflowed banks of rivers, from Pennsylvania to Florida, flowering in March and April. A small tree. Flowers dark brown. Fruit large, eatable. Pursh. This species, introduced by the celebrated Peter Collinson, is still met with in several curious gardens, like those of Kew, Sion-house, &c., where it produces in the spring large inodorous flowers, an inch and a half broad, with wrinkled dark-brown petals, as represented by Miller. Catech and Ehret make them of a pale yellowish-green. The leaves, which come forth as the flowers begin to fall, are five or six inches long, and an inch and a half or two inches broad, on short stalks. The flowers—flats are solitary and single-flowered, from one to two inches long, downy with purplish hairs. Berries ovate, yellow, two or three inches long, not perfetked in England, eatable, though reported by some persons to have an unpleasant smell. Seeds eight or ten, large, brown, rugose, in a double row, as represented by Ehret. Miller's figure exhibits a single row only. One or two berries only appear to be perfetked from each flower.

4. P. pygmaea. Dwarf Porcelain. Pursh n. 3. (Afinima pygmaea; De Cand. Syll. v. 1. 479. "Dunal Anon. 84. t. 10." Orchidocarpum pygmaeum; Mich. Boreal.-Amer. v. 1. 330. Anons pygmaea; Bartr. Trav. v. 1. 10. Willd. Sp. Pl. v. 2. 1268.)—Leaves oblong-lanceolate, obtuse; wedge-shaped at the base; smooth, as well as the young branches. Outer petals large, obovate-oblong, greatly exceeding the calyx. In the sandy fields of Georgia and Florida. The whole shrub not above a foot high. Flowers the size of Anons squamosa. Pursh. This is smooth in every part, with very long leaves, and short, single-flowered, solitary, bracteate flower-flats. Flowers white; their inner petals small, elliptical and obtuse. De Candolle. Pursh, by a faulty punctuation, makes the inner petals long.


PORTER, in Geography, a small township of the district of Maine, in the county of Oxford, having 292 persons.

PORTLAND, New, a township of Maine, in the county of Somerset, having 421 inhabitants.

PORTSBOROUGH. In 1811, the parish of St. Cathert's contained 1058 houses, and 38,673 persons; viz. 16,873 males, and 21,800 females: 210 families being employed in agriculture, and 3342 in trade, manufactures, or handicraft.

PORTSMOUTH, col. 51. 1. 20. for tons r. cwt.

POTASSIUM, Potash, in Chemistry. The most recent determinations make the weight of the atom of potash to be 50, and that of potash of course to be 60. Potash, when heated in oxygen gas, combines with a larger quantity of oxygen than exists in potash, and thus forms a compound which is, in fact, a peroxide of potash. This peroxide is of a lemon yellow colour; when put into water it effervesces, giving off oxygen gas. Phosphorus, sulphur, and carbon, are acidified when brought in contact with it. Hydrogen, when heated with it, is slowly and without combustion converted into water. It decomposes ammonia, converting it into water and azotic gas.

POTT, Percival, col. 2. 1. 27. for 1726 r. 1736.

POZTZAM. Add.—Potzdam contains (the military not included) 115,426 souls.

POULTICE, in Farriery, is compounded of various ingredients, according to the purposes of its application. Some of the most approved, founded in modern veterinary science, are the following:—The common poultice consists of 3 pecks of bran and water, g. f. boiled for ten minutes, and then thickened with linseed-meal, having the addition of 3 oz. of hog's-lard: or, 5 peck of fine pollard, 2½ lbs. of linseed-meal, and boiling water, g. f. adding 2 oz. of hog's-lard. Fermenting poultice is obtained by boiling a quantity of brewer's wort, and throwing into it as much oatmeal as will thicken it; adding, lastly, a tea-cupful of yeast: this is adapted to putrid ulcers, or mortified parts. Saturine poultice is had by adding to the common poultice 3 drs. or ¾ oz. of extract of lead, and mixing them well together: or, 1 oz. of acetate ceruf, (figur of lead,) 3 quarts of boiling water, with the addition of bran and linseed-meal, g. f. A suppurative poultice may be made by stiring a sufficient quantity of common turpentine into some
Some of the common plant dyes. An anodyne poultice may be prepared in the same way, by adding a sufficient quantity of tincture of opium.

POWATAN, i. 1, r. 8073 inhabitants, of whom 5091 were females in 1816.

POYANG, i. 2, add.—According to a statement in "Ellis's Journal of an Embassy to China," (vol. ii.), this lake is very extensive in extent to the Tung-ting-hoo, in Ho-quaung, the one being 180 miles, and the other 5000 acres; the lake being rather more than one-third of a mile.

POWDER-CHESTS, i. pennii, for fixed r, fired.

PRAIRIE, or MEADOW, a term used in North-West America, to denote a tract of land diversified of timber. In travelling W. from the Alleghanies, such tracts occur more frequently, and are of greater extent as we approach the Mississippi. When we proceed to the distance of 2 or 300 miles to the west of that river, the whole country is of this description, which continues to the rocky mountains westward, and from the head waters of the Mississippi to the gulf of Mexico, an extent of territory which probably equals in area the whole empire of China.

PREBELL, in Geography, a county of Ohio, containing 7 townships, and 8,304 inhabitants.

PREHINT, See MINERALOGY, Addenda.

PRICE. See Political Economy.

PRINCE EDWARD, i. 2, after inhabitants, add,—of whom 6096 were males in 1816.

PRINCE George, i. 3, infant,—of whom 4284 were males in 1816.

PRINCE George, i. 5, infant,—of whom 9189 were males in 1816.

PRINCE William, i. 3, add,—of whom 5220 were males in 1816.

PRINCESS Anne, i. 4, infant,—of whom 3726 were males in 1816.

PRINTING, Calico, is the art of imparting various colours to plain calicoes, in any form, or according to any pattern that may be desired, by means of certain colourless mordants previously applied to the cloth. This art has sometimes been denominated topical dyeing, and the various branches of it are calculated to afford the those who may have the opportunity of witnessing the different processes, without being acquainted with the nature of chemical mordants, and their several uses in the arts.

The art of calico-printing is of great antiquity. Homer speaks of the variegated cloths of Sidon, as having a very splendid appearance; and Pliny describes the Egyptians as accustomed to prepare parti-coloured linens, and observes that these colours were produced after a manner corresponding with our method of topical dyeing. He says the Egyptians began by painting or drawing on white cloths (doublets, linen or cotton,) with certain drugs, which in themselves poissied no colour, but had the property of attracting or absorbing colouring matters. After which, these cloths were immered in a heated dyeing liquor; and though they were colourles before, and though this dyeing liquor was of one uniform colour, yet when the cloths were taken out of it soon after, they were found to be wonderfully tinged of different colours, according to the different natures of the several drugs, which had been applied to their different parts; and these colours, so wonderfully produced from a tincture of only one colour, could not afterwards be discharged by washing; and he considers it as admirable, that the dyeing liquor, which, if cloths of different colours had been put into it, would have confounded them all, should thus produce, and permanently fix several colours, being itself only of one colour. Pliny, lib. xxxv. cap. 2.

This account contains a plan of description of one of the branches of calico-printing, that no one who is conversant with the present practice can entertain any doubt that the ancient Egyptians were acquainted with many of the principles of this very curious art. Our readers, who are desirous of further investigating this interesting subject, will find abundant and satisfactory information by consulting the following works:—Pisly's "Natural History," the 26th volume of "Recueil des Lettres Edifiantes," &c. Strabo, lib. xvi.; Delavay's "Experimental Inquiry into the Cause of Change of Colours, in opaque and coloured Bodies," Berthollet's "Elements of the Art of Dyeing," vol. i. p. 28; Beckman's "History of Inventions," in 4 vols.; Mr. Parker's "Chemical Essays," vol. ii. p. 65, &c.; and Dr. Bancroft "On Permanent Colours." In the above works, abundant testimonies will be found to shew that printed calicoes were not unknown to the ancients; and we have good reason also to suppose that the colours which they imparted to their cloths possessed a considerable degree of permanency, as we know that iron and alum were both employed by them as mordants. It is likewise well known that several ancient nations were acquainted with foda, indigo, indigo, the juice of the baccia, cochineal (or other plants similar to it), the celebrated Tyrian purple, and other materials, sufficient in the whole to enable them to give a great variety of colours and tints to their several productions.

Our object, however, in this communication, is to give a succinct account of the art of calico-printing as it is conducted at present, and we do not know that we can do better than to copy the greater part of the detail which has been given by Mr. Parkes in his "Essay on Calico-Printing," in the second volume of his "Chemical Essays," and which he has very politely allowed us to make use of in any way we think proper.

From this essay it appears, that calico-printing, as an art, is but of modern date in this country, though it has been practised in India, and other parts of the East, from time immemorial. From various accounts it appears, that formerly in India the cotton cloths when brought from the weavers, partly bleached, were worn next to the skin by the dyer and by all his family, during the space of eight or ten days, after which they underwent several macerations in water, with goat's dung, and were afterwards submitted to frequent washings, and as frequent dryings in the rays of an intense sun-light. Afterwards they were soaked for some time in the mixture of the acid extract of the yellow myrabolanum, and of curdled buffalo's milk. When thoroughly impregnated therewith, they were squeezed, dried by exposure to the sun, and then, by pressure and friction, they were made smooth enough for being drawn upon by the pencil with the different mordants.

The first of these mordants was an iron liquor, made by dissolving iron in a mixture of four palm-wine and of water in which rice had been boiled. This liquor was applied to the figures or spots intended to become black, and afterwards the aluminous mordant was applied, commonly by children, with the pencil, to the parts intended to be made red. The pieces were then exposed to the hottest sun-light, that the parts to which the mordants had been applied might be dried as much as possible; and then they were thoroughly soaked in pits of water, to cleanse them from the impure mordants, as well as from the buffalo's milk, &c.; and finally, they were dyed in water, with certain roots answering nearly in their effects to those of madder.

It was in this way the manufacture of printed cottons...
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was conducted by the Indians in former times. The following is an account of the modern Indian practice, in one particular branch of their manufacture, which Mr. Parkes says he procured from a gentleman who had spent some time in India, and who had taken pains to inquire into their manipulations.

This process relates to the method of printing the fine cotton chintz counterpanes, which the natives call pallampoores, and which are manufactured at Madras. These are woven in one piece, from two to four yards square, and are printed, or rather painted, with various designs, and in various colours. Their method is to draw a pattern first on sheets of paper sewn together, of the size of the intended pallampoor; and then to prick out the same in the paper with a sharp instrument. This done, the paper pattern is smoothly fixed upon the cloth, which is previously dampened, and a small muffin bag containing some kind of black powder is rubbed over the whole, in order to pass a part of the powder through the pin-holes, and completely mark out the pattern.

The pattern being thus sketched upon the cloth, the paper is removed; and when the outline of the various figures is drawn with a pencil, the piece is considered to be ready for receiving the colours.

One colour is then laid on with a brush made with a tough root of a particular kind of tree, or with the husk of the cocoa-nut; and when this is dry, the piece of cotton is given to a woman to wear, or to use in the family, till it be very much dirtied; in order that it might necessarily undergo a thorough washing, which is thought requisite to prove the goodnes and permanency of the colour. Another colour is then laid on in the same manner, and the piece is again submitted to the same trial of wearing and washing. The Asiatics may not be aware of it; but doubtless the long exposure to the air in these cases is the important point, as it is well known that the atmosphere is a prime agent in rendering many colours permanent, which, under a different treatment, would be heavy and fugitive. This is repeated for every colour that is employed; and when any one of these colours is found to be deteriorated by this treatment, it is printed afresh; and so are all the rest, till the workman is satisfied that all the colours are actually permanent.

This tedious process is adopted, however, only when the manufacturer means to warrant the article; but in all cases, even in those pieces which will not bear washing, the colours are laid on by a brush, as before mentioned.

Whether they are all substantive colours which are thus applied, or whether they use any species of mordants in their full work, we are unacquainted, as the artificers of India observe great secrecy, and are extremely jealous on this subject.

Such are the facts which we have been able to collect respecting the progress of calico-printing from the earliest ages; and all of the present state of the art among the Asiatics. The more difficult part now remains, viz. to give a brief detail of the most important processes of our own artificers. This, however, we shall endeavour to do with the utmost plainness, and shall not fail to suggest any improvement that may have occurred to us during our inquiries respecting this very interesting and varied branch of manufacture.

We have not been able to ascertain when calico-printing was introduced into this country, though there are various reasons for believing that it is an art, among us at least, but of modern date.

As the whole of this ingenious business, as it is now conducted, depends upon the proper application of a few compounds called mordants, it will be necessary, in the first place, to explain their nature and uses. In doing this, one or two preliminary remarks will assist us.

The colouring substances chiefly employed in this art are divided into two classes, viz. substantive and adjective. A substantive colour is one which is capable of itself of producing a permanent dye on wool or woollen cloth; such is the juice of the buccinum, used by the ancients for producing the imperial purple; such are also the woad and indigo employed by the moderns for producing a permanent blue; and we may add the metallic solutions, particularly those of iron, cobalt, gold, platina, and silver, which give various colours, according to the processes by which they are prepared.

It has been proposed to employ this valuable permanent colour for pencilling on fine muslins. In time of peace it might readily be procured in sufficient quantities, and would prove an important addition to the resources of the British calico-printer.

Dr. Bancroft tells us, that the first mention of indigo, as known in England, is in the Act of the 23d of Queen Elizabeth, chap. 9, where it is called Anse, or Blue Inde. Bancroft on Permanent Colours, p. 138.

By adjective colours are meant all those which are incapable of giving permanent dyes without the aid of certain intermediates, which form as it were a bond of union between them and the substances intended to be dyed.

These intermediates are what known by the term mordants, and are used for this purpose in very considerable quantities by the calico-printer of the present day.

Several expedients of this kind were employed by the ancients to produce fall, or, more properly, permanent colours, and this appears from the testimony of Aristotle and Pliny. The chief articles in use at present are, the acetate of iron, the acetate of alumina, and the various solutions of tin, all of which should be very carefully and correctly prepared.

We have already given some account of chemical mordants, in vol. xxiv. part 1, under the article MORDANTS; which see.

When piece-goods are designed to be dyed of one uniform adjective colour, they are first immersed in a solution of one of these mordants, then hung up to dry, and to absorb the oxygen of the atmosphere. When sufficiently exposed to the air, they are washed or dugged, to remove the superfluous mordant; that is to say, that part of it which is not chemically combined with the cloth; and the goods are then submitted to a bath of that particular kind of colouring matter which is to be imparted to them.

The dung of the cow is used in such large quantities by the calico-printer, that it has become an article of great expense. The proportion that is employed is usually about one bushel to one hundred gallons of water, though frequently a larger proportion would be more effectual. The brightness of the colours, and the purity of the whites, are always dependent upon the quantity of the dung employed.

Whenever it is meant that the colour should be partially inferted, the mordant is applied to those particular parts only; so that, when the piece is immersed in the colouring bath, no other place will receive the permanent stain. If a sufficient number of colouring substances should ever be discovered, that have no affinity for any thing but the chemical mordants, the business of calico-printing would be rendered much more easy and simple than it is at present. For though the whole texture of the cloth will be coloured, yet...
yet having in itself no affinity with the vegetable with which the decoction is impregnated, the whole of the colouring matter will be easily removed by exposure to the air, and the ground of the piece restored to its original whiteness; while those parts to which the mordant was applied, will remain and fix the colours in a way which will be more fully explained hereafter.

Formerly all calico-printers were bleachers; but in the neighbourhood of London these are separate and distinct trades, and the printer either purchases bleached goods for printing on his own private account, or receives the cloth from his customers in a white flate; and, when printed, he returns the identical pieces, and is paid so much per yard, according to the number of colours, for printing them.

In our opinion every printer should bleach his own goods, for it is impossible always to rely with confidence on the care of those who bleach for hire; and every printer knows that good bleaching is absolutely a necessary preliminary in the production of good printing. Indeed, this is now pretty generally acknowledged in the north of England; for most of the opulent houses in Lancashire and in Scotland, which produce fine work, are bleachers as well as printers.

Oxymuriate of lime is the agent generally employed in bleaching; but it appears to us that some other article might be introduced with advantage. For, as the goods are washed in dilute sulphuric acid when they are taken from the oxymuriate of lime, a sulphate of lime is always formed, which becomes fixed in the fabric, and, acting as a mordant when the pieces come into the madder-copper, occasions an indelible stain, which in very fine goods often impairs their beauty. If oxymuriate of soda were employed, the sulphuric acid would form a soluble salt with the soda, easily removable by washing.

No people have taken more pains to excel in bleaching than the Irish, and their credit is established accordingly. The German linen, we believe, is generally better than theirs; but the Irish has always the preference in foreign markets, owing to their superiority in bleaching and finishing.

A very minute account of the various processes in bleaching has been already given in our 4th vol. part ii. under the article BLEACHING; which see.

By whatever means the bleaching is performed, the printer commences his part of the business in the following manner.

The goods are first drifted by hanging them off the whole of the nap which is attached to them. This is effected by the following contrivance:—Ten pieces are generally wired together, and wound upon a roller, from whence they are passed over a hot iron, nearly in the form of half a cylinder, and received upon another roller; from thence they are returned to the iron, which is still kept red, or nearly at a white heat. The use of repeating this process is to remove the nap more effectually than it would be done by passing it only once over.

The next operation is that of fleaping, which consists merely in soaking the pieces for twenty-four hours in a vessel of weak alkaline ley, at a temperature of about 105°. These operations of hanging and fleaping are going on at one and the same time, which effectually prevent any accident that might otherwise arise from the effects of the hot iron.

The goods are then boiled or else boiled in a solution of potash (some workmen prefer to have this alkali in a pure caustic flate); they are then well cleaned by thorough washing in wash-wheels, or in floks, to ensure their being entirely divested of the alkali. The intention of thus treating them with potash, is to remove any grease or impurity that may be attached to them, which would otherwise endanger the evenness and uniformity of the colours. This process is called ashing.

By some observant calico-printers it has been imagined, that the rendering of the ley caustic is apt to impair the texture of the cloth; and we doubt not but that this has often been the case. Under the eye of the master, however, we are sure that it might be employed with advantage and safety.

It may be remarked, that in weaving calicoes the workman generally greases the reeds, in order to make them move easier. Tallow is also employed for greasing the warp, and this has a baneful effect on all goods which are designed for printing. Wherever this grease is in the cloth, it becomes fixed by the operation of fleaping; and if it be not taken out before bleaching, it will not come out afterwards by the usual process of ashing and foursing; for, when the pieces are submitted to a blue vat to be dyed of a uniform self-colour, all those greasy places will be found to have taken the dye in a very imperfect manner. If the calico-manufacturers themselves would make a point of preparing the oleaginous matter for the weavers, and would furnish them with nothing but pure vegetable oils, such as those of rape, linseed, &c., it is very likely that these inconveniences would not occur; for the flax from vegetable is not so indelible as that from animal oil. To cleanse such goods, various expedients have been adopted, but we apprehend nothing but a solution of caustic alkali can be depended upon. To prove the effect of any method which may be tried, it is a good way to run the pieces through water, and then to pass them from the water over a roller, as to give the superintendent an opportunity of examining every inch of the surface; and if any part remains greasy, it will be seen at once, for that part will continue dry, while all the rest of the cloth is wet.

There is another way in which the goodnefs of bleaching might be proved. Let a few of the unfused pieces be run once or twice through a madder-copper, at the temperature of about 180°. This will inevitably mark any part that may be imperfectly bleached; whereas, if the operation has been properly performed, they will come out to little stained, that an intelligent workman, who has been used to a madder-copper, will at once be satisfied that they contain no impurity that can form a permanent mordant.

The next process is one with diluted sulphuric acid. A quantity of soft water having been poured into a leaden vessel, oil of vitriol is gradually added to it, in the proportion of about twenty pounds of oil of vitriol to every hundred gallons of water, which by weight is in the proportion of about one to forty.

When this mixture has been well stirred, it is ready for use. Sometimes it is employed in this flate, at others it is heated to 90° or upwards of Fahrenheit, according to the nature of the work to be done, and the goods are immerged in it. They are not suffered to lie in this solution, but are wound by means of a winch over a wooden cylinder, that every part of the cloth may be immerged in the fluid, and exposed alternately to the action of the atmosphere.

This operation is generally continued for about twenty minutes, and is designed to remove any iron-moulds or other stains which the cloth may have acquired. It has also the effect of neutralizing any portion of potash that may have been left in contact with the cloth. The process is called foursing.

After this operation it is necessary to wash the goods thoroughly, that no part of the acid may be left in them to injure their texture, and this is best effected by means of

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the waft-wheel. The calicoes are then to be regularly and thoroughly dried, which finishes these preliminary operations, known in the trade by the term preparation; so that those cloths which have passed through these manipulations are said to have undergone a preparation. Besides the ules already mentioned, there is another advantage attending these processes, viz. that the cloth which has undergone this preparation will bleach sooner, the colours will be brighter, and the whites more delicate, than they would have been had they not gone through these previous operations.

The next process is that of calendering. Here the goods are passed through a set of rollers, which gives them a gloss, and the appearance of their having been ironed. They are now fit for printing. For copper-plate printing, or cylinder work, the process of calendering is omitted.

In printing full colours, the artist usually proceeds in this way: he lays the piece of calico, which has been already softened by calendering, upon a strong thick table, which is previously covered with a woollen cloth. He then proceeds to apply one or more mordants, as the case may require, for fixing the intended colours. These mordants are applied by means of wooden blocks, with the patterns formed upon them. These blocks were formerly chosen of holly, and the cutting them was a separate branch of the buffens, and was called black-cutting. Of late years, however, a considerable improvement has been made in this part of the buffens by the introduction of brass or copper; that is, the pattern, instead of being actually cut in the wood, is now formed by means of slimmer pieces of one of those metals being firmly fixed to the block, so as to produce the pattern intended. This alteration was occasioned by the perishable nature of wood, on account of which every printer incurred great and unnecessary expense. The pattern when thus formed with copper, is not only more lasting, but it has also the advantage of giving greater sharpness and beauty to the impression. When it was customary to use wooden blocks, the patterns were not engraven in the wood, but the wood was cut away in such a manner as to leave the pattern in relief. It will be obvious that this must always be the case in block-printing.

When the mordant is ready, it is mixed up either with flour-paste, or with a thick aqueous solution of gum arabic, gum fenegal, or gum tragacanth, and is then spread upon a piece of superfine woollen cloth, strained tight upon a hoop. This is placed within another hoop, covered either with sheep-skin or oil-cloth. These hoops are both so broad as to give to each of them the appearance of a tamborine. That which is covered with the woollen cloth is called a fiefe, the other a cafe. The fiefe within its cafe is now placed in a small tub of gum-water, and is ready for use.

Flour is an article of considerable consumption with the printers for making paste. Some houses buy twenty barrels of American flour at once. Should it be much or four from keeping, it is of little consequence for their use; but they are careful to buy none but such as has been made with found wheat, for if it should be of no value for their purposes.

Gum tragacanth is much dearer than the other gums mentioned above; but notwithstanding this, it must be had for some styles of work, as no other will answer for any of those colours or mordants which are prepared with nitrous acid. A solution of gum fenegal would be coagulated in an instant by any of those preparations. Of late years, an article called British gum has also been much in use for the same purpose; so much so that the making of it has become a distinct trade. It is merely common starch pul-

verized, and then calcined till it assumes a cinnamon-brown colour.

When the apparatus is thus prepared, the mordant is applied by a brush to the surface of the fiefe. This is called tereing.

It should have been remarked, that when a colourless mordant, like the acetate of alunine, is employed, the workman generally mixes a little of the decoction of Brazil wood, or of any other fugitive dye, with it. This is called lighting; and is for the purpose of making the pattern more obvious to the workman, that he may see its progress, and the efficacy of the materials, as he proceeds in printing. The manipulation may be thus described.

Taking the block containing the pattern in one hand, the workman applies it gently to the surface of the fiefe, so that a sufficient quantity of the thickened mordant may adhere to the figures. When the block is thus charged, he applies it to the calico, and gives it a blow with a small mallet, either slightly or otherwise, according to the nature of the pattern.

This alternate application of the block to the fiefe and to the calico, is continued till the workman has gone over the whole piece. In this way, several different mordants are sometimes applied to the same piece of goods. This is indeed always necessary, when the finished piece is intended to contain a variety of colours, the different colours requiring different mordants to fix them and render them permanent.

The calico is now removed to a room called the flove, where a certain degree of heat is given to it by means of flues, which go round the room on the inside, near the floor. In this room, it is generally continued for at least twenty-four hours. This is when common red-liquor has alone been printed; but if citric acid or strong muriate of tin has been employed, less time is sufficient, and for the latter feldom more than half an hour is allowed. The intention of this is to evaporate the acids used in the preparation of the mordants, and which might otherwise injure the texture, and also to fix the dyes more firmly within the fibres of the cloth.

In this operation, an attention to temperature is of the utmost importance. In general the room is kept at about 90°; but an intelligent calico-printer varies this according to the nature of the work under operation. If iron-liquor has been employed in printing the goods, it is an excellent practice to keep them for several days exposed to the atmosphere, after their removal from the flove, as the blacks, pompadours, olives, and indeed every other colour prepared with that metal, will increase in intensity; the goods will clean better in the dung-veffils, as will be explained hereafter, and the colours will rise higher and brighter when they come into the copper of bark or madder. The iron in an acetoxy solution is in the state of the black oxyd; but by exposure to the air it acquires a further dose of oxygen, and the more nearly it is made to approach to the state of the red or peroxyd, the more it fits it becomes for a mordant in dyeing. It may be worth an experiment to discover whether the colours containing iron would not be better if they were suffered to be only a very short time in the flove, but were hung up instead for several days, exposed to a current of air at the temperature of the atmosphere; as the iron would thus acquire the oxygen flower, and consequently would be fixed more firmly within the cloth.

When the pieces have been properly flove, they are passed, by means of a winch, through water at various temperatures, with a little cow-dung mixed in it. This part
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part of the business was formerly conducted in a very uncleanly and negligent way, but of late years some printers have incurred a considerable expense in the construction of their dunging machines, with cocks for hot and cold water attached to them, and thermometers to regulate the temperature. Thosé erected by Mr. Wright, a very ingenious calico-printer, at Strines, near Difley, are the most complete of any we have yet seen.

The intention of the dung is to absorb and remove that portion of the mordant which is not actually combined with the cloth, and which otherwise might flake the white or unprinted parts.

We suspect the dung of the cow is serviceable in another way besides that of cleansing, though the printer may not be aware of the nature of its operation. To clean calicoes by immersion in a dung-vessel, may appear to be a strange phrase; but as this is the technical language of the trade, no other could be employed with propriety. It is acknowledged that madder, cochineal, and some other dyes, produce much better colours on woollen than on cotton cloths, owing to the former being of animal, and the latter of vegetable origin. We presume, therefore, that the dung imparts an animal matter to the fibres of the cotton, and that this animal matter acts as an additional mordant, and thus more powerfully affects the colouring particles of the dye, than the mordants alone would be capable of doing. Berthollet, who analysed the dung of the cow, found in it a substance partaking of the nature of bile.

If a piece of calico, prepared with the acetate of alumine, be divided into two parts, and the superfusible mordant removed from one of them by cow-dung and water, and from the other by water only, though both fluids were at the same temperature, it will be found, on passing the two portions through a decoction of weld or quercitron bark, that the yellow will be much more intense and bright in that which had been submitted to the action of the cow-dung. This is a satisfactory and decisive experiment.

The process of dunging is an operation that varies in time from five to forty minutes, according to the lye of work. The pieces are then taken to the river or wheel, to be more effectually washed; after this they are passed through tepid water, in order that the workman may be assured that every impurity is removed.

His next care is to provide a copper boiler of pure cold water, in which a sufficient quantity of madder is put, and a fire lighted underneath it. The calicoes, printed and rinsed as above, are now put into this boiler, and from the time they are immersed, the workman never ceases to turn the wheel, so as to pass every part of the goods repeatedly through the liquor, till the whole acquires a boiling heat. Indeed, this operation is sometimes continued for ten or fifteen minutes after the bath of madder actually boils, when the pieces are taken out and washed.

Madder is one of the most valuable drugs we have, for a variety of purposes in dyeing and calico-printing; as it is the agent by which the red and yellow permanent blacks are produced; also the finest purples, and every shade of red from a pale pink to a crimson. But perhaps it may not be generally known that this article improves by age. If a quantity of madder-roots be ground, and then packed tighly in a cask, so as to exclude the air, and are kept thus for six months, they will then dye a much better colour, and go much further than they otherwise would have done, had these roots been used as Iroon as they were ground.

This process, which is called madding, has the effect of imparting all the requisite colours to the goods, by means of one operation, which may be thus explained. While one mordant precipitates the colouring matter of the madder to a red, another precipitates a different portion of it to a purple, another precipitates it to a black colour, and so on of every possible shade, from a lilac to a black, and from a pink to a deep red.

If a portion of weld or bark be added to the madder, every shade from a brown to an orange may be produced; whereas, if weld or bark alone be employed, all colours between a dark olive and a bright lemon can be imparted to the cloth. These changes are all occasioned by the play of chemical affinities, and are due to the improved state of chemical knowledge.

Here it may be worth remarking, that whenever it is of consequence to produce the finest yellows or more delicate lemon colour, it is necessary to dry the pieces in the open air, as the flow would not fail to injure such colours; for flow-drying has always a tendency to convert a yellow to an orange. It is also necessary to be equally careful in the operation of dunging the mordants for these pale yellows; for, should this be done at a higher temperature than 96° or 100°, their beauty will certainly be impaired. There is another advantage in this, viz. by dunging at this low temperature, the dyeing may be completed even at 110° or thereabouts, which will give a much livelier colour than when a higher temperature has been employed.

The mordants generally used in calico-printing are acetate of iron for browns, blacks, blues, &c. and acetate of alumine for all the different shades of reds and yellows.

Formerly the acetate of iron was made by digesting old iron hoops in four beer, or in very weak vinegar; but of late years it has chiefly been made with the pyroligneous acid, [if wood be submitted to an intense heat, when inclosed in an iron vessel of any kind with a proper aperture to allow the vapour to pass, this vapour on being condened forms the acid in question, and is now known to be a kind of impure vinegar.] The wood in this cafe is converted into charcoal, of which a great deal is prepared by this process, particularly for the formation of gunpowder,] the oleaginous impurities of which tend, in some cases, to improve the mordant.

Blacks are also produced by the nitrate of iron [nitrate of iron was not applied to calico-printing till within the last fifty years. This discovery formed an important era in the trade, as it afforded the manufacturer the means of varying his styles of work in a multiplicity of ways and forms, which, till then, were entirely unknown] and gallic acid; the mixture is called chemical black. This nitrate of iron is made by dissolving metallic iron in a peculiar kind of aquafortis. Common aqua-fortis will not answer for this purpose; for, though it may dissolve the iron with rapidity, part of the metal is apt very soon to precipitate; which not only weakens the colour, but leaves the remainder so acidulous, that there is always a danger of such a preparation injuring the texture of the cloth.

It is, however, necessary to remark, that the black which is formed by this solution of iron, is produced in a different way from blacks in general; for, when common iron-liquor is used for this purpose, it is first printed on the calico; and when it has been sufficiently oxydized by exposure to the air, the goods are boiled in a decoction of madder, which renders such parts as had been printed with the acetate of iron an intense black. But the black from nitrate of iron and gall is applied at once to the cloth, and is not afterwards raised by dyeing.

The calico-printer by using a black ready formed is thus enabled to mix it with other colours, in cafes where by dyeing alone it could not be produced, as in conjunction with yellows and olives, raised by weld or quercitron bark.
The acetate of alumine is prepared by a mixture of the 
fulpate of alumine with acetate of lead, both in a state of 
solution; so that, on the theory of double decomposition, 
fulpate of lead is formed, which precipitates, while the 
acetate of alumine remains in solution.

Since the demand for this article has been increa®ed on 
account of the extension of the printing trade, it has been 
prepared from the pyroligneous acid by means of lime and alum.

The following is the method:

The pyroligneous acid is ®rst passed through a still, to 
divest it of a portion of the tar which is always dissolved in 
it; it is then saturated with lime or whiting; and lastly, the 
acetate of lime thus formed is decomposed by a heated solu-
tion of fulpate of alumine. The result of this double 
decomposition is fulpate of lime, which precipitates, and 
acetate of alumine, which is drawn from the sediment of the 
calcareous fulpate, and preferred for nfe.

And here it may be nece®sary to caution the manu-
facturer against a misfortune that may ®ll him if he be 
not convener with the chemical nature of the substances 
he employs.

Magnesian lime-lime abounds in Derbyshire, and in some 
of the adjacent counties; and should a maker of acetate of 
alumine employ such lime in his processes, the article which 
it would produce would in all probability be entirely un®t 
for the use of the calico-printer. But we must be more 
explicit.

In employing the common lime in conjunction with alum, 
a fulpate of lime will be formed, as established above, and 
this being nearly an in®nable salt, will precipitate. But here, 
fulpate of magnesia would also be formed, which being a 
®solable salt, would remain in solution, and increase the spe®c-
®c gravity of the liquor; a circumstance which would be very 
apt to occasion the deception which we are anxious should 
be avoided. If magnesian lime-lime be employed, the liquor 
will appear good by the hydrometer; but, as it will contain 
more Époine salt than acetate of alumine, it will be un®t 
for every purpose for which it was intended.

While speaking of acetate of alumine, we cannot avoid 
remarking that the pro®ce which has just been described for 
making this mordant, and which is followed invariably by 
many of the manufacturers in the North, is extremely im-
proper, on account of the lime which is employed in it, be 
the lime ever so good, as that earth is very prejudicial to 
every species of red dye. The true way of making it, 
though more expensive, is that which was originally pointed 
out by Berthollet, and which consists in decomposing ful-
pate of alumine by means of faechurum satimur, or acetate 
of lead.

In reverting to the remaining pro®cees of the print-work, 
it must be noticed, that when the goods have passed through 
the weld or madder-copper, they are usually carried to a 
boiler containing wheat-brain and water, in which they are 
winched for a considerable time, for the purpose of freeing 
the white grounds from the ¢ain which they had acquired 
from the madder or the weld. This process always impairs, 
in some measure, the intensity of the colours; ®branning has 
also the effect of giving a pink hue to all madder reds. But 
it is not generally known what a ¢egasus ¢nefulness may be 
ipated to madder-colours, by raising them with a mixture of 
bran and madder; that is, by mixing a portion of bran 
with the madder in the ¢rst infusae. Mr. Parkes tells us, 
that he has sometimes produced colours in this way whose 
brilliance has astonished him. The operation of the bran in 
producing this effect will be explained hereafter; but it is a 
necessary operation, as there is no other mode so convenient 
for removing the ¢ain which is always given to the white 
part of a print by the madder, the bark, or the weld, which 
has been used in dyeing it.

It frequently is the case, however, that goods will not 
bear to be su®ciently branned to clear the whites entirely 
by that one operation; [the temperature at which the opera-
tion of branning is performed, is very important. If bark 
yellows are dyed at 100°, it is customary to bring such goods 
at 115° or 120°, as it is a principle always to brann at a 
higher temperature than the goods are dyed at. Madder- 
work must be branned at a boiling heat;] such goods, 
therefore, are partially cleaned in the branning-copper, and 
are then laid on the grats for some days, till they become 
perfectly clean.

But within a few years a new method has been intro-
duced, which consists in immersing the pieces for a certain 
time in a very weak solution of one of the bleaching fahs, 
such as oxyburnite of potash, soda, or magnesium. [A Scotch 
houfe of great confucence had practised this method a con®dable time; and in the year 1812, a person visited 
Lancashire for the purpose of instructing the English printers 
in the method.] This simple proceed, which effects in a 
®ew minutes what would require more than as many days 
in gras-bleaching, is now much practiced, and promises very 
soon to supersede crofting entirely. This is a most im-
portant improvement, as some of the large printers formerly 
required as much land to spread out their goods upon, as 
would make a farm of a very considerable size.

Besides the kinds of calico-printing already mentioned, 
there are others which it will be proper to notice in this 
place. Of these, what is called ®®st-®ars, is now done in 
considerable quantities. It is conducted in the following 
maner:

A certain preparation of copper, mixed either with flour-
pate, with gum, or with pipe-clay and gum, is printed 
on the calico, in any shape or of any pattern that may be 
directed. [The sulphate, the nitrate, the muriate, and 
the acetate of copper, have all been employed for preparing the 
®®st-®ars; but the sulphate is the best for the purpose; 
unless a very concentred solution of the four fahs were 
prepared by successively dif®lving each of them in pure water.] 
When this is ®ciently dry, the goods are repeatedly 
®pped in the blue vat till they have acquired that depth of 
tint which may be required; and then, when they are washed, 
and ®pped through diluted sulphuric acid, those parts which 
had been printed with the preparation of copper, are found 
to be a good white; the preparation having efectually 
®®ed the operation of the indigo. [The art of making an 
indigo-vat consists in forming such a mixture of lime and 
sulphate of iron as shall most efectually deoxydize the 
indigo; as indigo has no a®nity for cloth in its natural or 
®xigenized state. Hence, those parts of a piece which are 
printed with a solution of copper will never be dyed blue in 
one of these vats; because the deoxydized indigo becomes 
®xogenated the moment it touches the copper, which parts 
with its oxygen to the indigo, and occasion it to become 
®noluble, and consequently incapable of forming a dye. 
Thus, whilst sulphate of iron has the power of deoxydizing 
indigo, sulphate of copper, or any other fah of that metal, 
is incapable of retaining its oxygen, whenever it comes in 
contact with that singular substance in a state of deoxydize-
ment; and it is a curious infuence of the different degrees of 
intensity by which oxygen is held by the different meta-
tals.] though all the other parts of the cloth have received 
a permanent dye. The various deep blue calicoes with 
white spots or white ®gures, which are now so com-
mon, are generally done in this way; and by a familiar 
management with subfrequent dyeing in madder, weld, or 
bark,
PRINTING ON CALICO.

In some particular styles of work, the operation of certain colors is facilitated by means of boiling out with wax; but this is too expensive a method to be adopted often in those cases, when it is the object of every manufacturer to finish his prints at the least possible expense. [In printing those filk handkerchiefs called Bandanas, a process called waxing is still followed. It consists in making a preparation of tallow and rosin very liquid by heat, and in printing it in that state with a block upon the filk. When such goods are passed through the blue vat, those parts which are covered with the tallow and rosin are preferred from the action of the indigo, and remain white, while all the rest is dyed a fast blue. The method afterwards taken to discharge a part of this blue, and produce yellow, orange, &c. will be mentioned hereafter.] Formerly this mode was very generally practised, and wax [in the East Indies wax is still used for preferring the whites in calico-printing] was confumed in very large quantities by this process. [A very singular-looking substance was discovered a few years ago near Stockport, which being handed about from one to another as an undescribed substance, created considerable interest in that neighbourhood. Every body supposing it to be a natural production, specimens of it were sent to a variety of persons in various parts of the kingdom, for their opinion and analysis, and among others a portion was sent to Mr. Parkes. However, after every one had been busily engaged in examination and conjecture respecting this unknown substance, it was announced, that some seventy or eighty years before a calico-work had flooded on the spot where the article was found, and that this was nothing more than a large heap of the refuse compound of flour, wax, and gum, above-mentioned.]

The reader will perceive that these refls are employed for the purpose of preferring certain parts of a piece white, and of giving other varieties to those goods in which blue is the predominant colour: but if the ground be to be white, and the piece is only to have one small object [a technical term, belonging to this branch of manufacture] in indigo blue, such as a single sprig, then a different management is necessary, and the colour is imparted by a process which is called pencil-blue.

Here the indigo is deoxidized by means of permanganate, which is a fulphuret of arsenic; and formerly, whatever objects were done with it were put in by means of a pencil: hence its name, pencil-blue. [Pencil-blue is composed of the following ingredients, viz. Ten ounces of indigo finely ground in water; twenty ounces of quick-lime in lumps; the same quantity of potash of commerce, or the impure subcarbonate of this alkali; and ten ounces of orpine. These proportions require one gallon of water, and the whole is to be thickened with gum fenegal.] See Colour.

Another kind of process remains to be noticed, called chemical discharge-work. Here the cloth is first dyed of some uniform colour, by means of a mixture of iron-liquor, and some one or more of the common vegetable dyeing substances; and calicoes thus prepared are laid to be dyed of self-colours. They are then washed and dried; and when properly pressed or calendered, they are fit for receiving any pattern whatever, according to the artist's taste or design.

This is generally effected by means of the mineral acids, which are previously composed for the purpose, by dissolving the iron which is contained in the dye, and which is always used in such quantity as to cover, or at least to disguise in a great measure, the other colour or colours which had been employed with it, and at the same time to act as a mordant in beautifying and fixing these colours.

Thus a piece treated with a decoction of Brazil-wood, and dried black by being padded [by the term padding is understood the operation of passing the pieces from a roller through a trough containing a solution of iron, or any other mordant. Bleaching is another term used in calico-printing, and is synonymous with padding] with iron-liquor, if, when dried, it be printed with a peculiar solution of tin, the ferruginous portion of the dye will be dissolved, and the printed part will instantly be converted from a deep black to a brilliant crimson.

In the same way an olive-coloured calico, dyed in a solution of iron and a decoction of weld, will as quickly be changed to a bright pale yellow; and the various drabs and flates of every shade which have iron in their composition, will undergo a sudden change by the same treatment; though the colour of the figures produced on them will depend on the materials with which the cloths were originally dyed. Even the deepcoloured colours, or strongest buffs, if produced by iron only, may, by a peculiar preparation of tin, be discharged; and such parts of the cloth as have been treated with this metallic solution will be restored to their pristine whiteness.

By similar management, calicoes dyed of a light blue in the indigo-vat, then run through fumach and coppers, and finished in a bath of quercitron bark and alum, may have figures of a bright green imparted to them. Here the green is originally formed by means of the indigo-vat and the bark, though it is covered by the iron of the coppers, which overcomes the other colours, till the solution of tin is applied, which removes the iron from those particular parts, and gives a brilliance to the remaining colours which they would not otherwise have possessed: the tin being a powerful mordant for the bark, by which the yellow of the green is produced.

Again, a good self-colour may be given to calicoes, merely by dyeing them in fumach and coppers, and then running them through an alkaline solution of anmotto; and here the figures produced by the application of a colourless solution of tin will be of a bright orange. But it is necessary to enumerate more inferences, as the workman accustomed to a dye-house will have little difficulty in varying these in a thousand ways, when he becomes acquainted with the nature of the solution of tin which he employs.

The whole of this, however, refers to that branch of discharge-work only, where all the purpoases are attained by dissolving the iron which makes a part of the colour that is intended to be discharged; whereas, the finer and more expensive work is done in a different way, and by a process which it will be necessary for us presently to describe.

In the mean time it may be proper to remark, that there is an objection to the particular kind of chemical discharge-work of which we have been speaking, namely, that it is not perfectly fast; that is, the goods produced in this way will not bear such frequent washing, as those which are done by the bath of madder or bark.

It is certainly an object of great national importance to give a permanency to the calico-printing of the country; [to this end great improvements have lately been made in the method of grinding madder-roots, by separating the inferior parts, and dividing the whole into two or three different qualities. Thus the printer is enabled to apply the finest, which in this way is made equal to Dutch crop-madder,
madder, to his best work, and the other is laid by for inferior purposes;] and a great deal of very excellent printing is now done in various parts of the kingdom, especially the bell chintz-work and other furniture patterns. But, in what is called fall-work, there is a great variety of qualities, and some of it little deserves the name of permanent.

The mention of permanent colours reminds us of a very valuable green which was invented a few years ago by a Mr. Iflet of London, and which deserves to be noticed by us. This colour, which was secured to him by his majesty's letters patent, was produced by printing ground indigo, mixed with a peculiar kind of solution of tin, and in that form the ground indigo, within the fibres of the calico by means of that process, which is well known to printers by the technical designation of china-blue dipping. [China-blue is produced thus: Indigo ground fine, and then thickened, is printed upon the cloth, and afterwards it is dissolved, and chemically united to the fabric, by alternate immersion in a solution of fulminate of iron and in lime-water. A description of this process has already been given very much in detail, in our eleventh volume, part ii. under the article Dipping, in Calico-Printing.] After this the goods are to be dyed in a copper of bark or weld, which converts the blue to a green, and the whites are to be cleaned by croft-bleaching, &c.

Upon this very ingenious process, Mr. Parkes has the following observation. "Having," says he, "formed a very high opinion of this invention, I procured several interviews with Mr. Iflet, soon after he obtained the patent, and from him I was fully informed of the whole process. — This I have since repeated for the purpose of verifying the detail in all its branches; and I am satisfied that it is one of the most beautiful and permanent colours that has ever been fixed upon cotton."

There is, however, another mode of producing very beautiful blues which has been much practised lately, and therefore deserves notice. This consists in printing some solution of iron, and then palling the goods through a very dilute and neutral solution of prussiate of potash. The prussian blue which is thus formed upon the cloth may be rendered tolerably permanent by a variety of expedients, and this by means of any of the yellow dyes may afterwards be formed to any shade of green or of olive.

In returning from these digressions we must not forget to revert to that other kind of discharge-work which we have engaged to describe, and which we will now attempt as concisely as is consistent with perspicuity and correctness.

Here, the agent which is employed is the citric acid, and this is used in various fluids or concentration according to the purpose to which it is to be applied, and the strength of the ground intended to be discharged. It is chiefly employed for the production of white figures upon self-coloured grounds produced by madder and madder dyes. For this purpose the acid, in whatever fluid of concentration it may be, is mixed with either gum or with pate, when citric acid is used for resin-work, it is always mixed, with gum fenuagli and pipe-clay. The clay gives it a greater body, and likewise acts mechanically as a retifier, to a proper consistency for the block, the plate, or the cylinder, and from thence it is transferred to the piece; and wherever it attaches, the mordant, whether iron or alumine, is discharged, and a delicate white airies is its head. [It should be understood, that the discharge is printed upon the mordants before the goods are dyed.] In using citric acid for this purpose, a portion of one of the mineral acids is sometimes mixed with it.

The acid here referred to is produced from the juice of limes or lemons, and formerly it was not employed by the calico-printer until it was reduced to the utmost point of concentration, and appeared in a crystalline form. Even then, it was not thought sufficiently pure, but was distilled again, and redissolved and recrystallized, till it became white and pellucid as any other pure salt in a crystallized state, and was then generally sold for 35s. the pound, at which high price it could only be employed on the best styles of work. Now, however, it is often used in the brown, or first state of crystallization; and some of the larger printers purchase lime juice, and concentrate it themselves; and in many cases, they use it largely both for discharge and resist work, without ever crystallizing it at all. More on this subject may be seen in Mr. Parkes's Essay on Citric Acid, in vol. iii. of the Chemical Essay, page 1—118.

This mention of discharge-work by citric acid, [Mr. Thomson, who has a print-work near Clicheroe, has taken out a patent for discharging the Turkey-red dye by means of the citric and oxymuriatic acids; and the work executed in this way has a very pleasing effect,] reminds us of another species of discharge, which is employed by the printers of Bandana handkerchiefs, and which we are under the promise of noticing before we conclude this memoir.

The agent which these printers employ is the nitrous, and sometimes the nitro-muriatic acid. It is used for the purpose of putting yellow figures upon blue silk handkerchiefs. The following is the process which is principally adopted.

Aqua-fortis, or nitro-muriatic acid, of such a strength as is suitable for the kind of blue which is intended to be discharged, is mixed either with gum tragacanth, or with flour paste, to a proper consistence, and in this form it is printed on the silk, by means of a common block, on which the intended pattern is cut. The confluence of this is, that wherever the acid attaches, there the original colour is discharged, and a yellow dye is produced in its place. The pieces are then steamed, by palling them over a vessel containing boiling water, which gives brilliancy to the colour and finishes the operation.

If a stronger dye than the usual yellow, or even a deep orange be desired, all that is necessary is to immerse the goods, for a moment, in lime-water, or in a solution of lime and potash; and by varying the proportions of these ingredients a great variety of shades may be produced.

Recollecting, however, that this is a paper professedly on calico-printing, we must not deviate too far from the path we have preferred; otherwise, there are many processes in the printing of silks which are curious and interesting, on which we might copiously expatiate. The Bandana handkerchiefs which are printed upon cotton in imitation of India goods, are produced by a very different process, and which we have already described under the article Discharging of Colour, in vol. xi. part ii.

Having been speaking of yellows, it may be worth mentioning that there is a mode of producing yellows on calico which is not very frequently practised, and yet has a very good effect. The process is as follows:

A strong decoction of bark, thickened with gum tragacanth, is to be mixed with a portion of very pure nitrate of tin, and this, when printed, with the usual management, will produce a colour of brightnes and durability. We mention this the rather, because very many pleasing effects may be obtained by this method which cannot be produced in the usual way, by means of the acetate of alumine, and any of the yellow dyes that may be employed with it.

There is one very important advantage which this mode possesses,
Upon those parts of the calico which still remain white, any of the above mordants may be printed, according to the effect designed to be produced, after which all the preceding managements are to be repeated, except that instead of boiling in a decoction of madder, they are to be immerged for about half an hour, more or less, in a warm decoction of quercitron bark, the _Quecus nigra_ of Linnaeus; a most important dye-wood, introduced by Dr. Bancroft, and which is found to give out a much brighter colour to tepid water, than it does when treated with boiling water, or with water nearly approaching to that temperature.

The effect produced upon these prints by an immersion in a lukewarm decoction of this American bark, will be quite different from that produced by the madder; upon those parts of the cloth where the mordants have been printed which before produced a black, a dark olive only will be apparent, and instead of pompados will be drabs, and instead of reds we shall have yellows, which will vary in intensity according to the strength of the aluminous mordant.

Again, a further variety may be given to these prints, if the yellow mordant, or acetate of alumine, be applied to any of the colors which have already been dyed with madder; but this must be done before the pieces are immersed in the decoction of bark. This application will convert the reds and pinks into different shades of oranges, and the lilacs into cinnamon colours. By means of these different processes an endless variety may be given to the goods, and a calico-printer of taste will never be at a loss how to produce a pleasing effect, whatever may be the patterns which he has to imprint upon the cloth. This second immersion in the dyeing vessel will, however, give a yellow tinge to the remainder of the whites, but a short exposure on the grafts will obliterate it.

When chintz furniture-prints are designed to have as much variety of colouring as possible, a part of the remaining white is often coloured blue or green, or of any shade between those colours, by a still different process. This is done with what is called pencil-blue, which is a preparation that has already been described. The blue is given by putting in the prepared indigo with a pencil; and the green is produced by pencilling some of the same colour over certain parts of the pattern which has already been dyed yellow. When these colours have been imparted, the printing is laid to be finished, and the pieces are hung up to dry for at least twenty-four hours, after which they are rinsed thoroughly in cold water; and when they have been dried with care, they are properly calendered and put up for sale.

Nothing now remains but to notice an improvement which has been made of late years by the introduction of cylinder-printing, and which has the advantage of superior accuracy and neatness, as well as of great expedition.

The machines which effect this are rather complicated and expensive; but they are so contrived that the cylinders on which the patterns are engraved, furnish themselves with colour during their revolutions; are kept clean by a steel knife, or _dator_ as it is called, passing over their surfaces the moment they have charged themselves with the strengthened colour; and they have such a pressure given to them, either by means of screws or levers, which can be tightened or slackened at pleasure, that the whole surface can be made to deposit its colouring matter with the greatest certainty and exactness on the cloth, while this rolls over it in succession, from one end of the piece to the other.

These cylinders, which are made of copper, are from eighteen to forty-two inches in length, according to the width of the calico to be printed, and three and a half to five

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five inches in diameter; and these maclie rollers have the patterns encafed upon their surfaces, in the same way as a pattern is cut upon a flat plate of copper, that is intended to be employed in copper-plate printing. As these cylinders are made with plates of copper hammered into a circular form and joined by brazing, great loss has sometimes been sustained by the engraving giving way upon the brazed joint. To obviate this, a patent has been lately obtained for boring the copper cylinder from the solid metal in the modern way of boring cannon.

Many of these machines are now contrived to as to carry two of these cylinders, each of which has a trough of colour attached to it, by which means two different colours may be printed on the same calico, at one and the same time.

Mr. Adam Parkinfe of Manchefer has lately invented a machine capable of printing at one time, by means of one cylinder and two surface-rollers, or by two of the former and one of the latter, three distinct colours.

These machines have not only the excellence of printing more correctly than can possibly be done by means of the block, but the saving of time and labour which they afford is great indeed. A piece of calico which would take a man and a boy three hours to print with one colour, or six hours to finish with two colours, may by this means be done in three minutes, or three minutes and a half, and then much more completely than could even have been imagined before the introduction of this invention.

Beside these cylinders there are others which are called surface-machines, which contain cylinders of wood, and which have the pattern formed upon their surfaces in relief, exactly similar to the blocks already described. These are employed in particular styles of work, especially in light ground-work, and for certain kinds of relief and discharge work.

In light work, the white grounds are apt to be foiled by the cylinders; hence surface-machines were contrived, and these are not liable to the same objection. Cylinder-machines are more commonly employed in those styles which are full of colour and leave but little white.

It must be obvious to every one who is acquainted with the subject, what an astonishing facility these machines have afforded to the production of printed calicoes; and also what an advantage they give to the British printer in foreign markets.

But we cannot conclude without expressing our fears, that even these facilities may eventually be the means of doing a serious injury to the trade, and of destroying that confidence in the goodness of British prints, which has hitherto been generally felt in every market on the continent, and also in every part of the New World, wherever they have been introduced. We refer to that mode of printing which has lately been adopted, and which conveys in precipitating the colouring matter from logwood, and from other fugitive dyes, and in printing these on the cloth, without any mordant or previous preparation whatsoever. Thousands of pieces of this sort have been finished at the low rate of one penny the yard, including every expense of colour, paste, and printing. These articles, it will scarcely be credited, are dried up immediately from the printing-machines, and are shipped abroad, without even being washed off.

To wash off is a technical phrase. It means the soaking and rinsing the pieces in water, in order to dissolve and remove whatever gum or paste had been employed with the colours in printing them.

Such goods, wherever they go, must produce great dis-
satisfaction; for they will neither endure the rays of the sun nor moisture. The first shower of rain to which they may be exposed, will not fail to wash out the pattern, and reduce them to a worse state than that of plain white calicoes.

In the reign of queen Elizabeth, an act was passed to restrain the use of logwood in dyeing, on account of the fugitive nature of its colour; and if this degrading kind of printing be continued, the interference of the legislature will again become necessary, or the foreign trade will, from this cause alone, be entirely lost to the country.

PRINTING, Cylinder. See the preceding article.

PRINTING on Porcelain. The art of printing, particularly as it applies to books, has, from its inestimable benefits and vast importance, excited at once the profound admiration and gratitude of the world; and this ineffaceable discovery has been claimed by several individuals, alike anxious for the honour of giving mankind at large the advantage of a rapid and economical diffusion of delight and instruction. The first idea of types was very probably given by the Roman potters, who were in the habit of stamping their names in raised characters on their vases, &c. The letters on this plan were, in fact, models of the types used by the first printers; and it appears singular that the idea of adapting such models by the medium of ink, to the common purpose of multiplying words and sentences, should not have come into use until about the year 1442.

It will appear, on consideration, still more singular, that after the introduction of engraving on wood and copper, (which was in use at the same time with letter-press printing,) the art of transferring impressions of ornamental designs, from the copper-plate to the surface of porcelain or pottery, was not discovered till about the year 1760.

The Royal Porcelain Works in Worcefter, belonging to Mr. B. Flight, Barr, and Barr, are the only establishment that claims the honour of inventing this admirable and ingenious process. We can find no mention of this art in the annals of this or any other country prior to this period. It was practised with great success for many years in the works alluded to; and besides the demand for home consumption, large quantities were exported to Holland. In the year 1788, his present majesty Geo. III., and his royal highness the prince of wales, the prince of wales, and the prince of wales, visited the Worcefter Porcelain Works, and particularly noticed this ingenious branch of the art of decoration. The royal party were much gratified by the compliment paid them, in the striking off impressions from two copper-plates with the likenesses of the king and queen, which had previously been engraved by direction of the proprietors, in order to exemplify the nature of the operation. The secret of the printing was, about the year 1781, conveyed from the works at Worcefter into the potteries of Staffordshire, and has proved of infinite service in extending this branch of national commerce, and affording employment to the numerous population in that part of the country. The common British blue and white printed earthen-ware is now held in high esteem in foreign countries, from its cleanly and neat appearance, besides its being in general use at home. This art is certainly belted confined, as in the present day, to the inferior fabrics, such as earthen-ware, as the material on which the print is made is reasonable, and can be rendered at a price which suits the convenience of the consumer for all common purposes. The method, as invented and adopted by the original proprietors of the Worcefter Porcelain Works, is as follows:—The engraved copper-plate having first
first been warmed on the stove, is prepared to receive the colour, which, being previously mixed with oils of a proper consistency, is then rubbed into the engraved lines, and the superfluous quantity of colour is carefully cleared from the surface of the plate. The paper, which is very thin, and manufactured for the purpose, is then laid on the plate, and delivered to the pressman, who places it on a plank covered with warm flannels, and being fixed between two iron cylinders, it is drawn through by turning a wheel, exactly on the plan practised in taking off copper-plate prints. The paper bearing the clear-coloured impression is now removed from the copper-plate and delivered to the printer, who fixes the piece of porcelain in a vice, to keep it steady; and the printed paper is then rubbed with a wooden tool, covered with flannel, till the impression is completely transferred to the surface of the biscuit, or unglazed porcelain. The operation of rubbing on the impression being completed, the porcelain, with the paper left on the surface, is thrown into a tub of cold water, and in a short time the paper delivers itself, and leaves the print. The ware is now placed out to dry, and is afterwards carried to the kiln, where the impressions are burnt in. It is then dipped in the vitreous substance called the glaze, is burnt a second time, and the colour, which is the oxys of cobalt, (and most generally used,) comes out a neat blue, perfectly secured under the glaze.

An improved method of printing, comparatively of very recent invention, was introduced under the direction of the late Martin Barr, Esq., and is now carried on in the Porcelain Works at Worcester, and is much admired for the excellence of the engravings, and the great beauty of the impressions. On this plan, the printing-press and stove are not necessary, as the engraved plate is charged with a prepared oil by the printer, who cleans the surface of the engraving with the hand; and instead of paper, a bat of glutinous consistency is cut out and laid on the copper-plate, and is so ductile as to adapt itself to the form of any vessel intended to be printed; and by the simple pressure of a fluffed leathern ball with the hand, produces a perfect impression of the subject in oil on the smooth side of the bat. The ware being rubbed dry and clean, the bat is now gently pressed with the leathern ball on the glazed surface of the porcelain, and when removed the impression appears complete, but only in oil. The colour, in form of a powder, is then lightly moved over the oil impression with a piece of carded cotton, and the print completely cleared of all that is superfluous. The porcelain is afterwards carried to the enamellers, who fill the design by adding some decorations in gold; and it is then passed through the enameling kiln, where the oil is evaporated by the fire, and the colour, which is always a mineral preparation, unites firmly with the glaze, and becomes perfectly durable as the tints laid on with the camel's-hair pencils by the painters. The great advantage of this plan is, that the engraving can be executed much finer for the smooth surface of the glazed porcelain, than for the coarser blue and white prints, (which are laid on the rough unglazed surfaces,) as the glaze is capable of receiving the finest touch the artist can put into his engraved plate. Mellers, Flight, Barr, and Barr, the proprietors of these works, have in consequence introduced beautiful engravings of figures from the antique, Besides designs in landscapes, flowers, hills, &c. which reflect no small degree of credit on this branch of the art of printing. Considerable quantities have been exported to the East and West Indies; and where economy is the object of the consumer, this style of decoration suits very well, however deficient in richness of effect and elegance, to the more elaborate production of enamelled designs, executed in these interesting and highly respectable works.

PROFESSOR, i. 2, for venus r. venus.

PROJECTIONS OF THE SPHERE, ORTHOGRAPHIC. PROB. I. 1. 8, for IC and FG, r. 1C.

PROMEROPS, in Ornithology, a genus of birds of the order Pice; the characters of which are, habit as in the genus Upupa; feet formed for walking; tail lengthened, and in most species conuated. Dr. Shaw enumerates and describes the following species: viz. Cereus, or blue P. with black bill and legs; the Upupa indica, or blue promerops of Latham; a native of India: Cafer, or brown P. white beneath, with rufescent breast, and very long tail; the Upupa P. or Cafer P. of Latham, and the Upupa P. or Merops cafer of Linnaeus; a native of Africa, and common about the Cape of Good Hope; Stelatus, or brown P. beneath white, with black undulations and very long tail; Upupa papuensis, or New Guinea brown P. of Latham; native of New Guinea, inhabiting large woods: Superbus, or black P. with violet and green glofs, foliated golden shining scalular feathers, and very long tail; the Upupa superba and great P. of J. Latham, a magnificent species, exceeding all the rest in the splendour and elegance of its plumage; a native of New Guinea: Paradisaeus, or chefnut P., the Upupa paradisea of Linnaeus and Latham, and crested P. of the latter: Mexicanus, or grey P. with green and purple glofs, blueish wings, yellowith belly, and very long tail; Upupa mexicana, or Mexican P. of Latham; a native of Mexico, frequenting mountainous regions, and feeding on various kinds of insects: Aurantius, or orange-coloured P., with tail of moderate length and even at the top; the Upupa auranta, or orange P. of Latham; native of Guiana, frequenting the small islands in the mouth of the river Berbice; Fernandez describes the supposed female of this species under the name of Cocbitobia: Erythrogramus, or black P. with green and purple glofs, red bill and legs, and long tail with the feathers spotted with white near the tip; the Upupa erythrogramus, or red-billed P. of Latham; an highly elegant species, an inhabitant of Africa.

PROPERTY, LITERARY. (See Literary Property.)

The state of literary property has been considerably improved since the article on this subject appeared in the body of this work. The act of 54 Geo. III. c. 156. an absolute term of twenty-eight years copyright has been vested in the author of every book that shall be published after the passing of that act, and in his assigns, and if the author shall survive that period, the copyright is also secured to him for his life. On books that were published before this statute was made, the second contingent term of fourteen years granted by the former acts on this subject, was made absolute in such authors as were then alive, and a life interest was also added if they survived this extension. On this last subject, the court of King's Bench has decided in a recent case, that if the book had been the property of the public at the time the act passed, which was on the 29th July 1814, the benefit granted by the act to the authors of books published before that time, were not meant by the legislature to apply in such instances.

The same act continued the obligation of delivering eleven copies of every book, and of its maps, plates, &c. to the eleven libraries therein mentioned, being the British Museum, Sion College, the Bodleian Library at Oxford, the Public Library at Cambridge, the Library of the Faculty of Advocates at Edinburgh, the Libraries of the four universities of Scotland, Trinity College Library, and the King's Inn
Library at Dublin. This delivery has been felt to be a severe burden, and several petitions have been presented to parliament by authors as well as publishers of books to be relieved from it. These petitions were in the seessions of 1818 referred to a committee of the House of Commons, which examined many witnesses on the subject, and made a report to the House of the following import:

That it is the opinion of this committee, that it is desirable that so much of the copyright act as requires the gratuitous delivery of eleven copies should be repealed, except in so far as relates to the British Museum, and that it is desirable that a fixed allowance should be granted in lieu thereof, to such of the other public libraries as may be thought expedient.

That if it should not be thought expedient by the House to comply with the above recommendation, it is desirable that the number of libraries entitled to claim such delivery, should be restricted to the British Museum, and the libraries of Oxford, Cambridge, Edinburgh, and Dublin universities.

That all books of prints, wherein the letter-press shall not exceed a certain very small proportion to each plate, shall be exempted from delivery except to the Museum, with an exception of all books of mathematics.

That all books in respect of which claim to copyright shall be expressly and effectually abandoned, be also exempted.

That the obligation imposed on printers to retain one copy of each work printed by them shall cease, and the copy of the Museum be made evidence in lieu of it.

PROPHECY, col. 3, l. 26, for Wolfgang r. Woolston. Col. 5, l. 10 from bottom, for Woolston r. Woolston. PROPOS. Prop. 33, add.—See Wax. PROPORTIONAL COMPASS, l. 2, r. proportional. Col. 2, l. 8, r. f. 1. Plate I. of Proportional Compasses. Col. 5, l. 10 from bottom, infert f. 10. Col. 1, l. 36, r. f. 11.

PROVERB, col. 1, l. 17 from bottom, for print r. fruit.


PUFF-BALL, l. 2, add——and Tulostoma. PULASKI, for Pulasn, l. 2, add——of whom 528 were flaves in 1810.

PULTNEY, a township of Belmont county, in Ohio, having 645 inhabitants.

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PURANA, col. 3, l. 6, for Varishta r. Vasihta.

PURPURIC ACID, in Chemistry. The name of an acid principle recently discovered by Dr. Prout; produced by the action of nitric acid upon the lithic or uric acid. The beautiful purple sub stance produced by the action of the nitric acid and heat upon lithic acid, has been long known to chemists. This purple sub stance is a compound of the acid in question and of ammonia. This acid, which may be likewise forms from the lithic acid by chlorine and iodine, possesses the remarkable property of forming beautiful purple compounds with the alkalies and alkaline earths. Hence the name of purpuric acid has been adopted by Dr. Prout, which was suggested by Dr. Wollaston.

Purpuric acid may be separated from the purpurate of ammonia above-mentioned, by the sulphuric or muriatic acids. It usually exists in the form of a light yellow or cream-coloured powder. It is exceedingly insoluble in water, and consequently possesses no taste, nor affects limus paper, though it readily decomposes the alkaline carbonates by the assistance of heat. It is soluble in the stronger mineral acids and in alkaline solutions, but not in dilute acids in general. It is insoluble in alcohol. When exposed to the air it assumes a purple colour, probably by attracting ammonia. Submitted to heat it is decomposed, and yields carbonate of ammonia, prussic acid, and a little fluid of an oily appearance.

The alkaline purpurates, as before observed, all form solutions of a beautiful purple colour. They are capable of crystallizing, and their crystals possess some remarkable properties. The purpurate of ammonia crystallizes in quadrangular prisms, which when viewed by transmitted light appear of a deep garnet-red, but by reflected light two of the opposite surfaces appear of a beautiful green, while the other two retain their natural red colour. This curious property seems to be possessed by the other alkaline purpurates. The metallic purpurates are in general remarkable for their solubility, and the beauty of their colours. The purpurate of zinc is of a beautiful gold-yellow, the purpurate of tin of a pearly-white. The other purpurates are all more or less of a red colour.

Dr. Prout thinks it probable, that this acid forms the basis of many animal and vegetable colours. The pink colour of the sediment in the urine of feverseems to be owing to the purpurate of ammonia. Dr. Prout also thinks, that some of its faults might be used as paints, and also for dyeing, as they appear to possess strong affinities, especially for animal substan ces. See Philosophical Transactions for 1818.


1. P. tridentata. Downy Purhia. De Cand. (Tigarea tridentata; Purth 333. t. 15.)—In the meadows of the Rocky-mountains, and on the Columbia river, flowering in July. A much branched forab, with wedge-shaped, crowded leaves, three-lobed at the extremity, and solitary, terminal, yellow flowers, nearly the size of Hawthorn.

PYMATUNING, l. 3, r. 379.

PYRAMID, col. 2, l. 36, delt and character and feet.

PYROACETIC SPIRIT, in Chemistry. See Acetic Acid.
QUADRUPEDS, col. 6, l. 33 from bottom, add—
See also Natural History.

QUARANTINE, that space of time (usually forty days, as the term manifestly implies) which vessels and persons are restricted from having intercourse with other vessels or persons, or with the shore, on their arrival from places subject to the plague or other infectious diseases or distemper, or having held communication with ships coming from such places, or on board of which any infectious disease shall have appeared during the voyage.

The public health is a matter of the highest importance, and whoever is sensible of the havoc which the plague and other infectious diseases formerly made in this country, (see Plague,) and considers the prevalence of such diseases in some parts of the globe, how easily they are communicated, and how long the poisonous contagion lies dormant without losing its malignity, will readily advert to the strong necessity that exists for rigorous precautions being adopted, to prevent its introduction into these kingdoms.

Of such common concern, indeed, is the health of large and trading communities, that the chief magistrates (says Blackstone) have the guardianship of the public health, and are empowered to issue such ordinances as may be deemed necessary, either to prevent the introduction of infection from neighbouring or remote countries, or for separating those actually infected by removal, or by cutting off communication with their abode.

In this country, a Board of Health has been instituted, to inquire into the nature of the infection of the plague, and the best mode to counteract its effects; and public ordinances have been made from time to time upon this subject; formerly by proclamation, but latterly by parliament. And such has been the anxious solicitude to frame the laws and orders to obtain the ends desired, that they have at various times undergone laborious revision, and such further regulations and amendments have been introduced as by experience were found to be necessary. Nor has the care and anxiety of the British government been wanting for their confuls and public functionaries abroad are instructed to convey, with the utmost promptness, intelligence of the appearance of any epidemic distemper in the places where they reside, or in such as are in their vicinity. Government is thereby enabled to issue necessary directions, for subjecting ships and persons arriving from thence, to a more rigid examination and seclusion than might otherwise have been adopted. Governors and commanders have similar local powers and instructions, and are empowered to make such orders, either to regulate or entirely cut off communication with suspected places and vessels as they shall deem necessary. In sea-ports, vessels and their cargoes and crews are subjected, on arrival, to examination; where the two former are aired and purified for a necessary time, and the latter retained a certain number of days, in which time, it is supposed, any infectious disease they might retain, would make its appearance.

In inland places, restraints are likewise imposed for similar purposes, and intercourse thereby cut off by similar means, (usually a cordon of troops drawn round the infected place,) which taking possession of the roads, rivers, and watercourses, effectually prevents infected persons entering the place, as well as others from escaping.

All these measures, though they may appear arbitrary, are founded upon sound policy; and however irksome they may be found by those who are subjected to their operation, yet if they reflect for a moment what dread is created at the very apprehension of approaching persons afflicted with diseases of an infectious or putrid nature, or having even the possibility of harbouring contagion; and what dreadful and painful consequences are known to follow from an unguarded or indiscreet exposure, in such cases they will refrain from hastily rushing into society, without submitting to such salutary precautions which are so absolutely necessary, or at least to satisfactory to their fellow-citizens. No doubt the time is tedious, and the places appointed may be but little calculated to afford comfort to or reconcile "lex detentus;" but when they reflect that thousands may be swept away in a few days, by the introduction of such a malady, it is hoped they will submit with less impatience. One thing which makes the necessity less apparent is, that from the length of time since England has been afflicted with such a calamity, and from the success of the measures that have been adopted to prevent its introduction, persons in general have no actual knowledge, and still less fear of its dreadful effects, and they perceive with indifference, as it were, an object at a distance, which on nearer approach would almost paralyze their senses.

That persons and commerce may be as little impeded as the nature of circumstances will admit, a certificate is always obtained by persons coming from places where any of these disturbing maladies are of frequent occurrence; by this means, the general safety is more strongly secured, as well as less impediment given to the trader and the traveller; because when it declares the country free from any infectious disease or distemper, no further detention is generally required, than is necessary to transmit the case to the consideration of those who are intrusted with the general safety. If on the contrary the certificate states, that an infectious distemper does prevail at such place at the time of their departure, or if no certificate is brought, the examinations are more minute, and the purifications are of longer duration.

It is not intended in this article to say anything of the nature of infectious diseases; they will be found in the previous work under the heads Epidemical Diseases, Plague, Yellow
QUARANTINE.

Yellow Fever, Contagion, &c. to which the reader is respectively referred. A succinct account only will follow of such enactments and orders as have been made with the view of securing the performance of quarantine, and that the necessity and value of these regulations may be more generally known.

Much pains and inquiry have been instituted for considering the most effectual means for preventing the introduction, and, of the steps most necessary to be adopted, in case of the sudden appearance of the plague, both with regard to the treatment of the persons and their homies, as well as their dealings and communication with each other; whereby such instructions can on any emergency be immediately issued, as must check the extension and deprive the malady of half its inveteracy and of half its terrors.

Besides this, so much more air has been admitted to large and manufacturing towns than formerly, so much more cleanliness secured by underground drainage, as well as among the lower classes, that in addition to their better condition generally, in point of food, and the treatment of febrile complaints being better understood, its recurrence or virulence must be considerably lessened. Apprehensions and false alarms will, at times no doubt, be created among weak and credulous persons, and it will be most judicious in the local magistracy, immediately to institute rigid inquiry into the rumour, and either to take prompt measures to contradict it, and thereby prevent unnecessary alarm, or to adopt such speedy steps as will secure those deemed infected from having intercourse with others who are in health, until his majesty's privy council can issue such directions as the case may require, which they are specially authorized to do by 45 Geo. III. c. 10. sect. 12. So much is the privy council on the alert in this respect, that it directed, and deemed prudent for the safety of the community, to have three vessels funk a few years ago, having cargoes of skins from Mogadore on board, under very strong suspicion of their harbouring the plague.

It will not here be necessary to make an enumeration of the many acts that have been passed respecting quarantine, since they were all repealed, (except so much of the 39 & 40 Geo. III. c. 85. as repealed the former acts) by the 45 Geo. III. which passed 12th March 1805, and which embraces many of the former provisions and enactments. Three other acts have passed subsequently, (46 Geo. III. c. 98. 50 Geo. III. c. 20. and 51 Geo. III. c. 45.) making further provisions and amendments; and several general orders in council have been published in the London Gazette, by authority of, and in furtherance of those laws; and which have equal force with the laws themselves. Indeed but for the levying of duties, and the infliction of pecuniary penalties and capital punishments, it is conceived acts of parliament would have been unnecessary, for by the common law the king is invested with the care of the public health, and his edict must of necessity have been binding on the subjects residing in or trading to this country. But to return: the 45 Geo. III. c. 10. in the first place, declares what ships, persons, and goods, are liable to the performance of quarantine. They are.

1. All ships and vessels (including his majesty's ships of war) arriving from or having touched at any place, from which his majesty shall declare it probable that the plague, or any other infectious disease or distemper may be brought, and all persons, goods, wares or merchandize, packets, packages, baggage, wearing apparel, books, letters, or any other articles whatsoever, on board the same. (Act, sect. 10.)

2. All ships, vessels, and boats, receiving any person, goods, wares or merchandise, packets, packages, &c. out of such ships, whether they came or were put on board the same, either before or after the arrival of such ships at any port in Great Britain, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, and whether they were bound to Great Britain or not. They are likewise deemed to be liable from the time of the vessels leaving such infected place, or from the time when such person or goods went or were received on board such vessel. (Act, sect. 10.)

3. Ships and vessels importing certain goods, more especially liable to retain infection, (to be set forth in any order in council,) and which may be carried from infected places into other countries, and from thence imported into Great Britain, are liable to all such regulations and restrictions as are made concerning quarantine. (Act, sect. 11.) For the goods, see Clas. 1 and 2.

4. Ships and vessels coming from any place in Europe, without the frights of Gibraltar or America, (where there is not a regular establishment of quarantine,) having on board any goods enumerated in the first clas, the produce of Turkey, or Africa within the frights, or West Barbary, and all ships and boats receiving such goods out of such ships, are, together with all persons, (and pilots,) goods, &c. to perform quarantine, as ships coming from the Mediterranean with clean bills of health (which is fifteen days.) Order in council, 5th April 1805, sect. 5.

5. But by order of the prince regent in council, 26th April 1817, ships which have failed from ports deemed liable to infection, to others which are not liable to infection, and afterwards arriving here, shall not be liable to perform quarantine, if they come in ballast, or with a cargo taken in at the last-mentioned port, if the master shall make oath that all the goods of the first and second classes were landed or otherwise discharged at the latter port forty days at least before her arrival in Great Britain, and that no plague, &c. existed on board at any time from the commencement of the outward voyage to the termination of the homeward one; and provided also, that the goods taken on board at the port not liable to infection are not the growth, &c. of any country declared liable to infection; or if any goods of Clas. 1. taken in at a place not deemed liable, shall be the produce of any country deemed liable, then on proof according to the 43d section of order in council of 5th April 1805, that such goods have performed quarantine at one of the foreign lazarets.

6. Ships and vessels also arriving from any place whatsoever, under any alarming or suspicious circumstances as to infection, are liable to such regulations and restrictions as are made by any order of his majesty (act, sect. 11.), or by any three of the lords of the council, in case of any unforeseen emergency on any ship arriving with any infectious diseases on board, or if any infectious distemper has appeared in the course of the voyage, although he shall not have come from any place from whence his majesty has declared it probable the plague, &c. may be brought. (Act, sect. 12.)

And all such ships and boats, and all persons, (including pilots,) goods, wares, &c. who have been imported or put on board such ships, boats, &c. as well as on board the receiving ship, shall be obliged to perform quarantine in such places and manner, and for such time, as shall be directed by his majesty's order in council, published in the London Gazette; and that until they have performed and been duly discharged from quarantine, they shall not come or be brought

[Note. — This is deemed to relate to the outward as well as the homeward voyage. By 5 Geo. III. c. 25. sect. 3. letters are to be given to the superintendant, who is to dispatch the same in the usual manner, after due precaution.]
brought on shore, or go and be put on board any other ship, &c., in order to go on shore, though such ship may not be bound to Great Britain, unless by directions and permission of his majesty in council. And all ships and boats, perfons, pilots, masters or commanders, goods, wares, or merchandise, coming from such restricted or any infected place, shall be subject to all the rules, regulations, and provisions of the act, and any order in council, and to all pains and penalties, &c., of that act for any breach or disobedience to it, or of any order in council made under its authority. Sect. 10. of the act.

By 46 Geo. III. c. 98. his majesty, or any of the lords of the council, as often as they shall apprehend that the yellow fever, or other highly infectious distemper, prevails in America, or the West Indies, may require every vessel coming from or having touched at those places, to come to anchor at certain places to be appointed by the commissioners of the customs, for the purpose of having the state of health of the crew ascertained before the shall be permitted to enter any port in Great Britain; but the ship shall not be deemed liable to quarantine, unless it shall be afterwards specially ordered under that restraint. Sect. 6.

Shortly after the passing the act of the 45 Geo. III., and under its immediate authority, an order in council was issued, dated 5th April 1805, which declared what places his majesty judged it probable the plague, or other infectious distemper or disease, may be brought from. They are by vessels coming from or through the Mediterranean, or from the West Barbary on the Atlantic ocean, and also by the importation of certain goods being the growth or produce of Turkey, or Africa within the freights of Gibraltar or West Barbary, from any port in Europe without the freights, or on the continent of America. And by further order, dated 7th November 1805, it was declared, that an infectious disease might be brought by vessels coming from or having touched at any port in the states of Pennsylvania or New York, but this order has since been annulled.

The Goods deemed most liable to retain infection are set forth in three tables, by sect. 33, 35, and 38 of the order in council, and are as follow:

**Class I.**—Apparel; artificial flowers; ball, or any article made thereof; beads, bracelets, or necklaces, in strings; beds, bed-ticks; books; brooms; brushes; burdets; cambric; canvas; carmenian wool; carpets; cordage not tarred; cotton wool, yarn, or thread, all articles wholly made of or mixed with cotton, silk, wool, thread, or yarn; down; feathers; f1ax; furriers' w1aive; goat's gold or silver in thread, cotton, hair, silk, or wool, or any other substance heretofore enumerated; grogram; hats, caps, or bonnets of Irish, chip, cane or any other material; hemp; hoes; horns and horn tips; hair of all sorts; leather; linen; liquor of any kind, in bottles or flasks; lute-strings, catlings, or harp-strings; maps; mattresses; mats and matting; mohair yarn; nets, new or old; paper; packthread; parchment; pelts; plating of ball, chip, cane, flaw, or horse-hair; quills; rags; sails and sail-cloth; silks; vzvz.; crapes and taffianies, silk and knubs, raw silk, thrown or organize silk, waffle silk, wrought silk, f1ims, hides, and furs, and parts or pieces of f1ins, hides, and furs, whether unbled, or in part or wholly tanned, tawed, or dressed; f1oanges; flaws, or any article made or mixed with flaw, flockings; thread; tow; vellum; whisks; wool, whether raw or anywive wrought; yarn of all sorts.

**Class II.**—Senna; jilap; gum arabic; gum tragacanth; myrrh; opium; scammony; antimony; castor-hares; alum; juniper-berries; pomegranates, flowers and seeds; sal nitre; sal ammoniac; madder; f1umach; gall; tobacco; coffee; wood in raisings; cork.

**Class III.**—Grain; pulses, and other seeds in bulk; grain, and other seeds in sacks or casks, or baskets of rush mat; dried fruits in baskets, or packages made of articles enumerated in the first class, or in packages of wood and oil in barrels.

Where vessels are to perform quarantine depends upon circumstances; for if the plague, &c., appears on board any ship within the freights of Gibraltar, she is to go to one of the foreign lazarets (at Malta, Ancona, Venice, Messina, Leghorn, Trieste, Genoa, or Marseille), but if it appears without the freights, then she is to go to the harbour of St. Helen's-Tean and North Wither, (two of the islands, called the Scilly islands,) or such places as his majesty shall appoint. (Sect. 13. of the act.) And immediate intelligence shall be given to the commissioners of the customs, and to the privy council, so that measures may be taken for the comfort and support of the crew and passengers, and such precautions used as the case may require; and the ship is to remain there, and none of the crew or passengers are to go on shore, or have any communication with any other vessel, and any person who shall not act conformably hereto, or any directions of the privy council, are to suffer death without benefit of clergy. If the vessel cannot make the island or other places appointed, or shall be forced by f1ire of weather to go up either of the Channels, the shall not enter any port in Great Britain, or the islands of Guernsey, Jersey, &c., but shall remain in the open road till the master receives direction from the privy council. Sect. 13. of the act.

The next regulation is, that ships not having the plague on board, coming through the Mediterranean, or West Barbary, without clean bills of health, (except ships of war, transports, or other vessels in the actual service of government, which are to go to the Motherbank near Portsmouth, in a place marked out with yellow buoys,) and all ships receiving goods out of them, are to perform quarantine at Stangate Creek, and no where else. (Order, sect. 4.) But by order 15th July 1813, ships not having the plague actually on board, (except king's ships, &c.) coming from or through the Mediterranean, or West Barbary, without clean bills of health, bound to the western ports of Great Britain, may perform quarantine at Milford Haven.

The 46 Geo. III. c. 98. sect. 7. authorizes his majesty or the privy council to prohibit (by proclamation or publication in the Gazette) any person, ships, or boats from going within the limits of any station which may be appointed for the performance of quarantine by ships without clean bills of health, under the penalty of 500l. By orders in council, dated 21st July 1806, and 6th September 1811, it was ordered, that no ship or boat (except quarantine and custom-house boats) should go, but on cafes of emergency, within the place at the Motherbank set out with yellow buoys for ships not having clean bills of health; and that ships with clean bills of health ordered to the Motherbank are to go within the compacts of the yellow buoys, but separate from his majesty's ships and ships without clean bills.

The two west buoys are placed to the caulkward of Wooton Creek, and the two north ones near the line of Wight, with another buoy midway between them, and a red buoy as a mark for a burying-place.

By sect. 2. of the order of 5th April 1805, ships (king's ships as well as others) with clean bills of health, Bound to London, Rochefort, Faversham, or any creeks or places belonging to or within any or either of the above ports, are to perform quarantine at Stangate Creek.
[Note.—In the case of ships coming from Turkey, and obliged to perform quarantine before their entry into the port of London, it is usual for the consignee to send down persons at his own expense to pack and take care of the goods; and where a consignee had omitted to do so, and the goods were damaged by being sent loose to shore, it was held that he had no right to call upon the master for a compensation. Durnage v. Julliffe, before lord Kenyon, chief justice, at Guildhall, M. T. 1789.]

Ships bound to Leigh, and the ports and creeks extending from thence to, and including Berwick,

— bound to Carlisle, and the ports and creeks extending from thence to, and including Beaumaris, and the Isle of Man,

— bound to Sandwich and Dover, and the ports inclusive,

— bound to Poole and Scilly, and the ports inclusive,

— bound to Bridgewater and Swan-sea, and the ports inclusive,

— bound to St. Ives and Aberystwyth, and the ports inclusive,

— bound to Jersey, Guernsey, Sark, or Man, or any part of them,

— bound to Leith, and all the ports or creeks extending from thence along the eastern coast of Scotland, as far as and including Aberdeen,

— bound to Glasgow, and all the ports or creeks extending along the western coast of Scotland, as far as and including Wigtown,

— bound to Inverness, and all the northern coast of Scotland, as far as and including Stornoway,

— bound to Dumfries and Kirkcudbright, and all the ports and creeks on the south-west coast of Scotland,

— bound to any port or place on the coasts of England and Scotland, not within any of the before-mentioned limits,

Vessels liable to quarantine, and having on board, which are bound to any of the above ports, and have passed the place appointed to perform quarantine, either from the master's ignorance of being liable, or by force of weather, or other unavoidable circumstances, may, on proof of oath that it was unintentional, and not with the view of avoiding the regulations of quarantine, repair (and shall be compelled to go) to any other place at the discretion of the quarantine officer, &c. keeping the proper signal flying during the whole time. Order, fect. 6.

When any country or place is known or suspected to be infected with the plague, &c., then, whenever any ship shall attempt to enter any port in Great Britain, or the islands of Guernsey, &c., she shall be visited by the superintendent of quarantine, or proper officer of customs; and the master, upon being directed, (for which purpose he or the pilot is to bring to, under penalty of 100l.) shall give a true answer in writing to all such questions and interrogatories as shall be put to him; and if he refuses to make a true discovery in any of the particulars, or if he shall give a false answer, (though not upon oath,) he shall forfeit 200l. (Act, sect. 18.) If it appears by such answers that the ship is liable, the superintendent shall direct her to repair forthwith to the proper place, and the shall not enter any other place, (except from farts of weather or damage,) and she may be compelled, by all necessary means, (either by firing of guns upon her, or any other kind of necessary force,) to go to the proper place. (Order, sect. 8.) And if the master does not cause such ship to be conveyed to the place appointed, he shall forfeit 500l. 45 Geo. III. c. 10. sect. 21.

Vessels not bound to this country are not to touch or attempt to enter any port in Great Britain, or the islands belonging thereto, although they may be ports appointed for performing quarantine (except for orders, or in consequence of farts of weather, or loss or damage at sea;) and then the masters are to answer the preliminary questions, and to conform to all such directions, as they shall receive, as well with respect to their continuance at such ports, and departing and repairing to any other place, as to all other regulations, &c. touching quarantine; and if they do not comply, they may be compelled to put to sea; to which the commander, or other officer of his Majesty's ships of war, may be called in. Order, sect. 7, and 45 Geo. III. c. 15. sect. 19.

The duration of quarantine depends upon circumstances; as the country from whence the ship arrives, the kind of goods she brings, the production of a bill of health, or otherwise. And the commencement is to be taken for ship and goods (where the cargo consists of goods of Clafs I. and II.), and goods non-enumerated, when the whole of the two former are removed. (Order, sect. 35.) But if there are no goods of those classes, then from the time of the vessel's arrival at the quarantine station. (Sect. 12.) And for ships without bills of health, but with cargoes not enumerated in the two classes, and not deemed infectious, from the day the quarantine guardians are put on board. Order, sect. 40.

The lords of the council may issue orders for shortening the time of quarantine performed by particular ships, persons, or goods, &c., or for wholly releasing them, absolutely or conditionally, as they shall think fit. 45 Geo. III. c. 10. sect. 12.

The duration for ships performing quarantine is as follows:

Ships having the plague on board, and arriving under any alarming or fulpicious circumstances, the time is left to the discretion of the privy council. 45 Geo. III. sect. 12 and 13.

Ships coming from or through the Mediterranean or West Barbary with clean bills of health, having on board goods of Clafs I. and II., fifteen days. Order, sect. 12.

Ships arriving without clean bills of health, thirty days. Order, sect. 57—49.

Ships arriving from places in Europe without the freightes, or on the continent of America, where there is not a quarantine establishment, bringing goods of the 1st Clafs, the produce of Turkey, or Africa within the freightes, or West Barbary, to perform quarantine for fifteen days. Order, sect. 5.

Ships bringing touched, &c., suspected bills, to perform quarantine for twenty days. Order, sect. 41.

The time for passengers and the crews of vessels performing quarantine is to be governed by the nature of the cargoes of the respective vessels, and whether they come with or without bills of health.
The duration for goods performing quarantine to be as follows:

- Goods of the 1st Class, coming without clean bills of health, forty days at the lazaret. Order, sect. 33.
- Goods of the 2d Class, coming without clean bills of health, thirty days. Order, sect. 35.
- Goods remaining after those of the 1st and 2d Class are removed to a floating or land-lazaret, are to perform quarantine for thirty days, and are to be afterwards fumigated. Order, sect. 37.
- Goods arriving from or through the Mediterranean, or West Barbary on the Atlantic ocean, in ships not having the plague on board, without clean bills of health, to be removed to the floating lazaret at Stangate Creek, and perform quarantine for thirty days. Order, sect. 14.
- Goods coming from those places with clean bills of health are to be aired one week in the same ship; except goods of Clafs 1. and 11., which are to be removed to the lazaret, and be aired for fifteen days. Order, sect. 13.
- Goods coming in ships with suspected bills of health to be treated as ships coming without bills of health, except that they are to perform ten days less quarantine. Order, sect. 41.

Dried fruits having been shifted from baskets and packages made of articles in Clafs 1., or considered fufceptible, if all the persons on board are in health may be delivered in twenty days. Order, sect. 38.

Dried fruits in wood, may be delivered in ten days. Order, sect. 38.

Oil in barrels, the bungs being tarred, and the barrels brufted and dipped in fea-water, may be delivered in ten days. Order, sect. 38.

Grain, pufe, and feed in bulk, or in facks, or cafsks, or mats, when shifted, and passed through a fieve, may be delivered in ten days. Order, sect. 38.

And the packages, when made of fufceptible articles, are to be fent to the lazaret to perform quarantine, according to the nature of them, or be defroyed at the option of the owner. Sect. 38.

Formerly the 42d clause in the order in council required "the production of a declaration on oath for goods of the 1st Clafs," when brought from places without the frefhips of Gibraltar, or on the continent of America, &c. to affcrtain their growth, and that they were not the produce of Turkey, &c., but that clause has been fuppfed by order of 8th Aug. 1810; and they may be admitted without performing quarantine, on the matter making oath that no infectious disorder prevailed at the place from whence they failed, or on oath of the importer that they are not the produce of Turkey, or of any place in Africa within the frefhips, or West Barbary: but whenever that declaration is produced, the oath of the importer or of the importer is not required. Order in Council, 27th Oct. 1818.

Veffels having performed quarantine at any of the foreign lazarets, and producing proper documents to prove that fact, are not required to do fo again: nevertheless, fuch part of the cargo as confils of articles in Clafs 1. are to be taken out and perform quarantine in the usual manner for fifteen days (Order, sect. 43.) But no goods are to be landed or removed therefrom until the fmall has given notice to the quarantine fuperintendent, or officer of customs, in order to be laid before the privy council. Landing or removing them before directions are given, or contrary thereto, subjects the matter to the penalty of 2000 £. 45 Geo. III. sect. 22.

Having thus flated what ships and goods are liable and required to perform quarantine, and the time for which they are to perform it, we fhall proceed to flate the manner of doing it, which is to be by opening and airing in the manner directed by order in council (Aô, sect. 29.), according to the nature of the goods, and the articles of which the packages are made.

Goods of the 1st Clafs, unaccompanied with a clean bill of health, undergo two performances, one probationary, the other of longer time and greater precaution. The hatches of the veffel are first to be opened, and as many of the bales as can be ranged upon the deck are to be taken from the hold, (as soon as the pilot and passengers are removed,) and the ends opened, and the contents handled by the sailors, under directions of a quarantine guardian for fix days; and after this, any further parcels are only required to be fo opened and aired for three days, unlefs any fupplicious circumftances arise, and then the time may be extended to four, fix, or eight days, fo as to complete in the whole twenty-one days, or even a longer time if necessary, and then they are to be conveyed to the lazaret. Order, sect. 32.

In the second performance, or expurgation at the lazaret, all bales of cotton are to be opened from one end to the other, and fo much removed as admit the handling and removing the remainder. Rags, raw wool, goats' wood, Car- menia wool, and hair, are to be taken out and ranged in heaps of four feet high, and often ruffaged. Bales of flilk to be opened on one fide, from end to end, the cords loofened, and the flilk aired for twenty days; and then the other fide to be opened in like manner for five days more. Cottons, yarn, thread, flufs, and linen, are to be piled in rows or pyramids, and turned every four days, and completely spread out and fuppfed on cords for several days. Paper, books, parchment, fponges, and flockings, are to be un-packed and feparated, fo as to admit thorough airing. Feathers, fraw-batts, artificial flowers, coral beads in frifings, and brushes, fpread out in the fame manner. Carpets, furs, hides, and fkins to be unbaked, and each piece spread and fuppfed on cords in the open air, and frequently turned; and all goods packed with fraw, cotton, or articles flated in Clafs 1., shall be entirely taken out of the fame, opened, and handled, and carefully aired, as well as all other goods in that clafs, for which no directions are given. Order, sect. 33.

Goods of the 2d Clafs, unaccompanied with clean bills of health, though less liable to infection, are to be carried to the lazaret, and be unpacked, opened, and aired as much as possible; and by moving them as much as practicable from time to time, fo as to admit free ventilation for thirty days. Order, sect. 35 and 36.

Goods not mentioned in those clafs, and remaining on board the importing ship, are to perform quarantine for thirty days, by being frequently swept and shifted, fo as to admit free ventilation; at the end of which time, if all the persons on board, and those employed in the expurgation on shore, are well, the ship, goods, crew, and passengers, are to be fuppfed and difcharged. Order, sect. 37.

There are other regulations and enactments on this subject which it is necessary to notice, and though they relate to the first arrival of the ships, and take effed from that time, yet being rather regulations to ascertain the nature of the voyages, and the flate of the crews, and the goods accompanying the cargo, than any part of the performance of quarantine, this is conceived a proper place to introduce them.

It is manifest, that without the earliest information of the arrival of veffels from countries infected with the plague, &c. and of the kind of goods of which their cargoes are compofed, many of the above-mentioned fentury regulations would be useflefs, either by perfons quitting veffels immediately
QUARANTINE.

Matners knowing any place from which they came, or at which they touched, to be infected with the plague, or any infectious disease, or having any person on board infected with it, and who shall refuse or neglect to disclose the same when examined by the superintendmt of quarantine, or officer of customs, and permitting to hoist the proper signals, shall be guilty of felony, and suffer death. 45 Geo. III. c. 10. f. 19.

Matners of vessels ordered to perform quarantine are to deliver to the master of customs, or quarantine superintendent at the quarantine station, (and which they are required to demand,) their bills of health, manifest, log-book, and journal, under penalty of 100l. 45 Geo. III. c. 10. f. 20.

Matners of ships liable to quarantine, although the plague, &c. shall not have then appeared, who shall quit the ship, or suffer any seaman or passenger to quit the same, till they have performed quarantine, (unless by licence or order in council,) shall forfeit 500l. And if any person coming in, (or any pilot or other person who may go on board, whether before or after her arrival at any port in Great Britain,) shall afterwards quit her before the shall be regularly discharged, all persons (by necessary force) may compel each person to return on board; and every person for quitting such ship shall forfeit 200l. and be imprisoned six months. 45 Geo. III. c. 10. f. 21.

Such of the passengers and crew of ships not furnished with clean bills of health as may be defective of performing quarantine in a separate vessel, (to be hired at their own expense,) may, if the superintendent and medical attendant see objection thereto, do so, and may quit the ship before the hatches are opened and go on board such ship, (a guard being there placed at their expense) for thirty days (Order, fect. 28.) but their baggage, apparel, and books, for which they have not immediate occasion, shall be sent to a floating lazaret to be aired, and before any passengers or crew shall be discharged, they, their clothes, and effects, shall be fumigated (Order, sect. 31.) but passengers and the crews continuing on board the ship in which they arrived are to remain under quarantine till the ship be discharged. Order, sect. 28.

Pilots may quit the ship and be removed to the hospital ship, after the quarantine guardians are placed on board, provided they come from ships having no suspicious sickness on board; but if otherwise, they are to be sent to the pelthoue, or other place appointed for persons so affected, and they are to continue under quarantine until the probationary airing of the goods is finished, when, if they continue well, they are to be fumigated and discharged. But such pilots are not to have communication with any other person, except under the regulations usual in like cases. Order, sect. 37.

If any pestilential accident occurs among the ship's crew or passengers during the probationary airing, (at whatever stage it may happen,) the quarantine of the crew, passengers, and pilot, (if any shall have been on board,) and the goods, is to recommence, and the sick are to be sent to the hospital, or pelthoue, or place provided for persons so afflicted, the external guard to be doubled, and notice immediately given to the privy council. Order, sect. 29.

If any peron falls ill, and a medical man is on board, he shall confer with the medical man who comes alongside, the latter keeping ten feet to windward; but if no medical man

...and other accidents) to forfeit 100l. (43 Geo. III. c. 15. f. 17;) and not requiring such paper, 100l. by 46 Geo. III. c. 98. f. 2.

Matners knowing any place from which they came, or at which they touched, to be infected with the plague, or any infectious disease, or having any person on board infected with it, and who shall refuse or neglect to disclose the same when examine...

...by the superintendmt of quarantine, or officer of customs, and permitting to hoist the proper signals, shall be guilty of felony, and suffer death. 45 Geo. III. c. 10. f. 19.

Matners of vessels ordered to perform quarantine are to deliver to the master of customs, or quarantine superintendent at the quarantine station, (and which they are required to demand,) their bills of health, manifest, log-book, and journal, under penalty of 100l. 45 Geo. III. c. 10. f. 20.

Matners of ships liable to quarantine, although the plague, &c. shall not have then appeared, who shall quit the ship, or suffer any seaman or passenger to quit the same, till they have performed quarantine, (unless by licence or order in council,) shall forfeit 500l. And if any person coming in, (or any pilot or other person who may go on board, whether before or after her arrival at any port in Great Britain,) shall afterwards quit her before the shall be regularly discharged, all persons (by necessary force) may compel each person to return on board; and every person for quitting such ship shall forfeit 200l. and be imprisoned six months. 45 Geo. III. c. 10. f. 21.

Such of the passengers and crew of ships not furnished with clean bills of health as may be defective of performing quarantine in a separate vessel, (to be hired at their own expense,) may, if the superintendent and medical attendant see objection thereto, do so, and may quit the ship before the hatches are opened and go on board such ship, (a guard being there placed at their expense) for thirty days (Order, fect. 28.) but their baggage, apparel, and books, for which they have not immediate occasion, shall be sent to a floating lazaret to be aired, and before any passengers or crew shall be discharged, they, their clothes, and effects, shall be fumigated (Order, sect. 31.) but passengers and the crews continuing on board the ship in which they arrived are to remain under quarantine till the ship be discharged. Order, sect. 28.

Pilots may quit the ship and be removed to the hospital ship, after the quarantine guardians are placed on board, provided they come from ships having no suspicious sickness on board; but if otherwise, they are to be sent to the pelthoue, or other place appointed for persons so affected, and they are to continue under quarantine until the probationary airing of the goods is finished, when, if they continue well, they are to be fumigated and discharged. But such pilots are not to have communication with any other person, except under the regulations usual in like cases. Order, sect. 37.

If any pestilential accident occurs among the ship's crew or passengers during the probationary airing, (at whatever stage it may happen,) the quarantine of the crew, passengers, and pilot, (if any shall have been on board,) and the goods, is to recommence, and the sick are to be sent to the hospital, or pelthoue, or place provided for persons so afflicted, the external guard to be doubled, and notice immediately given to the privy council. Order, sect. 29.

If any peron falls ill, and a medical man is on board, he shall confer with the medical man who comes alongside, the latter keeping ten feet to windward; but if no medical man
man is on board, and it is necessary to visit the sick, the visit shall be made at the ship's boat by the medical attendant in his own boat, keeping to windward ten feet; and if medical aid cannot be administered on board, the sick is to be carried to the pell or hospital ship. Order, sect. 23.

Persons under circumstances to induce a suspicion of having any pestilential disorder, to be removed to the pell or hospital ship; but if it is not infectious, they may be removed to a more commodious apartment in the lazaret, there to complete the remainder of their quarantine. Order, sect. 24.

If any pestilential disorder shall actually discover itself in any ship or lazaret, the person is to be removed with all possible care and dispatch, under the special directions of the superintendent or medical attendant to the pell-house, and a proper attendant is to be affixed to him, and he shall be visited at a due distance; but if a nearer approach is necessary, some person is to be specially appointed for that purpose. Order, sect. 25.

Passengers and crews may have the assistance of any medical person they may choose from the shore; but if any persons communicate by contact with the sick, they shall perform the like quarantine as the sick. Order, sect. 26.

Persons liable to perform quarantine, and others having had intercourse with them (whether in ships or lazarets), are to be subject to the orders of the superintendent or officer of customs, who are required to enforce obedience to all such orders, and to call in others to their assistance; and they may compel such persons to repair to the lazaret or ship, and cause all goods liable to quarantine to be conveyed there also; and persons refusing to go, or, who being there, shall escape, shall be compelled by force to return, and persons refusing or neglecting to return, and persons escaping, shall suffer death without benefit of clergy. (45 Geo. III. ch. 10, sect. 23.) And may be seized by any constable, headborough, tythingman, or peace officer, or any other person, and be carried before a magistrate or justice of the peace, or such justice may issue his warrant for their apprehension and conveyance to their ship, or to any ship performing quarantine, or to any lazaret from which they have escaped, or for confining them in safe custody (but not in a public gaol) under such restrictions, as to having communication with other persons, as the justice may think proper, (calling to his aid medical advice) until they can be safely removed to some place appointed for quarantine, or until directions can be obtained from the privy council. 45 Geo. III. ch. 10, sect. 24.

Persons not infected with the plague, &c. entering the lazaret whilst any person is performing quarantine, are to perform it also, and are not to return without licence or order in council; and, if they shall actually escape before it has been fully performed, they shall suffer death, without benefit of clergy. 45 Geo. III. sect. 27.

Persons on board ship, or lazaret, may have communication with others by letter, to be collected by a boat, which is to go round at a fixed hour daily, and they are to be dipped in vinegar and put into the fumigating-box, and the covers slit open (Order, sect. 16); but letters to persons on board are to be taken by the quarantine superintendent only, and no conference is to be had by persons not under quarantine with persons who are under quarantine (except by permission of or in the presence of the quarantine superintendent or his attendant), nor from any ship, unless the superintendent's boat be present, and then at the distance observed by the superintendent. And to prevent improper or clandestine communication, there is to be a night-watch and row-guard at all the quarantine stations; and the boats belonging to any floating-lazaret are to be locked to the same; and the boats of the ships performing quarantine are to be taken away, and no use made of them, but for removing goods, from such ship, or upon occasions of necessity, till they are given up when the ship has done performing quarantine. Order, sect. 17.

Affliction and necessaries for ships under quarantine to be found by the superintendent and to be carried to the windward side, and delivered by means of buckets. (Order, sect. 18.) Quarantine guardians are to prevent any goods being delivered from ships without clean bills of health but by an order in writing from the superintendent, such order to be entered in a book and the original returned; and nothing to be conveyed from one ship under quarantine to another, nor any personal intercourse allowed. And a guardian is to go with the lighters and boats, to prevent communication during the transit of the cargo, and to take care that no remnants of cotton, or things of Classes I. and II., remain in them. And before leaving off work they are to collect and deliver all such articles into the lazaret. Sect. 19 of the Order.

The duty of the quarantine superintendent and officers of the customs may partly be collected from what has gone before; but it is necessary here to observe, that they are, on a ship's arrival, to go off and put the following preliminary questions:—What is the name of the ship? Master? From whence? Where bound? At what port has she touched on the homeward voyage, or what ships spoken with? Whether the plague, or any infectious disease, existed at the time of leaving the port the ship loaded at? What kind of goods the cargo is composed of, and what country are they the produce? and whether she brings a bill of health?

If the ship is deemed liable to quarantine, she is then to be directed to the proper quarantine port, where, on arrival, the superintendent is to go to the windward side, (taking medical advice with him, if necessary,) and to see all the officers, crew, and other persons, mulled on the gangway, and is to put further questions to them. They are in substance the same as above, except more particular as to the places the vessel touched at during the whole voyage; the respective dates of her arrival at every place, and dates of her departure; the number and conditions of the crew for the voyage, whether any have been sick or died, and the nature of the disease; whether their bedding and clothes were destroyed, or any peron employed about them taken ill; if so, when, and what kind of disease; whether any letters or parcels have been received out of any other ship on the passage; of what kind and where delivered, and into what vessel or boat; what persons she has had; and any particulars respecting British ships loading at the same port from whence she came; their names; where bound, &c. and what British ships were at the places at which she touched; whether any person employed in loading the cargo was taken ill, or any sufferance of the kind; whether the cargo had been long warehoused, or packed, handled, or brought on board by any person affected with the plague; did the touch at the isle of Rhodes, Morea, or any and what part of Africa; if so, where? and had the any communication with the shore at those places, or with any ship coming from such places; if so, in what manner, and when, and whether the crew of such ship was healthy.

The answers to all these questions are to be taken in writing, and the master to make oath to them, and is to deliver the log-book, manifest, and ship's papers, (which are to be dipped in vinegar and fumigated,) and make oath to the truth of the contents of the former, or in what particular it is not correct; and whether any particular entry was
was made soon after the fact, and if not, for what reason; and also to make oath to all the other papers. Sect. 10 of the Order.

If any suspicious circumstances appear in the answers to the above questions, or from any other circumstance, the proper officer is immediately to transmit such answers to the privy council and the commissioners of the customs, and without regard to the bill of health, whether clean or otherwise, is to order such ship to a station distant from all other vessels, and put her under special guard, the more effectually to prevent communication with her. Order, sect. 11.

Ships coming without clean bills of health are to have two quarantine guardians placed on board as soon as the examinations are ended, and the shall have arrived at her proper station. Order, sect. 15.

Guardians are to take care that, after the cargoes are discharged into the lazaret, the holds and between decks are completely swept, and the sweepings burnt. (Order, sect. 20.) And they are to search all lockers and chests, &c. of passengers and crews, so that no goods in Lift i and 2, or any thing liable to infection, remains undelivered, except what the superintendent or medical man declares requisite for daily use; and they are to see all such chests, clothes, and the bedding of the ship daily opened and aired. (Order, sect. 21.) They are also to make daily reports of the state of health of every person on board, and whether the regulations are regularly complied with; and, in case of any impediment, are to give notice to the master, and then to the superintendent, who shall remove the same. Order, sect. 22.

Persons landing or removing any goods, wares, or merchandise, packets, packages, baggage, wearing-apparel, books, or letters, from any ship liable to quarantine, or knowingly receiving the same, are to forfeit, for every offence, not more than 500l., nor less than 100l. And persons clandestinely conveying them (or concealing them for that purpose) from any ship actually performing quarantine, or from the lazaret, are to be adjudged guilty of felony, and suffer death without benefit of clergy. Act, sect. 31.

Officers of customs, or other persons embezzebling goods, or guilty of any other breach or neglect of duty, in respect of the ships, persons, and goods performing quarantine, shall lose their office or employment, and be rendered incapable to hold the same, or receive a new grant thereof, and shall forfeit 100l. And if they shall defeat their duty, or wilfully permit any ships, persons, or goods, to depart, or be conveyed out of the lazaret, ship, or other place, unless by permission under an order in council, and if they, or any person authorized to grant certificates of ships having performed quarantine, shall knowingly give a false certificate thereof, they shall suffer death without benefit of clergy; and if they shall wilfully damage any goods under their direction, they shall pay treble damages and costs of suit to the owner. 45 Geo. III. c. 10. sect. 26.

Perfons forging, counterfeiting, interlining, or altering, any certificate required by this act, or any order in council touching quarantine, or procuring it to be done, or publishing it as true, shall suffer death without benefit of clergy. 45 Geo. III. c. 10. sect. 30. and 46 Geo. III. c. 98. sect. 8.

After goods have been duly opened and aired, proof thereof shall be made by the oaths of the master of the lazaret or vessel, and one of the guardians or officer of the customs, and the superintendent, shall give a certificate of such proof having been made, and such goods shall not be liable to any further restraint, either at that or any other port. 46 Geo. III. c. 98. sect. 5.

Ships and persons having performed quarantine, proof is to be made by the oaths of the master, and of two other persons belonging to the ship, before the principal officer of customs or justice of peace, at the port where quarantine was performed, or, if at the islands of Guernsey, &c. before two jurats, that such ships or persons have duly performed quarantine, and that they are free from infection. And, upon producing a certificate from the superintendent to that effect, the collector or justice, &c. is required to give a certificate thereof, and thereupon such ships and persons shall not be liable to farther restraint. 45 Geo. III. c. 10. sect. 28.

All forfeitures and penalties incurred against this act may be recovered in any of his majesty's courts of record, or by suit in any of his majesty's courts in the islands of Guernsey, &c. one half to them who shall sue, and the other to his majesty, to be applied towards defraying the expenses of erecting and maintaining the lazaret. 45 Geo. III. c. 10. sect. 34.

Actions to be commenced in the name of the attorney-general, or of some officer of the customs, and the former may stop proceedings if he thinks proper, as well as to the officer's share as to the king's moiety. Sect. 35 and 36.

Offences against this act, not being felony, and disobedience to any order in council, for which no specific penalty is provided, may be tried before any two justices of the peace for the county, riding, &c. where such offence happens; and if any person shall be convicted he shall be liable to such penalty, not exceeding 50l. for any one offence, or to such imprisonment, not exceeding three months, as shall, in the discretion of the two justices, be judged proper. Such penalty to be applied as directed by sect. 34-45 Geo. III. c. 10. sect. 38.

Offences contrary to this or any act hereafter to be passed, or of any order in council, notified by proclamation, or published in the Gazette, may be tried in any county within England or Scotland, or in the proper courts in the islands of Guernsey, &c. No attainer of felony to work corruption of blood or forfeiture of goods, &c. 45 Geo. III. c. 10. sect. 39 and 42.

In any prosecution for offences against this act, or any act which may hereafter be passed, concerning quarantine, or for any breach of any order in council notified in the Gazette (which is to be a sufficient notice by 45 Geo. III. c. 10. sect. 33.), the answer to any questions or interrogatories put to the master of a ship, may be given in evidence as to the place from which such ship came, or the places at which she touched in the course of the voyage; and where any ship shall have been directed to perform quarantine, the having been so directed shall be evidence that she was liable, unless satisfactory proof shall be produced by the defendant that the ship did not come from or touch at any such place as is stated in the said answer; or that such ship, although directed to perform quarantine, was not liable. And where any ship shall in fact have been put, and shall actually be performing quarantine, such ship shall, in any prosecution, be deemed to be liable, without proving in what manner, or from what circumstances, such vessel became liable. 46 Geo. III. c. 10. sect. 40.

By the 43d section, offenders may plead the general issue, and if the plaintiff is nonsuited, or discontinues his action after the defendant has appeared, or if judgment has been given upon any verdict or demurrer against the plaintiff, the defendant may recover treble costs, and have the like remedy at law as the defendant hath in other cases.

Actions
Actions to be brought within the space of two months after the offence is committed.

Whenever any person is charged with an offence against this or any other act, or in disobedience of any order in council concerning quarantine, and the same shall appear to any judge of the court of King's Bench by affidavit or certificate of an information being filed against such person, he may issue his warrant under his hand and seal, and cause him to be brought before him or a justice of the peace, that he be bound with two sufficient sureties to appear and answer such offence; and if such person shall refuse or neglect to become bound, he may be committed to goal till he does so give bail, or be discharged by order of the court of King's Bench. The recognizance to be returned and filed in court, and remain in force until such person is acquitted, or until he has received judgment. (Act, sect. 41.) And if he is detained for want of bail, the protector may cause a copy of the indictment to be delivered to him, or the gaoler, &c. with notice thereon indorsed, that if he does not in six days enter an appearance and a plea of demurrer, an appearance and plea of not guilty will be entered in his name; and upon affidavit being made of such notice, &c. being delivered, the protector may cause an appearance and plea of not guilty to be entered, and such proceedings shall be had as if the defendant had appeared and pleaded not guilty; and if upon a trial the defendant is acquitted the judge may direct his discharge. Act, sect. 43.

Where any examination or answer shall be taken on oath, the persons authorized to take such examinations and oath shall be deemed to have full powers to administer such oath; and if any person swears falsely, or procures others to do so, he shall be deemed guilty of perjury or subornation of perjury. 45 Geo. III. c. 10. sect. 37. and 46 Geo. III. c. 98. sect. 10.

The king may issue directions if the plague breaks out in Great Britain.—The lords of the privy council, in case any infectious disease breaks out in Great Britain, or the islands of Guernsey, &c. may make such order, and give such directions in order to cut off all communication between any person infected, and the rest of his majesty's subjects as shall appear to them expedient for that purpose. 45 Geo. III. c. 10. sect. 12. And if it shall happen that any part of Great Britain or Ireland, or the isles of Guernsey, &c. or France, Spain, Portugal, or the Low Countries, shall be affected with the plague or other infectious disease, his majesty may by proclamation restrain all small boats, and vessels under 20 tons, from falling out of the ports of Great Britain or the islands, until bond is given by the master, with sufficient sureties for 30£., that such vessel or boat shall not go or touch at any place mentioned in such proclamation, and that the master, crew, or passengers, shall not go on board any other ship at sea, nor receive any person on board at sea from any other ship, nor receive any goods out of any ship. And if any vessel for which such security is required, shall fail before security is given, the shall be liable to forfeiture, and the master and every mariner shall forfeit 50£. 45 Geo. III. c. 10. sect. 32.

By the flat 1 James I. c. 31, if any person infected with the plague, or dwelling in any infected house, be commanded by the mayor or constable, or other head officer of the town or vill, to keep his house and shall disobey it, he may be enforced by the watchmen appointed on such occasions to obey such necessary command, and if any hurt ensue the watchmen are thereby indemnified. And further, if such person goes abroad and continues in company, if he has no plague fore upon him, he shall be punished as a vagabond by whipping, and be bound to his good behaviour. But if he has any infectious sores upon him uncorrected, he then shall be guilty of felony. Blackstone, vol. iv. c. 13.

Having thus far given the laws and regulations concerning this matter, we shall relate the duties payable by ships performing quarantine, with the exceptions provided by the act; and also the best methods of fumigating ships and houses. It must be apparent, that the nature of the quarantine establishments and maintaining lazarets incur considerable expences, to defray which the duties are to be applied (Act, sect. 8.); and the law 45 Geo. III. c. 10. sect. 3, declares, that it is reasonable the importers should defray the same; and sect. 6. enacts, that the ship-owners may recover of the importers such sums as the tonnage of their goods shall bear to the proportion of the tonnage of the ships. These duties are to be paid upon the ships clearing inwards, and to be computed according to the 26 Geo. III. c. 60. 45 Geo. III. c. 10. sect. 5. They are to be levied and recovered as duties of customs, and although not raised for the purpose of contributing to the revenue, the amount is to be carried to the consolidated fund.

Sect. 7.

A Table of tonnage duties payable on ships and vessels, which ships or vessels, or the cargo of which, or any part thereof, shall have performed quarantine in Great Britain, or the isles of Guernsey, Jersey, Alderney, Sark, or Man. 45 Geo. III. c. 10. sect. 3.

1. For every ship which shall have arrived from any part of Turkey, or from Africa within the freight of Gibraltar, or in the West Barbary on the Atlantic Ocean, with a clean bill of health, the ton 15 0
2. Do. without a clean bill of health, the ton 3 0
3. For every ship which shall have arrived from any place whatsoever (except from any part of Turkey, &c.) with a clean bill of health, the ton 10 0
4. Do. without a clean bill of health, the ton 7 6
5. For every ship which shall arrive with any part of the cargo consisting of goods the growth of Turkey, or any place in Africa within the freight, or in the West Barbary, and which shall have arrived from any place whatever, the ton 7 6
6. For every ship which shall have arrived under such circumstances as shall induce his majesty, or the lords of the council, to subject such ship to the like quarantine as ships coming from Turkey with clean bills of health, the ton 15 0
7. Ships arriving under such circumstances as shall induce his majesty to subject such ship to the like quarantine as ships coming from Turkey without clean bills of health, the ton 1 0

Exempted from the said Duties.

Ships of war, transports, and other vessels employed in the service of government.

Ships or vessels not bound to Great Britain or the islands, and having put in in distress. (Although they should perform quarantine. Opinion of the attorney-general.)

Ships or vessels obliged to perform quarantine only on account of having goods enumerated in the first class of board,
QUARANTINE.

The stronger and better fumigations are the nitrous or marine acid, and the oxymuriatic acid vapour, the former of which is made thus: half an ounce of nitre reduced to powder and vitriolic acid (oil of vitriol) in equal quantities, mixed in small pots, and placed in various parts of the room.

Oxymuriatic acid, which is most powerful, is prepared thus:

- Manganese - - - - 2 parts.
- Common salt - - - - 4 parts.
- Vitriolic acid, specific gravity 1.85 3 parts.
- Water - - - - 1 part.

To a small quantity of the mixture of the manganese and salt, (fuppofe three ounces,) the whole of the water is to be added, (half an ounce,) and to this, in a pot large enough to prevent the ebullition from flowing over, add the vitriolic acid from time to time. This will keep up for twenty-four hours a discharge of the oxygenated muriatic acid, of which the smell is not unpleasant, and the vapour gives no annoyance to either the sick or the attendants.

Where houses or hospitals are highly infected with the plague, it will be necessary for them to undergo a stronger fumigation of sulphur, but that being attended with danger should only be done by persons properly acquainted with the manner of doing it; they should afterwards be whitewashed, and the floors well scoured.

It may be flated once for all, that the great object of quarantine laws is the separating of those affected, or suspected to be infected with an infectious diftemper, from those who are not, and nothing would be fo falutary or abso- lutely necessary, wherever the plague breaks out, as instantly separating of the sick from those who are well; and this is best done by removing them to a proper place, rather than suffering them to remain with their family, which too frequently by that means becomes infected also.

Whatever is requisite to be done by way of fumigation will be found at large under that head; the following precautions are, however, proper to be known.

The clothes of the sick should at all times, when changed, be removed by tongs, and not by handling, and should be put into cold water and boiled for an hour, and afterwards be well washed in washing machines, and then fumigated; or they may be baked in an oven; but the safer mode would be to have them destroyed, especially if not valuable.

Those who attend about the perfon of the sick, as well as the medical men, should remain as short a space of time as is consistent with their duty, and to avoid as much as possible all contact with his perfon or his bedding, clothes, &c. And they might be furnished with gloves made of oiled flilk, as well as drawers of the same article. The cup or glass out of which he drinks should be immediately plunged into water or vinegar, as well as any article he touches or ufed. Whatever he leaves of his meals should be burnt or wholly destroyed. The excrementitious discharges should also be received into cold water, and infantly removed out of the room. If the sick die, he should be immediately wrapped in oiled cloth or a tarpaulin, and be speedily buried at the depth of six or seven feet; which should be performed, without baffle, in the night time, without toll of bell, to prevent the alarming of others.

With respect to the bed and bedding upon which the sick has died, it would be best to have it burnt immediately; at all events, it must on no account be used till it has been baked in an oven for twelve hours (being rolled up and removed in a cart with every possible care, that it be as little handled as possible). It should be afterwards exposed to the open air for at least fourteen days before it is again ufed.

Furniture
Furniture consisting of chairs, bedsteads, &c. should be scoured and fumigated with sulphur and saw-dust for twenty-four hours, first removing every person out of the apartment, as no living creature can exist in the fumes for any length of time.

Houses and apartments should be fumigated in like manner, and be afterwards purified by the admixture of as much air as is practicable, and also by scraping and washing the walls with lime-water, and the floors with plenty of cold water.

And lastly, we cannot inculcate too much the fact, that the best preventive of infectious disease, and the surest mode of diminishing the effects of its contagion, is by the free admixture of pure air, even in the room of the sick, who, to admit of its free circulation, should not have bed or window curtains, and by the greatest attention to cleanliness. By the removal of the rest of the inhabitants from the sick house to a place of observation, for the space of twenty days, and by the sick being also confined for an equal length of time, having persons appointed to prevent his escape, and to have a nurse assigned to him. Articles necessary for his support must be delivered by means of baskets or planks, as well as those received from the house, and all money received in payment to be dipped in vinegar.

Large assemblies should not be permitted to meet while towns are infected, and the theatres, churches, and markets should be closed; and if these precautions are strictly adhered to, we are confident that if the contagion cannot be wholly prevented, its spreading may be greatly confined, and its malignity considerably lessened.

**QUARTZ.** See Quartz, and Mineralogy, Addenda.

**QUASSIN,** in Chemistry, the name which has been given to a bitter substance extracted from quassia. See Bitter Principle.

**QUEEN ANNE's.** Add—It contains 16,648 inhabitants, of whom 6381 were slaves in 1810.

**QUEMAKO,** a township of Somerset county, in Pennsylvania, having 1392 inhabitants.

**QUERCITRON.** See Quercus Tinctoria, and Printing on Calico.

**QUILOA.** At the close, add—An island of Quiloa was visited by captain Beaver in 1812. He describes this island, which has been the seat of royal residence, since the foundation of the kingdom, at least 700 years, as being about fix miles long and three broad; low and fertile, extending longitudinally across the mouth of a deep bay, having at either end an opening for two arms of the sea, and thus containing a peninsula which projects from the main land, forms two safe and magnificent harbours, capable of containing, in perfect security, the largest fleets. Of the ancient splendour and magnificence that subsisted when the Portuguese first visited this island, not a vestige remains. The present city, if it deserves the name, consists of a number of scattered huts from the borders of the sea to the shore. Here captain Beaver found the deputy of the Imam of Muscat, who controls the miserable Moors or Arabs who are in possession of the sea-coast, with his half a dozen of soldiers, situated in a round tower, mounting three guns, which pointed directly to the king's house, and at the distance of a musket-shot from it. By these means, he keeps the king of the extensive kingdom of Quiloa in awe, and levies a tribute in slaves, ivory, gold-dust, and many other articles exported from this part of the coast. The Moorish king is only the nominal sovereign both of the islands and of the shores of the continent.

**QUINCUNX,** l. 21, add—The notion, however prevalent, that plants thus fet have greater scope than when set at the same distance without alternation, is perfectly imaginary: thus below it is evident, that the square mode becomes a quincunx when viewed angularly, and the quincunx, in like manner, becomes a square; and the distance of the plants is the same in both.

**QUINTAL, col. 2, l. 3,** add—The Cahilian quintal is divided into 4 ararobis, or 100 lbs.; the lb. into 2 marcs, or 16 oz.; the marc into 8 drachmas, 16 adarmes, or 576 grains. The merchants commonly reckon 100 lbs. Cahilian weight equal to 102 lbs. avoirdupois; but the more accurate proportion is as 123 to 125.

**QUIRA,** or Quiri, in Geography, a province of the ancient kingdom of Colchis enclosed by the end of the Moctian hills. It is a pleasant and fruitful country, and, from the ruins that still remain, we may conclude, that it was formerly flourishing and populous in an extraordinary degree. The residence of the prince of Quira is Titi-zighi or Ighina (the ancient Pityus), situated on the shores of the Black sea, with a secure and spacious harbour. The only considerable river of Quira is the Boa, which rises 30 vergas from Titi-zighi, and after a course from E. to W. empties itself into the Black sea.

**QUIRILIA,** the only river of consequence in Imeritia, or, as it is now called, Iberia. It rises in the Sosami ridges and being increased by the snow-streams which descend from the Georgion side of the Caucasus, enters the Phasis, in the neighbourhood of Cottis.
RACOON, in Geography, a township of Gallia county, in Ohio, having 395 inhabitants.

RADIATION of Heat, a property of heat or circumstance belonging to it, which has been lately investigated and successfully illustrated by professor Leflie of Edinburgh. There are two modes in which heat is discharged from bodies. A portion is communicated to the contiguous matter, and is slowly diffused through it. Another portion, when the body is placed in an aerial medium, is discharged with rapidity, darts through the air to a distance, and even at that distance, when intercepted, produces a heating effect. This forms what is called the "radiation of heat." Mr. Leflie has discovered the important fact, that different kinds of matter, at the same temperature, discharge very different quantities of heat by radiation. From a metallic surface, the quantity is comparatively small; from a vitreous surface, it is much greater; and it is still more so from a rough spongy surface.

The power of different surfaces in discharging different portions of heat, in this mode, at the same temperature, Mr. Leflie attributes to the more or less close contact which they admit with the external air; a vitreous surface, for example, admitting of a closer proximity of the air than a metallic surface does, and thereby communicating to it, in a given time, a larger portion of heat. And on the same principle he explains the fact, that those surfaces which are most powerful in this discharging heat, are also most powerful in arresting and absorbing it; the closer contact into which the heated air comes with the surface on which it impinges, favouring the transfer of its heat; while a surface, to which the heated air does not approach so closely, will in a great measure reflect it with little loss of heat. Hence the discharging and absorbing power are proportional to each other; while the reflecting power is the reverse.

Some important practical applications resulting from these differences are suggested by the author.

A vessel with a bright metallic surface is the best fitted to preserve liquors either long warm, or as a conservatory to keep them cool. A silver pot will emit far less heat as much as heat as one of porcelain; and even the very slightest varnishing of gold, platinum, or silver, which communicates to the ware a certain metallic gloss, renders this new kind of manufacture about one-third part more retentive of heat. The addition of a covering of flannel, though indeed a slow conductor, far from checking the dissipation of heat, has directly the contrary tendency; for it prevents to the atmosphere a surface of much greater propulsive energy, which it would require a thickness of not fewer than three folds of this loose substance fully to counterbalance. The cylinder of the steam-engine has lately been mott advantageously sheathed with polished copper.

The progress of cooling is yet more retarded, by surrounding the heated vessel, on all sides, at the distance of near an inch, with a cafe of planished tin; and the addition of other cafes, following at like intervals, augments continually the effect. With an obstruction of one cafe, the rate of refrigeration is three times slower, with two cafes it is five times slower, with three cafes it is eleven times slower, and so forth, as expressed by the succession of the odd numbers. By multiplying the metallic cafes, therefore, and disposing them like a neat at regular intervals, the innermost could be made to retain the same temperature with little variation for many hours or even days. Such an apparatus would obviously be well calculated for various culinary and domestic purposes.

In the conveyance of heat by means of steam, the surface of the conducting tubes should have a metallic lustre. On the contrary, if it be intended by that mode to warm an apartment, they should be coated on the outside with soft paint, to facilitate their discharge of heat. For the same reason, metallic pots are more easily heated on the fire, after their bottoms have become tarnished or smoked. If a bright surface of metal be slightly furrowed or divided by fine fluting, it will emit heat sensibly faster, because the prominent ridges, thus brought closer to the general atmospheric boundary, will excite the pulsations with augmented energy.

For the experiments which led to this discovery, and the conclusions deduced from it, we refer to his "Essay on Heat," and to a "Short Account of Experiments and Instruments depending on the Relations of Air to Heat and Moisture." 8vo. Edinb. 1814. See Heat. See also Dew, Rays of Heat, and Refractibility of Radian Heat.

RADMOR, in Geography, a township of Ohio, in Delaware county, having 347 persons.

RAJAFOOT, denotes literally the son of a king, and is used as the name of a warlike race of Hindoos.

RAIN. For Inverary r. Inverarie.

RAIN-GAGE, l. 41, for LXIV. r. XVI.; for fig. 2. r. 10.

RALEIGH, col. 5. l. 20. r. 1601.

RAM of M. Montgolfier. Add—See Water.

RAMA, or RAMAH. Add—This was a common name applied to many places in the Holy Land; and it is suggested (see Clarke's Travels, vol. iv. p. 432.), that the modern village of Bethoor and the modern Rama are the places
places mentioned by St. Jerom, where he says, “Rama et Bethoron et relique urbes nobiles a Salomone conscripte parvi viculi demonstrantur.” Rama was a village in the time of Jerom, and the situation of Bethor is distinctly marked in the Apocrypha, with reference to the plain of Rama. (I Maccab. iii. 16. 24.) (However, the prophecy of Jeremiah (xxxii. 15.) applied by St. Matthew (ii. 17.) to the murder of the Innocents by Herod is not believed to refer to the place now mentioned, but to another Rama, noticed by Eusebius.) The origin of Rama has been ascribed to the Moslems under Solomon, son of Abdolemec, who is stated to have built the town with materials from the ruins of Lydda, distant three miles from Rama. But that this is an error may be evinced by reference to the writings of St. Jerom; who speaks of its vicinity to Lydda, and calls it Arimath, from a prevalent opinion that it was the native place of Joseph, who buried our Saviour. Jerom’s testimony, preceding the Mahometan conquest of the country, is sufficient to prove that the city existed anterior to the invasion of Palestine by the Moslems. Nevertheless it is possible that Rama, from having been a small village, might have become a large town under their dominion; nor does there seem much reason to doubt, that this Rama was the village mentioned with Bethoron by St. Jerom, as the only remains of the two cities so named, which were built by Solomon. According to Rada, the oldest writer who mentions Rama is Bernard the monk, who visited the Holy Land in the 9th century. Oriental geographers describe it as the metropolis of Palestine; and it is said that St. George, the tutelar saint of our ancestors in England, suffered martyrdom in this place; though others say, that his relics repos’d in a magnificent temple at Lydda or Diopolis. Its distance from Jerusalem, usually estimated at a day’s journey, is described as equal to 36 or 37 miles by Phocas; who distinguishes Armathem, the native place of the prophet Samuel, from Ramola or Rama, with which Adrichomius seems to have confounded it; and places the church of St. George within the latter city; which position, although disputed by Rada and other authors, not only seems to coincide with the testimony given by the Alexiad of Anna Comnena, but also with the evidence afforded by Bernard the monk, who mentions a monastery of St. George near to Ramula. There is not a part of the Holy Land more fertile than the plain around Rama; it resembles a continual garden; but cultivation had been neglected at the time of the arrival of Dr. Clark, the traveller now cited, owing to the dreadfull plague with which the whole country had been afflicted. Rama and Lydda were the two first cities of the Holy Land that fell into the hands of the Chirilians when the army of the Crusaders arrived. Rama was then in its greatest splendour; a fenced city, abounding in all the luxuries of the East. It was exceedingly populous, and was adorned with stately buildings, and well fortified with walls and towers. The count of Flanders having been dispatched by the princes and generals of the Christian army, with five hundred cavalary, to reconnoitre the place, and to summon the city to surrender, found the gates open: the inhabitants, alarmed by the sudden approach of so powerful an army, had abandoned their dwellings and all their property during the preceding night. In consequence of this, a general rendezvous of the Christian forces took place in Rama, where they remained during three entire days, regaling themselves in the abundance the place afforded. During this time, Robert of Normandy was elected bishop of Rama and Lydda, to which bishopric all the revenues of the two cities and their dependencies were annexed; the whole army joining in thanksgiving to St. George the Martyr, the patron saint of Diospolis and Rama, to whom the auspicious commencement of the enterprise was attributed. Hence probably originates the peculiar confederation in which St. George was held by the inhabitants of England, during the early periods of its history.

RAMSURY. By the returns of 1811, the parish of Ramsbury contained 398 houses, and 2095 persons; viz. 1028 males, and 1067 females: 248 families being employed in agriculture, and 85 in trade, manufactures, and handicraft.

RAMSDAL, dele.

RANOLDPH. Add—In 1810, their number was 1170; l. 3 of next article, infert—including 798 slaves.

RANOLDPH, a county of the Illinois (dele Indiana) territory, containing four townships; viz. Kamas, United States’ Saline, Shawnee, and the residue of Randolph county, and 12,282 inhabitants, containing 168 slaves. Allo, a township of Montgomery county, in Ohio, containing 936 inhabitants.

RAPIDES. Add—This is one of the best tracts in Louisiana. No town, except Alexandria, on the right bank of the Red river, has been found, (says Mr. Darby, 1816,) in the parish of Rapides. This place is a thriving little village, and banding at the head of conftant boat navigation, is of considerable commercial importance. The staples of the parish are, cotton, timber, beef, pork, and maize; the four fird being the principal.

RATE, l. 8, for Ireland r. India; in Ireland six, legal interest charged by all private banks, though the interest charged by the bank of Ireland for money advanced is 5 per cent.

Rate of a Ship, &c. col. 2, l. 39, add—About ten years ago, an additional lieutenant was appointed to the line of battle ships. Ships of 50 and 38 guns have four lieutenants: l. 5 from bottom, after lieutenants, infert—ships of 20 guns, and all ships upon the establishment of floopes of war, have two lieutenants. Col. 3, l. 14, add—See Ship.

Rate of Ship of War, add—By an order of council, the operation of which commenced Jan. 1, 1817, the following regulations were fixed with regard to rates in the navy; viz.

1st rate. All three deckers.
2nd rate. All of 80 guns, and upwards, on two decks.
3rd rate. All of 76, and under 80 guns.
4th rate. All of 70, and under 70 guns.
5th rate. All of 56, and under 50 guns.
6th rate. All of 24, and under 50 guns.
7th rate, 900, 850, and 800 men.
8th rate, 700 or 650 men.
9th rate, 650 or 600 men.
10th rate, 500 or 550 men.
11th rate, 450 or 450 men.
12th rate, 300 or 280 men.
13th rate, 175, 145, or 125 men.

RAVA, in Geography, a town of the Persian empire, in the pahalic of Bagdad, situated between Kerkea (the Roman Circeum) and Amal (the Amathus Armiliarius), and confiding of about 200 stone houses in the midle of extensive ruins. On the opposite side of the river are the remains of a castle, erected on the summit of a rock.

RAYUN, a town of Peria, in the province of Kerman, which, like Tchroot and Mahim, is surrounded by numerous gardens.

READING, a township of Fairfield county, in Ohio, having 789 inhabitants.

REALIZE, r. Realize, or Realize.
RED ANTIMONY-ORE. See MINERALS, Addenda.

REDSTONE. Add—the township situated in Fayette county contains 1224 inhabitants.

REEL. See MANUFACTURE OF Cotton.

REFRACTION. The following laws have been deduced by MM. Dalong and Petit from their experiments on the cooling of bodies. See HEAT.
1. If the cooling of a body in a vacuum surrounded by a medium whose temperature is constant could be observed, the velocity of cooling would decrease in a geometrical progression, while its temperature would decrease in an arithmetical progression.

2. When the temperature of the medium surrounding a vacuum remains constant, the velocity of cooling for excesses of temperature in arithmetical progression decreases as the terms of a geometrical progression diminished by a constant number. The ratio of this geometrical progression is the same for all bodies, and is equal to 1.0077.

3. The velocity of cooling of a body in a vacuum for a constant excess of temperature increases in a geometrical progression, the temperature of the surrounding medium increasing in an arithmetical progression. The ratio of that progression is still 1.0077 for all bodies.

4. The velocity of cooling arising from the simple contact of a gas is entirely independent of the nature of the surface of a body.

5. The velocity of cooling arising from the simple contact of a fluid varies in a geometrical progression, the excess of temperature varying at the same time in a geometrical progression. If the ratio of this second progression be 2, that of the first is 2.35, whatever may be the nature of the gas or its elasticity.

This law may be also expressed by saying that the quantity of heat removed by a gas is in every case proportional to the excess of temperature of a body raised to the power of 1.233.

6. The cooling power of an elastic fluid diminishes in a geometrical progression, while the tension diminishes in a geometrical progression. If the ratio of this second progression be 2, the ratio of the first is 1.366 for air, 1.301 for hydrogen, 1.431 for carbonic acid, and 1.415 for olefiant gas.

This law may be also expressed in the following manner. The cooling power of a gas, ceteris paribus, is proportional to a certain power of the pressure. The exponent of that power is 0.45 for air, 0.315 for hydrogen, 0.37 for carbonic acid, and 0.50 for olefiant gas.

REMONTOIR, col. 3, l. 15 and 23, for I r. L. Col. 9, l. 14, for balance r. balance-wheel l. 26 and 29, for l r. l.

RESPIRATION, col. 15, l. 21 from bottom, after inches r. per minute.

REVENUE. The statement of the revenue of Great Britain, for the last four years, appears in the following table.

<table>
<thead>
<tr>
<th></th>
<th>1815</th>
<th>1816</th>
<th>1817</th>
<th>1818</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customs</td>
<td>10,487,522</td>
<td>8,380,721</td>
<td>9,761,481</td>
<td>9,096,526</td>
</tr>
<tr>
<td>Excise</td>
<td>26,502,432</td>
<td>22,686,196</td>
<td>19,726,297</td>
<td>22,729,492</td>
</tr>
<tr>
<td>Stamps</td>
<td>5,086,413</td>
<td>5,009,721</td>
<td>6,127,421</td>
<td>6,091,270</td>
</tr>
<tr>
<td>Post Office</td>
<td>1,548,600</td>
<td>1,426,000</td>
<td>1,338,000</td>
<td>1,339,000</td>
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<tr>
<td>Altered Taxes</td>
<td>6,314,987</td>
<td>5,783,322</td>
<td>6,127,529</td>
<td>6,217,594</td>
</tr>
<tr>
<td>Land Tax</td>
<td>1,799,993</td>
<td>1,179,729</td>
<td>1,165,320</td>
<td>1,209,682</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>306,867</td>
<td>241,199</td>
<td>492,872</td>
<td>368,099</td>
</tr>
<tr>
<td>Pension, &amp;c.</td>
<td>16</td>
<td>4,010</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>52,512,529</td>
<td>45,801,194</td>
<td>44,946,920</td>
<td>48,416,321</td>
</tr>
</tbody>
</table>

REVOLUTION, French. At the close, add—On the 4th of June 1815, the king (Louis XVIII.) came to the two chambers to make a declaration of the constitutional charter; and on the occasion delivered a speech distinguished by its dignity and propriety. On the 11th of March 1815, however, Buonaparte, having escaped from Elba, landed in France, and by rapid and uninterrupted marches hasted to Paris, and resumed his power, March 22, 1815, but his fate was finally determined by the battle of Waterloo; and he made his second abdication, in favour of his son, on the 23rd of June 1815; and on the 8th of the following month, the foreign troops entered the capital. Disappointed in his views of settling either in America or in England, he surrendered himself, with a suite of forty persons, to captain Maitland of the Beauforton, July 15, 1815; and at Torbay he was transferred to the Northumberland, which conveyed him to the island of St. Helena, debarred by the allied sovereigns to be the place of his future abode. Here he arrived Oct. 16, 1815.

Upon his departure from Paris, Louis XVIII. was again reforde and fixed by the allied powers on the throne of France.

With respect to the events that have occurred since this article was written, such as the famous battle of Waterloo (see WATERLOO), the total defeat of Buonaparte, his deposition from the government, his removal to the capital, his confinement in the island of St. Helena, the re-establishment of Louis XVIII., the withdrawal of the allied troops, and the measures adopted for the secure and permanent sovereignty of France, under the present dynasty; they are so recent, and our limits are so restricted, that we must refer the reader to documents of access of a minute detail and more ample information.

REUSSITE. See MINERALS, Addenda.

RHEA, in Geography, a county of East Tennessee, containing 2504 inhabitants.

RHODE
RHODE ISLAND. Add.—See United States.

RHUMB, col. 2, l. 20 from the bottom, for right angles, r. equal angles.

RICCIÓ, DOMENICO, called Bucia-Sorci, in Biography, an eminent painter, was born at Verona in 1494, and became a disciple of Giovanni Francesco Caroto, under whose instruction in design and colouring he laid the foundation of his subsequent celebrity. For further improvement he studied the works of Giorgione and Titian at Venice; and his proficiency was such, that his works have been generally admired and fought after, on account of the beauty of his colouring and the attitudes of his figures. Under the patronage of cardinal Gonzaga, by whom he was invited to Mantua, he became a competitor in the exercise of his art with two of the most celebrated masters of his time, Paolo Veronese and Paolo Farinati. In the church of St. George at Verona is a picture by Riccio, which represents the gathering of the mima in the wilderness, and which is accounted a fine composition, and distinguished by the force of its colouring. This matter died in 1567, at the age of 73 years.

RICE, Chemical Composition of. Bracconnet has lately analyzed this grain: according to his experiments, 100 parts consist of

<table>
<thead>
<tr>
<th></th>
<th>Carolina Rice.</th>
<th>Piedmont Rice.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>5.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Starch</td>
<td>85.07</td>
<td>83.80</td>
</tr>
<tr>
<td>Parenchyma</td>
<td>4.80</td>
<td>4.80</td>
</tr>
<tr>
<td>Vege-to-animal matter</td>
<td>3.60</td>
<td>3.60</td>
</tr>
<tr>
<td>Uncrystallizable sugar</td>
<td>0.29</td>
<td>0.05</td>
</tr>
<tr>
<td>Gummy matter, approaching</td>
<td>0.71</td>
<td>0.10</td>
</tr>
<tr>
<td>Oil</td>
<td>0.33</td>
<td>0.40</td>
</tr>
<tr>
<td>Phosphate of lime</td>
<td>0.33</td>
<td>0.40</td>
</tr>
</tbody>
</table>

100  100

RICHBOROUGH. The parish of Asf, in which this hamlet is situated, contained, in 1811, 334 houses, and 1685 persons; viz. 868 males, and 817 females.

RICHFIELD, a township of Geauga county, in Ohio, having 329 persons.

RICHLAND, l. 3, add.—It contains 927 persons, of whom 523 were slaves in 1810. At the close, add—Allo, a township of Belmont county, in Ohio, having 283 persons.—Allo, a township of Clinton county, in Ohio, having 783 inhabitants.—Allo, a township of Fairfield county, in Ohio, having 881 inhabitants.—Allo, a township of Guernsey county, in Ohio, having 227 inhabitants.

RICHMOND, in America, col. 2, l. 27, add—of whom 3178 were slaves in 1810: 154, add—of whom, in 1810, 2115 in the county, and 1321 in the town of Augusta were slaves. At the close, add—Allo, a township of Kentucky, in Madison county, having 366 inhabitants, including 102 slaves.

RINSING, an operation in calico-printing, for an account of which, as well as of damping, see PRINTING, Calico. RIO, &c. col. 2, l. 15, r. Helen.

RIOT, l. 20, after pillory, infert.—(now abolished).

RIVERHEAD, in Geography, a village, or liberty, in the parish of Seven-Oaks, and county of Kent, which, in 1811, contained 184 houses, and 1012 persons; viz. 474 males, and 538 females.

ROAD, col. 23, l. 11 from the bottom, r. 1°, 1°, 32°, and 22 yards; l. 9, for 6300 r. 7272; l. 7, for 255,150 rd. 294,516.

ROANE. Add—of whom 670 were slaves in 1810.

ROARING, a disease of horses, well known to jockeys and dealers in these animals. It takes its name from a jingling noise which the horse makes in breathing whenever he is put into a brisk motion. It usually accompanies broken wind, or at least is the forerunner of it. Mr. Ryder says, that it is owing to the extravasation of lymph, and its coagulation on the inside of the trachea, or wind-pipe, which thus obstructs respiration; and if this account of it be jult, it seems to resemble the cough in children. The principal cause is sudden or violent and long-continued exercise. At its commencement, blistering the whole length of the wind-pipe may be of use; but when the disease continues for a length of time, it becomes incurable.

ROBERTSON, in Geography, a county of West Tennessee, containing 7270 inhabitants, of whom 1608 were slaves in 1810.

RODSEON, l. 3, add—of whom 1340 were slaves in 1810.

ROCKBRIDGE, l. 4, add—of whom 1724 were slaves in 1810.

ROCKCASTLE. Add—of whom 163 were slaves in 1810.

ROCK-CRYSTAL. See Mineralogy, Addenda.

ROCKDALE, in Geography, a township of Crawford county, in Pennsylvania, having 401 inhabitants.

ROCKHAM, l. 17, add—of whom the slaves in 1810 were 2114; l. 23, add—of whom 1491 were slaves.

ROCKLAND, a township of Berks county, in Pennsylvania, having 1026 inhabitants.

ROMANO, GIULIO, l. 14 from bottom, for sagacious r. falacious.

ROME, in Geography, a post-town of the district of Maine, in the county of Kennebec, with 785 inhabitants.

ROMILLY, Sir SAMUEL, Knight, in Biography, a no less distinguished as a patriot and philanthropist, than for his legal knowledge and practice, has every claim which prominent talents and character can give him to honourable notice in those biographical sketches which this work contains. Descended from a race of ancestors, whose attachment to civil and religious liberty constrained them to sacrifice their property, to abandon their native land, and to seek an asylum from persecution in this country, it was referred for him to maintain and perpetuate the honour of the family from which he derived his origin. Of his family and its emigration, it will be sufficient to transcribe the following account given by himself in an address to the citizens of Britain, when they invited him to become a candidate for representing them in parliament. "It has been published in this city that I am a foreigner, and that if you elect me, you will lend a foreigner to represent you in a British parliament. Gentlemen, I was born and educated, and have passed my whole life in England, with the exception of a short interval, which was spent in visiting foreign countries. My father too was born and educated in England, and spent his whole life in it; my grandfather, it is true, was not an Englishman by birth, but he was an Englishman by choice. He was born the heir to a considerable landed estate at Montpelier, in the south of France. His ancestors had early imbibed and adopted the principles and doctrines of the reformed religion, and he had been educated himself in that religious faith. He had the misfortune to live soon after the time when the edict of Nantes, the great toleration act of the Protestants of France, was revoked by Louis XIV., and he found himself exposed to all the vexations and persecutions of a bigoted and tyrannical government, for worshipping God in the manner in which he believed was most acceptable to him. He determined to free himself from this bondage; he abandoned his property, he tore himself from his connections, and fought an asylum in this land of liberty,
where he had to support himself only by his own exertions. He himself embarked in trade; he educated his sons to useful trades; and he was contented at his death to leave them, instead of his original patrimony, no other inheritance than the habits of industry he had given them; the example of his own virtuous life; an hereditary detestation of tyranny and injustice; and an ardent zeal in the cause of civil and religious freedom. To him I owe it, among other inestimable blessings, that I am an Englishman. Gentlemen, this is my origin; and I trust that I need not blufh to own it."

The father of Sir Samuel was an eminent Jeweller, and realized a handsome fortune; his mother, whose maiden name was Garnault, was defended from a family of French refugees; and he being the youngest of nine children, of whom three only attained to maturity, was born in Frith-street, Soho, in the city of Westminster, on the 1st of March, 1757.

In early life he manifested those powers of the understanding, and those affections of the heart, which, under proper direction and auspicious culture, augured his future advancement to eminence of situation and character. "He was remarkable," says one of his biographers, "for the benevolence of his disposition, his deep and generous sensibility, his high sense of honour, the quickness of his apprehension, and the extraordinary maturity of his judgment;" combining "great vivacity and a constant flow of animal spirits, with a powerful imagination, a retentive memory, and the strongest and most durable affections; he possessed a correct taste in literature and the fine arts, and retained through life a keen relish for the beauties of nature. It was his good fortune, at an early age, to form an intimacy with the Rev. Mr. Hoght, a young gentleman resembling himself in taste and disposition, and afterwards his brother-in-law; to whom he was much indebted, as he himself had the modesty and gratitude to acknowledge, for giving direction to his talents, and a steady impulse to his exertions.

Thus liberally endowed by nature, and aided by the counsel of an intelligent and affectionate friend, he overcame a variety of obstacles which prevented themselves in the way of his progress and advancement; and having chosen the profession of the law for the exercise of his talents, he soon exhibited those powers and that persevering application, which, without the advantages of a patrimonial estate, and an education at a public school or university, ensured his future eminence. Having enrolled his name in one of the inns of Court, and previously acquired some notion of business in the "Six Clerks' Office," connected with the court to which he directed his views, he was called to the bar in 1783; and from the reputation he gained as an "equity draughtsman," he soon rose to the higher departments of his profession. Upon the removal of Thurlow, Scott, and Mitford, from the chancery court, Mr. R. became a leader, and was retained in almost every cause. "His indefatigable industry, his unwearied patience, his comprehensive acquirements, his deep knowledge of the law, his correct notions of the practice of the court, were all calculated to give due weight to arguments fetected with skill, propounded with modesty, and enforced by a skilful eloquence."

Railed to an independence by his own exertions, it was natural for a person of his disposition to seek a domestic establishment; and accordingly in the summer of 1797, whilst he was upon a visit at the seat of the marquis of Lansdowne, he met with a daughter of Francis Garbett, esq. of Knaik-court, in the county of Hereford; a young lady, whose youth and beauty and other amiable qualities engaged his affection, and determined his choice; and to whom he was married in the following year. This connection opened to his views the prospect of a growing family, and of course induced him to apply to the business of his profession with additional ardour and affability. Accordingly when Mr. Fox and lord Grenville assumed the reins of government in the year 1806, he was nominated solicitor-general, after some fulsnee about committing to his custody the great seal, and received the honour of knighthood.

It is recorded to the honour of Sir Samuel, as well as to that of his colleague Sir Arthur Pigott, the attorney-general, that, though the prefs, according to the language of lord Chatham, was become, during their time, a "chartered libertine," and political contention had arrived at its height, yet with a kind of triumph over all provocations which afforded the administration of this period, no prosecution for libel occurred. Indeed, the mind of Sir Samuel was occupied about a much higher object, which was the reform of the English fystem of jurisprudence. His first attempt with this view was an amendment of the bankrupt laws, and though he did not succeed to the extent of his wishes, so as to render the freethink of debts of persons liable to the bankrupt laws, who might die indebted, affect for the payment of their simple-contract debts, for which he was allowed to bring a bill into the house of commons in 1807, which bill was laid on a division; he nevertheless obtained an act by means of which the debts of traders have been more effectually secured, for the benefit of the public. About this time he acted as a manager at the trial of the late vicount Melville, for high crimes and misdemeanors in his office as treasurer of the navy, which terminated in an acquittal. On occasion of the abolition of the slave-trade, which conferred immortal honour on this short-lived administration, Sir Samuel delivered a speech which made great impression on the house; and it is said that one passage of it, which he uttered with an uncommon degree of animation, was honoured by three distinct plaudits. On the dismissal of the ministry, of which he formed so distinguishing a part, he vindicated and applauded their conduct, during the year of their existence; expressing in terms of cordial approbation their decisive measures with regard to the abolition of the slave-trade, and the emancipation of Ireland, as well as their refusal to give the king a pledge not to renew the Roman Catholic question; and depreciating the return of lord Melville to office, notwithstanding his acquittal, as no one had moved for refeeding the vote against him.

The attention of Sir Samuel, both in and out of office, was much occupied concerning the state of our criminal code, and the adoption of measures for reforming it. He lamented, in common with many other enlightened patriots, that the loss of life should be annexed to a greater variety of actions in England than in any other country in the world, and that criminals of very different descriptions should be subject, by the administration of our laws, to the same kind and degree of punishment. To rectify this anomaly in our jurisprudence appeared to Sir Samuel Romilly to be an object of great importance, in its connection, both with the equity and humanity of legislation, and the prevention of crimes. Accordingly on the 18th of May 1808, he moved for leave to bring in a bill for the repeal of certain objectionable laws; and in this bill he introduced a clause for granting compenination to persons who were unjustly accused and tried. He soon after published a pamphlet, intitled "Observations on the Criminal Law of England, as it relates to capital Punishments, and to the Mode in which it is administered." In this pamphlet, which passed through three editions, he explained his views, and pursued his refutation of the theory of Dr. Paley. "The certainty of punishment,"
of the peculiar August and Surry, Vice-chancellor great their order your am but find any prominent new and state You were an passion. except committed. “If,” says the biographer whose article we are citing, “the king of France has relaxed on his part, and declared the trade in human beings to be annihilated, so far as concerns his own dominions, it is to sir Samuel Romilly, and those who supported him on this occasion, that we are to attribute the change.”

The subject of this memoir soon afterwards distinguished himself by his opposition to the appointment of a new judge and tribunal for facilitating public business and alleviating the labours of the lord-chancellor. This he considered and represented as an innovation, from which neither the chancellor, nor the tutors of his court, nor the public in general, would eventually derive any advantage. In a pamphlet under the title of “Objections to the Project of creating a Vice-chancellor of England,” he announced to the public his opinions on this subject, “the general result of which was, that the new division of chancery into two courts, and the creation of an intermediate court of appeal between it and the house of lords, would tend greatly to enhance the expense of suits already grievously and oppressively high,” to multiply the buncels of the court, and to protract the final decision of causes. “The remedy,” he adds, “my lord, which I have to propose, is a very simple one, but I am much afraid, confidering the force of several expreffions which I find scattered in your lordship’s pamphlet, that you will think me disrespectful even in mentioning it. You have, however, really left me no choice. You have imposed upon me the necessity of being deficient in what you will think due respect, in order to avoid the reproach of being deficient in what you have made my duty. The remedy, then, my lord, seems to be, That the house of lords, like all inferior tribunals, should, when they are pressed with an unequal quantity of business, sit on a greater number of days and at unusual hours, in order to dispatch it.”

His bill, and as some have thought his brief speech, was delivered, at the close of the late parliament, against the “Alien-bill?,” and so powerful were his arguments, that, on his suggestion, the amendments introduced by the lords were thrown out. In this speech, the eloquent senator details and reprobates the measures adopted and purfued by the parliament just expiring, and he closes with the following reflection: “who our succcissors may be, I know not, but God grant that this country may never see another parliament so regardles of the liberties and rights of the people, and of the principles of general justice, as this parliament has been!” However the political opinions of persons may differ, they must concur in admiring the integrity and ardour of the speaker; and considering it as the last speech which he ever delivered in the national senate, the perusal of it cannot but otherwise than awful and impressive.

No man ever devoted his time and talents to important and useful purposes with greater affinity and zeal than sir Samuel Romilly. His professional practice, which was very extensive, demanded a great portion of his time and attention; and yet whenever the public interest required his attendance in the house, he never abdented himself on account of any personal engagements. His practice and his parliamentary duties occupied the whole of the day from the morning dawn frequently till midnight; and his publications were the productions of those hours that ought to have been devoted to rest and sleep. It is not at all surprising that talents like his, and so employed, shoud command general notice and respect. In a former parliament many enlightened and respectable members of the city of Britol directed their views to him, and wished for such a representotive; but other interets prevailed against his abilities and character, and the influence of his friends. At the last general election, he was proposed as a fit representative for Weftminster, his native city; and he was chosen in the most honourable manner, without trouble, expense, and solicitation, by a decided majority, and amid the applause of an immense body of electors. But a circumstance occurred which rendered the closing period of his life gloomy and distressing, and which disappointed the expectations of his constituents. Lady Romilly, to whom he was affectionately attached, and with whom he had enjoyed a high degree of coniubial felicity, had been for some time in a state of declining health, and his mind was agitated by very disquieting and depressing apprehensions on her account. During their residence at their country-house at Tanhurst, in Surry, in August 1818, her complaint feems to have abated, and with the flattering hope that her convalescence would be confirmed by the mild air of the Isle of Wight, they accepted an invitation from Mr. and Mrs. Nash, to spend the remainder of the vacation at their hospitable castle at East Cowes, whither they removed in the month of September. Here lady Romilly’s disorder recurred with circumstances of peculiar aggravation; and Dr. Roget, the nephew of sir Samuel, was summoned to her relief. Her complaint, however, was irrecoverable; and after various fluctuations, which excited alternate hope and alarm, she died of a dropy in the chest, in the night of the 29th of October. During the progress of her disorder to its fatal termination, sir Samuel’s mind was kept in a state of constant suspension and anxiety, until at length his sympathy with the amiable sufferer and an apprehension of the uncertain issue of her complaint, disordered his whole frame, deprived him of sleep or scared him with frightful dreams; and it is laid, that on one occasion, after having been in a state of great distress, he intimated to a friend, that he felt a burning faintness in his head; and this feems to have been the only occasion on which he made a complaint of this kind. Alarmed about himself, he sought relief, and tried a variety of medicines without any permanent effect. He frequently expreffed his surprize, that his want of sleep did not interfere with his bodily health, that his appetite and digestion continued in full vigour, that no indication of fever existed, and that he felt no uneasy faintness in his head. In conversing with Dr. Roget and Mr. Dumont he dwelt much on this apparent anomaly, and drew from it the most ominous prefiguration, as to the probability of its ending in infancy—an apprehension which unfortunately took deep root in his mind. Although in all other respects he was perfectly in possession of his faculties, yet on this subject his imagination
A striking instance of this feeling appears in one of the testamentary papers written by him about this time, in which he gave particular directions as to the management of his property, the care of his children, and the custody of his person and estate, in the event of his becoming a lunatic. It may be remarked also, that the circumstance of his losing sight, in a great measure, of the primary cause of his grief, and of fixing his attention so much upon his own feelings, was so opposite to his natural disposition, as in itself to constitute a strong feature of aberration. Other circumstances, which occurred on his interviews with his friends, confirm the same observation.

On the morning after lady Romilly’s death, when Dr. Roget informed him of the event, he received the intelligence with calmness and resignation, and without any effusion of grief; and prepared to quit the scene of his forrows at the suggestion of his friends without hesitation or demur. At Marcol-green, where they lodged in their way to London, we learn from Dr. Roget, who paffed the night in the fame room with him, that, although he was in general reflfets, yet, at intervals, he enjoyed tranquill sleep; nor did he betray, at any period, the smallest sign of impatience or irritability. As he approached London, however, on the following day, his agitation increased, and he once complained to his daughter that his head was disturbed. After his arrival at his own house in town, he ate his dinner with his usual appetite; he then went for Dr. Marcot, who inquired particularly concerning the state of his head, and was informed by Sir Samuel, “that he had no head-ache, nor any uneafy fenfation whatever in his head.” “Our symptoms were those of a high degree of nervous irritation, unaccompanied by fever or any inflammatory action; but they were of a nature to excite considerable alarm as to the state of his mind. Though he refrained from giving vent to his feelings, it was evident, from his manner and from the expressions which dropped from him, that he depairied of his recovery, in spite of every endeavours to inspire him with hope and comfort.” To the use of all means that were recommended for allaying his extreme irritation he objected; alleging, “that he could not possibly pass a wretched night, and that if he were to ufe any medicinal prescription, it would only have the effect of taking away all his confidence in the powers of medicine.”

During the greatest part of the night, Dr. Roget, who slept in the fame room, reports that he was perfectly tranquil and apparently asleep; though in the morning Sir Samuel affurred him, that he had never, for an instant, dropped asleep.

The next morning the reflfets returned, and was attended with symptoms of fever; the tongue became white during the night, and the pulse at one time rose to 130 in a minute. Upon consulting Dr. Marcot, it was proposed, at his fuggiflion, to apply ice to the head, and to have recourse to cupping; but before these measures were adopted, Dr. Bahington was sent for, and before he arrived the excitement had fubfided, and Sir Samuel was much relieved by a copious perspiration. Upon consultation it was agreed, that the measures propofed by Dr. Marcot, in extifiting circumstances, would not be expedient; and other medicines of an active nature were prefcribed. Thofe were taken by Sir Samuel without reluctance; and he continued tranquil and apparently asleep till about two o’clock. His daughter remained at the fide of his bed, who obferved upon his awaking, that he became reflfets and agitated. Upon being asked whether Dr. Roget fhould be called, he replied in the negative; but upon a fcond inquiry, he faintly afented. During the fhort interval of Mifs Romilly’s abfence, a fudden paroxysm had feized him, hurried him from the bed, and armed his hand againft his own life. The razor with which he had inflicted the fatal wound was in his hand when Dr. Roget entered his apartment. Before he exprefed, as his biographer proceeds in the relation of the melancholy catastrophe, he made figns that he wifhed to write, but though fupplied with pen and ink, nothing intelligible could be collected from his attempts. He then defilled from making them, and joining his hands, appeared from the movements of his lips and eyes, to be absorbed in fervent prayer. It is hardly necessary to flate, that the jury summoned on the coroner’s inquest brought in a verdict, “that the deceased had destroyed himself in a state of temporary mental derangement.”

Sir Samuel and his lady were interred at the fame time, in the fame grave, at Knill, the seat of her ancestors, in Herefordshire. The funeral, agreeably to the instructions of his will, was private; being attended only by his nearest relations and most intimate friends. Six fons and one daughter survived to lament the irreparable losfs which they fuffered. The calamitous event, which thus afwiftly terminated the life of Sir Samuel Romilly on the 2d of November, 1818, in the 62d year of his age, made a deep impression, not only in the circle of his family and friends, but through the country in general. So highly was he respected and esteemed, that, on this melancholy occasion, “the folicitors fupended their practice; the counsel abandoned the courts; while the judge forfook the bench, after he had fded a torrent of tears!” The following ftringular circumstance is mentioned by his biographer, viz. that in the parish church of St. Bride, Fleet-freet, there is a fimple unadorned tablet placed against the wall, with an inscription on it to the memory of Mr. Isaac Romilly, F.R.S., who was the uncle of Sir Samuel, and who died in 1759 of a broken heart, feventy days after the deceaf of a beloved wife. For the materials and authentic documents that have furnifhed this article, we refer to the “Annual Biography and Obituary for the Year 1819,” vol. iii.

ROMNEY, in Geography, a town of Grafton county, in New Hampshire, containing 765 inhabitants.

ROOFS, in Rural Economy. Add—Roofs of iron have lately been introduced with advantage. Mr. T. Pearfall of Bath has contrucfed several in the neighbourhood of Bristol and London; and on a comparison of a roof of this kind with that of timber, he obferves, that the iron-roof is fixed on the walls complete for the covering; that the strength and durability of the iron must be allowed to be superior to thofe of wood; and that the prevention of fire should not be forgotten. By his fatement, the whole expence of fuch a roof, erected over a brick-kiln near Bristol, 29 feet 3 inches in length, and 18 feet 6 inches in fpam, appears to have been 18l. 6s. 11d.

ROSMOND, col. 2, l. 17, r. if it cannot be, &c.

ROSS, in Ohio, l. 1, r. 16. Add—Alfo, a township of Butler county, in Ohio, having 1321 inhabitants.

ROSSO of Florence, in Biography, called by the French Maitre Roux, was born in 1496, and without regular tuition arrived at a considerable degree of eminence in the art of painting. The works of Michael Angelo were his favourite studies, whose flile he endeavoured to imitate without ferially following it. Hurried away by a lively imagination and great command of the pencil, he could not attach himfelf to the fudy of nature, or the antique, fo feadily as he ought; hence, though his works exhibit great brilliancy of invention,
invention, grandeur in their mass, gaiety of colour, and taste in the management of the draperies, they are frequently wild and extravagant in composition and effect.

He exhibited his talents early in life, and painted when very young a large picture of the Assumption of the Virgin for the church of La Nunciata at Florence, which was distinguished by the novelty and intrepidity of its style. He painted several other pictures there, and then went to Rome, where reputation had already forerun him. In that city, he painted an altar-piece for S. Maria della Pace, and the Decollation of St. John for the church of St. Salviani. He remained there till it was sacked in 1527, and then fled to Votterra, where he painted a fine picture for the oratorio of St. Carlo. He went afterwards to Venice, and there painted for Areitin his celebrated picture of Mars and Venus; but not being sufficiently employed in Italy, he accepted an invitation from Francis I. of France, who then emulated the character of an encourager of art and science. By this munificent monarch, Roffo was employed both as an architect and painter, and the building and decoration of the palace of Fontainbleau were intrusted to his care, and he was gratified with a handsome pension, and lived in affluence and ease, as he was not only an able artist, but a man of literary acquirements, and of polished and agreeable manners.

The unhappy termination of the life of Roffo affords a lesson to those whose minds are inclined to indulge fictitious fantasies. He had lived in friendship with one Francesco Pellegrini, a Florentine painter, who was in the habit of visiting him occasionally. Soon after one of his visits Roffo’s house was robbed of a considerable sum, and he rashly suspected Pellegrini to be the thief. He accused and prosecuted him, but he having endured examination and the torture, to which he was cruelly put to extort confession without any sign of guilt, was declared innocent. As soon as he was released, the unfortunate Florentine published a jilt and severe unatatement of his cafe, and appealed for justice; to this Roffo had nothing to plead, and to avoid the infamy and remorse to which he had been guilty of much necessarily subject him, he put an end to his existence by poison in 1541, at the age of 45. The greater part of his paintings at Fontainbleau was destroyed by his rival and successor Primaticcio, to make room for his own productions.

ROSS-SHIRE, col. 2, l. 2, for 13,280 r. 12,829; and after inhabitants, add—viz. 27,640 males, and 33,213 females; 7490 families being employed in agriculture, and 2499 in trade, manufactures, and handicraft.

ROSTRATA. See Whales.

ROT, Dry, l. 2, add—See Boletus. Col. 7, at the close, add—Mr. Robert M’William, in a valuable ‘‘Eléfay on the Origin and Operation of the Dry-Rot, with a View to its Prevention or Cure;’’ to which are annexed, Suggestions on the Cultivation of Forest-Trees, and an Abstract of the several Forest Laws, from the Ridge of Canute to the present Time,’’ 1818, has demonstratively shown, that the common practice of felling oak in the spring is an error which ought not to be avoided; and that the fanning of timber is not less important as a means of preventing this disease. This ingenious author considers fungi as a proximate cause of the dry-rot; and as to the origin of fungi, he knows of no found argument against its having been created, like other vegetables, at the beginning of all things. After many investigations and researches, the cause of vitality has not been satisfactorily ascertained. Dr. Darwin, in his Speculations on the Origin of Microscopic Beings, adopted the incomprehensible doctrine, that their vitality is spontaneous. Buffon, Raynur, Prieftley, Ellis, Ingen-
culation of atmospheric air, and the application of heat may be useful as an auxiliary in promoting such a circulation. He observes, that even atmospheric air itself must be applied with some discretion: for if in its passage through any part of a building which is damp and already affected it should become impregnated with noxious gases, and be charged with any of the volatile seeds of fungi, it may do more harm than good. It is necessary, therefore, in limine, to remove the infected materials, the discovery of which requires a penetrating eye.

Water is likewise a powerful agent in preventing and remedying the ravages of the rot; and many instances have occurred that prove the antifeptic properties of water acting on wood entirely submerged in it. But when water is applied as a subliming for air in cellars, vaults, &c. care must be taken that it does not flagrate, but flow regularly through the drains; in which case it will carry off with it much of the carboonic acid gas, which is so essential a pabulum to fungi.

The charring of timber is of very ancient use, and against external infection is an admirable preservative; but when the principles of decomposition are within, it is of very little advantage in resiling them. Paint, when the timber is properly seasoned and dry, is likewise very beneficial. For other interesting particulars relating to this subject, we must refer to the author's Essay.

ROVING. See Manufacture of Cotton.
ROUM. For Kala r. Kela.
ROWEN. Add—of whom 3757 were slaves in 1810.
ROXBURGHSHIRE, l. 23, for 6518 r. 6423; after inhabitants, add—viz. 17,113 males, and 20,117 females: 3763 families being employed in agriculture, and 2487 in trade, manufactures, or handicraft.
RUBY, SPINEL. See Mineralogy, Addenda.
RUDGELEY. In 1811, the parish contained 453 houses, and 2213 persons: viz. 1089 males, and 1124 females: 101 families being employed in agriculture, and 277 in trade, manufactures, and handicraft.
RUMFORD, l. 1, for Cumberland r. Oxford. Add—
It has 629 inhabitants.
RUSCOMB MANOR, a township of Berks county, in Pennsylvania, having 932 inhabitants.
RUTHERFORD. Add—of whom 979 were slaves in 1810. Add—Allo, a county of West Tennessee, having 10,265 inhabitants, of whom 2791 were slaves in 1810.
RUTILE. See Mineralogy, Addenda.
RUTLAND, in America, l. 7, r. 17 townships.
RYE, Chemical Composition of. This grain has been analyzed by Einhoff; according to whom 100 parts of good rye-meal consist of:

<table>
<thead>
<tr>
<th>Component</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumen</td>
<td>3.27</td>
</tr>
<tr>
<td>Gluten not dried</td>
<td>9.48</td>
</tr>
<tr>
<td>Mucilage</td>
<td>11.09</td>
</tr>
<tr>
<td>Starch</td>
<td>61.09</td>
</tr>
<tr>
<td>Saccharine matter</td>
<td>3.27</td>
</tr>
<tr>
<td>Hull</td>
<td>6.38</td>
</tr>
<tr>
<td>Lofs</td>
<td>5.42</td>
</tr>
</tbody>
</table>

According to the same chemist, 100 parts of good rye-feed yield:

<table>
<thead>
<tr>
<th>Component</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull</td>
<td>24.41</td>
</tr>
<tr>
<td>Moisture</td>
<td>10.15</td>
</tr>
<tr>
<td>Pure meal</td>
<td>65.64</td>
</tr>
</tbody>
</table>

S.

Sabine, in Geography, a river of Louisiana, being a temporary boundary between the United States and the Spanish internal provinces, and part of the permanent western limits of the State of Louisiana. This river discharges itself into the gulf of Mexico, in N. lat. 29° 23' and W. long. 93° 57', or 10° 57' W., from Washington city. The depth of water at its mouth is not more than four feet on the bar in ordinary tides. This river about 12 miles from its mouth expands into a wide shallow lake, 10 or 12 miles wide and 25 long, with a bearing N.E. and S.W. At the extremity of this lake, it receives both the Sabine and Netches. A line of sea-shell banks is formed along the shore of the lake between the two rivers, and on the point on the left shore of the Sabine, an increased mount of these shells is found, covered with dwarf trees. About 15 or 20 miles above the lake, wood presents itself in larger bodies, and the wood rives by a flow gradation; and as we advance the woods enclose the river on both banks, the stream becoming contracted to the width of 150 yards, and continuing with little variation as high as the Alabama villages, where it shrinks to 70 or 80 yards in breadth, and it prefers this breadth to N. lat. 32°. The source of the Sabine has not yet been precisely ascertained; nor have any settlements of civilized people, a single family excepted, been yet made on the Sabine. The western branch of the Sabine is called Netches; which see.

S. ALC LACTIC Acid, in Chemistry. This acid has been recently analyzed both by Gay Lussac and Thenard, and
by Berzelius. According to these chemists, it is composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Berzelius</th>
<th>Gay Lussac and Thenard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>-</td>
<td>3.62</td>
</tr>
<tr>
<td>Carbon</td>
<td>-</td>
<td>33.69</td>
</tr>
<tr>
<td>Oxygen</td>
<td>-</td>
<td>62.69</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>105</td>
</tr>
</tbody>
</table>

Which coincide nearly with 5 atoms hydrogen + 6 atoms carbon + 8 atoms oxygen; according to which, the weight of its atom will be 131.25.

SACO, in Geography, a town of Maine, in the county of York, having 2492 inhabitants.

SADDLE RIVER. Add—Alto, a township, containing 2174 inhabitants.

SADSURY. Add—Alto, a township of Lancaster county, in Pennsylvania, having 843 inhabitants.—Alto, a township in Crawford county, in the same state, having 540 inhabitants.

SAHLITE. See Sahlite, and Mineralogy, Addenda.

SAL SEDATIVUS, &c. add—after Sedative SALT, under Salts.

SALEM, l. 9, add.—This county contains nine townships, and 12,761 inhabitants, including 29 lakes in 1810; l. 24 r. 12,693; l. 52, for two r. three; l. 54, and a third in Mercer county, having 470 inhabitants.

SALEM, New, a town of Hampshire county, in Massachusetts, containing 2107 inhabitants.


SALFDORD. Add—the upper contains 838, and the lower 558 inhabitants.

SALINE, a township of Gallia county, in Ohio, having 262 inhabitants.

SALINES. Add—This town appears from the entrance into Salines bay covered with that white fog, so much dreaded, and so well known in Italy by the name of mal-aria. Whenever this phenomenon occurs, the heat upon the island is excessive. Salines, and the towns situated on the E. and N.E. coasts of the island, are subject to such dangerous temperature, that in the months of June and July, persons fall victims to the afflicting malady called by the French Coup de soleil (a sun-flower), if they venture out at noon without an umbrella. The great heat experienced upon the eastern coasts of Cyprus is owing to two causes: to the situation of the island with respect to the Syrian, Arabian, and Lybian deserts; and to its mountainous nature, preventing the cooler winds, the well and north-well, from the low shores to the east and north-east.

See Cyprus.

SALISBURY, a township of Gallia county, in Ohio, containing 460 inhabitants.

SALIVA. Chemical Composition of. According to the experiments of Berzelius, 1000 parts of human saliva consist of

<table>
<thead>
<tr>
<th>Component</th>
<th>Berzelius</th>
<th>Gay Lussac and Thenard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>992.9</td>
</tr>
<tr>
<td>Peculiar animal matter</td>
<td>-</td>
<td>2.9</td>
</tr>
<tr>
<td>Mucus</td>
<td>-</td>
<td>1.4</td>
</tr>
<tr>
<td>Alkaline muriates</td>
<td>-</td>
<td>1.7</td>
</tr>
<tr>
<td>Lactate of soda and animal matter</td>
<td>-</td>
<td>.9</td>
</tr>
<tr>
<td>Pure soda</td>
<td>-</td>
<td>-2.2</td>
</tr>
</tbody>
</table>

The peculiar animal matter is soluble in water, insoluble in alcohol, and is precipitated by bicarbonate of lead. Hence it appears to be a species of mucus. What Berzelius has termed mucus, Dr. Botfield and Dr. Thomson appear to consider as coagulated albumen.

SALMO Alpinus. Dr. Shaw suggests, that this is the girt char of Pennant, and the next species or Salvelinus is his red char. Taimen, I. penult. r. 3.5 feet. Kund- scha, l. 3, r. 2 or 3. Lavenetus, add—See Gwinad. Dr. Shaw supposed that the gwinad of Pennant is the S. Wartmanni; r. Leucithys. Edentulus, or tooth-lefs, silver-olive, salmon, with compressed yellow head, lanceolate red fins, and forked tail: a native of Surinam, where it is highly esteemed as food; r. Astomus.

SALT, col. 3 l. 31, r. fishery for fishery. Col. 4 l. 7, r. fishery for fishery.

SALT, Laws relating to, col. 7 l. 20, add—Mr. Parkes informs us, that he has made inquiry of one of the most considerable salt-importers, who informs him, that they pay only 5s. 6d. city-duty on the cargo, whether it be five tons or forty tons of the salt imported.

SALTS, Superintendence of Potash, l. 8, infert—See Tar- trate.

SALTS, in Chemistry. It may be proper to observe here, that a large proportion of the numbers representing the weights of the atoms of bodies given under our article Salts in the Cyclopaedia require correction; for which purpose we refer our readers to the tables appended to Atomic Theory, and to the different articles in the Addenda, where they will find the most recent determinations.

SALT CREEK, in Geography, a township of Muskingum county, in Ohio, containing 389 inhabitants.—Alto, a township of Pickaway county, in Ohio, containing 810 inhabitants.

SALT-LICK TOWN, l. 1, add—in the county of Pennsyl- vania, having 994 inhabitants.

SAM, col. 2 l. 24 from bottom, for fiction r. friction.

SAMBORNTOWN, l. 2, r. Stratford.

SANDERSFIELD, a town of Berkshire county, in Massachusetts, containing 1648 inhabitants.

SANDHURST, near Baghot, in Hampshire. The royal military college, part of which is now established at Sandhurst, consists of a junior and junior department. The junior department was established at High Wycombe, in the year 1799, (but has recently been removed to Farnham, in Surrey) for the purpose of instructing officers in the scientific parts of their profession, with a view of enabling them better to discharge their duty when acting in the command of their regiments, and at the same time qualify them for being employed in the quarter-master and adjutant-general’s department.

No officer can be admitted into this department until he has completed the twenty-first year of his age, and actually served with his regiment as a commissioned officer for three years abroad, or four years at home. Applications for admission must be made to the governor through the colonel or commanding officer of the regiment to which the individual belongs. Every candidate, previous to admission, must undergo such examination as may be deemed requisite.

The students pay into the funds of the college such sum annually as is determined by the supreme board of commissioners. The present subscription is thirty guineas per annum. They are subject to the rules and discipline of the army, as if serving with their regiments.

The studies pursued at this department are as follows:—Mathematics in all its branches; fortification; gunnery; castlemetation; military drawing and surveying; the recom-
SANDSTONE, l. to, r. to be visible. In other sandstones, the grains, &c.

SANDY CREEK. Add—Alto, a township of Mercer county, in Pennsylvania, containing 327 inhabitants.

SANDY LAKE, a township of Mercer county, in Pennsylvania, having 403 inhabitants.

SANGUISORBA. Addafter Dr. Prout, in his "Chemical Essays," (vol. v. p. 12.) informs us, on the authority of a tanner, that there is more of the tanning principle in the plant called burnet than in oak-bark. His informant suggested, that it might be cultivated for cattle, which (he says) are fond of it, and ploughed up every three years in order to collect together the root for the purpose of tanning.

SANSANDING. Add—Sansanding is called Badoo, and in Park's last million to Africa is represented as a small town, consisting of 300 huts; another Badoo, N. of this, is called Sansanding. Sansanding is said to contain 11,000 inhabitants; it has no public buildings, except the mosques, two of which, though built of mud, are not inelegant. The market-place is a large square, strewed with articles of merchandise, and crowded with people. Some of the stalls contain nothing but beads; others, indigo in balls; others, wood-ashes in balls; others, Hussa and Jimmie cloth. Here are also, amulets, Phal, copper and silver rings and bracelets, amber, filks from Morocco, tobacco and salt, yellow leather, &c. &c. Park's Last Million to Africa, p. 216.

SAP, Chemical Composition of. Add—Dr. Prout has examined the sap of the common vine. He found its f.p. gr. did not differ from that of common water. It did not affect litmus paper, and contained fo little of solid matter, that 200 parts of it evaporated to dryness left only one part of residuum, of which about half was carbonate of lime, and the rest a peculiar vegetable matter insoluble in alcohol, with traces of an alkali.

SAPHIES, an African term which denotes certain charms or amulets, which the negroes constantly wear about them. These saphies are prayers, or rather sentences from the Koran, which the Mahometan priests write on scraps of paper, and fold to the simple natives, who regard them as perfecting very extraordinary virtues. Some of the negroes wear them to guard themselves against the bite of snakes or alligators; and in this case, the saphie is commonly inclosed in a snake's or alligator's skin, and tied round the ankle. Others have recourse to them in time of war, to protect their persons against hostile weapons; but the common use to which these amulets are applied is to prevent or cure bodily diseases; to preserve from hunger and thirst, and generally to conciliate the favour of superior powers under all the circumstances and occurrences of life.

Similar charms or amulets are common in all parts of Africa, under the different denominations of domini, grigi, fetiches, &c. &c.

SAPPHIRE. See Mineralogy, Addenda.

SARASWATI, l. 1, 2. 34 from bottom, for creature r. creative. Col. 3, l. 8, for Jayatri r. Gayatri. Col. 5, l. 11 from bottom, for painted r. pointed.

SARATOGA, l. ult. r. in 1810; add—of whom 102 were slaves.

SARKFOOT. Add—In 1811 the parish of Graneley contained 533 houfe, and 1749 perpons; viz. 797 males, and 952 females.

SAROS, l. 4, add—Beroeus used this period, and also Nero and Sosoph (which fæe), in chronological calculations, and fixing the epochs of his history of Babylon. Ancient authors, however, are not agreed as to the number of years contained

...
SAVANNAH, *penurious* sort—the slaves in the county being 7557, and in the town 2195.

SAUCON, Lower and Upper, two townships of Northumberland county, in Pennsylvania, the former containing 1074, and the latter 1456 inhabitants.

SAVING-BANKS, or Banks for Savings, are institutions which, under this appellation, are of recent origin, and which have been established for the purpose of ameliorating the condition of the lower classes of mankind. Many schemes, of various denominations, have been proposed with a view partly, or wholly, to this object. One of the most ancient of this kind is the institution of male *Friendly Societies*, which was established about a century ago, and which, to a certain extent, counteracted the prejudice of poor-rates, and the growth of those baneeful habits of dependence which poor-rates are adapted to produce. (See *Friendly Societies*.) These societies, though they partake of the nature of insurances on life and property, by promising certain advantages in the event of certain calamities or contingencies, are, however, preferable to common insurance offices, inasmuch as the members infuse each other, and retain all the profits in their own hands for the general advantage. In these societies, there is also a beneficent principle that influences those who form them, and induces them to feel and express a solicitude for each other's welfare. Neverthelefs, the benefits derived from them by individual members are often distant, and in their nature uncertain; so that those who have regularly contributed to them for forty or fifty years have not received a sufficing from their funds. In the year 1772, baron Maferes published "A Proposal for establishing Life Annuities in Parishes, with a View to the Benefit of the Indigent Poor;" and this was accompanied with the fuggellions of some alterations by the Rev. Dr. Price. The ingenious baron recommended to the nation, to obtain a law for enabling the parish-officers in England to grant, upon purchase, to the labouring inhabitants life-annuities, payable out of the parish-rates. The plan was approved by persons of the most distinguished character at that period, and a bill was brought into the house of commons by Mr. Dowdwell, under the auspices of Mr. Burke, Mr. George Savile, Lord John Cavendish, Mr. Dunning, Mr. Thomas Townshend, and others, for carrying it into effect. The bill was passed, but it miscarried in the house of lords at the second reading. However defirable and excellent this plan might appear in theory, it was not likely to prove effectual; because, for the purchase of the proposed annuities, a sum of money, of great amount to the purchaser, was demanded at once; and it was out of his power to procure it. A scheme somewhat resembling that of a saving-bank was published in 1797 by Mr. Bentham, in Young's "Annals of Agriculture." One part of his plan comprehended an institution which he denominated "A Frugality-Bank." Into this bank he proposed to receive the deposits of the poor, not for the mere purpose of yielding an interest, and being withdrawn when wanted, but to form or purchase an annuity for old age, when the ability for earning would be destroyed or impaired. He suggested, however, that this superannuation annuity should, either wholly or in part, be converted into any other species of benefit adapted to the exigencies of the owner. E. gr. It might be changed into an annuity for an exiling wife, in the event of widowhood, or into an annuity during the nonage of a certain number of children; or it might serve as a pledge for money borrowed; or part of it might be sold for raising a marriage-fund; or it might be simply withdrawn. As no attempt was made for the accomplishment of Mr. Bentham's plan of a frugality-bank, it remained without effect. It is needless to mention, or to detail, the various particulars of a plan submitted to the public by Mr. Bone in the years 1805 and 1806; as it comprehends a great number of objects which lay beyond the attainment of the poor.

It was still a matter of regret that, notwithstanding various schemes that had been suggested, no plan had been devised for securing to the labouring classes a place of safe deposit for the fruits of their industry, so as to encourage them to save, in the years of active exertion, a portion of their gains as they might be able to spare from their present necessities, so that they might have a resource in the season of misfortune, or in the decline of life; and more especially to afford them the advantage of receiving regular interest for their small savings, on a scale advancing to a certain extent, in proportion to the amount and continuance of their deposits. Of the first establishment of an institution that may properly be called a saving-bank, we have an account in N° 84, of "The Reports of the Society for bettering the Condition of the Poor." From this report it appears, that a female benefit-club was established on the 22d of October, 1798, at Tottenham, near London, under the patronage of a number of ladies. This institution comprehended within its general design and plan two other objects, viz. a fund for loans to prevent the use of pawnbrokers' shops, and a "bank for the earnings of poor children." "Children of either sex," says Mrs. Priscilla Wakefield, an ingenious and benevolent lady, whose pen was employed in the instruction of the public, and whose heart was actuated by a generous concern for benefitting those by whom she was surrounded, "or of whatever age, whether belonging to a member or not, are permitted to bring any sum above a penny to the monthly meeting of the Kewraders, to be laid up in the funds of the society; where their small earnings may accumulate in security, until wanted for an apprentice-fee, clothing, or going to service, or some other important purpose." It is added, "although the children receive no addition to the pittance they deposit in the fund, yet it answers several purposes; it stimulates them to earn and to save that which would probably be idly spent, as of too small importance for care; it often encourages their parents to lay by a little store for them, which they would not have thought of doing, had they not been invited by this opportunity of placing it in safety. It habituates the children to industry, frugality, and foresight; and by introducing them to notice, it teaches them the value of character, and of the esteem of those who, by the benefactions of Providence, are placed above them; and in many instances, it may supply a resource when it is essentially requisite. The success has already exceeded expectation; above sixty children bring their little treasure monthly." The success of this children's bank gave rise to a more extensive plan in the same place in 1834, called "The Charitable or Benefit Bank." This was begun for the express purpose of providing a safe and profitable place of deposit for the savings of labourers,
labourers, servants, &c., and opened once a month for
receipts and payments. The books were at first kept
by a lady; six wealthy individuals were appointed to
act as trustees, each of whom agreed to receive an
equal part of the sums deposited, and each to be respon-
sible to the amount of 100/ for the repayment of the
principal with interest. Any sum above 10 was to be
received, and, to encourage perseverance, interest at
the rate of five per cent. was to be allowed for every 20s. which
should remain a year with the trustees. For every addi-
tional 100, it was agreed that a new trustee should be
chosen; and thus the loss to the trustees in fulfilling their
engagement, with the fluctuation of interest, could not be
considerable. The benefits of the institution were to be
confined exclusively to the labouring classes; but the re-fi-
dence of the depositors was not restricted. One great
advantage attending this plan is, that it holds out to the
lower classes fixed advantages, and prefers their private
property from that fluctuation of value to which the public
funds are liable. This was the first distinct "Bank for
Savings," publicly let on foot for the benefit of the lower
classes; it was founded by Mrs. Wakefield, and remained
for some time under her inspection and management.
Mrs. Wakefield was succeeded in the labour of conducting
it by Mrs. Powell, who has appointed a treasurer, to whom,
the says, I account after every monthly meet-
ing, that I may not be responsible myself for the money
lodged in my hands; and I have the purchases made in the
funds placed in the names of two trustees." This excel-
 lent female adds, that the benefits resulting from this in-
itiation are incalculable, as it has enabled many to save sums
which have made them comfortable for life, who would
otherwise have spent the money at an ale-house, or lent it to
their friends. "I keep," says Mrs. Powell, "the whole
of the accounts myself; and carry on the business on so
 easy and simple a plan, that I have nothing to relate. I
merely receive and pay principal and interest the first
Monday in every month, for an hour and a half. I have
no assistance whatever, except that I lend any money I have
to the treasurer, and now and then compare my cash-book
with my own. The only care I have is to keep the re-
spective accounts correct. I have a ledger, a cash-book,
an interest account, and a walle-book. — I call a meeting of
the trustees once a year to audit my accounts, and those of
the treasurer, which are the counterpart of mine." In
July 1817, an act was passed for the protection and encour-
gement of banks for savings in England; and the several
provisions and arrangements of this useful act are minutely
detailed in the last edition of Mr. Roche's excellent "Tract
on Saving Banks." Societies similar to those of the banks
for savings have become of late years very numerous both
in England and Scotland; and in England and Wales many of
them have opened accounts with the bank of England
under the late act of parliament.

Although some few institutions of the same and others of
a similar kind had been established soon after the commence-
ment of the present century, yet their increase was slow and
inconsiderable until the year 1810; when the Rev. Mr.
Henry Duncan, availing himself of one of the provisions of
Mr. Bone's plan already mentioned, published an account of
it, and proposed that the gentlemen of Dumfriesshire should
establish banks for savings in the different parishes of the
county. Whist his zeal was applauded, his recommenda-
tion was disregarded. However he steadfastly persevered, and
determined to make the experiment in his own parish; and
denominated his new establishment "The Parish Bank
Friendly Society of Ruthwell." He so far succeeded,
Your committee have the satisfaction of seeing the institutions for the secure and profitable deposit of the earnings of the industrious, which was heretofore projected, are now by the spontaneous exertions of individuals, in actual and successful operation; and from the growth of the system of saving-banks, they are inclined to expect very beneficial results, not only in affording to the industrious poor a secure depot for their savings, but in familiarizing them with a practice, of which the advantage will be daily more apparent. Both the above cited reports are justly entitled from the testimony of individuals, which is annexed to them.

We shall here subjoin an extract from the third report of the "Edinburgh Society for the Suppression of Beggars," 1815. "To improve permanently, and effectually to better the condition of the poor, can be accomplished only by encouraging among them habits of industry, sobriety, prudence, and forethought. The very general adoption of the plan of instituting savings banks shows, that the genuine and enlightened principles of benevolence are beginning to be well understood, and will be zealously acted upon whenever a proper opportunity occurs; for no scheme seems better calculated for the comfort of the poor than this simple plan for enabling the poor man to lay up in the day of health for the hour of sickness. It relieves from want without checking industry; it secures independence without inducing pride; it removes those painful misgivings which render the apprehensions of poverty so appalling, and often paralyze the exertions which might ward off the blow; it leads to temperance and the restraint of all the disorderly passions, which a wanton expenditure of money nourishes; it produces that sobriety of mind, and steadiness of conduct, which afford the best foundation for the domestic virtues in humble life. The effects of such an institution as this upon the character of the people, were it to become universal, would be almost inappreciable. But it would be endless to cite authorities for establishing a principle so universally acknowledged by all whose observation and experience render them competent judges. We are therefore the more surprised to find it alluded to in the part of the Supplement to the Encyclopaedia Britannica recently published, that "taken by themselves, it is at least a doubt whether savings banks may not produce as great a quantity of evil as good." See Annals of Banks for Savings. London. Richardson, &c. 1818.

SAUSSURITE. See Mineralogy, Addenda.

SAYBROOK. Add—In 1810 it contained 3994 inhabitants, including 5 sexes.

SCALE of Chemical Equivalents. The description of this ingenious and useful instrument, contrived by Dr. Wolflon, has been omitted in its proper place; but its importance demands that it should be introduced here.

The author states, that he does not offer this instrument as an attempt to correct the tables that have been formed by others, but as "a method by which their results may be advantageously applied, in forming an easy approximation to any object of our inquiries."

"The means (to use Dr. W.'s own words) by which this is effected, may be part underlaid by inspection of the plate, (Chemistry, Plate XXI., figs. 5, 6.), in which will be seen the list of substances intended to be estimated, arranged on one or other side of a scale of numbers in the order of their relative weights, and at such distances from each other, according to their weights, that the series of numbers placed on a sliding scale can at pleasure be moved, so that any number expressing the weight of a compound may be brought to correspond with the place of that compound in the adjacent column. The arrangement is then such, that the weight of any ingredient in its composition, of any re-agent to be employed, or precipitate that might be obtained in its analysis, will be found opposite to the point at which its respective name is placed."

In order to shew more clearly the use of this scale, the plate exhibits two different situations of the slider, in one of which oxygen is 10, and other bodies are in their due proportion to it; so that carbonic acid being 27.54, and lime 35.46, carbonate of lime is placed at 63. In the second figure, the slider is represented drawn upwards, till 160 corresponds to muriate of soda, and accordingly the scale then shews how much of each substance contained in the table is equivalent to 100 of common salt. It shews with regard to the different views of the analysis of this salt, that it contains 46.6 dry muriatic acid and 53.4 of soda, or 39.8 soda and 13.6 oxygen: or if viewed as chloride of sodium, that it contains 60.2 chlorine and 39.8 sodium. With respect to re-agents it may be seen, that 283 nitrate of lead containing 191 of litharge employed to leparate the muriatic acid, would yield a precipitate of 237 muriate of lead, and that there would then remain in solution nearly 146 nitrate of soda. It may at the same time be seen, that the acid in this quantity of salt would ferve to make 232 corrosive sublimate, containing 815.5 red oxide of mercury, or would make 91.5 muriate of ammonia, composed of 62 muriatic gas, (or hydro-muriatic acid,) and 29.5 ammonia. The scale also shews, that for the purpose of obtaining the whole of the acid in distillation, the quantity of oil of vitriol required is nearly 84, and that the rediaum of this distillation would be 122 dry sulphate of soda, from which might be obtained by crystallization 277 of Glauber's salt, containing 155 water of crystallization. These and many more such inferences appear at once by bare inspection, as soon as the weight of any substance intended for examination is made by motion of the slider, correctly to correspond with its place in the adjacent column.

"With respect to the method of laying down the divisions of this scale, those who are accustomed to the use of other sliding rules, and are practically acquainted with their properties, will recognize upon the slider itself the common Gunter's line of numbers (as it is termed), and will be satisfied that the results which it gives are the same that would be obtained by arithmetical computation." See Gunter's Scale.

This scale may be had at the different mathematical instrument-makers; and we need fearlessly add, that the numbers laid down upon it differ a little from those recently determined by Dr. Thomson. These differences, however, are in general very trifling; but should any one prefer using the new numbers, they will find them stated in the tables appended to Atomic Theory.

SCAPOLITE. See Mineralogy, Addenda.

SCILLER-SPAR. See Mineralogy, Addenda.

SCHOOLS, Military, the principal institutions of this kind in our country, where officers may be formed for the profession by acquiring sound knowledge both in theory and practice, are the Royal Academy of Woolwich, the institution at Sandhurst near Windon, and the academy at Portsmouth.

SCHUYLKILL. Add—Alto, a township of Berks county, containing 353 inhabitants.

SCIOTO. Add—Alto, a township of Pickaway county, having 216 inhabitants.—Alto, a township of Ross county, having 840 inhabitants.
SCOTLAND, col. 22, l. 29, for extent r. extinct.
SCOT'S, l. 2, infert—those of the town included.
SCREEN, SKREEN, or ALTAR-SKREEN, in Architecture. (See Refedos.) The choir-screen is the fence which separates the choir from the nave of the church.
SCRIVAN. Add—of whom 1816 were slaves in 1810.
SCROFULOUS, or SCROFULOUS Tumours. See SCROPHULA, HIP-JOINT, DISSECT OF, WHITE-SWELLING, &c.
SCRUGRAWW, in Geography, a township of Venango county, in Pennsylvania, containing 540 inhabitants.
SCULPTURE, col. 2, l. 22, omit the colon after required, and insert comma after manner.
SEABROOK, l. 2, r. 774.
SEAL. Add—The broad seal of England was stolen from the lord chancellor's house in Ormond-street, March 24th, 1784; and a new one was brought into use, upon the union of Ireland with Great Britain, January 18, 1801.
SEAL, in Geography, a township of Scioto county, in Ohio, having 370 inhabitants.
SEBASTICOOK, a township of America, in the district of Maine, and county of Somerset, having 15 persons.
SECRETIONS, SECRETED Fluids, Chemical Properties of. See Fluids, Animal.
SECTS of Hinduism, col. 2, l. 8 and 23 from bottom for Bhot r. Bhow. Col. 10, l. 31, transpose the points.
SEDATIVUM Sal. Add after SALT—under the article SALTS.
SEEING, col. 3, l. 5, add—Dr. Wells, in his "Essay on fingle Vision with two Eyes," has reduced the principal opinions upon this subject into two classes. The first class comprehends those of Galen, Alhazen, Rohault, Dr. Briggs, and Dr. Isaac Newton; all of whom have regarded the question as equivalent to the following one: Why should the mind be affected with only one perception from two impressions upon the external organs of sight, since either of those impressions is of itself sufficient to produce a similar perception? To this question they reply, that the two impressions are united before they are communicated to the mind, and they only differ concerning the manner in which such an union takes place. Against the opinions now stated by Dr. Wells objects, that they must be considered as mere conjectures, founded upon certain supposed changes in the brain and nerves, the exclusion of which, from the nature of the parts, it is impossible either to demonstrate or to refute by experiments; and that no one of them, though admitted to be true, is yet sufficient to explain the phenomenon on account of which it was framed. To the second class, Dr. Wells refers the opinions of those who maintain, that an object is seen fingle by both eyes, because it is seen by each of them in the same external place; and who profess to point out some law, or constant rule of vision, from which this sameness of place is to be derived as a necessary consequence. This view of the question, as our author imagines, was first suggested by Agulionius, and it has been since adopted by Dechales, Dr. Porterfield, Dr. Smith of Cambridge, and Dr. Reid of Glasgow.
Agulionius, who has been followed in the same train of reasoning by Dechales and Dr. Porterfield, begins with defining the terms horopter and plane of the horopter. If a line be drawn through the point of the mutual interection of the optic axes, parallel to the interval between the eyes, this from its office is denominated the horopter; and a plane, supposed to pass through this line perpendicular to the plane of the optic axes, is called by Agulionius the plane of the horopter. According to his statement, it is a law of our constitution, that all bodies which we see with one glance or look, whatever are their real places, appear to each eye to be situated in this plane; and upon this supposition he shows why some should be seen single with two eyes, and others double. For according to a recent opinion, which he has advanced, and which other writers on vision have not contradicted, the two lines of direction in which an object is seen with both eyes, can meet each other only in one point, and therefore all bodies which are really situated in the plane of the horopter, must necessarily appear single, as the lines of direction in which any one of them is perceived by the two eyes, coincide in that plane, and no where else; and all bodies which are not situated in the plane of the horopter must necessarily appear double, since, in this case, the lines of their visible directions intersect each other, either before or after they pass through it. To this reasoning Dr. Wells replies, that if the visible places of all bodies were contained in the plane of the horopter, they would appear of magnitudes proportional to the angles which they subtended at the eye; e. g. a finger held near to the face would seem as large as the part of a remote building which it might conceal from the sight. But this is contrary to experience, and therefore no reasoning that depends upon it can be admitted.
If it be asked, says Dr. Smith, why, in seeing with both eyes, we do not always see double, because of a double refraction, it is sufficient to reply, that in the ordinary use of our eyes, in which the pictures of an object are constantly painted upon "corresponding places or points" of the retinas, the predominant sense of feeling has originally and constantly informed us that the object is single. What he means by "corresponding points," he thus explains: When the optic axes are parallel, or meet in a point, the two middle points of the retinas, or any points which are equally distant from them, and lie on the fame sides of them, either towards the right hand or left hand, or upwards or downwards, or in any oblique direction, are called "corresponding points." Accordingly our idea of the outwards place of an object is connected with both these refects; as is manifest by its appearing in two places when its pictures are not painted upon corresponding places of the retinas, which is only a direct consequence arising from our general habit of seeing. If it be asked why, in order to produce single vision, all men agree in directing their eyes toward the object in such a manner as to receive its pictures upon corresponding points of the retinas, hence all those who have connected the refects of any other two points with the information of its unity from seeing? To this objection, urged by Dr. Reid, the reply may be made in Dr. Smith's own words (vol. 1. p. 46.): "When we view an object obliquely, we have acquired a habit of directing the optic axes to the point in view; because its pictures falling upon the middle points of the retinas, are then distinct from if they fell upon any other places; and since the pictures of the whole object are equal to one another, and are both inverted with respect to the optic axes, it follows that the pictures of any collateral point are painted upon corresponding points of the retinas."
Dr. Wells is of opinion, that Dr. Smith's hypothesis for the solution of this celebrated question is liable to other objections
objections not so easily repelled. Admitting the fact respecting corresponding points to be true, it may be observed, that if we are taught by feeling to see objects single, notwithstanding a sensation in each eye, the information of the former sense ought to be uniform, or else one set of visual appearances would be associated with different reports from feeling, and no certain mark would be afforded us which of them we should trust. Feeling, as Dr. Smith allows, is not always the predominant, but sometimes the inferior sense; and its informations are not confiant and original, but variable and derived. When a difference occurs between the informations of the two senses, it is natural to enquire what rule have we for determining which is most worthy of credit. But supposing that the sense of touch to have originally and confidently informed us that objects are single, it would not follow that we are hence taught to see them also single. For, since the place where an object seems to either eye to poffefs, manifestly depends both upon its apparent distance and its apparent direction from that eye, if visible place be, in the language of Dr. Smith, only an idea of real or tangible place, visible direction must bear the fame relation to tangible direction; whence it follows, that we can never have a more accurate knowledge of the direction, in which an object may lie from any part of our bodies, by touch than by touch. Whereas the contrary is proved by facts. Moreover whatever be the direction in which an object may appear to either eye, it cannot be seen in the place by both, except at some point common to the two directions. Accordingly Dr. Smith says, that when an object is perceived single with both eyes, it is seen at the mutual interection of the two visual rays; the visible direction of any object coinciding, according to him, with the visual ray, or the principal ray of the pencil which flows from it to the eye. Should we then even allow, that all we know by sight of the places of bodies has been borrowed from feeling, it will still be easy to shew, that the rule of vision for each eye, which he has derived from such experience, that of our seeing objects in the directions of their visual rays, is inconsistent with much of the phenomena of sight with two eyes; and, consequently, that he has left unremoved the chief difficulty of his subject, which was to explain the single appearance of objects to both eyes, from those laws, or rules of vision, which affect each of them singly. For it is a well-known fact, that if two bodies of the same shape, size, and colour, be placed, one in each optic axis, they appear but as one body, provided they be at equal distances from the eyes. Agreeably to the theory of our seeing objects in the direction of their visual rays, this cannot happen, except the united body appear at the interection of the optic axes. Dr. Smith, accordingly, maintains that it does. In the first place, Dr. Wells appeals to experiments for a direct proof that it does not; and, in the second, he observes, that, as the two bodies in the optic axes appear as one, whether they be situated within or beyond the concurrence of those lines, and as a right line joining the bodies, and extended both ways, appears at the same time to the light as a right line, it follows, upon admitting the fact which he has denied, that all objects in the plane of the optic axes which are seen in one position and state of the eyes, however near to us, or however remote they may in reality be, must appear to be equally distant, or rather in a line drawn through the concourse of the optic axes, parallel to the interval between the eyes, and named by opticians the horopter. Again, if a right line be made to pass through any part of the plane of the optic axes, at right angles to it, the portions above and below this plane are perceived to be in the same right line with the point which is situated in it, and the whole appears perpendicular to the plane. But the point in the plane is seen, by the last article or proposition, in the horopter; the whole, therefore, of the perpendicular line must be seen in a plane passing through the horopter at right angles to that of the optic axes; or, in other words, in the plane of the horopter, in which consequently all bodies will have their visible places. But this was the very opinion of Aguiolius, to which he was probably led by a similar train of reasoning; though, as a teacher, he might choose rather to ground it immediately upon a original law of our constitution.

Dr. Reid agrees with Dr. Smith in his general principle, but differs from him in maintaining the property to be original by which any two places in the retinas exhibit only one object, while Dr. Smith derives it altogether from custom. They differ also with respect to the meaning of a term; Dr. Smith calling corresponding points, such as have the position just mentioned, whether they represent objects single or not; whereas Dr. Reid says, that those points correspond, whatever their position may be, which represent objects single; and he appears to Dr. Wells not always to attend to the double use of the same term, when he speaks of the opinions of Dr. Smith.

Could it be flown, says Dr. Wells, that the places of the two retinas, which represent an object single when each receives its picture, are not the centres, or such others as are similarly situated, an obvious inference would be, that the single appearance of the object is not occasioned by a property in those places, bestowed upon them for this special purpose by nature; it being reasonable to expect, that such a property should be found, if anywhere, in those parts of the retina which are the most like to each other.

Anatomists have commonly taught, that the centres of the spheres, to which the cornea, the ball of the eye, and the two portions of the crystalline belong, are all placed in the same right line, hence called the optic axis, and that this being produced both ways, passes through the centres of the cornea and retina, considered as surfaces. Opticians, on their part, observe, that an object appears single to both eyes, when the axes of each is accurately directed to it; from which they infer, that the centres of the retinas agree in suggesting but one object, though each receives its picture. — Again; since it is known by experience, that, while any object is seen single, to which the optic axes are turned, others at the same distance from the eyes likewise appear so; and since the pictures of these lateral objects fall upon points in the two retinas, equidistant from their centres, and both upon the same side, that is, both to the right or left of the centres, or both above or below them, opticians conclude, that every two places of the retinas, which are similarly situated with respect to the centres, must also agree in exhibiting but one object, though pictures are received by both.

But the whole of this reasoning, says Dr. Wells, is built upon a circumstance in the fabric of the eye, which has been flown by some of the most eminent anatomists not to have place. For Varolius long ago observed, that the crystalline is not situated in the middle of the eye, but more inwardly; and the accurate Zinn has more lately mentioned, that if the eye be divided into a right and left half, the centre of the crystalline will be found in the inner portion. Haller confirms this fact; and Winflow's observation, that the centres of the pupil and iris do not coincide, but that the former is nearer to the nose than the latter, is connected with it; since both Zinn and Haller agree, that
the centre of the pupil is placed in the axis of the crystalline, while that of the iris is evidently in the common axis of the cornea and globe. Now, a consequence of this position of the crystalline is, that, contrary to what is universally maintained, no ray of light whatever can pass unobstructed to the retina from the atmosphere, or any other medium differing in refractive power from the aqueous humour.

If, then, the line joining the centres of the cornea and globe of the eye be what is called the optic axis, and if it be true, that objects appear single when we direct both these axes to them, it must be evident, to such as are acquainted with the common rules of optics, that the pictures of those objects do not fall upon the centres of the retinas, but more internally; and, therefore, that the centres and all the other points of those membranes, which by the present system are supposed to represent objects single, do in fact exhibit them double.

Admitting, however, that objects are represented single, when their pictures fall upon the centres of the retinas, or upon any other two points which are equally distant from the centres, and both upon the same side, it appears to Dr. Wells, notwithstanding, to be in violation of all analogy, to ascribe this effect, with respect to the points at least, on the right and left sides of the centres, to any peculiar property which they possess from nature. For when anatomists find, in a new species of animals, organs similar in structure to those of others they are already acquainted with, they immediately conclude, that they are also similar in regard to their use. In animals of the same species, they believe with certainty, that the organs they see in one have the same properties as the corresponding organs of another; and, if it be possible, they attribute with greater certainty the same properties to two organs of the like kind, which are found in the same individual. Such is the influence of the rule, that resemblance of property is implied by resemblance of structure. Now it is an universal fact, that if an animal be divided into a right and left half, the corresponding parts of those organs which exist in pairs are found at equal distances from the plane of partition. Thus, for instance, in respect to the eyes, the optic nerves penetrate their outward coat at the same distance from this plane. Their muscles, blood-vessels, and every other of their component parts and appendages, are arranged in the like manner; those nearest to the dividing plane, or the innermost, in the one, being similar in structure to the innermost in the other, the outermost to the outermost, and the intermediate to the intermediate. It is surely, therefore, natural to expect, that such parts should also be similar in their properties; and we in fact find this similarity to exist, wherever it can be clearly ascertained what the properties are. Every person, for example, admits, that the internal straight muscle of the right eye performs the same office, with respect to that eye, as the other internal straight muscle does with respect to the left eye. What judgment are we then to form of the opinion of Dr. Reid, which attributes the same original properties, or rather the joint possession of one original property, to places in the retinas situated at unequal distances from the general plane of partition; which makes an external point in one to correspond, in use, with an internal point in the other, and this too by a principle implanted by nature? If such things exist, they may, at least, be said to stand opposed to a most extensive analogy.

To these arguments, à priori, against the opinion of Dr. Reid, Dr. Wells adds others derived from a consideration of its consequences: but our limits oblige us to refer for these to the author's own account. If objects, it may be said, appear single neither from custom, nor from an original property of the eyes, have we not an effect without a cause, and must there not be something wrong in the facts or reasoning which lead to such a conclusion? Dr. Wells replies: Since visible place contains in it both visible distance and visible direction, it is not necessary that the single appearance of an object to both eyes, should depend altogether either upon custom, or an original principle of our constitution; for its visible distance to each eye may be learned from feeling, and its visible direction be given by nature; in which case, the unity of its place to the two eyes, will be owing to neither of those causes singly, but to a combination of both; and this Dr. Wells regards as a sufficient reply.

Dr. Wells proceeds to propose and illustrate his own theory for the solution of the question, why objects are seen single with two eyes; or, in other words, why they appear in the same place to both? The visible place of an object being composed, as he conceives, of its visible distance and visible direction, it becomes necessary, for fluowing how it may appear the same to both eyes, to explain in what manner the distance and direction, which are perceived by one eye, may coincide with those which are perceived by the other. He begins with a consideration of the distance. In judging of distance by sight, no person has ever observed, that while an object seemed to one of his eyes at a certain distance, it has appeared to the other to be at a different distance, and from this circumstance alone has been seen double; or, to express the same thing in another way, that while the visible appearance of an object to one eye, covered the visible appearance of the same object to the other eye, the two appearances did not seem entirely to coincide, and make one, but were seen separate by the two eyes. Hence it follows, that the difficulty in finding a true and sufficient cause: for the union of the two visible places of one or two objects to two eyes, must therefore conflict altogether in fluowing, in what manner the two apparent directions may coincide, consistently with the attending phenomena.

From the time of Kepler's discovery of the fact and manner of vision, there have been, says our author, only two theories offered respecting the apparent directions of objects. One is, that they are perceived in the direction of lines passing from their pictures on the retina, through the centre of the eye; the other, that their apparent directions coincide with their visual rays. But both of these theories are inconsistent with the phenomena of single vision with two eyes. For according to neither of them can an object, placed at the concourse of the optic axes, be seen single, unless we have a most accurate knowledge of its distance; nor will either admit two objects to be seen as one, which are situated in the optic axes, whether on this side, or beyond where they meet, unless the united object be referred by sight to their very point of intersection; both of which conclusions are contradicted by experience. It is evident, therefore, that some other theory of visible direction is required, which shall not be liable to these objections.

Dr. Wells's theory is illustrated in the following propositions, which we can merely state without enlargement: 1. Objects situated in the optic axis do not appear to be in that line, but in the common axis; i.e. in a line drawn from the middle of the visual bafe, through the point of intersection of the optic axes, or parallel to them, if they be parallel to each other. 2. Objects, situated in the common axis, do not appear to be in that line, but in the axis of the eye, by which they are seen. 3. Objects, situated in any line drawn through the mutual intersection of the optic
optic axes to the visual bafe, do not appear to be in that 
line, but in another, drawn through the fame intefion, 
to a point in the visual bafe diftant half this bafe from the 
foimilar extremity of the former line, towards the left, if the 
objects be feen by the right eye, but towards the right, if 
feen by the left eye. In the aplication of the theory 
which Dr. Wells has endeavoured to embafli in the pre-
ceding propofitions, he obferves, that, if the fefion be 
concerning an object at the concourfe of the optic axes, it is 
feen fingle, becaufe its two foimilar appearances, in regard 
to fize, fame, and colour, are feen by both eyes in one and 
the fame direction, or, if you will, in two directions, which 
coincide with each other through the whole of their extent. 
It therefore matters not, whether the diftanfe be truly or 
fallly estimated; whether the object be thought to touch 
our eyes, or to be infinitely remote. And hence we have a 
reason, which no other theory of visible direction affords, 
why objects appeared fpingle to the young gentleman men-
tioned by Mr. Chefelden, immediately after he was 
beathing, and before he could have learned to judge of 
diftanfe by fight.

When two foimilar objects are placed in the optic axes, 
one in each, at equal fiftances from the eyes, they will 
appear in the fame place, and therefore one, for the fame 
reafon that a truly fingle object, in the concourfe of the 
optic axes, is fpingle here. Again, as the two visible 
directions coincide in every point, it is not necefsary that 
the united aparence fould be judged to be at any par-
ticular diftanfe; that it fould be referred, for infance, 
to the concourfe of the optic axes, where the two other 
theories of visible direction are obliged to place it, in oppo-
sition to the plainel obfervation.

Objects, any where in the horopter, will be fpingle, 
becaufe their apparent directions to the two eyes will then 
completely coincide. And for a contrary reafon, thofe 
placed in any other part of the plane of the optic axes will 
appear double. To make these things evident, let a line 
pafs through the point of interfeftion of the optic axes and 
any given object, to the visual bafe, which is to be produced, 
if necefsary; and let it be called the line of the object's real 
pofition. Take afterward, in the visual bafe, or its pro-
duction, two points, one on each fide of the line of the real 
pofition, and both distant from its termination there, half 
the visual bafe. Lines drawn from these points, through 
the point of interfeftion of the optic axes, must confequently 
contain the two visible poftitions of the object. But when 
this is fpitted in the horopter, the line of real poftion will 
coincide with the horopter, and will not therefore reach the 
visual bafe, unlefs at an infinite diftanfe from the eyes. For 
which reafon, the two lines, containing the visible poftitions 
of the object, muft fall upon the visual bafe at a like 
diftance, and muft confequently be regarded as coinciding 
with each other. When the object is not in the horopter, 
the two lines of visible diftanfe will be found, by the 
fame means, not to coincide.

SEGO, col. 2, l. 13; r. Manfong; l. 17, r. San-
fanding.

SELENIUM, in Chemistry, the name of an elementary 
substance recently discovered by Berzelius, and confe-
idered by him as a kind of semi-metal. This subfance was 
first miftaken for tellurium. It was obtained from a ful-
phuric acid manufactory at Gripsholm, where pyrites from 
the mines of Fahlun were employed, and which of courage 
contained the subfance in queftion. It also exists in the 
foame mines combined with copper. Selenium has the 
properties of a metal combined with thofe of sulphur to fo 
great a degree, that it is difficult to know under which 
head to clas it, and in short whether it might not be 
rather considered as a new species of sulphur. In its me-
tallic flate it has a brilliant metallic luftre externally, with a 
tinge of red. The fracture is vitreous, like that of sulphur, 
but with a very brilliant luftre of a grey colour. It be-
comes fo at a temperature of 212°, and at a higher tem-
perature it melts; and at a temperature about equal to that 
at which mercury boils it may be brittle. When in a 
galeous flate, it is yellow, like sulphur. When fublimed 
in a large vefsel, it is deposited in the form of flowers of 
a cinnebar colour, but not oxidized. During its cooling, it 
preferves for some time a certain degree of fluidity, fo that 
it may be moulded between the fingers, and drawn into 
threads, which are transparent, and of a red colour 
when held between the eye and the light; but by reflected 
light they exhibit a brilliant metallic luftre. It burns 
with an azure-blue flame when heated with a candle, and 
exhales a strong odour of horfe-radish.

Selenium combines with metals, and generally produces 
a reddifh flate. The alloys are commonly grey, with a 
metallic luftre. The feleiniuret of potaffium diffoles in 
water, without evoking any gas, and produces a red-
coloured solution, which has the tale of hydrofulphuret of 
potaff. When muriatic acid is poured upon this feleiniuret, 
a feleiniuretted hydrogen gas is difengaged, which is fofule 
in water, and precipitates all metallic folutions, even thofe 
of zinc and iron. This gas has the odour of fulphuretted 
hydrogen gas when it is diluted with air, but if it be 
breathed at length it produces a painful fenfation in the 
nofe, and a violent inflammation, ending in catarh, which 
continues for a considerable time.

Selenium combines with the alcalies both in the humid 
way and by fufion. These combinations are red. The 
feleinites of barytes and lime are also red, but they are 
infofile. It also diffoles in melted wax, and in the fat 
oils; the folutions are red, but have no hepatic odour. 
There exift alfo feleiniuretted hydrofeleniurets of the alcalies 
and of the earths.

Selenium diffoles in nitric acid by the affifance of heat; 
the folution evaporated and fublimed yields a mafs crys-
tallized in needles, which is a very strong acid. It has a 
pure acid flavour, and forms peculiar falths with the alcalies, 
earths, and metallic oxyds. The felenic acid is fofule in 
water and in alcohol: its combinations with potaff and 
ammonia are deliquefcent; the latter is decomposed by fire, 
water is given out, and the felenium is reduced. The 
feleinites of barytes and lime are fofule in water. The 
felenic acid mixed with muriatic acid is decomposed by 
zinc, and the felenium is precipitated in the form of a red 
powder; by fulphuretted hydrogen gas an orange-yellow 
precipitate is formed.

Such is a brief fummary of the properties of this curious 
subfance. From the final quantities in which it has 
hitherto been found, we believe no experiments have been 
made to atern the weight of its atom, &c.

SELKIRK, l. 23 from bottom, for 440 r. 439.

SELKIRKSHIRE. In 1811 this fhire contained 
1080 houfes, and 589 perfons; viz. 2750 males, and 
3139 females: 500 families being employed in agriculture, 
and 363 in trade, manufactures, and handicraft.

SENÉCA. Add.—Allo, a county of New York, con-
taining 16609 inhabitants, of whom 101 are flavés.—Allo, 
a town of Guernfey county, in Ohio, having 300 inhabitants.

SEPOT, a term used in India to denote a native folder.

SETRA-WOLLIES. See KAJAAGA.

SERICA. Add.—(See Thibet.) Hugh Murray, efq. 
in his "Ancient Geography of Eastern and Central Asia," 
4 N published
SERMON, col. 4, l. 38, for Buller r. Butler.

SERPENTARIUS, or Snake-eater, in Ornithology, a genus of birds allied both to Vultur and Falco, but most nearly to the former. The characters are, beak vulturine, tongue pointed, and legs very long. It includes one species, viz., the S. Africana, or ah-coloured snake-eater, with the hind-head crested, the tail uncused, and the middle tail-feathers lengthened. This is the V. Serpentarius or Secretary vulture of Latham, and the Falco Serpentarius of Gmelin's Linnaeus. The most accurate description is that of La Vaillant, who, in his African travels, had an opportunity of observing it in its native regions. We refer to the 7th volume of Shaw's Zoology. It is an inhabitant of dry open plains in the lower parts of Africa.

SERPENTES.—Ater, l. 1, r. is white with black bands.

SEVIER, l. 2, r. 4595, and 204.

SHAPLEIGH. Add—containing 2362 inhabitants.

SHARON. Add after Portland—containing 944 inhabitants.—After Litchfield, having 2506 inhabitants.—After Bolton, having 1800 inhabitants.—After Norwich, having 1363 inhabitants. Add.—Alfo, a town of Hillsborough county, New Hampshire, having 416 inhabitants.—Alfo, a township of Franklin county, in Ohio, having 450 inhabitants.

SHARP, Granville, col. 3, l. 33, for taken up on r. taken upon.

SHAT-UL-ARAB, l. 16, r. Bamihere and Mefene; l. 20, r. Hafar.

SHENANGO. Add.—Alfo, a township of Mercer county, having 634 inhabitants.—Alfo, a township of Beaver county, having 670 inhabitants.

SHEPELY. Add—The largest parish in this island is that of Minfier, which in 1811 contained 842 houses, besides 20 that were not finished, and 5318 persons; viz., 2596 males, and 2722 females; 87 families being employed in agriculture, and 1163 in trade, manufactures, or handicraft.

SHILLINGSTONE, or Shilling Okeford, a parish in the west division of Shalford, in the county of Dorset, which in 1811 contained 75 houses, and 335 inhabitants; 163 males, and 222 females. On the right of the village are two high hills, called Hood and Hawkledon, on which are the remains of an ancient Roman encampment.

SHOES, col. 3, l. 29 from bottom, for felt r. left.


1. S. robi. Sall-trec. Roxb. l. 212. Found on the flarks of the northern mountains of India. A majelic tree, whose timber is much valued, and now in value to the teak, (see Tectona,) being stronger, though far lefs durable. Leaves alternate, falked, ovate, entire, acute, smooth, from four to eight inches long. Panicles downy, axillary and terminal, of numerous, pale yellow, flarly flowers, not an inch wide. Capfule accompanied by five oblong, ribbed, unequal wings, formed of the calyx. This genus is nearly allied to Diptercarpus; see that article.

SHORT Creek, in Geography, a township of Jefferson county, in Ohio, having 1890 inhabitants.

SHORT-SIGHTEDNESS, l. 21, add.—For Mr. Ware's observations on this subject, see Spectacles.

SHREWSBURY, in America, l. 8, add—of whom 577 are slaves. At the end, add.—Alfo, a township of Lycoming county, containing 294 inhabitants.

SID, l. 3, add—but the statute for this purpose has been repealed.

SHUKUSU, r. or Shukanu.

SHUSTER, l. 24, for magnitude r. magnificence.

SIBH, a district of the Persian empire, in the province of Mekran, containing an extensive plain, governed by a chief, who resides in a small town of the same name. The country, almost destitute of water, though a river, nearly dry, flows through the centre of the plain, is, generally speaking, barren, if we except some groves of date-trees which gradually grew in the bed of the river.

SIDNEY, Sir Philip, in Biography, the eldest son of Sir Henry Sidney, by a daughter of the duke of Northumberland, was born at Penhurst in Kent, in the year 1554. He was named Philip in compliment to the king of Spain, the husband of queen Mary. In very early life he manifested a sedulous studious disposition; and he judiciously improved every advantage for gaining knowledge, which he enjoyed, first at Shrewsbury school, and afterwards at Oxford, where he was entered at Christ Church college in 1569, and also at Cambridge. At the age of 18, the queen, according to the then existing custom, granted him a licence to travel abroad; and he first visited Paris, where he was introduced, by his maternal uncle, the earl of Leicester, to sir Francis Walsingham, the English ambassador. Charles IX. who was then king of France, wishing to shew respect to Leicester, and probably with the pernicious design of lulling his security, the Protestant party in France; formerly to the horrid massacre of St. Bartholowmew's, appointed Sidney one of the gentlemen of his bed-chamber. When the fatal day arrived, Sidney, together with several of his countrymen, found a refuge in the house of the English ambassador. Soon afterwards he purposed his tour to Germany; and at Frankfort formed an intimate acquaintance and friendship with Hubert Languet, than refident for the elector of Saxony, whose communications were singularly useful to our young traveller. After visiting Vienna, Hungary, Venice, and Padua, in company with his friend Languet, he returned through Germany and Flanders, and arrived in England in 1575, with those accomplishments, and with his moral principles in untainted purity, which rendered him the admiration and delight of his countrymen. In the following year, being only in the 22d year of his age, he was dispatched as ambassador to the court of Vienna, to concile with and congratulate the new emperor Rodolph II.; and entered with a commission to engage the Protestant princes of Germany in a league with each other, or with England. He was also entrusted to demand the repayment of the sum advanced by Elizabeth to the elector palatine. In the discharge of these several trusts, he acquitted himself with singular reputation, and with satisfaction to all the parties concerned in the objects of his embassy. After his return, he received no other honorary recompenence besides the office of cup-bearer to the queen. With a temper somewhat irascible, and a high sense of honour, blended in some degree with the spirit of chivalry, few characters in that age were so unexceptionable as that of Sidney. Of his disinterested patriotism, we have a striking instance in his remonstrance addressed to queen Elizabeth on her projected marriage with the duke of Anjou; and such was the efficacy in which he was held by the queen, that she did not manifest her displeasure against Sidney, though others suffered.
SIDNEY.

After the spirit of chivalry, he exhibited his skill in military manoeuvres at a tournament held, in 1585, in honour of the queen; and in the same year, he offered his rank as a gentleman, against an infult offered him at a tennis-court by Vere, earl of Oxford. In order to compose his mind, which had been thus disquieted, he retired to the house of his brother-in-law, the earl of Pembroke, at Wilton, and engaged in the composition of his well-known romance, called "Arcadia," which was not published till after his death. In 1581 his name appears as one of the knights of the shire for the county of Kent, and as one of the committee for drawing up acts, with a view to the security of the kingdom against the Pope and his adherents. His "Defence of Poetry," written about this time, contributed more to his literary reputation than Arcadia. Of this treatise one of his biographers says, that it may be considered as the earliest piece of criticism in the English language worthy of attention, and reckoned by some the best written of his works. In a simple and unaffected style, it displays much learning and judgment, and a true relish of the excellencies of that art, which he undertakes to patronize and illustrate." In the year 1585, he married the only daughter and heiress of Sir Francis Walsingham, a lady, as it is said, of great beauty and merit. On occasion of being nominated by the prince palatine of the Rhine his proxy at the installation of the garter in 1584, he received from the queen the honour of knighthood; an honour which she was not lavish in conferring. When Sir Francis Drake was projecting a secret naval expedition, Sir Philip Sidney wished to join him, and with this view to equip a land and naval armament against the Spanish settlements in America; but the queen interposed, and absolutely prohibited the execution of his design. Of his nomination as a candidate for the vacant crown of Poland, upon the death of Stephen Bathori in 1583, we shall say nothing; as one of his biographers has related several particulars, which render the fact very improbable. In the year just mentioned, Sir Philip had a seat in the privy council; and Queen Elizabeth determined to affix the Low Countries in their revolt, on condition of their putting into her hands some cautionary towns, indulged his martial disposition by appointing him governor of Flushing. As soon as he had taken possession of his charge, he was made colonel of all the Dutch regiments, and captain of a band of Englike soldiers. He was soon joined by his uncle Leicester, as general of the auxiliary forces, and Sir Philip was appointed general of the horfe, under his command. It soon appeared that Leicester was unfit for the trust reposed in him; his nephew was dissatisfied, and endeavoured to allay the discontents which prevailed among the subordinate commanders. Sir Philip in his first exploit, which was the surprize and capture of Axell, in July 1586, without the loss of a man, was singularly successful; but in the month of September he fell in with a convoy sent by the enemy to Zutphen, and having one horfe shot under him, he mounted another; and while charging the foe with great vigour, he received a musket bullet above the knee, which broke the bone and penetrated deep into the thigh. On his way from the field to Leicester’s camp, whither he was conveyed, he found himself faint and thirsty, and called for water; but as he was preparing to drink, he observed a fodor in the agonies of a mortal wound; he regained the draught to him, with an expression which entails permanent honour on his memory: ‘This man’s necessity is still greater than mine!’ Upon his arrival at Arnhem a mortification ensued, and on the 17th of October, after exhibiting the most unaffected piety, exemplary comporture, and self-possession, he expired with tranquillity at the early age of 32 years. His death was universally regretted by his enemies as well as friends, and abroad as well as at home. The queen directed his body to be brought to London, and after lying in state, he was interred with all the solemnity of a public funeral in St. Paul’s cathedral; and although no monument was erected over his remains, James, king of Scotland, composed an epitaph to celebrate his memory, and both universities furnished some collections of verses to record his fame. But his name will ever live in the records of history, as one of those who have reflected the highest honour on his country.” Of his “Arcadia,” we shall merely observe, that it was one of the earliest specimens of grave or heroic romance; that it was left in scattered fragments of MS., which his father collected and published; and from this circumstance, it was denominated “The Countess of Pembroke’s Arcadia.” It became very popular, and was translated into foreign languages. Lord Orford (Horace Walpole) speaks of it very contemptuously; but Dr. Zouch has more candidly and more justly appreciated its value. Biog. Brit. Zouch’s Mem. of Sir Philip Sidney. Gen. Biog.

SIDNEY, or SYDNEY, ALGERNOS, the second son of Robert, earl of Leicester, by Dorothy, eldest daughter of Henry Piercy, earl of Northumberland, was born in 1621 or 1622, and carefully educated under his father’s inspection. In early life he was desirous to the military profession, and in 1641 he had a commission in his father’s own regiment of horse, when he was appointed lord-lieutenant of Ireland. During the rebellion in that kingdom entered immediately into active service, and had many opportunities of exhibiting his courage. In 1643, upon the commencement of the war in England between the king and parliament, he obtained permission to return. He and his brother, upon their landing, were intercepted, and placed under guard: and the king, conceiving (justly, as the event proved) that they had been taken by their own contrivance, was much offended; and not without reason, for they both joined the parliamentary army. In 1644, the earl of Manchester appointed Algernon to the command of a troop of horse in his own regiment; and in the following year, Fairfax promoted him to the colonelcy of a regiment of horse. Having been present in several actions, he was entrusted with the government of Chichester. In 1646 he accompanied his brother to Ireland, and was advanced to the post of lieutenant-general of the cavalry and governor of Dublin. For his services in that kingdom he received the thanks of parliament, and returning to his own country was made governor of Dover. Although he was nominated in 1648 a member of the high court of justice for the trial of the king, he was neither present when sentence was pronounced, nor did he sign the warrant for his execution. This part of his conduct, it is supposed, was owing to the particular request of his father; for it appears, from his general conduct, that his principles would not induce him to condemn this act. When he was afterwards a voluntary exile in Denmark, and charged by his father with the violence of his political sentiments, his father writes to this purpose: “It is said that the university of Copenhagen brought their album to you, defying you to write something therein, and that you did ferebire in albo these words:

“Manus hsec, inimica tyrannis, Enfe petit placidam sub libertate quietem,”

and put your name to it; also, that a minister, being there in company with you, said, ‘I think you were none of the late king’s judges, nor guilty of his death.’ ‘Guilty!’ said you; ‘do you call that guilt? Why, it was the juftest and bravest action that ever was done in England, or any
where else?” Confidently with the sentiments avowed on this occasion, Sidney actually opposed the designs of Cromwell; and he afterwards refused to act under him and under his successor Richard. During this period he passed a retired life at Penshurst, and employed himself, as it is said, in writing his Difcourses on Government. But when the Long Parliament regained its power, Sidney having been engaged in the establishment of a republic, to which form of government he was ardently attached, became an active partisan, and was nominated one of the council of state. He also accepted the office of one of the commissioners for mediating a peace between Denmark and Sweden, and was actually engaged in this embassy at the period of Charles II.’s restoration. Although he was solicited by general Monk and others to return to England, he could repose no confidence in the royal party, but remained in exile for fourteen years, finding that the few supplies which he received from home were insufficient to support him in a manner suitable to his birth and rank. He was, however, treated with respect and civility in various places, and particularly at Rome; and he employed his many leisure hours in making addition to the ample stock of knowledge which he had already acquired. In 1677 his father, being advanced in life, was anxious to see him, and employed his interest in obtaining the king’s permission for his return, to which permission was annexed a pardon for all his past offences. When he afterwards joined in cabals against the court, he incurred the cenfure of those who were dispoled to take offence; and Mr. Hume has charged him with acting counter to the moral principles of gratitude and with a breach of faith: others, however, have vindicated him, alleging that unconscious of guilt he might consider the royal permission to return, after so long an absence, as a reparation of injustice rather than an act of clemency, and that personal obligation ought not to influence his public conduct, when he conceived the great interests of his country in danger. At the time of his return, parliament was urging the king to commence a war with France; but Charles, being a pensioner of the French court, wished from selfish motives to avoid it; but as he was actuated by no found principles, it was apprehended that he would appear to concur with the wishes of the nation, that he might have a plea for raising supplies, for his own personal gratification, in the prosecution of his pleasures or his designs to render himself arbitrary. The English patriots were averse from war, and some of their leaders intrigued with Barillon, the French ambassador, for preventing it. In the list of those persons in England who were at this time pensioners in France, the name of Sidney appears. When this discovery was made by Sir J. Dalrymple’s publication of Barillon’s papers, the friends of liberty were affrighted and grieved; and they hesitated in admitting this dishonourable charge. In vindication of Sidney some have suggested, that Barillon falsified his accounts of the money with which he had been entrusted; whilst others have satisfied themselves with that perfunctory of Sidney’s honour and integrity which was founded on his general conduct, and with the assurance that he always adopted and pursued those political measures which appeared to him, in all circumstances considered, most beneficial to his country. Upon his father’s death, he joined the opposition party without disgrace, and offered himself for a seat in parliament; but he was twice defeated by the influence of the court. Thus exasperated, and apprehending the liberty of his country to be in danger, as well as dreading a popish successor, the ardour of his mind urged him to associate with the duke of Monmouth and his party; and in the history of the Rye-house plot he was charged with being one of six who were promoting an insurrection. But the part which he was supposed to have taken in a conspiracy for affalinating the king was the plea for arresting him, together with Russell and several others, in June 1683. When lord Russell was sacrificed, the next victim selected by the court was Sidney; and he was brought to trial for high treason, before that judge whose infamous character is indelibly recorded in the page of history, chief-justice Jeffreys. Lord Howard, who was a disgrace to the title he bore and to that rank in society with which he was connected, was the only direct evidence against him; but the law required two witnesses for conviction on a charge of treason. In order to supply this defect, the attorney-general produced some passages from his papers, found in manuscript in his closet, in which the writer maintained the lawfulness of refting tyrants, and his preference of a free to an arbitrary government; and without decisive proof that they were written by him, or that they were even communicated to any living person, this kind of evidence was admitted, in defiance of law and common sense, as equivalent to the testimony of a second witness. His defence was of no avail, and a servile jury pronounced him guilty. From respect to his family, the disgraceful part of his sentence was omitted, and exchanged for beheading. On the 7th of December he was executed on Tower-hill, at the age of about fifty-one years, delivering to the heralds a paper which proved the injustice of his condemnation, and offering a prayer for that “old cause” in which he had been from his youth engaged. This paper was afterwards printed, and made great impression on the public mind. It is given at full length in the Memoirs of his Life. He suffered with the firmness, as it is said, of an old Roman. After the revolution one of the first acts was the revocation of his attainted, and his name has been held in high esteem and veneration by all the avowed friends of free government. The following sketch of his character is given by bishop Burnet. “He was a man of most extraordinary courage, steady even to obstinacy, sincere, but of a rough and boisterous temper that could not bear contradiction. He seemed to be a Chriftian, but in a particular form of his own; he thought he was to be like a divine philosopher in the mind, but he was against all public worship, and every thing that looked like a church. He was still to all republican principles, and an enemy to everything that looked like monarchy. He had fludied the history of government in all its branches beyond any man I ever knew, and had a particular way of intimating himself into people that would hearken to his notions, and not contradict him.” Of this character, it is said, in the Notes to the Memoirs of his Life, that it was roughly and inaccurately drawn. Sidney’s “Difcourses on Government” were first printed in 1698, fol. reprinted in 1704 and 1750, and in 4to. 1772 at the expense of Thomas Hollis, &c., with his letters, trial, and memoirs of his life prefixed. Lord Orreys says of them, “they are admirably written, and contain great historical knowledge, and a remarkable propriety of diction; so that his name, in my opinion, ought to be much higher eulogized in the temple of literature than I have hitherto found it placed.” Biog. Brit. Gen. Biog. Memoirs, &c. prefixed to Hollis’s edition.

SIFEEED ROOK. See Rood.

SILENI, I. 20, for faccho r. Jaccho; I. 33, for second r. sixth.

SILICA, SILICON, in Chemistry. From the recent experiments of Berzelius and Stromeyer, the basis of silicon does not appear to be a metal as formerly supposed, but a substance analogous to boron and carbon; hence it has been named
named silica. Little is known, however, of the nature of this substance, except that it is dark-coloured, and will bear a considerable heat without undergoing change, and that it decomposes water, and is converted into silica when brought in contact with that fluid. It is also capable of combining with iron, and probably other metals. Dr. Thomson estimates the weight of the atom of silica, from the experiments of Berzelius and Stromeyer above-mentioned, at 10, and of silica at 20. The same chemist also considers silica to be an acid, and proposes for it the name of silicic acid, in which case its compounds must be denominated silicates.

SILVER, in Chemistry. Dr. Thomson, from the most recent experiments on this metal and its salts, estimates the weight of its atom at 137.5, that of oxygen being 16. See Atomic Theory.

SILVER ORES. See Silver, and Mineralogy, Addenda.

SILURES, col. 2, l. 32, r. Wilk or Ulk.

SIMIA FattuEUS, l. 1, for talles r. long-tailed.

SITACA. Add—twelve geographical miles below Bagdad, and nearly opposite to the embouchure of the Dealla river.

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SITTINGBOURNE, a town and parish of Kent, 40 miles from London, in the road to Canterbury; contained, in 1811, 230 houses, and 1562 persons; 633 being males, and 729 females.

SKIDDAW, l. 15, after sea, add—which differs little from 3017 feet, the barometrical measurement of Mr. W. Allen, according to the method proposed by him. H. Englefield. (See Trans. of the Geol. Soc. vol. iv. part 2.)

SLATE-SPAR. See Mineralogy, Addenda.

SLAVE, col. 2, l. 40, for Almighty r. A mighty.

SLAVETRade, Abolition of the, col. 2, l. 12, for principled r. principled.

SLIDING-RULE. Add—Mr. Bevan has lately published in the Philosophical Magazine an ingenious modification of the sliding-rule. By the inversion of the slides all the usual operations are performed, together with the extraction of the square root, and factors of any given number are found by simple inspection. At the same time, the instrument is reduced to half its usual size.

SMITH, in Geography, l. 2, add—of whom 2201 are slaves.

SNORING. Add—See Larynx.

SNOW, col. 2, l. 3 from bottom, r. earth, and of bodies on its surface, is prevented from escaping by radiation to the heavens during still or dewy nights. The cause of this additional cold does not, indeed, constantly operate; but its presence, during only a few hours, might effectually destroy plants, which now pass unhurt through the winter. Moreover, while low vegetable productions are prevented, by a covering of snow, from becoming colder than the atmosphere in consequence of their own radiation, the parts of trees and tall shrubs, which rise above the snow, are little affected by cold from this cause: for their outermost twigs, now that they are dilute of leaves, are so small, that they will very seldom become more than 2° colder than the atmosphere. The larger branches too, which, if fully exposed to the sky, would become colder than the extreme parts, are, in a great degree, sheltered by them; and, in the last place, the trunks are sheltered both by the smaller and larger parts, not to mention that the trunks must derive heat, by conduction through the roots, from the earth kept warm by the snow. In a similar way is partly to be explained, the manner in which a layer of earth or thaw preserves vegetable matters in our own fields, from the injurious effects of cold in winter. It may be remarked, however, that a thick covering of snow, while it renders the surface of the earth warmer than it would otherwise be, must occasion the lower atmosphere to be colder, by preventing the passage of the heat of the ground to the air, either by radiation or conduction. Wells's Hist. p. 258. See Dew and Heat.

SNOWDON, l. 17, after sea, add—according to Mr. W. Allen's barometrical measurement, 3595 feet.

SOAP-STONE. See Mineralogy, Addenda.

SODA. See Sodium. Add—under NATRON, l. 5, r. Natron, from an erroneous apposition of its being the nature of nitre, has been by many. Col. 2, l. 35, dele vegetable alkali. Col. 4, l. 33, for a further account of barilla, see CARBONATE of Soda. Under the article Leathier, l. 17, for a species of salt-petre r. a CARBONATE of Soda; which see.

Soda, Sodium, in Chemistry. From the most recent and correct experiments, the weight of the atom of soda has been estimated by Dr. Thomson at 30, and consequently the weight of the atom of soda at 40, that of oxygen being 16.

SODAIC Powders, denote powders which are used as a substitute for soda-water. Professor Brande, in his course of chemical lectures at the Royal Institution, took occasion to observe, that though these powders produce an effervescence when dissolved, arising from the disengagement of carbonic acid, the solution is very different from soda-water, both in its constituent parts and its properties. These powders consist of an alkaline carbonate, either of potash or soda, and a concrete acid, reduced to powder. The acid, though cold as the citric, is in reality the tartaric acid, produced from the substance known as cream of tartar. When the powders are dissolved, the tartaric acid unites with the alkali, and the carbonic acid, or fixed air, immediately escapes, occasioning a momentary effervescence. A salt is formed in the solution, called by chemists the tartrate of potash, or soda: if the former alkali has been used, and the acid is in excess, the salt formed is nearly insoluble, and has a harsh taste, and an irritating effect on the stomach. Thus, a quantity of alkaline tartrate is taken into the fyltem, which rather tends to increase than remove obstructions, and in many infirmities must be highly injurious. Soda-water, if prepared in the best manner, should contain a very small portion of carbonate of soda, which has a tendency to correct acidity on the stomach; it should contain also about eight times its own bulk of carbonic acid gas, part of which is in a state of loose combination with the water. A considerable quantity of this gas, however, appears to be united by a stronger chemical affinity, and will remain in the water some hours after it is poured out. This gas, acting as a solvent of all the different earths, and various other substances, gives to the soda-water a more dilute and deodorant efficacy, than is possessed by common water; and to this cause we may ascribe the good effects of soda-water in removing bile and calculous concretions. The carbonic acid, in its concentrated form, as it exists in soda-water, is a more powerful solvent of metallic substances than is generally supposed. On which account the manufacture of soda-water, in vessels of copper, or other metals, ought carefully to be avoided, and too great caution cannot be observed by those who are in the habit of drinking
drinking soda-water, to have it free from any metallic impregnation, or improper admixture.

SODALITE. See Mineralogy, Addenda.

SOMERSET, I. 6, r. 14725.

SOON'TAARS, a wild and unlettered tribe of Hindoos, who inhabit the district of Ramgar, the latest civilized part of the Company's possessions, and who have reduced the detection and trial of persons suspected of witchcraft to a system. For an account of their practices, we refer to the fourth volume of the Asiatic Researches, p. 343. See Bekaars.

SORBIC Acid, in Chemistry. This acid was so named by Mr. Donovan in his discoverer, because obtained from the berries of the mountain ash (formerly denominated forbus aucuparia, but now aper aucuparia). The juice of the ripe berries is to be strained and mixed with a filtered solution of acetate of lead. The precipitate is then to be separated by a filter, and washed in cold water. A large quantity of boiling water is then to be poured upon the filter, and allowed to pass through the precipitate into jars. After some hours this liquid becomes opaque, and deposits crystals of great luster and beauty. These crystals are to be boiled for half an hour with 2½ times their weight of sulphuric acid, specific gravity 1.000, supplying water as fast as it evaporates, and taking care to keep the mixture constantly stirred. While still hot a stream of sulphured hydrogen is to be sent through the resulting liquid, which will precipitate the lead, and leave the forbie acid in solution in the water.

Sorbic acid thus obtained is a transparent colourless inodorous fluid, soluble in alcohol, and in any portion of water. It does not crystallize, nor is it volatile. Its taste is exceedingly acid, and it does not appear to undergo much change when kept. The forbyates of potash, soda, and ammonia, are crystallizable salts, containing an excess of acid. The forbie acid combines with lead in three proportions. The subforbyate is a hard mass or a gritty powder. The forbyate is a white powder, which by solution in forbie acid may be obtained crystallized in beautiful silvery crystals. The supersorbic has a sweet taste, and is soluble in water. The other forbyates are little known, and do not seem to be very interesting.

There appears to be a great resemblance between the forbie and malic acids. Indeed it has been asserted that they are identical. The malic acid having recently been obtained in a more pure state than formerly, has enabled chemists to investigate its properties more completely, and in this pure state it is said in no circumstance to differ from forbie acid.

SOOS, a Chaldian period of 60 years, which doubled gave the return of the lunar months to within the 20th part of a month. By multiplying this cycle as many times as are necessary to obtain the precise returns of the sun and moon to the same points of the heavens, astronomers found a period of 600 years, called the Nero; which fee.

SOUND, for Roberts r. Roberts.

SOUTHAMPTON, in Geography, a township of Cumberland county, in Pennsylvania, having 700 inhabitants.

SOUTH-END. In 1811, the parish of Prittlewell with Milton contained 285 houses, and 1541 persons; 759 being males, and 782 females.

SOUTHWARK, East, a township of Pennsylvania, in Philadelphia county, having 726 inhabitants.

SOUTHWARK Bridge, an elegant structure designed by Mr. Rennie, and forming a communication between the city of London and the borough of Southwark, in nearly a straight line between Guildhall and the Bank-side. It consists of three grand arches; the centre arch being 240 feet in span, and each of the side arches being 210 feet. The arches are composed of cast-iron, and the piers and abutments of stone. The elevation of the arches was 287,000l., and that of the piers, on the supposition that London Bridge should be rebuilt, was conjectured to amount annually to 50 or 60,000l. The first stone of this bridge was laid in 1815, and it was opened for passengers and carriages in February 1819.

SOWANS, a nutritious article of food prepared in Scotland from the husks of oats, by a process not unlike that by which common farl is made. The husk of the oat after having been separated by the sieve still retains a considerable portion of farinaceous matter. It is mixed with water, and allowed to remain till the water becomes sour. The whole is then thrown upon a sieve; the milky water paffes through loaded with farl matter, which soon malates. The four liquor is poured off, and an earthy equal quantity of fresh water added. This mixture when boiled forms a very nourishing article of food, and the portion of the four water which still adheres to the farl gives the whole a pleasant acidity.

SPANGLES, plaitettes, Fr. are small thin round leaves of metal, pierced in the middle, which are fewed on garments, &c., as ornaments. They are prepared by first twilling wire round a rod into the form of a fire and then cut into single spiral rings, like those used by pin-makers in forming heads to their pins; and these rings being placed upon a smooth anvil are flattened by a flat stroke of the hammer, so that a small hole remains in the middle, and the ends of the wire which lie over each other are closely united. The smaller spangles were first made in the French gold and silver manufactory, and imitated in Germany, for the first time, in the beginning of the 18th century. Beckmann's Hist. of Inventions, vol. ii.

SPARROW, in Agriculture. Add.—It has been suggested, however, that the millchief done by sparrows may be fully compensated by their usefulness in destroying caterpillars; a single pair has been found to consume 40,000 in one season, in feeding their young. We may here add, that in a district in which great pains had been taken to extirpate the moles every vegetable was for a considerable time destroyed by cockchaffers, which grubs had been thus preserved by the short-fighted policy of the farmers.

SPARTA, I. 13, for country r. city.

SPARTA, col. 2, 1. 3, containing 179 inhabitants.

SPAVIN. Add.—In healing the blood spavin, Mr. Denny recommends repeated blistering, and afterwards a compres of folded linen, moistened in the following lotion, and confined by a long bandage: Take 4 oz. of sal ammoniac, 2 oz. of acetated ceruse, 2 quarts of vinegar, and 4 of water, mix them. The usual method of treating the bone spavin is by blistering and firing.

SPECIUM, col. 15, l. 23 from bottom, for cord r. card.

SPEECH. See Larynx.

SPERMACETI, Chemical Properties of. See Cetio Acid.

SPERMADICTION, in Botany, from σπερμα, seed, and δίκτυος, a net, because of the reticulated tunic of the seeds.—Roxb. Coromand. v. 3. 32.—Clas and order, Pen- tendria Monogynia. Nat. Ord. Rubiaceae, Jaff.


1. S. fuscoleus,
STAPHYLMUS, 1. 5, add—The larvae are subter-
aceous, and much resemble the complete animals; 1. 15, add—Mr. Marsham, in his "Entomologia Britannica," enumerates no fewer than 87 British species.

STARCH, Chemical Composition of. Starch has been analyzed by three different experimentalists. The following were the results:

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<td>Hydrogen - 6.77</td>
<td>- 5.90</td>
<td>- 7.066</td>
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<tr>
<td>Carbon - 43.55</td>
<td>- 43.81</td>
<td>- 43.481</td>
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<tr>
<td>Oxygen - 49.68</td>
<td>- 49.453</td>
<td>- 49.31</td>
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Berzelius employed potato starch. The other experiments were made with the starch of wheat. 

Kirchhoff, a Russian chemist, found, that by boiling starch with dilute sulphuric acid it is converted into sugar; and M. T. de Saussure has recently discovered, that this change takes place spontaneously when boiled starch is exposed for a considerable length of time to the action of the air.

STATISTICS, a term applied to the topography of a country, and comprehending its population, policy, manufactures, trade, and a variety of other circumstances.

STEARIN, in Chemistry. A name given by Chevreul to a substance exuding in animal tallow and fats. It may be separated by alcohol, or simply by pressure. Braconnot used the following method: The oil if fluid was congealed, and in this state was subjected to strong pressure between folds of blotting paper. The clair (see LAIRN) was imbibed by the paper while the stearin remained behind in a fold of fat.

Stearin thus obtained is white, brittle, and resembling, like wax in appearance. It crystallizes in small needles. It has little or no smell. It is tasteless, and produces no effect on vegetable juices. It melts, as obtained from different fats, between 189° and 192°; that from the fat of the duck being most readily melted, and that from human fat the least. It is soluble in water, and combines with the alkalies, forming soaps.

STUBEN, 1. 15, add—of whom, in 1810, 87 were slaves.

STIPPLING, 1. 7 and 9, r. pecks.

STIRLINGSHIRE. In 1811, this shire contained 8910 houses, besides 55 unmanned, and 58,174 persons (including 803 local militia); 27,745 being males (militia included), and 50,429 females: 3425 families being employed in agriculture, and 5912 in trade, manufactures, and handicraft.

STIRRUP. At the close, add—The Roman manners required that young men and expert riders should be able to vault on horseback without any assistance. (Virgil, Æneid, l. 12. 288.) In many public places, particularly highways, stones were erected, to which a rider could lead his horse, that he might mount with greater facility. Such stones Gracchus caused to be raised (Plutarch, de Vit. Gracchi); and they were to be found in many cities in the 16th century, especially near the council-house, for the convenience of the members of the council, who at that time did not ride in coaches. It was usual also to have portable foils, which were placed close to the horse when persons wished to mount: and this gave rise to the barbarous practice of making conquering generals and prisoners foop down, that the victor might more easily get on horseback, by flapping upon their backs as upon a foil. In this ignominious manner was the emperor Valerian treated by Sapor, king of Perse. Some horses were so taught, that they knelled until the rider mounted; and warriors had on their spear or lance a step or projection on which they could rest the foot until they got on horseback. (Strabo, lib. iii. Sil. Ital. lib. x.) See ÁNABATHRA and ÆNABOLEUS. The first certain account of stirrups, says Beckmann, (History of Inventions, vol. ii.) is in a book written by Mauritus, respecting the art of wars, about the end of the 6th century. Euflatius, the commentator on Homer, informs us, that in his time, i.e. the 12th century, stirrups had not become very common; but on a piece of tapestry, of the eleventh century, cauffed to be engraved by Montfacon, the saddles of all the horses appear to have stirrups. However, after they became common, it was thought to be an evidence of superior dexterity to ride without them.

STONE, in Geography, a township of Madison county, in Ohio, containing 267 inhabitants.

STONE, in the Bladder. See Lithotomy, and Urinary Calculus.

STONE, Mile. See Mile-Stone.

STONES, Chemical Analysis of. See Analysis.

STONY CREEK, in Geography, a township of Somerset county, in Pennsylvania, having 943 inhabitants.

STRAFFORD, in New Hampshire, add—divided into 31 townships, &c.

STRAINING. See Lungs.

STRAND BRIDGE. See Waterloo.

STRONTIAN, STRONTIUM, in Chemistry, the name of an elementary substance or earth, the description of which has been omitted.

Strontian is always found in nature combined with the carbonate or sulphoric acids. (See STRONTIANITE and CELESTINE.) It may be obtained pure from those minerals precisely in the same manner as barytes and lime.

Strontian thus obtained is in porous masses of a greyish-white colour. Its tafte is acid and alkaline, and it converts vegetable juices to green. Its fp. gr. according to Halleufratz, is 1.647. It does not act strongly on animal bodies as barytes, nor is it poisonous.

Sir H. Davy, led by analogy, subjected it to galvanic influence, and thus succeeded in separating its oxygen and obtaining frontium, the metallic basis of strontian. This metal is white, much heavier than water, and bears a close resemblance to barium in its properties: when exposed to air or thrown into water, it rapidly absorbs oxygen, and is converted into frontium.

Dr. Thomson, from the recent experiments of Stromeyer...
and others, fixes the weight of the atom of frontian at 65; from which the composition of its salts may be readily estimated.

The salts of frontian require to be briefly noticed. They are in general more soluble than the salts of barytes, but less so than the salts of lime. Most of them are capable of being crystallized. They are precipitated by the sulphates, phosphates, and oxalates. Succinate of ammonia precipitates barytes, but not frontian. When a piece of paper is dipped into a solution of a salt of frontian, it burns with a red flame. The salts of frontian are not precipitated by the prussiate of potash, nor are they poifonous.

**Nitrates of Strontian.**—This salt crystallizes in six-sided pyramidal dodecahedrons with their apexes truncated, so as to have the appearance of hexagonal plates with bevelled edges. Sometimes in eight-sided prisms. It is perfectly transparent. It has a strong pungent cooling taste. Its fp. gr. is 3.260. It is soluble in its own weight of water at 60°, and in little more than half its weight of boiling water. It is insoluble in alcohol. It is not altered by exposure to air. It degrades on hot coals. When a crysal of nitrate of frontian is put into the wick of a candle, it communicates a beautiful purple flame.

**Muriate of Strontian.**—This salt crystallizes in long slender hexagonal prisms. Its taste is sharp and penetrating. Its fp. gr. is 1.4402. It is soluble in less than its weight of cold water, and in any quantity in boiling water. It is soluble in about twenty-four parts of cold alcohol. The crysals do not deliquesce on exposure to the air, except in very damp weather.

**Carbonate of Strontian.**—This, when precipitated, is a white powder without taste or smell, and soluble in about 1.536 parts of boiling water. Its fp. gr. is about 3.66, and it is not altered by exposure to the air.

**Sulphate of Strontian.**—This salt is tasteless, soluble in 3840 parts of boiling water; readily soluble in sulphuric acid when affixed by heat, and possesses other properties very analogous to the sulphate of barytes.

**Phosphite of Strontian.**—This salt is likewise tasteless, insoluble in water, and not altered by exposure to the air.

**Oxalate of Strontian.**—This is soluble in little more than twice its weight both of cold and hot water. It may be crystallized, and the crysals are not altered by exposure to the air. It renders vegetable colours green.

The other salts of frontian do not in general possess any remarkable properties. The oxalate, tartrate, succinate, and citrate of frontian, are all more or less soluble in water; the oxalate being the least soluble, and the citrate the most. The molate of frontian is more soluble in water than the malate of barytes.

STROUD, in Geography, a parish of Kent, part of which is included within the jurisdiction of the city of Rochester (see Rochester); and the other part, in 1811, contained 242 houses, and 1394 persons; 718 being males, and 676 females.

**Style, in Painting,** is the manner in which a painter conceives and executes the subjects he adopts; or, in other words, in which he combines the various qualities of a picture. Style is properly divisible into four distinct kinds, viz. the grand or sublime, the beautiful, the natural, and the mean. There are indeed several varieties of style which have obtained specific appellations; but they will be found upon examination to combine, in different ways, the qualities peculiar to those above-mentioned; and are justly regarded as vicious in their nature: such are the ornamental and the artificial styles of art, which divert the attention of painters from the more pure application and exercise of their art, and lead them to adopt fictitious means of attracting attention, by contrail and affectation, by glitter, and an idle display of skill in workmanship, to the neglect of nature and just expression, and sometimes even of common sense.

The object and aim of the grand style is to captivate the imagination. It is the only proper one for the representation of grand and elevated ideas; of subjects which reprezent the actions of deities, or of heroes, or which relate to the higher qualities of the mind of man: the only medium whereby the art of painting can embody such ideas as the cultivation of those qualities inspires, and by which alone it can at all pretend to rival the grandeur and effect of heroic poetry. Its characteristics are simplicity and fulness of form and colour; and it is obtained, by adopting only essential parts, avoiding those which are nothing to specific character, and fixing solely upon those general forms which particularly distinguish one race of beings, or one class of natural objects or of actions from another, giving them their greatest possible degree of elevation, even to the verge of extravagance, in modulation of line, and fulness of form. This selection of form and of action requires an appropriate chiaro-oscuro, arranged and combined in broad and simple masses, and painted with a serious tone of colour; in fact, such a combination of the prime qualities of the art, as will most effectually unite in the production of one unmingled emotion.

The grand style does not admit attempts at illusion, or too close an imitation of natural objects; which, when carried to excess, necessarily disturbs that singleness or simplicity of effect required where the object is to produce an elevated tone of thinking. It is not dependent upon size, but may be exhibited on a small scale as effectually as on a large one: witness many of the beautiful bronzes and gems of the ancients, and the effect, as described by Statius, of the statue of Hercules made by Lygippus, which "though not more than a foot in height, filled the imagination in a manner equal to the Hercules Farnese." Raphael's small picture of the vision of Ezekiel is also an effective influence of the truth of this assertion.

**Style, for that word alone is adopted as signification of the grand in art, can only be acquired by those who have made themselves well acquainted with the just proportions and varieties of nature. Its aim being to represent her works with the greatest degree of sublimity commixed with truth, all attempts to produce it without real knowledge must necessarily lead to error, and a species of bombast, instead of expression, yields only deformity. Of this, the works of Gottzius, of Spranger, and the Germans who followed them, are sufficient evidence. And yet such is the rarity of perfection in form among the human or the animal race of beings, that an artful whole aim is to produce grandeur of style must draw largely upon his imagination; and while he touches the verge of impossibility, will find that the difficulty he has to overcome is in uniting the principle on which he depends with propriety. Even Michael Angelo, great and glorious as he was among those who have made it their principal object, has not unfrequently allowed himself to be misled by the wish to aggrandize, and give his contours only redundancy for style; and for the sake of a flowing and varied line, has sometimes given forms of action to masses which ought to have been represented tranquil.

Of this style, as far as relates to form, the best among the sculptures of the ancients afford the fairest examples, particularly the torso of the Belvidere, the head of Jupiter, the Laocoon, the Apollo, the figures on Monte Cavallo, &c. &c.; and it is a striking feature in the works of Phidias.
STYLE.

dias, though with a chastened impulse, as may be seen in the Elgin marbles. Indeed it appears to have been so perfectly understood among the artists of ancient Greece, that it spread generally in a greater or less degree through all their productions, at least in those of sculpture; and from the few remains of painting left to us, it appears not improbable that the professors of that art were no less masters of its principles. In latter times, among the moderns, the Florentine school made it their principal object of attention; and in the works of Leonardo da Vinci, Fra. Bartolomeo, and more particularly of Michael Angelo, it reached in quality nearly to a level with the taste of those from whom it was adopted. Raphael attempted it in imitation of M. Angelo, and sometimes succeeded, but it evidently was not congenial to his feeling, which inclined to the beautiful and graceful, more than to the sublime; and hence it is that his pictures of the Godhead rarely impress us with sentiments of an exalted nature.

The beautiful style differs from the grand, in that it requires less force of contrast in form and action, and greater softness of colour and effect. Whatever is graceful and animated, void of superfluous parts, and yet essentially characteristic and pleasing in arrangement, combines to form the beautiful. Flowing lines, graceful contrasts, both in form and colour, softened lights and shades, and rich and harmonious colouring, are its principles: on them it depends, and every departure from them necessarily diminishes its quality. It is the fit medium for every subject whose character is adapted to afford pleasure.

As the grand style confits in an elevated view of nature, a conception of perfection almost super-human, built upon the possibilities of creative power, acting upon known and natural forms; so the beautiful also must be sought in the regions of imagination, guided by the knowledge of existing objects, and supported by felection from the varieties of nature. Therefore, in order to comprehend the character of beauty as applied to art, we must consider the perfection of that art, not as consisting in mere imitation of visible objects, but as requiring a separation and choice of parts, an ideal perfection, which, though it belongs to the works of nature in all classes of beings, yet is not to be found entire in any given object. Raphael, when he was painting his Galatea, said in a letter to his patron count Baldasfare Castiglione, "that not being able to find perfect beauty upon earth, he was obliged to have recourse to ideal excellence framed in his own mind." But Zeuxis took another method to produce the concurrence of perfections recognised in his Helen; viz. by felection and combining the various beauties of the most beauteous among the virgins of Agrigentum: thus surpassing the works of nature, with materials furnished by herself.

Beauty, it will be easily conceived, is not confined to one given line, or set of lines or colours, in uniform or in contact with each other. There is necessarily one general form of the male among men and animals, and one of the female; distinct in their character, and yet each having its appropriate degree of beauty: so there is also a distinction of form among different creatures of the same species. Apollo, Hercules, and a Gladiator, have each distinct qualities which must be maintained in their representatives, whilst grace and beauty are given to their forms and actions: and it would be as great an absurdity to soften each to the merely beautiful, and thus render them similar in form and character; as it is ignorance and gross to trust to that which is characteristic alone for a graceful and agreeable effect.

Though these, which we have specified, be the distinct separations between the grand and the beautiful styles in art, yet either may be rendered more perfect by the addition of the other; and when expression is superadded, then is exhibited the most perfect display of the power of art: and it is this union of the beautiful and characteristic with the grand, which connotes that mental and energetic application of the art of painting which elevates it above the mechanical arts, and entitles it to the highest pretensions, as it is addressed to the noblest faculties. This is that beau-ideal so much the theme of praise and exultation among the connoisseurs; so universally felt when exhibited, so little understood, and so often the foundation of the grossest follies and deceptions among both artists and amateurs. The former, pursuing the practice of it in theory, often become the dupes of their own imaginary fancies; the latter more often impose themselves upon the world as men of worth by the mere cant of its dictum, and are screened from discovery by the general want of information concerning the principles and proper objects of art.

In this happy combination of beauty and grandeur the Greeks still remain unrivalled, as far as relates to sculpture, and perhaps single figures in pictures, but we have very little ground for conjecture how far they were able to conduct the principle in extended compositions in painting. Among the moderns, perhaps Parmigianio in his latter and more perfect works, as his Moses and his Vision of St. Jerome, has effected more than any other painter this definable union: and most likely had he lived much longer the world would have seen the perfection of the art from his hands; more particularly if he had cultivated expression in the school of Raphael, as successfully as he had the other branches of the art in those of Correggio and M. Angelo. The name of Correggio, says Mr. Fuseli, 'is the synonyme of whatever is graceful and agreeable in painting;' to him we are principally indebted for chiaro-oscuro, and that luminous and harmonious tone of colour, which fascinates and delights the eye by its unity, blended with richnefs and variety. He may be regarded as the father of the beautiful in modern art, as M. Angelo is of the grand and sublime.

That kind of style which is termed natural is, as its name imports, a mere imitation of the common forms of nature, without that felection which we have pointed out as necessary to the higher styles of art. Of this we have many capital instances among the smaller antique bronzes of Fauns, Nymphs, &c. and in many of the works of Titian in his second manner. Most of the principal portrait painters have almost necessarily adopted it, though that branch of the art admits, when highly practised, of that felection of parts which constitutes the beautiful, and of being treated with dignity and even sublimity, as many of the works of Sir Joshua Reynolds, of Titian, and of Vandyke, sufficiently prove. In a lower degree, the Dutch and Flemifh masters have most successfully wrought in this style, as Jan. Steen, Oltade, Teniers, Rembrandt, Metz, Terburg, &c. and compensated for the want of higher qualities, by the perfection of their arrangements and execution, and the exactness of their imitations.

Of what is mean in style, it is hardly necessary to speak: examples of it may be found in all early effays; but in none more abundantly than among the works of the artifts of the German and Flemifh schools of the 16th century. Even in those of Albert Durer, mezzafins is a never-failing alloy; amidst all the brilliancy of imagination, and activity of mind, they display; deforming actions and expressions otherwise well worthy of eleeon, and extending through every part of the compositions, be it of figures, drapery, or background.

Of the four species of style above enumerated, all others are
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The salts of frontian require to be briefly noticed. They are in general more soluble than the salts of barytes, but less
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very analogous to the sulphate of barytes.

Phosphates of Frontian.—This salt is likewise tafteless,
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air.

*Acetate of Frontian.—This is soluble in little more than
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the air. It renders vegetable colours green.

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the grand in art, can only be acquired by those who have
made themselves well acquainted with the just proportions
and varieties of nature. Its aim being to represent her
works with the greatest degree of sublimity commixed with
truth, all attempts to produce it without real know-
ledge must necessarily lead to error, and a species of bombast,
instead of expression, yields only deformity. Of this, the
works of Gottzius, of Spranger, and the Germans who
followed them, are sufficient evidence. And yet such is
the rarity of perfection in form among the human or the
animal race of beings, that an artifical whole aim is to pro-
duce grandeur of style must draw largely upon his imagi-
nation; and while he touches the verge of impossibility, will
find that the difficulty he has to overcome is in uniting the
principle on which he depends with propriety. Even Michael
Angelo, great and glorious as he was among those who
have made it their principal object, has not unfrequently
allowed himself to be misled by the wish to aggrandize,
and given his contours only redundancy for style; and for
the sake of a flowing and varied line, has sometimes given forms
of action to muscles which ought to have been represented
tranquil.

Of this style, as far as relates to form, the belt among
the sculptures of the ancients afford the fairest examples,
particularly the torso of the Belvidere, the head of Jupiter,
the Laocoon, the Apollo, the figures on Monte Cavallo,
&c. &c.; and it is a striking feature in the works of Phi-
dias,
dias, though with a chastened impulse, as may be seen in the Elgin marbles. Indeed it appears to have been so perfectly underfoot among the artists of ancient Greece, that it spread generally in a greater or less degree through all their productions, at least in those of sculpture; and from the few remains of painting left to us, it appears not improbable that the preceptors of that art were no less masters of its principles. In latter times, among the moderns, the Florentine school made it their principal object of attention; and in the works of Leonardo da Vinci, Fra. Bartolomeo, and more particularly of Michael Angelo, it reached in quality nearly to a level with the taste of those from whom it was adopted. Raphael attempted it in imitation of M. Angelo, and sometimes succeeded, but it evidently was not congenial to his feeling, which inclined to the beautiful and graceful, more than to the sublime; and hence it is that his pictures of the Godhead rarely impres us with sentiments of an exalted nature.

The beautiful style differs from the grand, in that it requires less force of contrast in form and action, and greater softness of colour and effect. Whatever is graceful and animated, void of superficial parts, and yet essentially characteristic and pleasing in arrangement, combines to form the beautiful. Flowing lines, graceful contrasts, both in form and colour, softened lights and shades, and rich and harmonious colouring, are its principles: on them it depends, and every departure from them necessarily diminishes its quality. It is the fit medium for every subject whose character is adapted to afford pleasure.

As the grand style consists in an elevated view of nature, a conception of perfection almost super-human, built upon the possibilities of creative power, acting upon known and natural forms; so the beautiful also must be sought in the regions of imagination, guided by the knowledge of existing objects, and supported by feeling from the varieties of nature. Therefore, in order to comprehend the character of beauty as applied to art, we must consider the perfection of that art, not as consisting in mere imitation of visible objects, but as requiring a separation and choice of parts, an ideal perfection, which, though it belongs to the works of nature in all classes of beings, yet is not to be found entire in any given object. Raphael, when he was painting his Galatea, said in a letter to his patron count Baldassare Catiligione, “that not being able to find perfect beauty upon earth, he was obliged to have recourse to ideal excellence framed in his own mind.” But Zeuxis took another method to produce the constellation of perfectness recognized in his Helen; viz. by selecting and combining the various beauties of the most beautiful among the virgins of Agrigentum: thus furnishing the works of nature, with materials furnished by herself.

Beauty, it will be easily conceived, is not confined to one given line, or set of lines or colours, in union or in contact with each other. There is necessarily one general form of the male among men and animals, and one of the female; distinct in their character, and yet each having its appropriate degree of beauty: so there is also a distinction of form among different creatures of the same species. Apollo, Hercules, and a Gladiator, have each distinct qualities which must be maintained in their representatives, whilst grace and beauty are given to their forms and actions: and it would be as great an absurdity to soften each to the merely beautiful, and thus render them similar in form and character; as it is ignorant and gross to trull to that which is characteristic alone for a graceful and agreeable effect.

Though these, which we have specified, be the distinct separations between the grand and the beautiful styles in art,
are necessarily composed; but there have been some few remarkable aberrations from the ordinary course of art, by painters of uncommon talent, which bid defiance to all classification, and stand alone in their respective spheres. Such are those of Rubens and Rembrandt, of Titian and Salvator Rosa, compounds of all that elevates and degrades; in which the grand and the mean, the beautiful, the natural, and the deformed, go hand in hand; the evil counterpoised by the good, and the whole rendered engaging, in spite of defects, by the skilful display of the master hand which wielded the materials. Such examples, great though they are, ought not to serve as excuses for inattention to settled principles. Who shall say, that if Rubens had been more correct in form, his works would have been less engaging; or, that if Titian had been more pure and true in expression, his productions would not have been more interesting. (See the article Picture.) Combinations which will justify such expectations have been formed, and we have seen them in our own great Sir Joshua’s productions, where fine form, rich and full-toned colour, and jull chiaro-fofeuro, have been blended in skilful and free execution.


Eff. Ch. Pouche nearly globular, beaked with the avolished style; valves hemispherical, prickly; cells single-fed.

Colyedons folded together.


SUFFOLK, col. 6, l. 13, add—In 1811 Suffolk contained 37,227 houses, besides 155 then unperfified, and 234,211 persons; viz. 111,988 males, and 122,223 females: 26,406 families being employed in agriculture, and 15,180 in trade, manufactures, or handicraft.

SUGAR, Chemical Composition of. See Fermentation.

SUGAR-Loaf, in Geography, a township of Luzerne county, in Pennsylvania, having 282 inhabitants.

SULLIVAN, l. 26, inf.—including 43 slaves in 1810.

SULPHUR, in Chemistry. According to the most recent determinations, the weight of the atom of sulphur is 32, and of sulphuric acid 50; from which data the composition of the compounds of this substance can be accurately ascertained. See Atomic Theory.

SULPHUR Island, l. 8, add—The sulphur is collected by a few individuals resident on the island solely for that purpose; sent to the Great Loo-choo, and thence exported to Japan and China. N. lat. 27° 50'. E. long. 128° 11'. Ellis’s Journal of an Embassy to China. 1818.

SULPHURETTED CHLORIC Acid. See Cyanogen.

SULPHURIC Acid. It is stated in our article on this subject, that sulphuric acid cannot exist without water; and that the sulphuric acid prepared at Northaulen from green vitriol probably differs from common sulphuric acid by containing less water. The fact is, according to Dr. Thomson, that the latter, when most concentrated, contains no water whatsoever, and consequently a perfectly anhydrous sulphuric acid can exist.

SULPHURIZED MURIATIC Acid, in Chemistry. The fulblance described under this name in the Cyclopaedia is a chloride of sulphur. See Chlorine. See also the original article Sulphur.

SULTANABAD. For Tashisr r. Tushish.

SURABHI, col. 2, l. 44, for proscribe r. prescribe.

SURRY, in Virginia, l. 4, r. 6855.

SURYA, col. 5, l. 24, for drawn r. driven.

SUTURE, 1, 3 and 4, from bottom, r. thus—out number. As well as meritorious suffering for religion’s sake, suicide is in some cases legal, and even commendable.

SUTTON, a village and parish of Surry, in the second division of Wallington hundred, which in 1811 contained 121 houses, and 538 persons; viz. 310 males, and 328 females.

SWADHA, l. 5, for Galaka r. Golaka.

SWIMMING Bladders of Fish, Nature of the Air contained in. We may introduce here the curious experiments made by Biot on this subject. This gentleman and Mr. Laroche found in general a mixture of azote and oxygen, but no hydrogen or carbonic acid in the swimming bladders of fish; the air-bladders of those fishes living near the surface of the water containing little oxygen, and those of fish brought from a great depth the most. The following table exhibits the proportion of oxygen in 100 parts of the air in the different fish examined.

<table>
<thead>
<tr>
<th>Names of Fish</th>
<th>Proportion of Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mugil cephalus (Linn.)</td>
<td>Quantity insufficient</td>
</tr>
<tr>
<td>Ditto</td>
<td>-</td>
</tr>
<tr>
<td>Murunophis helena (Lacopea)</td>
<td>-</td>
</tr>
<tr>
<td>Sparus anularis (Linn.), female</td>
<td>-</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>-</td>
</tr>
<tr>
<td>Sparus fargus (Linn.), female</td>
<td>-</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>-</td>
</tr>
<tr>
<td>Holocentrus marinus (Lacopea)</td>
<td>-</td>
</tr>
<tr>
<td>Labrus turdis (Linn.)</td>
<td>-</td>
</tr>
<tr>
<td>Sparus melanurus (Linn.)</td>
<td>-</td>
</tr>
<tr>
<td>Labrus turdis (Var. Linn.)</td>
<td>-</td>
</tr>
<tr>
<td>Scicena nigra, female</td>
<td>-</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>-</td>
</tr>
<tr>
<td>Labrus turdis (Linn.), female</td>
<td>-</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>-</td>
</tr>
<tr>
<td>Sparus dentex (Linn.), female</td>
<td>-</td>
</tr>
<tr>
<td>Sphyrena ipet. (Lacopea)</td>
<td>-</td>
</tr>
<tr>
<td>Sparus argenteus</td>
<td>-</td>
</tr>
<tr>
<td>Sparus erythrinus</td>
<td>-</td>
</tr>
<tr>
<td>Holocentrus gigas</td>
<td>-</td>
</tr>
<tr>
<td>Gadus merluccius (Linn.)</td>
<td>-</td>
</tr>
<tr>
<td>Trigla lyra (Linn.)</td>
<td>-</td>
</tr>
</tbody>
</table>

The depth at which the fish in the preceding table are caught increases gradually, as well as the proportion of oxygen, from the beginning to the end of the table. The trigla lyra is always caught at a very great depth. M. Laroche found, that fishes taken at a depth greater than 150 feet, furnished at a mean about .70 oxygen, while the mean result furnished by the fish caught at less depths was only .29. The fame law holds with respect to fresh-water fish. M. Biot’s experiments were made near the Balearic islands.

SYCAMORE, in Geography, a township of Hamilton county, in Ohio, containing 1552 inhabitants.

SYMPATHY. See Mental Philosophy.
TAY

T. AY

TAIGAREE, for Tegerly r. Tegerhy.

TALBOT. Add—of whom 4878 were slaves in 1810.

TAMUL, the name of an Indian language, which is spokern in the tract extending to the south of the Telingsa, as far as Cape Comorin, and from the sea to the great range of hills, including the greater part of the Barhamakal and Salem, and the country now called Coimbatore, and formerly Kangiam, along which line it is bounded to the W. by the Canara and Malabar. In the northern part of Myfore, this language is, at this day, named the Kangea; in the central portion of Myfore it is named the Drauvader, and further N. the Arrace.

TAMWORTH, l. u. r. Strafford county.

TANACETUM, in Gardening, col. 2, l. 22, add—Dr. Withering says, that the Finlanders obtain a green dye from this plant.

TANK, a term used in India for a pool or reservoir.

TAO-TSE, a term which denominates one of the two religious sects in China; the other being distinguished by the appellation of Fo. The sect of Tao-tse is said to have been founded about 600 years before the Christian era by Lao-kun in the Tcheou dynasty, and have to be more philosophical than religious. In the Koong-foo, or poissures of the Tao-tse, and their supposed influences upon diseases, may be traced a practice somewhat analogous to animal magnetism. See Religion of China.

TAPAS. See Cassava and Jatropha.

TAPIoca. See Cassava and Jatropha.

TAPIoca, Chemical Properties of. See Cassava.

TARTARIC ACID, Chemical Composition of. This acid has been lately analyzed by Gay Lussac and Thenard, and also by Berzelius. The following are the results of these chemical.

Gay Lussac and Thenard. Berzelius.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>-5.629</td>
<td>-3.951</td>
</tr>
<tr>
<td>Carbon</td>
<td>-24.050</td>
<td>-36.167</td>
</tr>
<tr>
<td>Oxygen</td>
<td>-69.321</td>
<td>-59.882</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

TATE, in Geography, a township of Clermont county, in Ohio, having 969 inhabitants.

TATNALL. Add—The number of inhabitants in 1810 was 2266, of whom 542 were slaves.

TAUNTON, l. 3, add—in Bristol county, containing 3907 inhabitants.

TAYLOR, HENRY, l. 23, for rector r. vicar; for Rothberhite r. Reading l. 24, for four r. eight; for two r.

three. Col. 2. l. 9, for Difcorife r. Dialogue l 10, r. 1777.

TAZWELL, in Geography, a county of Virginia, containing 3907 inhabitants, of whom 328 were slaves in 1810.

TCHUKOTSKIA. Add—See Chukotskia.

TEGERHY, r. Taigaree.

TELESCOPE, p. 5, col. 1, l. 9, for Plate XXIV. r. Plate XXVIII. p. 20, col. 2, l. 27, for I E M r. I F M. P. 27, col. 1, l. 6, 8, 15, and 23, for 1.3827 r. 1.3827; l. 23, for 12.61 r. 12.1774. P. 39, col. 1, l. 15 from bottom, for convex r. concave, and let the whole sentence stand thus: viz. "To effect this improvement, the concave lens, with equal dispersive power to that of rock-crystal, must be at one side of the concave of flint, and the convex of crown glasses must be at the other side." P. 55, col. 1, l. 25, for 120 x 46' 120 x 46'; 68' - 49' 68' - 49'.

TELFAIR, in Geography, a county of Georgia, containing by the census of 1810, 744 persons, of whom 218 were slaves.

TELINGA, a name formerly called the Kalinga, and by the Europeans Gentoo, an Indian language occupying the space to the E. of the Mahatta, near Ciacaco, its northern, to within a few miles of Pulicat, its southerm boundary, with the intervention of a stripe of small dimension. This space was divided into the Andra and Kalinga countries; the former S., the latter N. of the river. At the period of the Mahometan conquest, the southerm part of these united provinces seems to have been known to that people by the name of Telingana, and Warrakul is the capital of the whole.

TELLURIUM, in Chemistry. Add—This metal has the property of combining with hydrogen, forming a gaseous compound, to which the name of telluriumed hydrogen gas has been given. This compound was discovered by Sir H. Davy, and its properties were afterwards investigated by Berzelius.

Telluriumed hydrogen may be formed by mixing together oxyd of tellurium, potash, and charcoal, and exposing the mixture to the action of a red heat. It is then put into a retort, diluted sulphuric acid is poured on it, and the head of the retort is plunged into a mercurial trough. A gas comes over, which may be collected in glass jars previously filled with mercury. This gas is transparent and colourless, and possessesthe mechanical properties of common air. It has a strong peculiar smell, something like sulphurised hydrogen. It burns with a blueish flame, and oxyd of tellurium is deposited. It is soluble in water, and gives that liquid a claret colour. Davy was not able to determine whether it reddens vegetable blues, but in other respects it is
T E H

poffesses the properties of an acid, combining with alkalies, and precipitating most metallic solutions like sulphuretted hydrogen. Chlorine gas immediately decomposes it. The other properties of this gas have not been satisfactorily examined. From the experiments of Ritter, there appears to be a solid compound of tellurium and hydrogen.

Tellurium seems also to have the property of combining with carbon.

TEMPATION, col. 2, l. 28, r. eminence.

TERRITORY, Missouri, col. 2, l. 5 add—It was first discovered by Sebastian Cabot in 1499, and in 1512 visited by John Pontio de Leon, a Spaniard, who endeavoured to form a settlement. In 1684 M. de la Sella, a Frenchman, discovered the mouth of the Mississippi, and built Fort Louis; but being assassinated, it was again abandoned. In the year 1698, captain Ibberville failed to the Mississippi, formed a settlement, and named the country Louisiana. About twenty-two years afterwards, M. de la Suire also failed up the Mississippi, and proceeded to the distance of 2280 miles from its mouth. In 1762 France ceded it to Spain; in 1800-1801 Spain ceded it back to France; and by a treaty of April 30th, 1803, the French government sold it to the United States for the sum of fifteen millions of dollars, payable in fifteen years at the rate of one million annually. Bradford's Travels, p. 214.

TEST Acc, col. 10, l. 4, for office r. offence.

TEUTATES. Add—See Druids.

TEUTHIS, Hypathis, l. penus, r. Tang.

TEWKESBURY, in Geography, a town of Huntingdon county, in New Jersey, containing 1308 persons, of whom 66 were slaves in 1846.

THEOPHILANTHROPISTS, a sect which sprung up, flourished, and became extinct in France during the period of the Revolution. It has been said, that the "temple of nature," opened in Margaret-Street, London, in 1776, by the late deceased David Williams, an active member, if not the founder of the society for the relief of decayed and indigent authors, for worship on Deistical principles, sung by the unbelievers of France, the idea of a ritual and liturgy of deism, which was first carried into execution in the year 1796. The resemblance of the principles of some members of the sect to those of Robespierre, and of its ceremonies to the worship of the goddes of Reason, has led some persons to represent the Theophilanthropists as partisans of the tyrant, and their meetings as Jacobinical clubs; but the abbe Gregoire (ubi infra) has laboured to vindicate them as a body from this charge. The first person who planned the celebration of the rites of natural religion appears to have been D'Aubermnil, a romantic enthusiast, who wished to revive a part of the doctrines of the ancient Magi. In his work intituled "Culte des Adorateurs," which is a rhetoric, a liturgy, and a treatise of morals, eight days are appointed for labour, and the ninth for rest; but the temples were to be constantly open, and the sacred fire kept burning in them with the most religious care. The priests, whose costume was prescribed, were to offer to the Deity grain and fruits of different kinds, salt and oil, and, turning to the four cardinal points, to pour libations and make apotheoses to the elements. The twelve signs of the zodiac were to be painted on the walls of the temple, (or asylum, as it was denominated,) and under each thirty butterflies, to represent the number and shortness of our days. Sacred dances were to be performed at different periods; the elderly men leading off with the matrons, the young men and the virgins following. At funerals a libation was to be poured out to the manes of the deceased, and the eldest of his relations was to throw water on the fire, addressing the element in a prepared formula. D'Aubermnil proposed to denominate his followers "Theoanthropophiles," which appellation was afterwards changed to "Theophilanthropes." As the churches had all become national property, the Theophilanthropists applied to the civil authorities for the use of them jointly with the Catholics; and their request was granted, on condition that each party should remove the emblems and decorations of its own worship, while that of the other was performed. We shall not detain our readers with describing their ritual, the dregs of their orators, or the circumstances attending their worship, and their marriage-festivals, nor shall we detail their moral leissons, or give specimens of their hymns and sacred poetry. This sect did not subsist for a long time; the zeal of its partisans began to decline in the provinces; and it appears, from the registers of a society at Bourges, that their first meeting was held in the cathedral, Feb. 29, 1798; and that on the 18th of Augst, 1800, their number being reduced to seven or eight, they dispersed, and the Theophilanthropic church of Bourges became extinct two years and a half after its first formation. In about five years, the whole sect had quietly disappeared; the last trace of it being that Chemin, who wrote a work defending their principles, made use of their manual as a school-book in a seminary at Paris, where he taught Latin. See Abbe Gregoire's Histoire des Sectes Religieuses, &c. 2 vols. 8vo. Paris.

THOMPSON'S Pond, and Shaker Settlement, in Geography, a township of America, in the district of Maine, and county of Cumberland, having 191 inhabitants.

THORINA, in Chemistry. The name of an earth recently discovered in Sweden by Berzelius.

This celebrated chemist first detected thorina in the Gadalinic of Koravec, and afterwards in the dehydrates of cerium, and the double fluoride of cerium and yttria, both minerals found at Falun.

Thorina may be obtained from the minerals containing protoxyd of cerium and yttria in the following manner. Precipitate the iron by means of the succinate of ammonia. Thorina when alone is precipitated by this salt, but this is not the case when it is mixed with the other bodies that exist in the fluorides of cerium and yttria. After the iron is removed, precipitate the cerium by means of sulphate of potash. Ammonia now precipitates the thorina mixed with yttria. Dissolve them in muriatic acid. Evaporate the solution to dryness, and pour boiling water on the residue, which will dissolve the greatest part of the yttria, but not the whole. Redissolve the residue in muriatic or nitric acid, and evaporate till it becomes as exactly neutral as possible. Then pour water upon it, and boil it for an instant, the thorina precipitates, and the solution contains a diffigerated acid. If we saturate this acid, and boil it a second time, an additional portion of thorina is precipitated.

Thorina when separated by the filter has the appearance of a gelatinous semi-transparent mass. When washed and dried it becomes white, absorbs carbonic acid, and diffuses with effervescence in acids. Though calcined it retains its white colour. After a violent heat it is difficultly soluble in muriatic acid. The solutions in this acid are yellowish, but become colourless when diluted.

The neutral solutions of thorina have a purely astringent taste, which is neither bitter, sweet, salin, nor metallic; a property in which it agrees with zirconia, and differs from all other earths.

Thorina is little soluble in the alkalies or alkaline earths. It
It has not yet been reduced to the metallic state. It is insubfible per se before the blow-pipe, but with borax it melts into a transparent glafs. It differs from alunina by its infusibility in hydrate of potash; from yttria by its purely aftragent tafke without sweetnefs; and by the property of its solutions polfles of being precipitated by boiling, when they do not contain too great an excefs of acid. It differs from zirconia by the following properties: 1. After being heated to redness, it is still capable of being divided in acids.

2. Sulphate of potash does not precipitate it from its folutions, while it precipitates zirconia from a solution containing even a confiderable excefs of acid. 3. It is precipitated by oxalate of feric acid whifh is too acid with zirconia.

Sulphate of thorina cryftrallizes readily, while sulphate of zirconia, fuppofing it free from alkali, forms when dried a gelatinous transparent mass, without any tendency to cryftrallization.

Thorina combines with the different acids. The sulphate of thorina is fubtle, and yields transparent crysfs, which are not altered by expofure to the air, and which have a flippy tafte.

The nitrate and muriate of thorina do not cryftrallize. The carbonate of thorina is very readily formed, the earth having a very great affinity for this acid. None of the other farts of thorina known appear to be capable of cryftrallization.

THORN, in Geography, a township of Fairfield, in Ohio, having 437 inhabitants.

THORNBURY, a township of Chester county, in Pennsylvania, having 200 inhabitants.

THORNTON, a town of Grafton county, in New Hampshire, containing 704 inhabitants.

THRIPS, col. 2, under VARIEGATA, l. 13, add.—The Thrips phyfapus has been fuppofed to do much injury to wheat, rye, &c. by causing the young flowers to decay, and thus preventing the growth of the embryo grain. Some, however, have diſputed this opinion, conterminating that the thrifs does not attack itself to fuch of the cerealia as are in a perfectly healthy state, but rather to fuch as are difeafed, by having the germina covered with the duft of a very minute fungus, often growing on wheat, &c. and belonging to the genus Acidum or Lycoperdon, and which appears in the form of a flatfh, smooth, irregular exudation of a yellow colour in various parts of the plant. (See on this Subjeft, vols. iii. iv. v. of the Transations of the Linnaean Society.) The ingenious Mr. Kirby, however, feems convinced, that the thrifs is in reality an infect highly injurious to corn, by deriving its nourifhment from the embryo grain. Shaw's Zool. vol. vi.

TIC DOLEUREUX, in Medicine, an extremely painfule difeafe of the nerves of the face, communely, if not ex- clusively, affecting fome branch of the fifth pair of nerves, and most frequently the infra-orbital branch, where it paffes through the foramen, so named in the check.

The complaint commences with flight and almofl imperceptible attacks of pain, and generally without any warning; though fome patients feel in the affected part peculiar and inexplicable fentiations preceding its approach, from which they announce with horror the coming enemy; the patient at the fame time enjoying a good or an indifferent fate of health. The pain, however, soon becomes moft acute, shooting and darting along the various ramifications of the affected nerves. It generally continues from a quarter to half a minute, and never exceeds the fpace of one minute. It returns at intervals more or lefs frequent; there being fometimes feveral paroxysms in a few minutes, and at other times there are intervals of from fifteen to thirty minutes, or longer. There is no determinate period; we always find the utmost irregularity even in the fame patient.

The pains vary in their degree of intensity, at one time exciting the moft piercing cries, and diftacted writhings and motions in the miserable patient; while at another, they are more bearable. When at the acme of their violence, the parts affected are often convuluted, and fometimes various contortions and grimaces are observable. Thife are to be distinguished from the convulsive twitchings of the muscles, with which the diseafed nerves communicate, and which are occafioned by irritation from the exceflive pain; while the contortions and grimaces are voluntary, being called by the patient's writhing and twifling from the agony of his torture, and may be prevented by a firm refolution to reft the impule of shrinking from the attack.

The pain does not always confine itself to the feat of the difeafe, but darts with the rapidity of lightning to the neighbouring parts, shooting in different directions like radii from a centre. It rarely gives warning of its approach, and often the first fign of an attack, is the patient's staring up in a flate little short of phrenzy. In this condition, fome patients beat the part with violence, or forcibly rub it with fome rough fubftance till excoriation takes place; and in fome instances, they have fucceeded in diminifhing the intensity of the pain.

The pains are more frequent during the day than in the night, probably from there being fewer caufes of irritation; and they are more frequent during converfation than in fience, and flill more fo, at the time of malinfinition, when the attacks often fuccefs each other with fuch rapidity as to appear like one continued paroxysm, with fearfully one interval of ceffation. The eye at times is red, inflamed, and watery, as we sometimes obferve in feveretooth-ach.

In other cafes, it is particularly dry, and in fome patients a copious flow of saliva succeeds a paroxysm. In general, only one fide of the face is affected with this dreadful malady. But as there are cafes recorded in which both fides suffered at the fame time, we cannot lay it down as a certain characterifte of the difeafe. Fouquet obferved at Montpellier two women who had both cheeks affected at the fame time; and Pujol knew a lady, who, for feveral months, had the pain in one cheek, which after a while was free from pain; but the other cheek was immediately attacked in the correffponding place, the pain continuing for two months, and then refuming its former position.

When the difeafe continues for a great length of time with increasing violence, the patient can neither obtain reft by night nor by day. His appetite fails; and, as may be expected, there is some degree of fevernefs. But this rarely happens, and only in cafes of the utmost feriety. The complaint ufually terminates without any apparent caufe, leaving the patient for a time to enjoy the comforts of life. But whoever has had one attack may with conliderable certainty anticipate another; and though he is to-day well, and free from all pain, to-morrow's day may uher in a renewal of his torment. So varied is the duration of this affecion, and fo limited is our knowledge of it, that we can affign no determinate or even probable period for its continuance; and unless a cure is effected it returns at intervals more or lefs frequent, and with increased violence, till the great final catastrophe, which, however, it does not seem to accelerate. For though Dr. Banfch is faid to have died of it, we can place little reliance on the report, and fubfquent cafes and obfervations do not corroborate such a fuppofition.

Hartenkeil,
TIC DOULEUREUX.

Hartenkell, Hildebrand, and Baldinger, and some other
Germans, relate cases of what they call tic douleureux; and
which, though in some particulars, they resemble that
affection, in others differ most materially. The first of
these writers describes it as having been very prevalent at
Saltzburg. But the pain was periodical, recurring gen-
erally once in twenty-four hours; and sometimes, though
rarely, once in twelve hours; often remaining for several
hours at a time, and then suddenly departing. These
causes of the disease seem to be a certain period of life, when the
functions are impaired, and the whole corporal
frame to feel the first signs of approaching decay. We
rarely find it commence before the fiftieth year, though
two or three cases of an earlier date are recorded. Women
do not seem to be more liable to the complaint than men;
though Dr. Fothergill, having a great proportion of female
patients, imagined they were more predisposed to it; as
likewise did Pujol, from their greater sensibility. The
latter author (in his Essay, p. 14.) says, "we generally
observe in such people as are subject to tic douleureux an
excess of mobility, which renders them more or less dif-
posed to hysterical and hypochondriacal affections.
Experience, however, teaches us, that people very far removed
from excess of sensibility are equally liable to the disease;
that women are not more liable to it than men; and that
the predisposing period of life is that when the sensibility
or mobility of fibre is most defective.

The exciting causes are, cold applied to the face in a
stream, whether of air or water; particularly when the
patient is fatigued by previous exhaustion. Exposure
to a stormy, damp, moist, and tempestuous
weather, frequently excites an attack; also external injuries,
as blows or contusions on the face. Pains of the
mind, as excess of anger or of grief.

The disease being once established in the styptom, the
lightest causes in some individuals will bring on a paroxysm;
such as eating, drinking, and talking, or indeed any motion
of the facial muscles, or the gentlest touch with a hand-
kercbief, or any other sub stance to the nose, lips, cheek, &c.
of the affected side. Shaving is an operation most particu-
larly flinmed and dreaded by the unhappy patient; and
often cannot be endured till after a considerable interval of
time. Blowing the nose is absolutely impracticable; or, if
attempted, a most pungent and disfiguring torture attends
the performance. M. André, in a work entitled "Observa-
tionees sur les Maladies de l'U'rite," mentions a very
oblit rate case of tic douleureux, which he attempted to
cure by destroying the nerve that he supposed to be the
seat of the disease. He began by laying it bare, and was
sufficiently to find, that every time he touched the denuded
nerve, he immediately excited symptoms of the disorder;
the paroxysm ceasing in the usual time, and recurring when-
ever the nerve was touched. This fact is very clear and
decisive as to the part affected by the disease, and hence
we readily perceive, why the least touch or motion on the
surface of the skin produces a paroxysm.

When the pain has continued with frequent accidents for
a length of time, a most distressing eczema is sometimes
witnessed. The patient, whose health at the time is
generally good, after defiling from eating and drinking,
till the keenest of his appetite, and the intensity of his
thirst, are too irrefrangible urgent to be longer unrelieved,
attacks whatever food is placed before him with maniac
fury and hurried precipitancy; his countenance suffused
with crimson, and convulsed and contorted with pain.
This horrid conflict does not last long; he soon throws
down his knife and fork with desperate violence, obliged to
folicit a cessation of pain by a flate of inaction.

Treatment of Tic Douleureux.—Of the inefficacy of most
medicines in the cure of this cruel disease, we have
abundant and melancholy proof. Those which have been
found to procure ease are, opium, cica, zinc, frimonium,
belladonna, argentinum nitrum, and arsenic. But the
influences in which a cure was effected by their use are very
rare; indeed some practitioners, from painful experience,
deny their efficacy. All manner of topical applications, from
blistering to the smocking entails torn
from living pigeons, have been in vain applied, and baths
and bleeding of all sorts.

M. Watton, professor of chemistry in the central school
of Vaucluse, relates two cases of tic douleureux arising
from venereal causes. The first was of an officer in the
French army, aged thirty; the other that of a lady, aged
forty. They were both completely cured by a course of
mercury. These cases, in some respects, differed from the
tic douleureux, but had its most disquieting character-
tistic darting pains in the direction of the nerves.
We learn nothing more from them, however, than that
the symptoms of the tic douleureux are excited by
the existence of a venereal taint in the habit, then
will depart when that taint is overcome by the action of mercury; but
it is found from experience, that in ordinary cases, the
symptoms are not in the least relieved by the use of mercury.
Recourse has next been had to electricity, to magnetism,
to actual cantery, and finally, to the section of the affected
nerves. Electricity sometimes procures temporary ease,
but as frequently increases the pain; though Mr. Blunts
in the Medical Journal, relates the case of a lady afflicted
with tic douleureux being cured by electricity. The
pain was chiefly seated in the right temple, and the symptoms
are so well described as not to be disputed. She was
electricised twice in the day for several minutes each time;
first with fsparks, then with shocks, after having previously
endured a long and ineffectual course of powerful medi-
cines. Immediately after the second application of electricity
she ventured to eat, and performed that necessary
operation without any inconvenience. The pains after-
wards recurred very slightly; the electricity was con-
tinued, and in the course of a short time, the became
entirely free from the complaint. The decided success of
this, though a solitary case, in such a dreadful disease,
authorises us to hope, that future trials may be made of
the application of electricity, which under the direction
of an able practitioner is often a very powerful instrument in the
cure of disease, and much oftener fails from want of care and
affinity in the application, than from inefficiency in itself as
an agent.

The mode of destroying the affected part of the nerves by
caulis has been adopted by some practitioners, and failed
to be attended with success. But, till more experience has
better established the utility of such a cruel operation, we
cannot recommend its use; it has not been had recourse to
in this country; and some cases are related in which it did
not succeed, and others in which deformity of the face was
the consequence. M. André, however, has tried it, and
recommends its general use. In his work will be found
an account of the method of operating.
The fection of the affected nerve was thought of and tried many years ago in the cure of this disease; and of late years, from a temporary success, some practitioners have confidently asserted, that the cure was effectual and radical; but more recent experience has destroyed the validity of such assertions.

So long back as the year 1786, Veillard published a thesis, in which he decided this question in the negative. "Utrum in pertinacius capitis, facieiisque doloribus, aliquid prodeel poife sectio ramorum nervi quiunti paris?" Now it is not likely, that he should have treated this important question superficially, but that he would rather collect all the information that at that time could be obtained upon the subject. He mentions two cases where the disease returned after the division of the nerves; and others, in which bad consequences ensued after the operation. Marechal, about the middle of last century, operated twice without success. Pujol was so convinced of its uncertainty, that he would not venture upon it. He has seen the muscles paralyzed, and the face distorted in consequence of the operation. Sabatier relates, that Ritah, surgeon to the king of Poland, performed the operation with success; but the patient, after being free from the complaint for some time, was again attacked with his former pains.

Modern practice seems also to confirm our scepticism in the permanent success of dividing the nerves. We see that what was at first hoped to be the most decisive cafe in its favour, the operation performed, and the account of it ably recorded by Dr. Haighton, is now not to be relied upon. Mr. A. P. Cooper has frequently performed the operation with similar present success, but only what permanency time only can determine.

There is a cafe related by Darwin, in the Zoönomia, of a gentleman who first had the second branch of the fifth pair of nerves divided; then the first branch; and thirdly, the remaining third branch. But the patient was not yet relieved. He then had several incisions made across the side of the nose, and offa nasi, through the malleus muscle to the jaw-bone, through the parotid gland. And last, some more twigs from the second branch of the fifth pair, passing into the cheek, and lying between the pterygoideus internus muscle, and the upper part of the lower jaw. These operations were performed by Mr. Cruikshank and Mr. Thomas. The patient, it seems, at length escaped alive and cured. De Haen has divided the suborbital nerve, as have also Morcau and Guerin, without any bad consequences. For the best method of operating, see Dr. Haighton's paper in the medical records.

It appears then, that as yet we know of no certain and radical cure for this painful affection. The section of the nerves promises the fairest; but when it is had recourse to, the patient should be warned of the possibility of the complaint returning, and not amused with the certainty of its being completely cured. Admitting, however, that the disease may return in the course of a few years, the operation is so simple, it is attended with little inconvenience or danger, and the relief in general so complete and instantaneous, that there can be little hesitation on the part of the practitioner in recommending its being performed, when the least of the disease is accurately ascertained.

Lentin declares, he has had the misfortune to treat, in the course of twenty-seven years, fourteen patients attacked with this painful malady, without radically curing one; and calls upon all practitioners to make public any means they may have found to succeed, either in performing a complete cure, or even a partial relief of the symptoms. The only remedies from which he experienced any good effects, were the tincture of thornapple, Datura Stramonium Lin-zei, and the sulphureous baths of Meunendorf.

A French writer relates a method of taking nutriment for those patients who feel an appetite, but dare not indulge in it, on account of the extreme pain; and that is, to fiuck through a small tube, as a quill, reed, &c. foup, broth, milk, or any nourishing fluid, so gently as not to excite any pain.

TILE-ORE. See Copper, and Mineralogy, Addenda.

TIN, CRYSTALLIZED, a kind of manufacture said to have been accidentally discovered in France by M. Baget, called metallic watering, or mairé métallique. It depends upon the action of acids, either pure or mixed together, and in different degrees of dilution, on alloys of tin. The variety of dents and refemblies mother-of-pearl, and reflects the light in the form of clouds. The procés is this:—First, diffuse four ounces of muriate of fods in eight ounces of water, and add two ounces of nitric acid. Second mixture; eight ounces of water, two ounces of nitric acid, and three ounces of muriatic acid. Third mixture; eight ounces of water, two ounces of muriatic acid, and one ounce of sulphuric acid. One of these mixtures is to be poured warm upon a sheet of tinned iron, placed upon a vessel of flone ware: it is to be pour'd in separate portions, until the sheet is completely watered; it is then to be plunged into water, slightly acidaed, and washed. The watering obtained by the action of these different mixtures upon tinned iron, imitates very closely mother-of-pearl and its refenions; but the designs, although varied, are quite accidental. By heating the tinned iron to different degrees of heat, itars, fern-leaves, and other figures, are produced; and by pouring one of the above mixtures, cold, upon a plate of tinned iron, at a red heat, a beautiful granular appearance is obtained. The metallic waterings will bear the blow of a mallet, but not of a hammer; hence the invention may be used for embossed patterns, but not for those which are punched. Different colours and shades may be given by varnishes, which, when properly polished, will set off the beauty of the watering.

When the tin is upon copper, the crystallization appears in the form of radiations or itars. M. Lewis Felix Vallet obtained a patent for an invention of this kind, upon delivering the following specification, Feb. 5th, 1813. The procés of giving the new ornamental surface on metals or metallic compositions, consists in employing those acids and saline compounds and subfances which chemically act upon tin, and which, when employed in the manner to be stated presently, give to the metals or metallic compositions to which they are applied the appearance of a crystalline surface variously modified. To produce this effect, the metal or metallic composition ought to be previously tinned, or covered with a thin coat of tin. If the metal be pure tin, it requires no previous preparation. All greases remaining on the tinmed surface in consequence of tinning is to be taken off with a solution of potash, soap, or any other alkaline subfances. The tin or tinned surfaces should then be washed with pure water, dried, and heated to a temperature which the hand can bear. When the surface has thus been cleaned and heated, any of the acids which act upon tin, or the vapours of those acids will cause the desired appearance of crystallization; but I give the preference to the following composition, which may conveniently be laid over with a brush or a sponge.

Take one part by measure of sulphuric acid, dilute it with five
five parts of water; take also one part of nitric acid, and
dilute it with an equal bulk of water, and keep each of the
mixtures separate. Then take ten parts of the sulphuric
acid diluted in the manner before directed, and mix it with
one part of the diluted nitric acid, and then apply this
mixed acid to the tin, or to the tin plate surface with a
pencil or sponge, as above directed, and repeat the applica-
tion of the said composition for several times successively,
or until the refult you expect proves satisfactory. When
this has been done, the crystaline surface may be covered
with a varnish or japan more or less transparent or colour-
less, or coloured, and lastly polished in the usual manner.
Mr. Shaw, of Brunswick-square, purchased this patent,
and tin-plates were made under its protection, at the manu-
factory of Mr. Burwell, at Battersea. But the process
being generally known among chemists, the manufacture
decayed, and the patent, for which a considerable sum was
paid, became of little value.

TIN-PLATES. Add—The manufactory for tinning iron-
plates was established at Pontypool by Mr. John Han-
bury, where he resided until his death in 1734; and the
invention of the art has by some persons been erroneously
ascribed to him. His monument may be seen in Trevelli
church.

TIOGA, in New York. Add—By the census of 1810,
the number of its inhabitants was 7899, including 61 slaves.

TIOGA, a county of Pennsylvania, including two town-
ships, and 1857 inhabitants.—Allo, a township of the said
county, having 803, the other Dalmore, having 884 inhab-
abitants.

TISBURG, including the Elizabeth islands, in Duke's
county, Massachusetts, contains 1202 inhabitants.

TITAN, in mineralogy.

TITICACA. Add—See Cusco.

TOBACCO, l. 3, for 1560 r. 1784. See Drake.

TOBACO, a township of Cumberland county, in
Pennsylvania, having 7599 inhabitants.

TOBY. Add—Allo, a township of Armflrong county,
in Pennsylvania, having 611 inhabitants.

TOLERATION, l. 18, add—The late abbé Gregoire,
in his " Histoire des Séces Religieuses, &c." observes, that
" we must not confound civil and religious toleration. The
latter supposes that truth and error are indifferent; which
truth can never be, for it is only one; and this being the
caste religious toleration would be an affront to God, who
is truth itself. Civil toleration is that which grants to
every one the power of publicly exercising the mode of
worship to which he is attached—an inalienable right of
every member of society, and which, incorrectly denomi-
nated toleration, ought to be called liberty of worship. It
has been already observed, and cannot be too often re-
peted, that the only authority which the civil magistrate
possesses over religious associations is to see that they neither
uffer molestation nor molest one another." Col. 6, l. 113,
add—and extended to Ireland by 57 Geo. III. c. 70.

TOLLAND. Add—Allo, a town of Massachusetts,
in the county of Hampton, having 798 inhabitants.

TOOLAVA, an Indian language, which extends from
Nilifuram to Scodahaor, S. of Goa.—Allo, the name of
a country considered as a subdivision of Kérela, which
extended from Coouro, round Cape Comorin, to the river
Tumbapura in Tinnaverry.

TOOME, a river of Hindooistan, which is a
southern branch of the Kistvaen; which fee.

TOPASSE, an Indian denomination of native black
Christians, the remains of the ancient Portuguese.

TOPHANIA, or TOFFANIA, the name of a woman
who resided at Palermo, and afterwards at Naples, and
who rendered herself infamous by preparing and adminis-
tering poison. She sold these drops, which from her ac-
quired the name of Aqua Tophania, Aqua della Tofana. It
was called also Acqueta di Napoli, or only Acqueta; but
she distributed her preparation, by way of charity, to
fugitive wives as wished to have other husbands. From four to
fix drops were sufficient to destroy a man; and it has been
asserted, that the dose could be so proportioned as to
operate in a certain time. As she was watched by the
government, she fled to an ecclesiastical asylum; and when
Keslyer was at Naples in 1730, she was then living; her
life being secure under that protection. It was her prac-
tice to distribute her poison in small glass phials, upon
which was this inscription, " Manna of St. Nicholas of
Baris," and ornamented with the image of that saint, whose
reputation prevented its being particularly examined by the
custom-house officers. About the year 1709, Tophania
fled from one convent to another; but she was at length
feized and thrown into prison. Her imprisonment, as she
was under ecclesiastical protection, excited the indignation
of the clergy, who endeavoured to raise an insurrection
among the people; but they were appeased upon Topha-
ния's confession, that she had poisoned all the springs in
the city. Upon the rack she acknowledged her wickedness;
her protectors fled, and she was strangled; and in order
to infligate the archbishop, her body was thrown down, at night,
into the area of the convent from which it was taken. Her
abstinent did not die with her; but her poison was secretly
prepared and administered at Naples after her death. It
was afterwards presumed, from the effects of her poison,
that it was a preparation of arsenic. Keslyer. Beckmann,
Hist. Invent. vol. i.

TORPEDO, a kind of destructive machine, invented
by Mr. Fulton, to whom we owe the construction of the much
more useful naval machine, viz. the fleet-boat. Add—This
submarine mine, however it may give celebrity to the
ingenuity of the inventor, will, we truill, for the sake of humanity
and the honour of naval conflicts, never be adopted in any
civilized nation.

TERROR, or TOUBE, a river of the south of France,
in the department of Gex, with its source in the Alps. Add—It
was a boundary of Savoy and the Duchy of Burgundy, and
passed into the county of Savoy, and afterwards into the
province of Dauphiny, where it is joined by the Arve.

TORRES VEDRAS. Add—This ancient town lies
about seven leagues from Lisbon, and is situated in a small
plain, about three leagues from the sea, on the river Zigan-
dra. It owes its name to the circumstance of there being
the ruins of many old towers in its neighbourhood. The
principal one, or castle, has been repaired, and serves as a
point of defence to the works thrown up at this important
pale, which covers two great roads leading to Lisbon from
this point, one by Mafra, the other by Eunzarra dos Cas-
valeiros. Although this may be a sufficient description of it
in a geographical point of view, we do not think it should
be omitted to be here stated, that the celebrated position
occupied by the duke of Wellington to cover Lisbon in the
fall of the year 1810, took its name from this town, which
formed one of the principal points of the line of defence,
which was carried across from the Tagus to the sea, pre-
fenting a contour of about forty miles, of such an imposing
nature as to render unavailing all the efforts of an almost
overwhelming French army, under one of their most dif-
tinguished marshals, to expel the Anglo-Portuguese from

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the Peninsula. This line of defence (with another about five miles in its rear), stretched from the Tagus at Alhendra to the sea where the Zigranda falls into it, being a direct line of about twenty-six miles. The whole of this most extensive, varied, and gigantic position, was beleaguered and formed under the duke of Wellington's direction, with the most unwavering exertion by those able and scientific engineers the late Sir Richard Fletcher and colonel Chapman, and with the retreat of the French from before it, may be said to have commenced the series of achievements which finally ended in the triumphs of the British army in the heart of France.

TORKINGTON, l. 1, after Connecticut, add— in the county of Litchfield, containing 1586 inhabitants.

TORSK. See GADUS BROCHNE.

TORTURE. At the close, add—Torture was abolished in Sweden by order of the king in 1786; in Poland, in 1776; in France by edict, Aug. 16, 1780; in Spain, Aug. 1814; and in Austria, in 1776.

TOURACOC. See CUCULUS and OPÆTIUS.

TOWIACHES, 1. i., infert.— (see Panis); l. 5., after towns, add—N. lat. 39° 20'; W. long. 97°.

TOWNSEND, l. 1, add—in the county of Middlesex, containing 1246 inhabitants.

TOWNSHIP, Upper, Middle, and Lower, three townships of Capemay county, in New Jersey; the first having 1652, the second 1106, and the third 852 inhabitants.

TRACHYMENE, in Botany, from τραχύς, rough, and μένη, (as we presume,) a membrane, alluding to the roughness of the covering of the seeds.—Rudge Tr. of Linn. Soc. v. 10. 300.—Cliffs and order, Pentandria Dignas. Nat. Ord. Umbelliferae.


1. T. inefia. Smooth Trachymene, or Botany-bay Carrot. Rudge as above, t. 21. f. 2.—Stem nearly naked, smooth. Umbels terminal.—Sent, many years since, under the above English name, from Port Jackson, by Dr. White. We have heard that the root is eatable, and like a carrot. The herb is smooth, two or three feet high. Stem round, slender, alternately branch, each of the long, terminal, naked, simple branches bearing a few, simple umbel, scarcely an inch broad, of numerous, white or reddish, uniform, equal flowers. Leaves of the involucrum awl-shaped, shorter than the umbel, combined at the base. Fruit somewhat heart-shaped, broader than long, mucratic all over, when quite ripe, with crowded, blunt tubercles. One seed is often abortive. The leaves are chiefly radical, flaked, smooth,坚ate, with wedge-shaped, three-cleft, notched segments. See Fischera.

2. T. pilosa. Hairy Trachymene.—Stem leafy, hairy, as well as the leaves; and foot-tulks. Umbels laterad.—Gathered by Mr. Menzies, in King George's Sound, on the west coast of New Holland. Whole herb rough with short shaggy hairs. Umbels on stout flaks, from the forks or sides of the stem. Tubercles of the fruit acute, bristle-pointed. See Fischera.

TRAETH COCH, for REDWAPHE or REDWATA.

TRELLECH, or TRELLICK. Add—In 1811 the town contained 23 houses, and 121 persons; viz. 58 males, and 63 females. The parish of this name, in the upper division of Ragland hundred, consists of the parish contained, the town division, and the Grange division: the former contained 191 houses, and 568 persons; 275 being males, and 293 females; and the latter included 20 houses, and 134 persons; 74 being males, and 60 females.

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TRENTON, l. 6, r. 3000.

TREVETHIN, a populous parish of the county of Monmouth, in the upper division of Abergavenny hundred, which, including Pont-y-Pool, contained, in 1811, 466 houses, and 2423 persons; viz. 1211 males, and 1212 females: 123 families being employed in agriculture, and 280 in trade, manufactures, or handicraft.

TRICHECUS—ROSMARUS, r. Jonbione.

TRIDACTYIUS, a species of Bradypus; which see. See also Sloath.

TSCHUTSKI. See Chukstskia.

TURCOMANIA. Add—See Armenians.

TURNER, l. 2, add—and county of Oxford, having 1179 inhabitants.

TURNSTILE, in Fortification, a kind of barrier, which consists of two or three pieces of timber, formed crossways, and making four or six rays like the spokes of a wheel; the frame is put on a post in the middle of a passage to turn horizontally, so that two of its rays always stretch across the passage, and prevent more than one person at a time from passing the same way.

TUSKARAWA, r. Tuskarawa.

TWEDDELL, JOHN, in Biography, an accomplished scholar, whose early fate has been much lamented by all the lovers of literature and the arts, was the eldest son of Francis Tweddell, esq. of Threewood, in the county of Northumberland, was born on the 18th of June 1759; and after passing through the usual course of preparatory education, was entered at Trinity college, Cambridge, where he distinguished himself by such proofs of original genius as are, perhaps, without example, even in the records of that learned society. As a candidate for university honours, his "Prolusiones Academice" atted his success to have been equally brilliant and extraordinary, and supercede the necessity of particular illustration. Mr. Tweddell was elected a fellow of Trinity college in 1792, and soon afterwards entered himself a student of Lincoln's Inn, where he kept his terms, and continued to reside until the year 1795, when he left England to commence his travels on the continent of Europe—and met with that untimely fate which has mixed his ashes with those of the sages and philosophers of Greece. He visited Switzerland, Germany, most parts of the Russian empire, and particularly the Crimea, where his intercourse with professor Pallas was of the most intimate kind, and had so endeared him to that amiable scholar, that the admiration with which he spoke of him partook of the tenderness and affection of a father. From the borders of the Euxine, where his researches were both diligent and productive, he proceeded to Constantinople; and after spending some part of the summer of 1795 under the hospitable roof of Spencer Smith, esq. the English minister, he took his departure for the Grecian islands; and having traversed the provinces of Macedonia and Thessaly, arrived at Athens; where, after a residence of several months, he reached the period of all his learned labours, on the 25th of July 1799.

Mr. Tweddell, independent of the advantages which his own merit secured for him in the countries which he visited, professed recommendations and facilities of a superior kind for conducting his learned pursuits; and his industry keeping pace with his talents and opportunities, his collections and manuscripts are known to have been extensive and singularly valuable. Perhaps no traveller of modern times has enjoyed in an equal degree the means of investigating the antiquities of Greece.

His remains were interred in the beautiful Doric temple of Theseus at Athens; and his grave was simply a small oblong
oblong heap of earth, like those over the common graves in all our English church-yards, without a stone or inscription of any kind; and his body was carelessly deposited at about three or four feet beneath the surface. The part of the temple which has been buried is now converted into a Greek church, dedicated to St. George; but the building is occasionally open and liable to the intrusion of animals, who sometimes seek such retreats, Dr. Clarke and his companions, in their travels to Athens, obtained leave to take up the coffin, and to have it properly covered; and a Greek epitaph, composed by Mr. Walpole in 1805, has been inscribed on a large block of Pentelic marble from the Parthenon, for recording the merits of the deceased. The completion of this monument has been owing to the exertions of lord Byron, and Dr. J. F. Lee, of St. John's college. Cambridge. Clarke's Travels, vol. vi.

TWIGGS, I. 2, adds—of whom 642 were flaves in 1810.
TWIST, and TWISTING. See MANUFACTURE of COTTON.

V and U.

VAMANAVATARA, col. 3, l. 11, for admirer r. advier.

VANDELLUS, VANDEL, in Ichthyology, a genus of fishes of the order Thoracici, confidered by Dr. Vandelli of Coimbra as nearly allied to the genus Trichurus; the characters of which are, body extremely long, sword-shaped, gill-membrane five or fix-rayed, and teeth tubulate, those in front large. This fish is the beautiful vandell, with forked tail, which occurs, very rarely, in the Mediterranean and Atlantic seas, and sometimes near Lisbon.

VANDER WEYDE, ROGER, called Roger of Bruges, in Biography, an historical and portrait painter, was born at Bruges about the year 1455, and became the disciple of John Van Eyck, who, at a short period before his death, discovered to him the secret of painting in oil. From this he distinguished himself by many grand compositions in a large size, and was confidered as one of the first Flemish artists who improved the national taste, divesting it in some degree of the Gothic, and manifef ting grace in the aims of his heads, as well as correctness in his delign. He painted the portraits of several princes, and of many persons of eminence, and obtained a considerable degree of fame and fortune. His paintings in the town-hall of Bruges have been much commended; one of which is formed on the subject of Trajan's justice, executed on one of his fiders, on the complaint of a mother, whose son had been murdered by him; and that of another is Archambant, prince of Brabant, flabbing his nephew, who was his next heir, when he himself was near dying, for having ravished a maid of that country.

VAN UTRECHT, ADRIAN, was a native of Antwerp, where he was born in 1599, and learnt the art of painting: at first painting peacocks and other fowl for his amufement, in which he so much excelled that he was encouraged to prosecute this branch of his art. The subjects to which his attention was principally directed were fruit, birds, flowers, dead game, and objects of still life; imitating and copying nature, and distinguishing by correct drawing, and the colouring of nature. He was deemed next to Snyd in that style of any of the artists in the Low Countries; and though he was very industrious, he could not execute one half of the orders which he received. His manner of pencilling was peculiarly delicate, and gives an uncommon transparency to his colours. Most of his works were engraved by the king of Spain, so that they became scarce, and they now produce very high prices. This artist died in 1651, at the age of 52 years.

VASSALBOROUGH. Add—containing 2063 inhabitants.

VATICAN. Add.—The Vatican, depofiled during the French revolution, can again boast of polishing the Apollo, the Laocoon, the Antinous, and all those fine examples of the exquisite taste and delicate sentiment of that refined people, the Greeks. The Transfiguration of Raphaelle, the St. Jerome of Domenichino, and the St. Peteroilla by Guercino, since their return from Paris, have been placed in a room by themselves, but inconveniently dark.

VAUXHALL BRIDGE, a bridge over the Thames, extending from Millbank to Smith's tea-gardens, which nearly adjoin Vauxhall Gardens, and connecting the roads branching from that spot to Hyde Park Corner by a straight road and street across Tothill-fields to Eaton-square, Pimlico, and Grosvenor-place. This bridge, constructed by Mr. J. Walker, consists of nine arches of equal span in squares of cast-iron, on piers of rusticated stone, formed of fragments, united by means of Parker's cement. The total width is 80 feet, the span of the arches 78 feet, the height 25 feet, and the clear breadth of the road-way 36 feet. The estimated cost of this bridge was above 300,000l.

VELOCIPEDE, ACCELERATOR, or SWIFT-WALKER, a machine originally invented by theon Charles de Drais, master of the woods and forests of his royal highness the grand duke of Baden, who, in his account of its nature and properties, says, that on a well-maintained post-road, it will travel up hill as fast as an active man can walk; that on a plain, even after a heavy rain, it will move six or seven miles an hour; that, when roads are dry and firm, it runs on a plain at the rate of eight or nine miles an hour, which is equal to a horse's gallop; and that on a defcent, its motion is equal to that of a horse at full speed. This machine, the theory of which is founded on the application of a wheel
wheel to the action of a man in walking, consists of two wheels, one behind the other, connected by a peron, on which is placed a saddle for the seat of the traveller. The front wheel is made to turn on a pivot, and is guided in the same manner as a Bath-chair. On a cushion in front, the fore-arm is reeled, and by so doing the machine and the traveller are kept in equilibrium.

The management is as follows:—The traveller, having placed himself on the saddle, with his elbows extended, and his body a little inclined forward, must rest his arms on the cushion, and preserve his equilibrium by pressing lightly on that side which appears to be rising. The rider (if it may be so called) must be held by both hands, which are not to rest on the cushion, but to extend somewhat beyond it; that they may be at full liberty, as they are no less essential to the conduct of the machine than the arms are to the maintenance of the balance of it, for which purpose sufficient dexterity will be soon acquired by attention and practice; then, placing lightly the feet on the ground, long but very slow steps are to be taken in a right line, at first care being taken not to turn the toes out, left the heels should come in contact with the hind wheel. Dexterity in managing the equilibrium and direction of the machine should be acquired before any attempt is made to accelerate the motion of the feet, or to keep them elevated while it is in rapid motion. This machine will run for a considerable distance while the rider is inactive, and with the same rapidity as when his feet are in motion; and in defeat it will surpass the best horses in a great distance, without being exposed to the risks incident to them, as it is guided by the mere gradual motion of the fingers, and may be instantly stopped by the feet. The saddle, as well as the cushion, may be raised or lowered at pleasure, so as to suit the height of different persons. The inventor proposes to construct these machines to carry two persons, and to be impelled by each alternately, or by both at once; and with three or four wheels, with a seat for a lady; besides the application of a parasol or umbrella: he also proposes to avail himself of a fail, with a favourable wind.

The velocipede has been introduced into this country under letters patent, by Mr. Johnson, a coach-maker in Long Acre, by whom it has been much improved, both in lightness and strength.

VENICE, col. 5; l. 10 from bottom. Add—At the last census, taken about the year 1815, the population was stated to be about 100,000; and it is said to be decreasing.

VENETIAN, l. 7, add—and LARYNX.

VOL. XXXVII.

VERMILION, col. 2, l. 20, add—The painter's vermillon is a factious cinnamon, made by subliming a compound of sulphur and mercury.

VERNON, in Geography, a town of Tolland county, in Connecticut, containing 827 inhabitants.

VESICULA FELLIS. See LIVER for GALL-Bladder.

VESTIS ANGELICA, for Angelica.

VIENNA, in Geography, a township of Trumbull county, in Ohio, including 234 inhabitants.

VIOLIN. Add—The art of holding the bow, and of placing and moving it on the strings, is the most difficult and important to incipient practitioners on the violin, which they have to encounter; as upon that depend the force, sweetness, and penetrating power of the tone. They must pay great attention not to press too hard upon the string, so as to make it curve and deviate from a right line; for then the tone would be harsh and coarse. Neither must the bow be laid too lightly on the strings, as the tone would then whistle and be too feeble. The juft point of accuracy in this particular is, to place the hair on the strings in such a manner, that every part of it is in contact with whichever may be wanted. The bow must not act too near the bridge, nor too distant from it, as only dull and unpleasant sounds would be produced.

VIRAI, l. 11, for her r. ten

VISHNU, col. 2, l. 4, for sent r. scnt.

VITELLUS. See YOLK.

UNDERSTANDING. See Mental Philosophy.

UNITED STATES, col. 6, l. 13 from bottom, add—See CANAL. Col. 7, l. 8 from bottom, add—The manufactures of the United States, previously to the peace of 1815 which reduced their number and value, were estimated at the following yearly amounts:

<table>
<thead>
<tr>
<th>Manufactures</th>
<th>Value (Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>25,000,000</td>
</tr>
<tr>
<td>Leather</td>
<td>24,000,000</td>
</tr>
<tr>
<td>Soap and tallow candles</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Refined sugar</td>
<td>1,600,000</td>
</tr>
<tr>
<td>Cards</td>
<td>300,000</td>
</tr>
<tr>
<td>Hats</td>
<td>1,300,000</td>
</tr>
<tr>
<td>Spirituous and malt liquors</td>
<td>140,000</td>
</tr>
<tr>
<td>Iron</td>
<td>18,000,000</td>
</tr>
<tr>
<td>Cotton, wool, and flax</td>
<td>45,000,000</td>
</tr>
</tbody>
</table>

Total $151,400,000

Their present value has not been ascertained, but it appears that the exports of their manufactures amounted in 1811 to a total of $1,553,000, including those for domestic materials at $1,321,000, and those from foreign materials at $232,000; and in 1816 to $1,755,000, including $1,415,000 of the former kind and $340,000 of the latter.

The manufactures from foreign materials were, spirits from molasses, refined sugar, chocolate, gunpowder, brass and copper, with medicines. The manufacture of wool is rapidly extending, as are also those of iron and hemp, and especially the latter, and also that of cotton. The manufacture of gunpowder nearly supplies the home market, which is also the case with regard to coarse earthen-ware, window-glass, glass bottles, and decanters. About a million of barrels of salt are manufactured annually; and salt-petre is largely manufactured in Virginia, Kentucky, Massachusetts, East and West Tennessee. Sugar from the maple-tree is produced in Ohio, Kentucky, Vermont, and East Tennessee, to the amount of nearly 10 millions of pounds annually. West Tennessee and Vermont afford abundance of good copperas: 25 millions of gallons of ardent spirits are annually distilled and consumed in the United States: 400 water and horse mills, working 190,000 spindles, are employed in spinning cotton. The fulling-mills amount to 2000, and the number of looms exceeds 490,000; and the number of yards of cloth, manufactured from wool, cotton, and flax, is about 100 millions. They have 500 gunpowder-mills, 600 furnaces, forges, and bloomeries, and 200 paper-mills.

In the state of Vermont, the chief manufactures are those of iron, lead, pipe-clay, marble, distilleries, maple-fugar, flour, and wool. In Massachusetts, the principal manufactures are, duck, cotton, woollen, cut-nails (by a machine invented in Newbury port, which is capable of cutting two hundred thousand in a day), paper, cotton and wool cards,
playings-cards, shoes, silk and thread lace, wire, stuff, oil, chocolate and powder mills, iron-works, and flitting-mills, and mills for sawing timber, grinding grain, and falling cloth, distilleries, and glases. In Rhode Island, are manufactured cotton, linen, and tow cloth, iron, rum, spirits, paper, wool and cotton cards, flaxen, sugar, machines for cutting screws, and furnacces for cutting hollow ware. In Connecticut, are manufactured silk, wool, card-teeth (bent and cut by a machine to the number of 860,000 in an hour,) buttons, linen, cotton, glases, stuff, powder, iron, paper, oil, and very superior fire-arms. In New York, are manufactured wheel-carriages of all kinds, the common manufactures, refined sugar, potters’-ware, umbrellas, musical instruments, glases, iron, and steam-boats. In New Jersey, are numerous tanneries, leather manufactories, iron-works, powder-mills, cotton, paper, copper-mines, lead-mines, stone and slate quarries. In Pennsylvania, there are valuable collieries on the Lehigh river, distilleries, rope-walks, sugar-houses, hair-powder manufactories, iron founderies, shot manufactories, steam-engines, mill machinery, type-founderies, improvements in printing, and carpet manufacture. In Delaware, there are cotton and calico cloth and powder manufactories, fulling, stuff, filling, paper, grain and saw mills. In Maryland, are iron-works, collieries, grist-mills, glass-works, stalls, paper-mills, and cotton. In Virginia, are lead mines, iron-mines, copper-mines, salt collieries, and marble quarries. In Kentucky, are manufactured cotton, wire, paper, and oil. In Ohio, ship-building is carried to a great extent. In North Carolina, the pitch-pine affords excellent pitch, tar, turpentine, and lumber; also iron-works, and a gold-mines, which has furnished the mint of the United States with a considerable quantity of virgin gold. In South Carolina, are gold, silver, lead, black-lead, copper and iron mines, and also pellicid flames of various hues, coarse cornelian, variegated marble, nitrous stone and sard, red and yellow ochres, potters’-clay, fullers’-earth, and a number of dye-stuffs, chalk, crude alum, sulphur, nitre, and vitriol. In Georgia, the manufactories are indigo, silk, and fag. In Louisiana, are manufactured cotton, wool, cordage, shot, and hair-powder.

But the most extraordinary, and perhaps the most important manufacture in the United States, is that of steamboats; the first application, if not invention, of which is ascribed to Mr. Fulton. It was in the year 1807 that the first steam-boat plied between the cities of New York and Albany; but since that time this mode of navigation has been successfully used in many other rivers of the United States besides the Hudson; so that steam-boats now ascend the Mississippi and Ohio rivers, hitherto nearly unnavigable, except in the direction of their currents. The following table shews the cheapness, as well as expedition, of travelling since food as well as conveyance is included.

<table>
<thead>
<tr>
<th>Years</th>
<th>Receipts</th>
<th>Expenditure</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1791</td>
<td>$4,180,913</td>
<td>$1,718,129</td>
<td></td>
</tr>
<tr>
<td>1795</td>
<td>$5,954,534</td>
<td>$4,350,596</td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>$10,777,709</td>
<td>$7,414,369</td>
<td></td>
</tr>
<tr>
<td>1808</td>
<td>$17,068,661</td>
<td>$6,504,338</td>
<td></td>
</tr>
<tr>
<td>1809</td>
<td>$17,773,473</td>
<td>$7,414,672</td>
<td></td>
</tr>
<tr>
<td>1818</td>
<td>$19,550,000</td>
<td>$18,850,000</td>
<td></td>
</tr>
<tr>
<td>1819</td>
<td>$22,950,000</td>
<td>$22,800,000</td>
<td></td>
</tr>
<tr>
<td>1820</td>
<td>$22,350,000</td>
<td>$22,910,000</td>
<td></td>
</tr>
</tbody>
</table>

The net amount of revenue received in 1815 was $35,966,106, being from customs $37,656,486; internal duties $5,903,225; direct tax $5,723,122; public lands $1,287,959; paper and currency $275,282. The report of the secretary of the treasury for the year 1816 states, that on the 12th of February 1816, the whole of the public debt, funded and floating, was $124,930,682; but on the 1st of January 1817 did not exceed $189,748,272, reducing the debt from Feb. 12th, 1816, to Jan. 1st, 1817, $13,882,420.

The American capital, consisting of personal property $2,200,000,000, and of real property $5,000,000,000, amounts to $7,200,000,000; the income, $300,000,000; expenditure, $450,000,000; national debt, $1,000,000,000. The salaries of the principal officers of the federal government are as follows:

- President, per annum - - $25,000 = 525l.
- Vice-president, ditto - - $500 = 1125l.
- Secretary of State, ditto - - $500
- Treasury, ditto - - $500
- War, ditto - - $450
- Navy, ditto - - $450
- Ministers plenipotentiary, ditto - - $900 = 182l. 10s.
- Members of Congress, per day - - $8

For the revenue of the United States we can only collect a few particulars. We observe in general, that the national debt at present does not amount to 120 millions of dollars. Its sinking fund consists of an annual appropriation of $8,000,000, arising from the interest of the debt redeemed, amounting in 1813 to $1,932,107; for the sales of public land, equal in that year to $830,671; and from the duties on imports and tonnage. The revenue of the United States, previous to the late war against England, were derived from duties and taxes on imports, tonnage of ships and vessels, spirits distilled within the United States, and stock, pollage of letters, taxes on patents, dividends on bank-stock, stuff manufactured in the United States, sugar refined here, sales at auction, licences to retail wines and distilled spirits, carriages for the conveyance of persons, stamps, paper, direct taxes, and sales of public lands. The revenues have been chiefly derived from duties on imports and tonnage. Internal taxes have been laid at different periods by the Washington administration, but were all discontinued by an act passed April 1802, under the auspices of Mr. Jefferson. The following statement exhibits the estimated receipts and expenditures of the United States at different periods.
Vol. 12, Population in 1817, stated by Brided in his "America and her Resources."

<table>
<thead>
<tr>
<th>States and Territories</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>318,647</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>554,392</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>522,733</td>
</tr>
<tr>
<td>Vermont</td>
<td>206,450</td>
</tr>
<tr>
<td>Rhode island</td>
<td>88,321</td>
</tr>
<tr>
<td>Connecticut</td>
<td>349,568</td>
</tr>
<tr>
<td>New York</td>
<td>1,486,739</td>
</tr>
<tr>
<td>New Jersey</td>
<td>345,822</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>596,494</td>
</tr>
<tr>
<td>Delaware</td>
<td>168,534</td>
</tr>
<tr>
<td>Maryland</td>
<td>502,719</td>
</tr>
<tr>
<td>Virginia</td>
<td>1,347,496</td>
</tr>
<tr>
<td>Ohio</td>
<td>324,752</td>
</tr>
<tr>
<td>Kentucky</td>
<td>683,752</td>
</tr>
<tr>
<td>Tennessee</td>
<td>489,024</td>
</tr>
<tr>
<td>North Carolina</td>
<td>704,224</td>
</tr>
<tr>
<td>South Carolina</td>
<td>564,785</td>
</tr>
<tr>
<td>Georgia</td>
<td>428,567</td>
</tr>
<tr>
<td>Louisiana</td>
<td>168,923</td>
</tr>
<tr>
<td>Indiana</td>
<td>86,734</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>37,892</td>
</tr>
<tr>
<td>Mississipi Territory</td>
<td>104,550</td>
</tr>
<tr>
<td>Illinois Territory</td>
<td>98,000</td>
</tr>
<tr>
<td>Michigan Territory</td>
<td>9,743</td>
</tr>
<tr>
<td>North-west Territory</td>
<td>68,794</td>
</tr>
<tr>
<td>Missouri Territory</td>
<td>68,794</td>
</tr>
</tbody>
</table>

Brided observes, that the population of the whole United States has hitherto doubled itself in less than twenty-five years. The New England states, he says, of course do not retain their proportion of this increase, because large bodies of these people migrate annually to the western country, which has therefore increased much faster than the states to the southward. Kentucky, e. g., has increased 80 per cent. in ten years; Tennessee, 95; Ohio, 180; Louisiana, 110; Indiana, 109; Mississipi territory, 190; Illinois territory, 700; Michigan territory, 200; Missouri territory, 700; while of all the Atlantic states, the greatest increase is only 44 per cent., the population growth of New York; and the least is, that of Virginia, only 20 per cent.; so that in a few years the states will range, if the future be like the past, as to their aggregate population in the following order, viz. New York, Pennsylvania, Virginia, Kentucky, Ohio, North Carolina, Mississipi, South Carolina, Tennessee, Maryland, Georgia, New Jersey, Connecticut, Vermont, Louisiana, New Hampshire, Indiana, Missouri, Mississipi, Illinois, Delaware, and Rhode Island.

Voltaism, l. 13.—The general conclusion deduced by Galvani from his experiments was, that the animal body possesses an inherent electricity of a specific kind, which is connected with the nervous system, and conveyed by means of the metals into the muscles, so as to throw them into convulsions. From his discoveries he formed, with a preci- pitation that led him into error, a theory of muscular motion, according to which the body contains an apparatus analogous to the Leyden phial, its different parts being in different states of electricity, and the metals forming a connection between them, by which the electricity is equalized. Fowler, in his "Effay on Animal Electricity," published in 1813, concludes, that the galvanic influence is not referable to electricity, because, for the production of the former, the presence of two different metals appears to be necessary, while electricity, as proceeding from the electrical machine, is excited by the action of an electric upon a conductor. He also endeavors to show, says Dr. Bollock, the ingenious historian of galvanism, that electricity and galvanism are not, in all cases, conducted by the fame substances; and he also made some curious observations upon the effect of galvanism on animals not furnished with distinct limbs, such as worms of various kinds. In the same year, 1793, professor Volta's communications appeared in the Philosophical Transactions of London, who adds to his luminous account of Galvani's discovery many curious experiments and observations of his own. He attempted, and with complete success, says Dr. Bollock, to overthrow Galvani's opinion, that the animal body bears an analogy to the Leyden phial, its different parts being in opposite states of electricity. He suggested, that for the production of the effect it was essential to have two different : metals, and hence he was led to conclude, that the muscular contractions are produced by small portions of electricity that are liberated by the action of the metals upon each other. This action of the metals upon each other is described as destroying their electrical equilibrium; and by establishing a communication between them, their equilibrium is restored. This destruction of equilibrium he considers as a new law of electricity discovered by himself; and the animal is supposed to have no further concern in it, than as being a peculiarly sensitive electricometer, and affording a very delicate test of the presence of this disengaged electricity in its passage from one metal to the other. He also established another point, viz. that the nerve is the organ on which the galvanic influence immediately acts; but he found that if a part of a muscle be laid upon two different metals, and these be made to communicate, a contraction is produced. He also confirmed the fact, previously noticed by Fowler, but by independent experiments, that snails and worms could not be made to contract; but that many of the insects, as butterflies and beetles, were subject to the influence of the metals. For an account of Dr. Wells's experiments and observations, we refer to his paper in the Phil. Tranf. for 1795. Professor Volta, prosecuting his inquiry into the nature of galvanism, was led to introduce a new principle into his theory. Having before stated that two metals were essential to the extraction of the electric influence, he informs us, that their metallic nature may be dispensed with, provided that the substances differ in their power of conducting electricity. Accordingly he divides conductors into the two classes of dry and moist; the first including metals and charcoal; the latter, essentially conifiing of water, holding various substances in solution. In order to form a galvanic circuit, it is necessary that a body from one of these classes be placed between two bodies from the other class; and thus the equilibrium is destroyed, which is again restored when the two are united by a conductor. (See Galvanism.) For further particulars we are under a necessity of referring to Dr. Bollock's very valuable "Account of the History and present state of galvanism," 8vo. London, 1819.

At the close, add—It is natural to conclude, that galvanic electricity would be applicable to medical purposes. Accordingly we find, that about the year 1824, it was extensively
tensively employed, more especially in those diseases in which common electricity had been found useful. But the expectations that were formed concerning the efficacy of this powerful agent were generally disappointed. Flattering accounts, however, says Dr. Bollock, (*ubi supra*) of its success in different nervous disorders, in paralytic affections, in deafness, in some kinds of blindness, in the recovery of persons apparently drowned or suffocated, and even in hydrophobia and insanity, were published. But the credit of the proposed remedy was not permanent; and it therefore sunk into disuse. Of late it has again been brought into notice by Dr. Philip of Worcesters, who has made trial of it, with beneficial effect, in spasmodic asthma. Bollock's Hill.

**URFE, Honoré D'B.,** count of Chateauneuf, and marquis of Villomerie, in *Biography,* was the fifth son of James D'Urfe, a noble family of Forez, originating from Swabia, and born in 1567 at Marseilles, in which city he was educated, and also in the Jesuits' college at Tournon. Although he was first inclined to be a knight of Malta, he was diverted from this purpose by his objection to celibacy; and he afterwards obtained a dispensation to marry the wife of his brother Anne, who was separated from her on account of impotence, and became an ecclesiastic. His view in this marriage was to secure the property of his wife, who was a rich heiress, to his own family; but as he had no children by her he was disappointed in his mercenary purpose, and the connection was unhappy. Thus frustrated in his selfish views, he retired to Piedmont, and devoted himself to letters. He was the author of several publications; but his name has been celebrated as a romance writer, on account of his "À la France," which was published in five separate volumes, at successive periods, and continued as a performance of general perusal for fifty years. This romance exhibits a picture of human life in its various conditions, and displays ample invention and acquaintance with men and characters under the disguise of pastoral fiction, from which, however, the author often deviates; he furnishes a history of his courtship of Diana de Chateaume-Ronat, his brother's wife, whom he married, and of the gallantries of the court of Henry IV. Although it was at a former period much read, it is now trifling for instruction and too tedious for amusement. It was often republished, but the last edition is said to be that of Paris in 1753, in 10 vols. 12mo. by the abbé Souchaise. D'Urfe died at Villefranche in 1625. His brother Anne was also a writer, and published some poems.

**VRIHASPATI,** l. 8 from bottom, for SUTTEE r.

**W.**

**WALLINGFORD,** in Vermont, &c.; l. 5, r. 1325.

**WALPOLE,** l. 2, r. 1894.

**WALTON,** in Derbyshire. This township is in the parish of Chelford; and in 1811 it contained 133 houses, and 792 persons; viz. 775 males, and 147 females.

**Walton-le-Dale.** This township, in 1811, contained 827 houses, and 4776 persons; viz. 2263 males, and 2513 females: 175 families being employed in agriculture, and 616 in trade, manufactures, or handicraft.

**Walton-on-the-Wolds.** In 1811, this parish contained 47 houses, and 222 persons; viz. 111 males, and 111 females.

**Walton-upon-Thanet.** In 1811, the town contained 104 houses, and 666 persons; viz. 315 males, and 291 females.

**WANDSWORTH.** In 1811, the parish contained 905 houses, and 5644 persons; viz. 2728 males, and 2916 females.

**WARLEY.** In 1811, this township contained 704 houses, and 3958 persons; viz. 1041 males, and 2017 females: 27 families being employed in agriculture, and 758 in trade, manufactures, and handicraft.

**WARING.** See Weaving.

**WARREN,** in *Geography,* a county of Ohio, containing five townships, and 9925 inhabitants.

**WARTERBURY,** a town of Chittenden county, in Vermont, having 864 persons.

**WAR.**

**WASHINGTON,** l. 14 from bottom, add—incorporating 315 slaves.

**WASHINGTON,** a township of Pennsylvania, in the county of Fayette, having 2160 inhabitants.

**WASH-WHEELS,** in *Bleaching.* See *Bleaching.*

**WATCH,** in *Herology.* Col. 11, l. 4 from bottom, for 2 CR 1 r. 2, 6, 1, R; l. 11 from bottom, and col. 12, l. 9, dele while the quarters are struck, and subliterate words to this effect—While the crémallière is pushed down for the purpose of striking the hours. The fact seems to be, says an ingenious correspondent, that while the quarters are striking, the tail-piece 3, 5, 4, is behind the teeth of the rack G; and the contrivance here described is merely to take 4, 5 out of the way of these teeth, when, by pushing in the pendant, they are carried back preparatory to striking the hour. Col. 25, l. 22 from bottom, for p. 66, &c. r. p. 166, &c.

—*Warning-Watch by Berrollat,* col. 2, l. 7 from the bottom, for hours-wheel v, r. hours-wheel u,—*Musical-Watch,* col. 1, l. 28, for balance-wheel r. balance-wheel L.

**WATER,** p. 21, col. 2, add—*Llanarthina spring,* at a village in the vale of Towy, seven miles above Caermarthen; a strong chalybeate, in one gallon of which the gaseous contents
WEB

The editor seems to have been a man of some learning, as well as knowledge in music, as he dedicates the work, in a Latin copy of verses, to the earl of Essex, then at the summit of favour with queen Elizabeth, and addresses Luca Maranzio, from whom most of the madrigals were taken, in another.

WEARE, l. 2, r. Hillborough.

WEBB, senior, in Biography, a favourite author of English catches and glees, and one of the most successful candidates for prizes at the catch-club during the most brilliant period of its institution in 1762. See CATCH, and CATCH-CLUB.

WEBB, DANIEL, esq. author of an elegant and ingenious tract, entitled "Observations on the Correspondence between Poetry and Music," 1769, 12mo. This author had acquired considerable reputation by two former dissertations in dialogue; the first, "An Inquiry into the Beauties of Painting," the second, "Remarks on the Beauties of Poetry," which had rendered the public willing to receive favourably a third work from the same pen. Much learning, extensive reading, and a classical taste, were manifested in this production, "On the Correspondence between Poetry and Music." It is, however, more metaphysical and less intelligible than his former tracts. The author seems to have conceptions difficult to bring forth, and out of the reach of common language to express. He seems to concur with Roussel, that "music cannot narrate, nor precisely express or paint any particular passion;"

but it can awaken sensation and sentiments near the truth, and, with the affinities of poetry, can be pointed to a determined affection or passion. It can soothe affection, it can supplicate, it can animate and move our courage, excite hilarity, and generate ideas of grace, innocence, and content, without the interpretation of poetry; but having nothing to imitate in nature, like poetry and painting, imagination must assist in finding similarities.

The speculations of Mr. Webb are not always free from obscurity, though his language (when not deformed by his fondness for hath) is accurate and elegant. He says, that "music cannot give pain, like poetry and painting," but extreme harsh dissonances allowed to be occasionally used in counterpoint, give pain to the ear, as intense as painting and poetry to the eye and the mind. The author's chief illustrations are from Milton; and the work seems more intended to throw the beauties of Milton, than the analogies between poetry and music. The expression of music arises more immediately from rhythm than from the arrangement or combination of sound, and many of its imitative beauties, perhaps all, are ideal. Mr. Webb's ideas in general are delicate, refined, and beautifully expressed. But he never ventures to instance a musical composition or single passage which reminds us of practical music; and it does not clearly appear what kind of music he most approves, or indeed what it is that he honours with the name of music.

Mr. Webb was one of the first in our country who ventured to say, that counterpoint and complications of parts in dissimilar motion was an enemy to melody and expression; he quotes Algarotti's "Saggio sopra l'Opera in Musica," in confirmation of his opinions; but Roufeau preceded both, in his "Lettre sur la Mus. Fran." published in 1751, when he first developed his idea of "Unité de Mélodie." Mr. Webb's observations, indeed, abound with deep reflections and belle paroles; but we have not yet discovered what benefit lyric poetry or vocal music can derive from such discussions.

WEIDEMAN, ——, came to England about 1726. He was long the principal flageo player, and composer, and master for the German flute. He was a good musician, and played so well on the organ, that we remember Handel, at a rehearsal of an oratorio in Covent Garden theatre, desiring him to touch a new organ just finished by the elder Byfield, that he might judge of its effects in different parts of the theatre, in which he was obeyed by Weideman with considerable abilities. But in his productions for the German flute, he never broke through the bounds of that mediocrity to which his instrument deemed confined.

WEIGEL, ——, an excellent performer on the violoncello, whom we heard in 1772, at Vienna, in a grand concert given to all the first people of that imperial city, and by the best performers that could be selected. Gluck and his niece, a pupil of Millico, and an enchanting singer, were there, and the fungi, sometimes to her uncle's accompaniment on the harpsichord only, and sometimes with more instruments, in so exquisite a manner, that we could not conceive it possible for any vocal performer to be more perfect.

Between the vocal parts of this delightful concert, some admirable quartets, by Haydn, were executed in the utmost perfection; the first violin by Startzler, who played the adagio with uncommon feeling and expression; the second violin by Ordonitz, a good performer in the emperor's band; the tenor by count Brühl, one of the four sons of the great Saxon minstrel, an admirable dilettante, and fine performer on several instruments; and the violoncello by Weigle, the subject of the present article. All the performers
formers in this concert, finding the company attentive, and in a disfavour to be pleased, were animated to that true pitch of enthusiasm, with which, when musicians are themselves inflamed, they have a power of communicating to others their own order, and of letting all around in a blaze: so that the contention between the performers and hearers on this occasion was only who should pleae, and who applaud the mod.

WELLS, SYLVESTER LEOPOLD, a famous performer on the lute, born in Silesia, travelled into Italy in 1708, in the suite of prince Alexander Sobiesky, who dying at Rome, he was obliged to make his lute bear his expenses back into Germany, going first to Breslaw and afterwards to Dresden, where he was engaged in the service of the king of Poland, and became the most celebrated lutenist at that time in Europe. Germany has produced many eminent musicians of the name of Wells; as John Adolphus Faulmann, son of Sylvester Leopold, a lutenist likewise; C. Wells, a performer on the German flute, who visited London in 1783, an ingenious and curiously musician, who had improved his instrument, and had many curiously peculiarities in his performance.

WELDON, JOHN, an eminent musician, was born at Chichester, learned the rudiments of music of Mr. John Porter, organist of Eton college, and afterwards received instructions from Henry Purcell. He was for some time organist of New college, Oxon. But in 1701 he was appointed a gentleman extraordinary of the Chapel royal; and in 1708 succeeded Dr. Blow as one of his majesty's organists. In 1715, upon the establishment of a second composer's place in the king's chapel, Weldon was the first who filled that station, of which he seemed conscientiously determined to fulfil all the duties; for before he had long been in possession of this office, he gave proofs of his abilities and diligence in the composition of the communion service, as well as the several anthems required by the conditions of his appointment.

He was likewise organist of St. Bride's church in Fleet-street, and of St. Martin's-in-the-Fields.

Besides many favourite songs and solo anthems of the time, Weldon composed two full anthems, which are inserted in Dr. Boyce's second volume; the first is rather too familiar and common; but the second, "Hear my crying, O God," in six parts, is a very pleasing and masterly composition; particularly the first movement. In the second movement, the words up upon are unfortunately expressed by notes that succeed each other too rapidly for their easy utterance. The passages of the third and fourth movements seem much worn by forty or fifty years use; however, the pauses at the end of the last strain have a fine effect.

Six of his solo anthems were published about the year 1730: we say about that period, as musical chronology is become a very difficult study. The late Mr. Walsh, finding that old music-books were like old almanacs, ceased very early in this century to ascertain the time of their birth by dates, which have ever since been as carefully concealed as the age of antiquated virgins.

Weldon's powers of invention and of harmonic combination seem very much limited. His anthems had the advantage of being sung in the Chapel royal by a celebrated singer, Mr. Richard Ellford; but now, let who will execute them, they must appear feeble and old-fashioned, unless the embellishments of George L.'s time are changed for those in present use. The truth is, that the fund of original conception or science, which alone can render old music valuable to the curious, long after the style in which it was written is become antiquated and forgotten, was never very considerable in Weldon's productions. His first anthem, "O Lord rebuke me not," remained long in favour, when well sung in our cathedrals, from its resemblance to the style of Purcell; and the natural and easy flow of the voice is heard in "Turn thee, O Lord, and deliver my soul," which has so much of a peculiar song and roundel in it, that it is remembered with pleasure by the musical parts of a congregation, who are more likely to bear it in mind than more serious parts of the service.

The productions of Weldon appear fitly after those of Crofts; and Dr. Green's after Handel's: yet Green compared with Weldon is a giant; that is, a Handel.

There is a vice of which composers of small resources are often inadvertently guilty, for want of a sincere and judicious friend to tell them of it; and that is, eternal repetition of the same passage, a note higher or a note lower, which the Italians call rofalia. This certainly originates in the want of ideas, and yet it may be avoided by attention, though the sheet would not fall fo fast. Weldon has indulged himself in these repetitions to a tiresome degree in several of his anthems; but in the ritornel to "Have Mercy upon me, O God," he has iterated the fame poor passage a note lower seven times successively!

His song for two voices, "As I saw fair Clara walk alone," was in great favour some years ago; and his air in the Judgment of Paris, "Let Ambition fly thy Mind," is a melody so natural and pleasing, that, like an ever-green in vegetation, it will always be fresh and in season. And there is no air in greater favour than this at present, in the English opera of "Love in a Village," to the words, "Hope the Nurse of young Defire."

This composer died in 1736, and was succeeded in the king's chapel by the late Dr. Boyce.

WELLS, l. 1, r. L. and E.

WELLS, in Geography, a township of Rutland county, in Vermont, having 1040 inhabitants.

WELSH Music. If incredulity could be vanquished with respect to the account which Gervais Cambrensis gives of the state of music in Wales during the 12th century, (see Gervais Cambrensis,) it would be by a Welsh MS. formerly in the possession of Richard Morris, esq. of the Tower, which contains pieces for the harp that are in full harmony or counterpoint; they are written in a peculiar notation, and supposed to be as old as the year 1100; at least, it is the antiquity of many of the songs mentioned in the collection. But whether the tunes and their notation are coeval with the words, cannot easily be proved; nor is the counterpoint, though far from correct or elegant, of so rude a kind as to fortify such an opinion.

Some part of "this MS," according to a memorandum which we found in it, "was transcribed in the time of Charles I., by Robert ap Huw, of Bodwigen, in the isle of Anglesea, from William Penlyn's Book." The name of William Penlyn is recorded among the successful candidates on the harp, at the eisteddfod, or feession of the bards and minstrels, appointed in the ninth year of queen Elizabeth, at Caerwys in North Wales, where he was elected one of the "Chief bards and teachers of instrumental song." The title given to these pieces is "Muficae neu Beroraieth;" and a note in English informs us, that the manuscript contains "the music of the Britons, as set down by a congregation, or meeting of makers of music, by order of Gryffydd ap Cynan, prince of Wales, about the year 1100, with some of the most ancient pieces of the Britons, supposed to have been handed down to us from the British bards."

This music is written in a notation by letters of the alphabet, somewhat resembling the tablature for the lute;
but without lines, except a single line to separate the treble from the base.

In the notation, double $\text{f}$ seems the lowest; then the first seven letters of the alphabet are written thus, $g$, $a$, $b$, $f$, $e$, $c$, and the next septenary thus, with a dash over each letter, $g$, $a$, $b$, $c$, $d$, $e$. If these letters represent the same sounds as at present, we find some such chords as are admitted in modern harmony; but others frequently occur that are mere jargon.

Many of the bases, or accompaniments to the melodies, begin with the chord of C inverted, $\text{f}$. These chords and melodies are lessons for young practitioners on the harp, and are said to be the exercises and trial-pieces which were required to be performed by the candidates for musical degrees, and for the silver harp. Among the first twenty-four lessons of this kind, some few are easy to decipher, as No XI. and XVII., which we shall give here as specimens of this notation, explained in modern musical characters.

No. XI.

\begin{center}
\begin{tabular}{|c|c|}
\hline
Kor Sinfaen & 101011: 101011 \\
\hline
$g$ & $g$ \\
$f$ & $f$ \\
$e$ & $e$ \\
$\text{f}$ & $\text{f}$ \\
$\text{f}$ & $\text{f}$ \\
$\text{f}$ & $\text{f}$ \\
\hline
\end{tabular}
\end{center}

No. XVII.

\begin{center}
\begin{tabular}{|c|c|}
\hline
\text{f} & \text{f} \\
$g$ & $g$ \\
$g$ & $g$ \\
$\text{f}$ & $\text{f}$ \\
$\text{f}$ & $\text{f}$ \\
$\text{f}$ & $\text{f}$ \\
\hline
\end{tabular}
\end{center}
After twenty-four lessons, or measures, as they are called, of this kind, there follow twelve variations on a ground base.

This counterpoint, however artificed it may seem, is too modern for such remote antiquity as is given to it. The falsc 5th, from B to F, in the first example, has not been long allowed in harmony; and the unprepared 7th, from B to A, in the second example, is a crudity that has been but very lately tolerated.

That the ancient inhabitants of Wales were great encouragers of poetry and music, cannot be disputed, as many specimens of Cambro-British verisimilitude of undoubted antiquity still subsist; and that these poems, as well as those of ancient Greece and Rome, were originally sung and accompanied with instruments, is very natural and reasonable to believe; but that a rude and uncivilized people, driven into a mountainous and barren country, without commerce or communication with the rest of Europe, should invent counterpoint, and cultivate harmony, at a period when it was unknown to the most polished and refined inhabitants of the earth, still remains a problem of difficult solution.

Dr. Burney gives a farther account of this curious MS. in speaking of national music, and the establishment of musical games or contests in Wales, before any other music seems to have been much cultivated in the rest of the island, except the ecclesiastical or Gregorian chant, which the Britons, driven into the mountains of Wales by the Saxons, seem to have been very unwilling to receive from the Roman missionaries that were sent over to convert their conquerors. The British annals and songs ascribe with great resentment the slaughter of the monks at Bangor, by Ethelbert, king of Kent, to the instigation of Aulfin the monk, on account of their having refused to submit to the jurisdiction of pope Gregory, and the regulations he proposed.
WES

WELWIN, or WELWYN. In 1811, the parish contained 192 houses, and 1120 persons; viz. 567 males, and 563 females.

WEMYSS. In 1811, the parish contained 565 houses, and 3691 persons; viz. 1057 males, and 2634 females. This parish includes Buckhaven, E. and W. Coallows, Kirkland, Methil, E. and W. Wemyss, and the rest of the parish, containing 116 males, and 117 females.

WENDLING, J. BAPTIST, in Biography, an eminent performer on the German flute, in the service of the Elector of Hanover.

WENTWORTH. In 1811, the parish contained 178 houses, and 941 inhabitants.

WESTBURY, Westmoreland. In 1811, the township contained 256 houses, and 1086 persons; viz. 542 males, and 544 females.

Wigram, Gentleman. In 1811, this parish, containing five townships, viz. Felwell, Hylton, Monk-Weremouth, Monk-Weremouth Shore, and Southwick, contained 832 houses, and 6504 persons; viz. 2037 males, and 2567 females. The township of Monk-Weremouth contained 220 houses, and 1091 persons; viz. 457 males, and 634 females; and that of Monk-Weremouth Shore contained 458 houses, and 4264 persons; viz. 1815 males, and 2449 females.

WESTERLEY. Add-in Washington county, containing 1512 inhabitants.

WESTHAY, a town of Rutland county, in Vermont, having 679 inhabitants.

WESTMINSTER ABBEY. Its happy construction for music at the commemoration of Handel in 1754, appeared to be such as not only to overtop all the predictions of ignorance and fanaticism, but the conjectures of theory and experience. By some it was predicted that an orchestra so numerous could never be in tune; but even tuning to the noblest organ was for once grand, and producible of pleasing f安东尼ons. By some it was thought that, from their number and diaphane, they would never play in time; which, however, they did most accurately, and without the measure being beaten in the usual clumsy manner. By others it was prophesied that the band would be so loud, that whoever heard this performance would never hear again; however the sound of these multiplied tones arrived as mild and benign at the ears of the audience as they could from the feeble efforts of a few violins in a common concert-room. And, lastly, that from the immense size of the building, no single voice had the least chance of being heard by those who had places remote from the orchestra; but luckily this was so far from being true, that not a vocal breathing, however feeble by nature, or softened by art, was inaudible in any part of the wide-extended space, through which it diffused itself in all directions.

There was, doubtless, great propriety in saluting their majesties at their entrance with the Coronation Anthem, yet we could not help wishing that this performance, so different from all others, had opened with some piece in which every voice and every instrument might have been heard at the same instant; as such an effect might then have been produced as can never be obtained by gradation. Indeed the most sudden and surprising effect of this stupendous band was, perhaps, produced by simultaneous tuning; as all the fiend-like-instruments performed this air à double cordes, and these strings being all open, their force was more than equal to that of two fling-fling-strings upon two different instruments.

It is but justice to Madame Mara, in speaking of the effects of a single voice in this immense building, to record that she had not only the power of conveying to the remotest corner of this expanded structure, the softest and most artificial inflections of her sweet and brilliant voice, but of articulating every syllable of the words with such neatness, precision, and purity, that it was rendered as audible and intelligible as it could possibly have been in a small theatre by mere declamation.

The happy contrivance of Westminster Abbey for cherishing and preferring musical tones, by a gentle augmentation without echo or repetition, was demonstrated by no part of the commemoration performance more clearly than in that of Miss Abrams, whose voice, though sweet, of perfect intonation, and good quality, was not regarded as theatrical, but such as the Italians denominate bela voce de camera, yet in the solo air, which she sung with her usual taste and expression, her voice was rendered more audible in every part of that immense building, than it had ever been in any concert-room in London.

Giardini, the composer of the powerful tone of Fister's hautbois, which could even rival that of his own violin with all its force and sweetness, used to say that Fister had an impudence of tone, but it never produced a more full, rich, and sweet effect than in the solo parts of Handel's fourth hautbois concerto, which he performed with such taste and propriety, as must have convinced all those who heard him that his excellence was not confined to his own very original and ingenious productions. Indeed, one of the Commemoration wonders seems to have been the perfect manner with which the sweet and grateful tone of his single instrument filled the stupendous temple of our holy religion, in the performance of this concerto.

WEST PENN, in Geography, a township of Northampton county, in Pennsylvania, having 947 inhabitants.

WESTPHAL, in Biography, an eminent music merchant of Hamburg, one of the greatest publishers in Germany during the middle of the last century.

WHIFF. Add—See Pleuronectes puniatus.

WHITE, John, in Biography, a Quaker, at whose shop in Newgate-street ladies were furnished with straw hats. This worthy man was a great collector of ancient rarities, as well as natural productions of the most curious and extraordinary kind; no one of which, however, was more remarkable than the obliging manner with which he allowed them to be viewed by his friends and examined by strangers. Among his old books and MSS. he was in possession of a very scarce and valuable music-book, which once appertained to Dr. Robert Fayrfax, an eminent English composer during the reigns of Henry VII. and Henry VIII.; it was afterwards in the possession of general Fayrfax, and upon his demise became a part of the Thoreby collection, at the sale of which it was purchased by honest John White.
WODFORD, in Geography. In 1811, the parish contained 379 houses, and 1914 persons; viz. 891 males, and 1023 females.

WODFORD, in Lincolnshire. In 1811, the parish contained 179 houses, and 821 persons; viz. 379 males, and 442 females.

WODFORD, in Norfolk. In 1811, the parish contained 112 houses, and 494 persons; viz. 254 males, and 240 females.

WITCHCRAFT. Add—Dr. Henry More published a curious tract, entitled "Antidotes against Atheism," in which he undertakes to prove the being of a God from the existence of witches, and the power which they possess.

See his biographical works.

WITHERITE, col. 2, l. 9, add—The known repositories of this substance are very limited; but it has been observed by Mr. Aikin, in great abundance, in the lower part of a lead-mine in Shropshire, where it occurs in irregular masses, which weigh from forty to two or three hundred pounds, imbedded in heavy fpar. The miners call this substance "yellow fpar;" not that this is its real colour by day-light, but its transparency is so considerable, that if a lighted candle be placed behind a mass of it, the whole will glow with a yellowish light, by which circumstance the miners distinguish it from "heavy fpar." This latter from the looseness of its texture, being in large masses quite opaque. The colour of the witherite is white, with a slight tinge of yellow; its fracture is hard, iridescent, approaching to straight foliated; it is for the most part massive. Mr. Aikin observed only one specimen that presented any indications of a regular crystalline form. In other particulars it agrees with the usual description of this substance. 100 parts of this witherite yields, Carbonate of barytes - - 96.3

- of fluorites - - 1.1

Sulphate of barytes - - 0.9

Silis - - - - 0.3

Alumine and oxyd of iron - - 0.25

99.95

100


WITTENA-GEMOTE, l. 14 from the bottom, r. concomitantes.

WODANUM, in Chemistry, the name of a metal recently discovered by Lampadius. This metal was obtained from a species of pyrites, named by Breithaupt Wodan-kis, or wodon pyrites, formed at Topfchau, in Hungary, and which had hitherto been considered as an ore of cobalt. The specific gravity of this mineral is 5.102. Its lustre is metallic. Its colour dark tin-white, paling into grey or brown. Hitherto it has only occurred mafive, and in that state it is full of cavities. Its fracture is uneven. It is brittle and easily frangible, and in hardnefs furpafles fluor fpar, but is inferior to apatite. This mineral contains about 20 per cent. of the new metal united with sulphur, arsenic, iron, and nickel.

Wodanium has a bronze-yellow colour similar to that of cobalt glance, and its specific gravity is 11.470. It is malleable. Its fracture is hackly; it has the hardnefs of fluor fpar, and is strongly attracted by the magnet. It is not tarnished by exposure to the atmosphere at common temperatures, but when heated it is converted into a black oxyd.

The solution of this metal in acids is colourlefs; or at leaft has only a slight wine-yellow tinge. Its hydrated carbonate is likewise white. The hydrate of it precipitated by caustic ammonia is indigo blue.

Neither the alkaline phosphates nor arseniates occasion any precipitate when dropped into a faturated solution of this metal in an acid, neither is any precipitate produced by the infusion of nut-galls. A plate of zinc throws down a black metallic powder from the solution of this metal in muriatic acid. Prussiate of potash throws down a pearl-grey precipitate, &c.

Nitric acid diffolves with facility both the metal and its oxyd, and the solution yields colourlefs needle-form cryftals, which readily diffolve in water.

Such at present is all we know of this metal, and the ore containing it. The name wodanum has been given from the old Saxon divinity, Woden.

WOODVILLE, in Geography. Add—Dr. Woodville, always anxious for the promotion of science, and no lefs disposed to serve the friends whom he esteemed, favoured the editor with several botanical articles for the Cyclopaedia.

WOOLCOTT, in Geography, a town of Orleans county, in Vermont, having 124 inhabitants.

WOOLLET, William, in Biography, a very eminent engraver, was born at Maidstone, in Kent, Aug. 27, 1735, and educated in his native town. In early life he exhibited specimens of his graphic talents, which being seen by Mr. Tuney, an engraver, occasioned his being taken by him as an apprentice. His advancement in his profession was very rapid, and so distinguished, that he contributed in a very high degree to the perfection of landscape-engraving. He was also singularly successful in the exercise of his art on historical subjects and portraits. So established and so permanent has been his fame, that the best impressions of his prints, particularly those of "Niobe" and "Phaeton," "Cebanod and Amelia," "Clytie and Aletes," "The Fidler," "Vandyke's Portrait of Rubens," "The Death of General Wolfe," and "The Battle of the Boyne," whenever they occur in collections, are highly appreciated.

The world was deprived of this eminent artist at the age of 50. His death, which occurred at his house in Upper Charlotte-street, Rathbone-place, May 23, 1783, was announced to the public with the following tribute of respect to his memory: "To say he was the first artist in his profession would be giving him his least praise, for he was a good
a good man. Naturally modest and amiable in his disposition, he never cenfured the works of others, or omitted pointing out their merits: his patience under the continual torments of a most dreadful disorder upwards of nine months was truly exemplary; and he died, as he had lived, in peace with all the world, in which he never had an enemy. He has left his family inconsolable for his death, and the public to lament the loss of a man whose works (of which his unflaming temper never baulfed) are an honour to his country. An elegant monument was erected to his memory in the cloisters of Westminster-abbey.


WOOLWICH, col. 3. l. 11. — The cadets, who are instructed at the royal military academy, were sent for some years to the military college, then at Marlow, now at Sandhurst, as a preparatory school; but that plan, being found attended with disadvantages, was abandoned. The institutions at Woolwich and Sandhurst are now therefore entirely independent; and we may add, that they are different in their nature, and are intended for very different purposes. The institution at Woolwich is confined solely to the instruction of young gentlemen intended for the artillery and engineer service; that at Sandhurst is supplementary, and designed for the instruction of such as are destined for any other branch of the military service of Great Britain. The education at Woolwich is free of expense, except the little that is incurred by the purchase of the first uniform. The cadets at Sandhurst pay a certain sum annually, bearing an allotted proportion to the rank of their parents, and being only free, as we conceive, in cases where the cadets are orphans, or their fathers in bankrupts.

WOORARA. See Ticunas, and Vegetable Poisons, under the article Poison.

WOULFE'S APPARATUS. See Distillation and Laboratory.

WRESTLING. See Pale.

WROXETER, in Geography. In 1811, the parish contained 109 houses, and 757 persons; viz. 305 males, and 270 females.

WYMONDHAM, in Norfolk. In 1811 the parish contained 747 houses, and 3923 persons; viz. 1896 males, and 2027 females.

X.

VOL. XXXIX.

XANTHOSIA, in Botany, from ἕλασσος, yellow, that colour being strongly communicated by the dried plant, to boiling water.—Rudge Tr. of Linn. Soc. v. 10. 301.—Clafs and order, Pentandria Digynia. Nat. Ord. Umbellatae.


1. X. pilosus. Hairy Xanthosia. Rudge as above, t. 22. f. 1. — Native of Port Jackson, New South Wales. Stem shrubby, branched, hairy. Leaves alternate, flaked, oblong, obtuse, sinuate; hairy beneath. Flowers axillary, solitary, on short flalks. Bracteae two, awl-shaped, bristly, at the base of each flower-flalk. Involucrum of two obovate ribbed leaves, half way up the flalk. This plant certainly belongs to the order of Umbellatae, however different in florefcence.

Y.

YELLOW Fever, l. penult. dele for the details of which, see that article in the Addenda, and insert—See QUARANTINE, Addenda.

YORK, col. 12, l. 1, for death r. resignation.

YORK, New. See UNITED STATES.

York, New, city, col. 2, l. 24, add.—as some say, 120,000.
Z INJAN, in Geography, a town of Perä in the province
of Irak, distant 21 miles, and bearing about N.W. by
W. of Suzann. This is a large and prosperous town, capital
of the extensive district of Khumfah, under the government
of one of the king's sons. From hence to the banks of the
Kizibozian, or golden stream, the distance is 71 miles over
an uneven country, full of deep ravines.

ZOLLIKOFER, George Joachim, in Biography, an
eminent German divine and popular preacher, was born at
St. Gall in Switzerland, Aug. 7th, 1730. His father,
who was a practitioner in the law, much esteemed for his
integrity and piety, took great care of his education, and
by his own counsel and example directed the course of his
moral conduct; nor were any of his efforts for the pro-
cracy of his son in knowledge and virtue unavailing. As
he was intended for the clerical profession, he was removed,
at an early age, from the gymnasium of his native town,
first to Bremen, and afterwards to the university of Utrecht,
where the theological professors were held in high estima-
tion. Our young student, however, soon discovered that
a college education was ill adapted to his aspiring mind; as,
in his opinion, it was very unfavourable to all exertions
of genius and originality of thought, by levelling the distinc-
tions of nature, by restraining the intellectual capacities to
a blind veneration for authorities, and preposterously mis-
leading the judgment so as to take the means of instruction
for its end. Pusillanimous a native vigour of mind, which dif-
tinguished him through the whole course of his life, he
resolved, whilst he attended the public lectures with the rest
of the scholars, to cultivate his talents and to pursue his
inquiries in his own way. Instead of paying implicit de-
ference to systems and summaries of theology, drawn up
in technical and scholastic phraseology, he made scripture
and reason his guide, and, as he says in a letter to a friend,
"I privately applied myself to the Bible, together with a
close investigation of ecclesiastical history; for I found it
impossible for me to submit to the trammels of the schools,
where derivative doctrines are uniformly transmitted, with-
out examination, by the successive tutors from generation
to generation, &c." In the other sciences, as well as in
theology, he expresses his dissatisfaction with the means
of instruction that were then adopted and invariably practiced
in the public schools. "The little which I know," as
this modest man was heard to say, "I was obliged to teach
myself, chiefly after I arrived at years of maturity; for
indeed I had but a miserable education." This is not the
language of pride and pedantry; as his attention was
directed to a variety of researches, which, in his youth, the
state of education in Germany would furnish him with no
extraordinary advantages; and as he is known to have
excelled in various departments of general literature and
science, besides theology. His attainments in natural his-
tory and natural philosophy were very considerable; with
the histories, ancient and modern, of the several nations of
the world he had cultivated an extensive acquaintance,
and in the ancient and modern languages, particularly the
Latin, French, and English, he was no ordinary proficient;
having made the works of the best poets, orators, and phi-
losophers, the subjects of his particular study. Of Cicero
he is said to have been a great admirer; and his eloquence
was formed upon the model of that of this celebrated
Roman orator. "Oh, my beloved Zollikofer!" says Zim-
mermann (on Solitude), "what delightful experiences I am
constantly feeling of the truth of those lessons you delivered
at Leipzic; those truly useful doctrines, which, disregard-
ing a cold and barren theology, inculcate wise and virtuous
precepts, that warm and amend the heart. On quitting
your auditory, the man of business forgets his vexations,
pours his anxieties into the bosom of friendship, furrenders
his feelings to the charms of consolation, until his heart is
dilated with new hopes and his inquietudes are so far suf-
fended as to enable him to sustain their return with fortu-
tude, or to dispel them with courage. The industrious man
abandons his recondite and laborious researches, escapes
from the labyrinth, and finds in the innocent and simple
satisfactions of his family and dependants more real content
and happiness than even art and science could afford them."
"—"Men, in short, of every cast and character, here find by
degrees the mind's blest calm, and learn to put on the pure
spirit of the gospel of Christ."

Soon after he had finished his academical course, he
settled, as a preacher, at Murten in the Pays de Vaud;
and in a little while removed to a more considerable place at
Monstein in the Grisons, and afterwards to Ichenburg. But
neither of these places afforded sufficient range for his
talents and zeal; and therefore in the year 1758, at the
age of twenty-eight, he accepted an invitation to be one of
the German preachers at the church of the evangelically
reformed at Leipzic. In this connexion he availed himself
of the opportunity which his moderate labours afforded
him, of giving that perfection to his discourse which was
the object of his wishes. Accordingly, the universal appro-
bation which he received on the part of his numerous con-
gregation from his first settlement constantly augmented
from
ZOLLIKOFER.

from day to day, and adhered to him to the very last hour of his addressing them. A considerable number of young members of the university eagerly preffed to hear his discourses, learning from him, by example, how a subject should be studied and discussed, in order to contribute, in any remarkable degree, to the advancement of wisdom and virtue among mankind by the oratory of the pulpit.

It is therefore natural to hope, that Zollikofe's genius will continue to operate not only throughout his native country, but likewise over many provinces of Germany, by means of thes he styles, who are thus prepared for differentiating truth, and virtue, and happiness among their fellow-creatures to the latest posterity.

Several volumes of his excellent discourses have for some years been in the hands of the public, and are in high and deserved repute wherever the German language is understood, by all persons to whom religion and virtue are objects of serious concern; to which the number of editions through which they have passed, and which are continually published, bear ample testimony, as well as the taste and judgment of the times with regard to compositions of this nature. A German writer says, that "Zollikofe was one of the first pulpit orators of his time. His sermons were distinguished by clearness of ideas and warmth of feeling. In regard to form, they were the most complete productions of the kind which had appeared, at that time, in Germany. The diction is copious and varied; the periods harmonious, and the whole acquires great animation from the connection of the ideas and the transitions." Of his theological creed we can form no decided opinion. His discourses are practical, and not controverfal; and it must be allowed that whatever were his sentiments on disputed topics, they are adapted to inform the understanding, to improve the heart, and to regulate the temper and conduct. Some have suspected that he belonged to the modern German school of theologians. Professor Eichorn pronounces his eloquence in the following strain: "Zollikofe, on account of the philosophical colouring combined with popularity, which he knew how to give to his discourses, was an orator for the highest ranks. He unfolded the doctrines and principles of Christianity with philosophical accuracy; exhibited them in a concise and impressive manner, clothed in pure and simple language, without artificial ornament; and endeavoured to affect the heart by convincing the judgment."

Zollikofe, considering that psalmody and prayer form an essential part of public worship, undertook to make a collection of spiritual songs for the use of his congregation, on a plan more suitable to the purpose, and more edifying than the old one. In doing this he availed himself of the advice and afflance of his judicious friends, both in regard to the improvement of the forms, and to the proper selection of hymns from the modern poets, particularly Gellert, Cramer, and Klopstock. This performance appeared in the year 1766. His discourses and prayers for the use of public and family worship were published in 1777, and were followed in 1785 by his exercises of devotion and prayers for the private use of reflecting and sincere Christians. The Rev. W. Tooke, F.R.S. has done great service to the cause of rational religion, by the translation of 10 vols. 8vo. of Zollikofe's Sermons, and of his Devotional Exercises in 1 vol. 8vo.

Having said so much concerning the professional character and performances of Zollikofe, we cannot forbear adding a few particulars from the account that lies before us, with regard to his private and social disposition and conduct.

"In humility and retirement, he purified his path of life; never willing to shine, his only aim was to be useful; because in the exercise of that fierna virtue which he taught he found his supreme delight. The poor and destitute, especially those of his congregation, beheld in him a father and a friend; though his bounty was not by means confined to them, it also extended to those of other communions, relieving them either by his own donations or through application to others."—"His advice, his judgment, his intercourse with others, his admonitions, his consolation in misfortune, were at the service of all who applied for them, and he even went before their requests. Young men desirous of knowledge, eagerly sought his acquaintance, and all those who enjoyed that benefit have honestly confessed, that they derived from it material improvement both in heart and mind. Whatever he said was true; every word he uttered might be relied on as conveying the real sentiments of his heart; arrayed in the simple majesty of truth, he bought no other covering: and never did he commend or approve from complaisance any thing that was contrary to the conviction of his own mind, or that he saw could not be approved upon the strictest rules of morality. His gravity was attractive and engaging, charity itself was in its smiles, his conversation entertaining, often animated, his equal cheerfulness amiable and insouciant, and his raillery, in which he very rarely indulged, the mildest possible. To a very considerable compass of literary attainments and great brilliancy of imagination, were added in the character of Zollikofe, the most undeviating rectitude, the most amiable disposition, and the most prepossessing manner. The whole tenor of his life was one pure, uninterrupted, captivating harmony of virtue, and the sweet enjoyment of the felicities arising from it. Among his other satisfactions he had that of being universally esteemed, of necessity it could not be otherwise. That happy mixture of serenity and dignity with gentleness and affability; his own strict course of virtue combined with so much indulgence and candour towards the failings of others; his heartfelt and firm conviction of the great truths he taught, which manifested itself in all his actions, in the whole tenor of his conversation as well as in his discourses from the pulpit, without entertaining the slightest intolerance towards such as differed from him in opinion, or arrogating the smallest superiority over those who professed not the faculty of thinking for themselves, or of fully comprehending every truth; his unwearied zeal to lead his auditors to the rigorous exercise of virtue, in his demands however never disregarding the rights of humanity concerning what they could or could not do in these or other circumstances; his impartial estimation of mankind, justly discriminating the opinions and principles upon which they acted, carefully tracing out their good qualities, and heartily rejoicing in every advantageous discovery of that nature—let the reader contemplate all this as combined in the character of Zollikofe, and then pronounce, whether real undistinguished veneration, the general esteem of all ranks and classes of persons must not as insensibly have attended his wisdom and virtue as the shadow follows the substance. Even the wanton wit of those who, in the judgments they pass on the ministers of religion, are not ashamed to set aside the respect that is due from man to man, was awed into silence at the name of Zollikofe."

He was twice married, and in both connections he was truly happy, though both proved childless. For about a year before his death his faculties began to decline, and he wished to resign his office of preacher, and to retire to the place of his nativity in Switzerland; but at the request of his congregation, who for the sake of retaining him expressed their willingness to be satisfied with one discourse in a fortnight, he was induced to remain in his station. At length within a few weeks before his death he was obliged to devolve
devolve the charge of preaching on another person. His last illness was very painful; but he bore it with the patience of a philosopher, and the resignation of a Christian, looking by a steady eye of faith and hope beyond the grave to a world of retribution. He obtained a release on the 22d of January 1788, and was buried on the 25th. The whole of his numerous congregation, together with some hundreds of young students of the university, and numbers of his auditors of the Lutheran communion, attended his remains to the grave, with every token of unfeigned sorrow.

THE END.
CATALOGUE AND ANALYSIS
OF THE
PLATES TO REES'S CYCLOPAEDIA;
COMPREHENDING
THE GENERAL TITLES, THE ORDER AND NUMBER OF THE PLATES AND FIGURES, AND
THE PARTICULAR SUBJECTS,
TOGETHER WITH
OCCASIONAL EXPLANATIONS, AND CORRECTIONS OF ERRONEOUS REFERENCES.

Portrait of Dr. Rees — Frontispiece to Vol. I. of the Cyclopaedia.

PLATES. VOL. I.
AGRICULTURE — ASTRONOMICAL INSTRUMENTS.

AGRICULTURE.

Plate
I. Fig. 1. Common Barn
2. Double Barn
3. Improved Barn
4. Open Barn
5. Dutch moveable Barn

II. Fig. 1. Barn and Threshing Machine, Front
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tion
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VII. Fig. 1. Ornamental Cottage, Elevation
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### AGRICULTURE

**PLATE**

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*(Plates XIII. and XIV. have been wrongly numbered. The Plate numbered XIII. is referred to as Plate XIV.; and the Plate numbered XIV. is referred to as Plate XIII.)*

**PLATE**

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| 2. Ditto, Houfe, Ground Plan |
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| 4. Mixed Farm Houfe, Elevation |
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**X. VII. Plans of Angular and Circular Farm Yards.**

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**X. IX. Fig. 1—12.** Ditto

**X. X. Fig. 1—12.** Ditto

**X. XI. Fig. 1—12.** Ditto, Chain Fences, &c.

**X. XII. Fig. 1—12.** Ditto, Wall Fences, &c.

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**X. X. III. Fig. 1.** Flax Brake

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3, 4. Foot Brake, Elevation

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6, 7. Heckle

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**X. X. VI. Fig. 1—3.** Machine, Charles’s, for levelling

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**X. X. VII. Grazing, and Harrows**

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2. Improved

3. Double-jointed

4. Ditto, with top bar

5. Iron

6. Grafs

7. Grafs Sod-cutting Plough

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**X. X. VIII.** Mole catching.

**X. X. IX.**

**(XX. VIII. Fig. 1.** Detached Mole-hill

2. Two Mole-hills

3. Three ditto

4. Six ditto

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7. Fresh ditto

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9. Bottom of ditto
### AGRICULTURE.

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### ALGEBRA.

#### PLATE XXXIX.

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<td>4.</td>
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### ANALYSIS.

#### Palpable Arithmetic and Writing.

I. Fig. 1. Digits or Figures
2--8. Arithmetical Tables, &c. &c.

II. Fig. 7--9. Nepers's Bones. *See Miscellany, Plate I.*

### ALGEBRA.

**Palpable Arithmetic and Writing.**

I. Fig. 1. Cifloid.
2--9. Conchoid
10--20. Contraction

(The figure numbered 20 is not the proper one. The figure referred to is inferred in Geometry, Plate IX. fig. 2. Construction.)

II. Fig. 21, 22. Cotesian Theorem
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24. Curve, Caustic
25. Dia-caustic
26. Characteristic, Triangle of a

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### ANALYSIS.

#### IV. Curvature

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(This Plate is numbered VI. and referred to as Plate VI. under the article Curve.)

V. Fig. 1--8. Cycloid

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9--11. Epicycloid

VI. Fig. 1--10. Evolute

(This Plate is numbered V. and referred to as Plate VI. The reference in the article EVOLUTE, to fig. 35, in this Plate, should be to fig. 2.)

### VII. Fluxion

5. Analytic Function

(This is a wrong figure inferred by mistake. The proper figure is in Geometry, Plate IX.

6--8. Analytic Function

4 R 2
ANATOMY.

I. Organs of Sense

EYE. Plate I. Fig. 1—5. (Plate I.* fig. 1—5. The same in Outline)

II. Eye. Plate II. Fig. 1—11. (Plate II.* fig. 1—11. The same in Outline)

III. Eye. Plate III. Fig. 1—15. (Plate III.* fig. 1—15. The same in Outline)

IV. Eye. Plate IV. Fig. 1—5. (Plate IV.* fig. 1—5. The same in Outline)

(IV.) Eye. Plate IV. Fig. 4. (This is fig. 4. of the preceding Plate, on a larger scale, and therefore not numbered as a separate Plate.)

ANATOMY, COMPARATIVE.

I. & II. Fig. 1—3. Anatomy of Birds

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I—III. Anatomy of the Horfe

IV. Stomach

Inteclines

The other Plates referred to in the several articles on Comparative Anatomy, comprized in the former part of the Cyclopaedia, including the articles FEATHERS, FISHES, HAIR, HORNS, INCUBATION, MAMMAL, &c. are unavoidably omitted. Dr. Mac CARTNEY, by whom these articles were furnished, has stated that "he has found it impossible to procure, within any reasonable time, the drawings required for those Plates, in conformation of his removal from London, and of the indispensible occupations attending the laborious duties of his present professorship in the University of Dublin;" the editor has deemed it preferable, upon the whole, in this dilemma, to omit these Plates altogether, rather than to give them in an imperfect and unconnected manner; especially as he could not have given them, even in this defective state, without charging the work with a heavy additional expense, and further delaying its completion to a distant and indefinite period. He has had the less difficulty in coming to this determination, in conformation of no reference to Plates having been made in any of the articles on Comparative Anatomy, since Dr. Mac CARTNEY's removal to Ireland deprived the editor of his assistance in this department.

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I. Fig. 1. Attic Bafe, Temple of Jupiter Olymplus at Athens

2. Temple of Minerva Polias at Athens

3. Doric Bafe, according to Vignola

4. Ionic Bafe, Ditto

5. Doric Capital, from the Portico of Philip in the Island of Delos

6. Ditto, from the Temple at Corinth

7. Ionic Capital, from the Temple of Minerva

I. & III. Baths of Caracalla. (See Plate XXXVI.

XXXVII.)

II. Titus. (See Plate XXV.)
ARCHITECTURE.

Plate II. Roman Basilica, from Vitruvius
Plan and Elevation

II.—V. Amphitheatre
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III. Basilica at Perugia
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IV.—V. Basilica of St. Peter's. See Plate XXXV.
VI. Arch Fig. 1—7.
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(VIII.) Fig. 1. No. 1—4. Fig. 2. Fig. 3. No. 1—4.
VIII. Chimney and Dome.
(Dome. Fig. 1. No. 1, 2. Fig. 2. No. 1, 2. Fig. 3. No. 1—4.

(VIII A.) Fig. 1. No. 1—4. Fig. 2. Fig. 3. No. 1, 2. Fig. 4. No. 1, 2. Fig. 5. No. 1, 2.

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2. Septimius Severus at Rome
X. Fig. 1. Arch of Constantine
2. Titus
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XII. Circus of Caracalla
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XIV. Tuscan Order from the Church in the Covent Garden

XV. Fig. 1. Doric Order, Temple at Delos
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XVII. Fig. 1. Pseudo-dipteral Temple at Perugia
2. Temple of Thesaurus at Athens
3. Temple of Concord at Agrigentum
4. Temple of Jupiter Ne-merus, between Argos and Corinth
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The Agora at Athens

XVIII. Fig. 1—14. Doric Order

XIX. Temple of Pandrosus, at Athens
XX. Interior of a Hindoo Temple, at Deo, in Bahr
XXI. Mouldings, &c. Grecian and Roman

ARCHITECTURE.

Plate XXI. Mouldings, Fillet, Liftel, Annulet, or Square
Alfragal or Bead
Cyma, Cyma Recta, or Cymatium
Liftel and Fascia
Echinus Ovolo, or Quarter Round

Enriched Sections of
Inverted Cyma, Talon, or Ogge

Talon enriched
Alfragal, or Bead enriched
Doric Annulets
Cavetto or Hollow
Torus
Scotia or Trochilus
Cantaliber
Corinthian Modillion
Soffit of a Modillion
Pannel between the Corinthian Modillions in the foftit of the Corona
Flower in the Corinthian Abacus

XXII. Joinery. Fig. 1—7. No. 1. Fig. 7.
2. No. 2—5. Fig. 8. No. 1—5.

XXIII. Doors. Fig. 1—11
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XXV. Painting from the Baths of Titus
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XXVI. Egyptian Capitals. Fig. 1—8
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XXXII. Bridges. Fig. 1, 2.
XXXIII. Bridges. Fig. 1—6.
XXXIV. Wooden Bridge, at Walton in Surry
XXXV. Basilica. Incorporated Plans of the Basilica of St. Peter's, and of the modern St. Peter's of the Vatican. The Plan, with the parts more deeply shaded, is that of the Old Basilica. The parts which are more lightly shaded, indicate the larger modern edifice, the Church of St. Peter's
(The two Plans here exhibited together in one view are referred to as Architecture, Plates IV. & V. in the article, Basilica. But, instead of giving the two Plans separately, it was deemed preferable, upon the whole, to give Caullery's own incorporated Plans of the two Edifices.)

XXXVI. Baths of Caracalla. Plan
(Referred to as Architecture, Plate I.)

XXXVII. Ditto. Section
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ARCHITECTURE.

Plate
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XXXIX. Bridge, Oblique Arch. Fig. 1—10.
XL. West Door of the Cathedral of Carrara.

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XLI. Chimney. Fig. 1—6.

(This Plate forms a part of Architecture, Plate VIII. There are some omissions in the small letters of reference on fig. 5, which the reader will easily supply.)

XLII. Carpentry, Roofs. Fig. 1—10.
XLIII. Roofs. Fig. 1—10.
XLIV. Roofs. Fig. 1. No. 1—4. Fig. 2, 3.
XLVI. Fig. 1, No. 1, 2. Fig. 2, No. 1—6.
XLVII. Fig. 1—3.
XLVIII. to LVII. (There are no Plates of these Numbers. Plate XLVIII. was, by mistake, numbered LVIII, and the following numbers were continued accordingly.)

LVIII. Roofs. Fig. 1, 2. Fig. 3, No. 1, 2.
LIX. Roofs. Fig. 1, No. 1—3. Fig. 2, No. 1—2.
LX. Carpentry, Fig. 1—8. Fig. 9, No. 1—6.
LXI. Carpentry, Fig. 1, No. 1, 2. Fig. 2, 3.
LXII. Carpentry, Fig. 1—2. Fig. 2, No. 1—3.
LXIII. Carpentry, Fig. 1—3. Fig. 4, No. 1, 2, 3.
LXIV. Carpentry, Fig. 1—3. Fig. 2, No. 1—3.
LXV. Carpentry, Fig. 1. No. 1—2. Fig. 3, No. 1, 2.
LXVI. Carpentry, Fig. 1—4.
LXVII. Centres. Fig. 1—3.
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LXIX. Geometrical Principles of Carpentry. Fig. 1—3. Fig. 4, No. 1, 2. Fig. 5, 6.
LXX. Ditto. Fig. 1, 2. Fig. 3, No. 1—3.
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LXXII. Ditto. Fig. 1—7. Fig. 8, No. 1—2. Fig. 9, No. 1—2.
LXXIII. Ditto. Fig. 1, No. 1, 2. Fig. 2, No. 1—2. Fig. 3, 4.
LXXIV. Ditto. Fig. 1, No. 1—6. Fig. 2, No. 1—2. Fig. 3.
LXXIV.* Groin. Fig. 1—5.
LXXV. Geometrical Principles of Carpentry
LXXVI. Ditto. Fig. 1, No. 1—7.
LXXVII. Ditto. Fig. 1—6.
LXXVIII. Ditto. Fig. 1, No. 1—6. Fig. 2, No. 1—6.

ASTRONOMY.

Plate

ARMOURED.

I. Ancient Bronzes
A. In the Collection of P. Knight, Esq.
B. C. In the British Museum
D. In the Collection of P. Knight, Esq.

II. Armour. Fig. 1, 2. From Denon
3, 4. The Tuscan Gallery
5. A Gem
6. From Sir W. Hamilton's Vases
7. The Tuscan Gallery
8. A Bronze in the British Museum
9a. From the Tuscan Gallery
9b. 10. From Sir W. Hamilton's Vases
11. From the British Museum
12. Bartoli's Triumphal Arches
13. 14. From the British Museum
15. From Bartoli's Triumphal Arches
16—19. From the British Museum
20. From Bartoli's Triumphal Arches

IV. Ancient Armour
Fig. 1, 2. Saxon
3, 4. Danish
5. Norman
6. Plate Armour from the Monument of Thomas Beaufort, Earl of Warwick

V. Fig. 1. Henry VIII.'s Armour
2. Croupiere or Buttock Armour
3. Robert Dudley, Earl of Leicester, in Tilting Armour
4. Half-tilting Habit of Prince Henry

(AV. and V. are on the same Plate.)

ARTILLERY.

I. and II. Fig. 1. Aries, or Battering Ram
2—4. Catapults, used by Lord Heathfield at the Siege of Gibraltar

I. Fig. 1—13. Carriages
II. Fig. 14—20. Carriages
III. Fig. 21—33. Carriages
IV. Fig. 34—44. Carriages
V. Fig. 45—61. Carriages

Artillery Encampment
(The Plate which has this title, is CAMP, Plate III.)

ASTRONOMY.

I. Fig. 1, 2. Aberration
3, 4. Culmination
5. 6. Altitude
7. Refraction of Altitude
8. Parallax of Altitude
9, 10. Anomaly
11. Arc
12. Area
13. Argument
ASTRONOMY.

Plate

II. Fig. 9. General View of the Solar System

10. Proportional Magnitudes of the Primary Planets

11. Proportional Magnitudes of the Sun, as seen from the Primary Planets

III. 14. Armillary Sphere

15—17. Ascension

18, 19. Axis

20, 21. Azimuth

22. Chronology

(This Plate is numbered Plate II.)

IV. Fig. 23—36. Comet

V. Fig. 37. Calculation

38—42. (P) selected

43. culmination

44—45. Declination

46. Demi crofs

VI. Fig. 47—52. Degree

53. Measured in 1736.

54. Measured in 1803

VII. Fig. 55—67. Degree

VIII. Degree

IX. Fig. 60. Density

61, 62. Depression

63. Deviation

64—66. Diameter

67. Double Star

67*. Dichotomy

68—70. Earth.

(Infer Q above p on the right-hand Globe, at the end of the line CQ, and infer S on the middle of the line p, p,)

X. Fig. 71—73. Earth.

(71. x. should be over the Globe on the left of the figure, and T under the Globe on the same side, and t should be under the Globe on the right. Fig. 73. Instead of a read b, at the bottom of the line B C

74. Ferguson’s Eclipses.

(Infer C on the bows arch below e)

75. Eclipse.

(For C read c, and for e read C)

76. Eclipse

(Infer b at the end of the line A e)

77. Eclipse

(Infer A at the upper end of the line L t, and B C)

XI. Fig. 78. Eclipse

79. Eclipse

(This figure is by an error of the press, referred to as fig. 79.)

80, 81. Eclipse

(These figures are not referred to, but the theorems to which they pertain, follow immediately after the theorems belonging to fig. 79.)

82—89. Eclipse

XI. No. 2. Fig. 90—98. Eclipse

XII. Fig. 99. Eclipse, Hindoos Computation

100. Mr. Pond’s Machine to illustrate the Phenomena of Eclipses

(The letters of reference have been omitted in this Plate: but the Machine will easily be understood from inspection.)

101. Eclipse

ASTRONOMY.

Plate

XII. Fig. 102. Elevation

103. Elliptic

104. Elongation

105. Epicycle

106. Equal Altitude

107—109. Elevation

(The letter A is wanting at the top of the line TBC. In the theory, twice for the small circle ACB, read AGB;)

109.* Equator

XII. Fig. 100. Eclipse.

(The reference to N V, fig. 100, should be to N V, fig. 102.)

102. Poles of the Elliptic, Equator, and Orbs of Venus

103.* Obliquity of the Elliptic

(Referred to as fig. 103.)

107.* Equation of the Centre

108. No. 1, 2. Time

109** Time

110. Equinox

XIII. Fig. 110—113. Excentric

114, 115. Galaxy

(The reference to fig. 114, should be to fig. 115; and the reference to fig. 115, should be to fig. 114.)

115. Geocentric

XIV. Fig. 117. Globe, method of exhibiting Stars, Circles, &c. upon

XV. Fig. 118. Construction of a Celestial Globe

120. Quadrant of Altitude

121. Construction of a Celestial Globe

122. Ferguson’s Celestial Globe

123. Planetary Globe

XV. Fig. 124—138. Gravitation

XVI. Fig. 138. Heat

139. Heliocentric Latitude

140. Hemisphere, Horizon, Tropics

141. Horizon

142. Hour

143—146. Jupiter

147. Latitude

148. Reduction

XVII. Fig. 1. Longitude

2. Mars

3. 4. Meridian Line

5—16. Moon

XVIII. Fig. 1, 2. Nodes

3. Paracentric

(The reference to fig. 2, under this article, should be to fig. 3. The figure wants a curved line drawn from A to B over 9.)

4—7. Parallax

8—14. Moon’s Parallax

15. Venus’s Parallax

16. Particula Exfors

17, 18. Penumbra

(Figures 16, 17, 18, are omitted in this Plate, and from Plate XIX, fig. 1, 2, 3, respectively.)

XIX. Fig. 1. Particula Exfors

(Referred to as Plate XVIII. fig. 16.)

2. Penumbra

(Referred to as Plate XVIII. fig. 17.)

3. Penumbra

(Referred to as Plate XVIII. fig. 18.)

3*—6. Planet
### ASTRONOMICAL INSTRUMENTS.

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|       | 4.   | Quadrant |
|       | 5.   | Nocturnal or Star Dial |
|       | 6.   | Newton's Quadrant |
|       | 8.   | Elton's Quadrant |
| II.   | 1.   | Mayer's Circle |
|       | 3—9. | Borda's Circle |
| III.  | 1.   | English Reflecting Circle, by Troughton |
|       | 2.   | Graduated Circle, with two Verniers |
|       | 3—4. | three Verniers |
|       | 5.   | Mendoza's Circle |
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|       | 2.   | View, with the Circle, Index, &c. detached |
| VIII. | 1.   | Circle, by the Rev. F. Wollaston |
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|       | 2.   | Ramdten's Ditto |
|       | 3.   | Dollond's Ditto |

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BOATS.

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8-12. Jone’s Stand, Telescope, and Level Zenith Sector

Plate XXXIII. Fig. 1. Graham’s Zenith Sector
2. Ramden’s Zenith Sector
3-6. Dollond’s Zenith Micrometer

PLATES. VOL. II.

BASSO RELIEVO—HOROLOGY.

Plate

Bark-Beds, and Pits. See Gardening, Plate I.

BASSO RELIEVO.

I. Fig. 1. An Egyptian Hieroglyphical Sphinx
2. A Hindu Bass-relief
3. A Persian Ditto
4. Jupiter with a Thunder and Trident

II. Fig. 1. Hercules and Apollo contending for the Tripod
2. Minerva fabduing Hercules

III. The Tomb-robe of Xanthippos

IV. Fig. 1. Capital of a Column in the Well-door of the Cathedral of Carrara

(This part of the Plate, fig. 1, is also in Architecture, Plate XL.)
2. Zethus and Amphion comforting Antiope, their Mother

(These Altars are referred to as Miscellany, Plate I. No. 1-5.

BLEACHING.

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3. 4. Oxy-chloric Acid

II. Fig. 1-7. Washing and Clearing

III. Fig. 1-4. Drying

IV. Fig. 1-7. Boiling Pan, &c.

BLOCK MACHINERY.

I. Fig. 1-4. Sawing Machine
II. Fig. 1-3. Crown Saw
4-9. Coating Engine

III. Fig. 1, 2. Riveting Hammer
3-7. Face-turning Lathe

IV. Fig. 1-4. Boring Machine
5-9. Cornering Saw

V. Fig. 1-6. Mortising Machine

VI. Fig. 1-5. Shaping Engine

VII. Fig. 1-5. Scoring Engine
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BOATS.

I. Pahie, &c.
II. Life Boat

(See Ships, Plate VII.)

(Camp, Construction of

(Ther article has been superseded by the article
Whole Moulding, in Ship Building, to

which the reader is referred.)

Vol. XXXIX.

CANALS.

Plate XXXIII. Fig. 1. Graham’s Zenith Sector
2. Ramden’s Zenith Sector
3-6. Dollond’s Zenith Micrometer

Plate CAMP.

I. Plan of a Roman Consular Camp, according to Polybius

II. Plan of the Camp of a Roman Army, according to the Hyginian System of Castrametation

(This is referred to under Castrametation, as Plate of Castrametation, fig. 1-3.)

III. Plan of the Encampment of a Park of Artillery

(This Plate is headed Artillery, Encampment; and referred to under Castrametation as Castrametation, fig. 4.)

IV. Profiles of Lines of Circumvallation, according to Vauban

Lines of Circumvallation, with Camp
Plan of a Part of the Line of Circumvallation at Phillipsburg, in 1734
Plan of a Part of the Line of Circumvallation at Arras, in 1654

(This Plate is headed Circumvallation, Camp, V. It is referred to under Camp, as Military, Plate V. and under Circumvallation, without a name.)

V.-XII. Situations proper for the Encampment of Armies, and for Engagements

(The last four Plates, there being two subjects on each Plate, are referred to under Castrametation, as Castrametation, fig. 4, 5, &c.)

CANALS.

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4, 5. Embanking
6-13. Deep Cutting
14. Puddling
15. Lining
16-18. Reservoirs

II. Fig. 19. Aqueduct Bridge at Kelvin, on the Forth and Clyde Canal. Plan

20. Transverse Section
21. Elevation

III. Cast Iron Aqueducts

Fig. 22. Mr. Telford’s, on the Shrewsbury Canal at Long
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IV. Fig. 25. Embankment
26. Safety Gate
27. Weir
28, 29. Circular Weir
30. Pile Planks
31-35. Iron Railways
CASTING.

Plate IV. Fig. 40-42. Canal Bridges
(See Plate VI. to which the reference ought to have been made.)

V. Fig. 36, 37. Locks
38, 39. Gates

VI. Fig. 40-42. Canal Bridges

VII. Fig. 43. Swing Bridge
44-47. Rollers, &c. for Ditto
48-52. Navigators' Tools
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(Given in the Atlas, Vol. VI. of the Plates)

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2. Wick Broach
3. Machine for cutting Cotton
4. Tallow Ciftern for Mould Candles
5. Mould Frame
6. Mould
7-12. Candle Sticks

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3. Muzzle
4. Mortar
5. 6. Sea Ditto
7. Howitzer
8. Land Mortar
9. Sea Mortar
10. Howitzer
11. Mortar
12. Stone Mortar

II. Fig. 13-16. Cannon Boring

III. Fig. 17-21. Cannon Boring, &c.

CANTEENS.
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2, 3. Cross-cutting Saw
4, 5. Tenating or Rebating Saws
6. Bung Stave
7. Boring Machine
8. Center Bit
9. Slider

II. Fig. 10. Frame
11. Screw Hoop
12. Truf Hoop
13. Screw Hoop applied to a Canteen
14. Turning the Chime
15. Turning the Head
16, 17. Shears
18. Punching the Hoops
19. Rounding the Ends of the Hoops

CASTING.
I. Fig. 1, 2. Open Sand Cafting
3. Trowel
4. Ramming Tool
5. Lifting Screw
6. Sand Cafting between Flasks

CHEMISTRY.

Plate I. Fig. 7-10. Method of Cafting Cog Wheels
11-13. Moulds, &c. for Loam Cafting

CASTMETATION. See Camp.

CHEMISTRY.
I. Fig. 1, 2. Cupalo Furnace
II. Fig. 1-5. Still
II. Fig. 1. Blaff Furnace (For fig. 4. read fig. 6.)
6-9. Iron Smelting Furnace
III. Fig. 10. Alcohol
10-13. Alembic
14. Aludel
IV. Fig 15-26. Furnaces for the Reduction of Antimony
V. Fig. 27, 28. Wolfe's Apparatus
VI. Ditto
VII. Fig. 1-4. Destillation
VII. Fig. 1-4. Blast Furnace
VIII. Fig. 1-4. Ditto
IX. Fig. 1-6. Ditto
(The reference to Plate IX. fig. 4. under this article as "the Ground-plan of arch, pillars, hearth, &c. of a Blast Furnace," should be to Plate X. fig. 4.)

X. Fig. 1-10. Blast Furnace
X. Fig. 1-3. Blowpipe (See Plate XIV. fig. 5-7.)

X. Fig. 1. Hope's Eudiometer
(See Plate XXI. fig. 1.)
2. Pepys's Eudiometer
(See Plate XXI. fig. 2.)

XI. Fig. 1-7. Blow-pipe

XI. Ancient Chemical Characters.

XI. XII. Blast Furnace Works, Plan and Section

XII. XIV. Blast Furnace Works

Fig. 1. Section of the Building
2. Dam Stone
3. Dam Plate
4. Tymp Plate
1. 2. Water Regulator

XIV. Blast Furnace Works

XIV. Gasometer and Blow-pipe

Fig. 1. Hydraulic Bellows
2. Air Holder
3. Bell
4. Gas Holder
5. Glas Blower's Lamp
6. Shoe Lamp
7. Double Blow-pipe
(Fig. 5, 6, 7, are referred to as Plate X. fig. 1, 2, 3.)

XV. Fig. 1, 2. Air Vault

XVI. Laboratory

Fig. 1. Stand with the Apparatus
2. Retort
3. Acid Holder
4, 5. Receiver
6. Bended Tube
7. Adopter
8. Receiver
10. Nooth's Apparatus
11. Dr. Hamilton's Apparatus
COMPOSITION.

Plate

XVI. Fig. 12. Part of Nooth's Ditto enlarged
16. Pneumatic Trough
17. Supporter
18. Eudiometer Tubes
19. Mercurial Trough
20. Glass Jar
21. Iron Ring Supporter
22. Volta's Eudiometer
23. Evaporating Vessel
24. Mattraps
25. Proof Glass
26. Precipitating Glass
27. Gas Bottle
28. Muffel
29. 30. Crucible
31, 32. Crucible Stands
33. Cupel
34. Separatory Funnel
35. Iron Retort

Laboratory

XVII. Fig. 9. Apparatus for the Absorption of Gases
13, 14. Simplified Gafometer
15. Pepys's Gafometer

XVIII. XIX. (No Plates of these Numbers)
XX. Fig. 1—3. Apparatus for the Diffusion of Pyrogenous Acid

XXI. Fig. 1. Hope's Eudiometer
(Referred to as Plate X., fig. 1.)
2. Pepys's (or Davy's) Improvement of Volta's Eudiometer
(Referred to as Plate X., fig. 2.)
3. Gay Lussac and Thenard's Apparatus
4. Berzelius's Apparatus for the Analysis of Organic Substances
5. Dr. Wollaston's Scale of Chemical Equivalents.

CHIARO-SCURO.

(See Composition, Plate II.)

CHIMNEY-SWEEPING.

(See Miscellany, Plate II.)

CLOUDS.

I. No. 1. Cirrus in different Forms
2. Cirro Stratus subsiding on Cumuli beneath
3. Cirrus as seen before Thunder
4. Cirro Cumulus as seen before Thunder
5. A Nimbus flanked by Cirro Stratus, and giving an electrical Discharge
6. A Range of Cumuli passing to Cumulo Stratus before Thunder

II. No. 1, 2. Cirro Stratus
3. Cirrus passing to Cirro Cumulus
4. Cirro Stratus, Cumulus, and Cumulo Stratus, grouped

COMPOSITION.

I. Fig. 1. The "Battle of the Standard," by Leonardo da Vinci

COTTON MANUFACTURE.

Plate

I. Fig. 3. The "Creation of Man," the "Transgression at the Tree of Knowledge," and "the Expulsion from Paradise," — Frescoes of Michelangelo in the Sistine Chapel

II. 2. "The Cartoon of Pisa," (or, according to Vafari, its chief Group,) by Michelangelo
5. "Paul preaching at Athens," from the Cartoon of Raffael;e at Hampton Court

CHIARO-SCURO.

1. The simple Principles of Chiaro-Scuro illustrated
2. The Conduct of Correggio in the Distribution of his Mafies of Light and Shade exemplified in one of his Compositions in the Duomo at Parma
3. An Example from Rubens
4. Rembrandt

CONICS.

I. Fig. 1. Ambigtenal
2, 3. Asymptote
4—10. Cone
(The reference to truncated cone, fig. 8, should be to fig. 9.)
12. No. 2. (See fig. 3.)
20. Abfiffe (See fig. 2.)
31, 32. Axis (See Geometry, Plate IX., fig. 5, 6.)
33. Asymptote (The figure thus referred to is in Geometry, Plate IX., fig. 4.)

II. Fig. 1—9. Conic Sections; lines harmonically divided
10—14. Conic Surfaces

III. Fig. 15—23. Sections
IV. Fig. 24—31. Ditto
V. Fig. 31, 32. Axis (See Geometry, Plate IX., fig. 5, 6.)
32—43. Conic Sections

VI. Fig. 44—55. Sections

VII. VIII. Fig. 1—13. Ellipse
VIII. IX. Fig. 14—26. Ditto
X. Fig. 1—12. Hyperbola
XI. Fig. 13—21. Ditto
XII. Fig. 1—16. Parabola

COTTON MANUFACTURE.

I. Fig. 1—6. Calico Printing
II. Fig. 1—5. Batting Machine
III. Fig. 1—5. Deviling
IV. Fig. 1—4. Carding Machine
V. Fig. 1—4. Drawing Frame
VI. Fig. 1, 2. Roving Can Frame
3, 4. Winding Block
(The number has been omitted on this plate.)

VII. Roving Frame
Horizontal Plan of the Machine called the Double Speeder
DIALLING.

PLATE

VIII.

Roving Frame, Double Speeder

Fig. 1-3. Elevation in Front
(This, like the preceding, is numbered Plate VII.)

IX.

Fig. 1-6. Water Spinning Frame

X.

Fig. 1-3. Throttle Spinning Frame

XI.

Fig. 1-5. Mule Spinning

XII.

Fig. 1, 2. Reeling

3-5. Machine for winding sewing Cotton into Balls

XIII.

Fig. 1, 2. Doubling Machine

3-4. Twisting Machine

Sections of Miers. Strutt's Cotton Mills at Belper

Fig. 1. Longitudinal Section

2. Crof Section

3. Section of the Wing

CRISTALLOGRAPHY.

(See Plates, Vol. V. Natural History)

CUTLERY.

1. Fig. 1. Two Troughs of a Grinding Mill
2, 2.* Tongs for preffing Knife-Handles
3. Preffing Vice
3. Spring Drill
(This is the only Plate of Cutlery)

CYCLOID.

Fig. 1-8. (By mistake these figures have been twice engraved. See Analysis, Plate V. fig. 1-8. to which the reference is made in the letter-prefix)

DIALLING.

1. Fig. 1. Declinater
1.* Ruler of the Declinater
2, 3. Declinater
4. Equinoctal Dial
5. Universal Equinoctal Dial
6, 7. Universal Dial
8-12. Horizontal Dial
13. Vertical South Dial
11. Fig. 14. Vertical North Dial
15. South Dial
16. East Dial
17, 18. Polar Dial
19. Dial on three Planes
20. Dials (primary)
21, 22. Vertical declining Dial
23. Inclined Dial
24. Universal Mechanical Dial
(For fig. 25, 26, see Plate IV.)

III.

Fig. 27, 28. Cylindrical Dial
29, 30. Portable Dial
31-33. Universal Dial on a Crofs

IV. Fig. 25, 26. (of Plate II.) Moon Dial
34, 35. Ring Dial
36. Tide Dial (See Miscellany, Plate XXV. fig. 10.)
36, 37. Dials constructed by a Globe
38-41. Dialling Cylinder
42. Dialling Scales

ELECTRICITY.

PLATE

DOCKS.

Docks at Liverpool, 1808
Docks at London, 1808

DRAWING.

I. II. III. Fig. 1, 2. Outlines of the Human Face
3. Shading, Hatchings
4, 5. Outlines of the Human Face
6. Shading, Hatchings

IV. Iffs Magna Mater

V.-VII. (No Plates of these Numbers)

VIII. From an original Drawing by G. Pouf

IX.

Ditto

X. Landscape from an original Drawing of Claude Lorraine

DRAWING INSTRUMENTS.

I. Fig. 1-11. Compasses
(For fig. 5, see Plate TURNING, fig. 29.)

I.* Fig. 1. Peacock's Delineator
2, 3. Mifs Edgeworth's Ditto
4, 5. Ramfden's Optigraph, by Jones
6, 7. Wollafton's Camera Lucida

II. Fig. 1, 2. Oval
3-6. Farey's Elliptograph
7. Douglas's reflecting Protractor

ELECTRICITY.

I.* Fig. 2. Teyler's Battery
(This Plate is referred to as Plate I. fig. 2.)

3. The Frame separate
(See Plate XV. fig. 7.)

4. The Whole Battery
(As this so nearly resembles the Battery represented in Plate I.* it has been deemed unnecessary to give it on a separate Plate.)

Bell (See Plate V. fig. 38.)

II. Fig. 4-9. Condenfers

III. Fig. 10-20. Difchargers
21-25. Cavallo's doubler

IV. Fig. 26-37. Electrical Experiments

V. Fig. 38-50. Ditto

VI. Electrical Configurations
(This Plate is not numbered)

VII. & XIV. (One Plate.) Fig. 51, 52. Electrical Experiments. Electrical Flyers
53, 54. Inflammable Air-Piftol
55. Volta's Inflammable Air-Lamp

Fig. 1, 2. (XIV.) Electrophorus

VII. Fig. 1, 2. Hawkfbee's Electrical Machine
3. Abbe Nollet's Machine
4. Dr. Watson's Ditto
5. Mr. Wilfon's Ditto

VIII. Fig. 6-9. Electrical Machines

IX. Fig. 10. Mr. Beccaria's Machine
11. Common Machine
12. Nairne's Ditto
18. Van Marum's Ditto
(Referred to as on Plate XI.)
PLATE

X. Fig. 13. Nairne’s Machine, with a Person electrifying his Shoulders
14. Ditto, his Leg
15. 16. Pearson’s Machine
18. (See Plate IX.)
XI. Fig. 22. Cuthbertson’s Electrical Machine (This is numbered Plate X.)
XII. & XIII. Fig. 1—12. Electrometers
13—15. (Plate XIII.) Ditto
XIII. Fig. 16—23. Electrometers
XIV. Fig. 1, 2. Electrophenus (On Plate VII. & XIV.)
XV. Fig. 1. Medical Electricity. Machine for electrifying the Teeth
2. 3. Thunder-House
4. 5. Torpedo
6. Bruh
7. No. 1, 2. Inside Connecting Frame of Tevler’s Battery (Referred to as Plate I. fig. 3.)

ENGINE.

I. Fig. 1—7. Salmon’s Weighing Machine (This is numbered Plate II.)
II. Fig. 1—3. Cutting Engine, by Hindley
III. Fig. 1—5. Ditto
6—12. Rope Engine, by Holtzapfell and Deycrien
IV. Cutting Engine, by Rehe
V. Fig. 1, Ditto, for Worm Wheels
2. Annular Wheels
3. Short Arbor
4. Engine for Racks
5. Cutter Arbor
VI. Fig. 1—6. Cutting Engine, by Rehe, for sharpening Cutters
VII. Ramden’s dividing Engine, Perspective View
VIII. Fig. 2—4. Ramden’s dividing Engine
IX. Fig. 5—14. Ditto
X. Engine for cutting the Screw of Ramden’s Circular dividing Engine
Fig. 1. Elevation
2. Plan
XI. Engine for cutting the Screw of Ramden’s straight Line dividing Engine
Fig. 1. Plan
2. Elevation
XII. Fig. 1—3. Ramden’s Engine for dividing straight Lines

ENGRAVINGS, EARLY BRITISH.

Fig. 1. From the front of King Alfred’s Jewel
2. Impression from the engraved Seal of Anfelm, the Primate
3. Engraved Balfson the Tomb of William de Fulbourn, in Fulbourn Church, Cambridgehire

FLAGs.
(See Heraldy, Plate VII.)

FORTIFICATIONS AND TACTICS.

PLATE

FARRIERY—Horse-Shoeing.

I. Concave Fore-shoe, or S. Bell’s Shoes
Racing Hind-shoe
Fore-shoe
Seated Fore-shoes
Froil-shoe
Shoe to prevent cutting
Hind-shoe
Fore-shoe with a Joint in the Toe (This is the only Plate of Farriery.)

FEATHERS.
(See above, under Anatomy, Comparative.)

FENCES.

XIX. (The Plate so entitled and numbered is Agriculture, Plate XIX.)

FORTIFICATION AND TACTICS.

I. II. & IV. Fig. 1. Angle at the Centre
1. Battion, &c.
2, 3. Cavalier
4. 5. Expense Magazine
(These figures have been omitted, as unnecessary in a Work of this nature.)
6—14. Field Fortification (See Plate III.)

(II.) Fig. 1, 2. Flank of an Army (The writer of this article in the Cyclopaedia died without furnishing the figures. They are not, however, essential to the understanding of the description.)
1. 2. Battery
(Fig. 1. on Plate II. is the figure referred to in the article Battery, as fig. 21. No. 2. Fig. 2 is the figure referred to as 23. No. 2.)
3. Battery on Barre, or Barbet (Fig. 3. is the figure referred to as Plate III. fig. 25.)

III. Fig. 1—4. Echellon.
5. Enfilade
6—14. Field Fortifications (Referred to as on Plate I.)

(IV. on Plate I.) Fig. 1—3. Breastwork. (These figures have been omitted, as the nature of Breastwork will be sufficiently understood by the view of the figures of Battery, on Plate II.)
4—10. Fort

V. Fig. 1—6. Constriction
VI. & VII. Fig. 7—14. Ditto

VIII. Fig. 15. Belidor’s Method (This figure is on the Plate marked Fortification, Plates VI. VII. VIII.)
(The articles in which these figures are referred to, were written by Mr. Glennie, and the descriptions were taken from an unpublished work of his own. He died without furnishing the figures.)

V. Fig. 1. 2. Irregular Fortification
3. Profile of a Fortification
4. Fortified Place
**GEOMETRY.**

Plate
V.* Fig. 5. Regular Fortification besieged
6. Glacis
7. Gallery
8. Gabion

VI. Fig. 1. Horn Work
2. Double Horn Work
3.—6. Line
7. (The same as fig. 4.)
8. Lunette

(VII.) Fig. 38. Battery (See Plate II.)
2. 3. Parallel of Arms (See Plate V.*
fig. 5.)
4. Kavelin
5. Redoubt
6.—8. Tenaille
9. Tenailleon

(VIII.) Fig. 15. Belidor’s first Method.
(Plates VI., VII., and VIII. are on one Plate.)

**FURNACE.**

I. Fig. 1—3. Air Furnace
II. Fig. 1. Dr. Black’s Air Furnace
2. Common Air Furnace
3. Mr. Knight’s Ditto
4. Mulhet’s Ditto
5. Knight’s Portable Ditto
6.—11. Dr. Black’s Ditto

III. Fig. 1. 2. Furnaces used by Mr. Mulhet for his Experiments on Iron and Steel
3.—5. Tobacco Pipe Maker’s Furnace

III. & IV. (This Plate is Iron Manufacture, Plate III. IV., and is placed among the Plates belonging to that article.
Fig. 3. 4. 5. referred to under the article Furnace, Akin’s Improvement of Lewis’s Furnace, are on that Plate.)

V. Fig. 1—9. Furnace for enamelling Watch Dial Plates
10, 11. Mr. Bone’s Enamelling Furnace

**GARDENING.**

I. Bark-Beds and Pits for succession of Pine-apple Plants; and other tender Exotics
Fig. 1, 2. Plan
3. Bark-Beds
4. Plan and Section of Bark-Bed and Bark-Shed
5. Section of Fig. 1, 2.

(This Plate is marked Bark-Beds and Pits.)

II. Conferatory and Green-Houfe.
Fig. 1—4. Green-Houfe
5. 6. Conferatory

III. Fig. 1, 2. Improved Green-Houfe
3. London’s Green-Houfe for Pines
4, 5. Nursery Houfe for Ditto

**GEOLOGY.**

I. Fig. 1. Distance
2. 3. Horizon
4—8. Map

II. Fig. 9. Meridian Pole (See Navigation, Plate I. fig. 1.)
10—14. Tide (See Navigation fig. 4—8.)

**NAVIGATION.**

Acute Angle
(Referred to as Geometry, fig. 1. See Geometry, Plate II. fig. 15, D A E.)

I. Fig. 1. Alternate Angles
2—13. Altitude, Method of measuring
14. Altitude and Diftance, Method of measuring
14. Analysis
(See Geometry, Plate IX. fig. 5.)

II. Fig. 15—26. Angle
27, 28. Antiparallel
29—34. Application
35, &c. Bevel
(See the following Plate.)

III. Fig. 12. Sector
(See Plate XIII. fig. 12.)
(Referred to as Plate II. figs. 35, &c.
Fig. 38, Bafe, should be referred to fig. 46*, on the same Plate.)

39. Bafe of a Cylinder
(See Geographie, Plate IX. fig. 7.)
40—44. Bevel
45—48. Chord
45. Arch
46. Bafe
48. Cardioid
49. Catenaria
50. Complement of a Parallelogram
(See Geometry, Plate IX. fig. 8.)
51. Angle of Contact
(See Geometry, Plate IX. fig. 9.)
52. Cube
(See Geometry, Plate IX. fig. 10.)

IV. (Referred to as Plate III.)
Fig. 1. Cyclograph
(See Geometry, Plate IX. fig. 11.)

Fig. 49—61. Circle
78. Diameter
(See Plate VI. fig. 78.)
3. 4. Cylinder
(These figures are inserted on Analysis, Plate II.)

V. Fig. 62—73. Circle

VI. Fig. 74. Decagon
75—77. Diagonal
78. Diameter
(Referred to as on Plate IV.)
79. Diameter, No. 1, 2, 3.
80. Dirigent
81. Divisibility
82. Division
GEOMETRY.

PLATE

VI. Fig. 83. Decagon
(For Dodecagon, see Hexagon, Plate VIII. fig. 97.)
84. Diophantine
85. 86. Distance

VII. Fig. 87. Extreme and Mean Proportion
88—95. Frustum

VIII. Fig. 96. Gnomon
97. Hexagon
98. 69. Honeycomb
100. Hypotenusne
101. Inclination of Planes
102. Indivisibles
103, 104. Internal Angle
105. Iffoceles Triangles

IX. l➦operimetry, Fig. 1—17.
(See Analysis, Plate IX. fig. 1—17.)

IX. Fig. 1. Analysis
(Referred to as Geometry, Plate I. fig. 14.)
2. Coniculation
(Referred to as Analysis, fig. 20.)
3. Angular Functions
(Referred to under Function, as Analysis, Plate VII. fig. 5.)
4. Asymptote
(Referred to as Conics, fig. 33.)
5. 6. Axis of the Ellipse and Hyperbola
(Referred to as Conics, fig. 31. 32.)
7. Cylinder, Ball of
(Referred to as Geometry, Plate III. fig. 39.)
8. Complement of a Parallelologram
(Referred to as Geometry, Plate II. fig. 50.)
9. Angle of Contact
(Referred to as Geometry, Plate III. fig. 51.)
10. Cube
(Referred to as Geometry, Plate III. fig. 52.)
11. No. 1. and 2. Cyclograph
(Referred to as Geometry, Plate IV. fig. 1.)
12, 13. Pyramid
(Referred to as Geometry, Plate XI. fig. 18, 19.)
14—19. Tangent
(Referred to as Analysis, Plate XV. fig. 1—6.)

X. Fig. 1. Line
2—5. Lunes
6. 7. Multiplication
8. 9. Octagon
10. Parallel
11. 12. Parallel Rulers
(Referred to under the article Rhombus, to Plate X. fig. 11, should be to Plate XII. fig. 11.)
13. Parallelepiped
14. 15. Parallelogram

XI. Fig. 16. Pelecoides
17. 18. Pentagon
4. 5. Perpendicular
6. Polygon
7—11. Polygonometry
12, 13. Porifm
(For fig. 12. Prifm, see fig. 15.)
14. Geometry of Polysty
15. Prifm
(Referred to as fig. 12.)
16, 17. Proportional
18, 19. Pyramid
(See Geometry, Plate IX. fig. 12, 13.)

PLATE

XII. Fig. 1. Quality
(The reference under the article Rhomboides, to fig. 1, should be to fig. 10.)
2. Reciprocal Figures
3, 4. Rectangle
5—8. Rectangular
9. Regular Body
10. Rhomboes (Referred to as fig. 1. See above.)
11. Rhombus
(Referred to as Geometry, Plate X. fig. 11.)
12. Ring
13. Similar Curves
(Referred to as Geometry, Plate XIII. fig. 14.)
Tetrahedron
Cube
Octahedron
Dodecahedron
Icofahedron

XIII. Fig. 1—3. Scale
4. Secant
5—12. Sector
(Fig. 12. is referred to as Geometry, Plate III. fig. 12.)
13. Segment
14. Similar Curves
(See Plate XII. fig. 13.)
17, 18. Staff
(See Plate XIV. fig. 12, 13.)

XIV. Fig. 1. Solid Angle
2. Solihty
(The reference under Sphere, should be to fig. 3.)
3. Sphere
(The reference to fig. 3, under Sphere, should be to fig. 4.)
4. Spheroi
5—9. Spiral
(The reference to fig. 5—8, under Spiral, should be to fig. 5—9, respectively.)
10, 11. Square
(For Stereographic Projection, see below, figs. 14—16.)
12, 13. Staff
(Referred to as Geometry, Plate XIII. figs. 17, 18.)
14—16. Stereographic Projection
(Referred to as fig. 10—12.)

XV. Fig. 1. Sub-contrary
2. Subnomal
3. Tangent
4. Tetrahedron
5. Triangle, Equilateral
6. Scalene
7. Rectangular
8. Obtuse
9. Triangles, Similar
10. Menfuration of
11, 12. Properties of
13. Iffoceles
14—17. Triangles
18. Vertex
19. Ungula
20, 21. Goldman’s Volute
HOROLOGY.

GLAZING CLOTH.
(See Miscellany, Plate II.)

GUNNERY.
Fig. 1. Gun Pointing
2. Nock’s Improved Breech
3. Gunner. Theorem for determining the Velocity of a Ball
4. Petard
5. Quadrant
6. Bomb
7. Caliber Compas

HAIR.
(See above, Anatomy, Comparative)

HERALDRY.
I. Partition Lines
Efcutcheons
Roundles
Metals and Colours
Furs
Abatements

II.—VI.

VII. Flags and Standards, Military and Naval

VIII. Orders of Knighthood, Stars, Collars, Badges, &c.

IX. Ditto

X. Crowns, Coronets, Mitres

X. B. Ditto

XI. Achievements borne at the Interment of the Earl of Chatham, in Westminster Abbey

XII. Funeral Achievements, Efcutcheons, Hatchments

XIII. Heraldic Crowns, Coronets, and Helmets

XIV. Royal Diftinctions
Diftinctions of Houses
Bar
(See Plate III.)

Barry, &c.
(See Plate III.)

Hatchments
(See Plate XII.)

HOROLOGY.

I. Fig. 1—3. Antient Clepsydrae
II. Fig. 1—6. Modern Clepsydrae
III. Fig. 1—5. Clock Movement
IV. Fig. 1—7. Clock Movement
V. Fig. 1—4. Chime Work in the Clock Room of St. Margaret’s, Westminster

VI. Ditto

VII. Fig. 1—4. Chimes, Pleyel’s German Hymn
VIII. Fig. 1—5. Ancient Clock, by Henry de Wick, 1370

Plate
IX. Fig. 1—3. Thirty-hour Clock, with Alarum, and Count Wheel Striking Work
X. Fig. 1—3. Callipering
XI. Fig. 1—3. Portable Eight-day Clock
XII. Fig. 1—4. Dial Work, and Striking Part of an Eight-day Clock
XIII. Fig. 1—7. Mudge’s Time Keeper
XIV. Fig. 1—7. Arnold’s and Earnshaw’s Chronometers
XV. Fig. 1—8. Brockbank’s Chronometer
XVI. Clock with Chimes
XVII. Ditto
XVIII. Fig. 1. Clock, by Dr. Franklin
2. Mr. Ferguson
3—5. Second, by Ditto
XIX. Fig. 1—20. Clock Tools
Compenfation Balance
(See Plate XXIX.)
XX. Fig. 1—18. Clock Tools
XXI. Fig. 1—17. Ditto
XXII. Fig. 1—6. Astronomical Clock, by Reid
XXIII. Fig. 1—4. Astronomical Clock, by Brockbanks
XXIV. Fig. 1, 2. Equation Clock, by Enderlin
XXV. Clock Work
Fig. 1. Striking-part, with one Wheel and one Pinion
2. Strike, or Silent
3. Endless Cord of Huygens
4. Forcing Spring
5. French Forcing Spring
6. Bolt and Shutter

XXVI. Clock
Fig. 1. Maflcy’s Striking-part
2, 3. Prior’s Striking-part
XXVII. Fig. 1—9. Troughton’s Pendulum
XXVIII. Fig. 1—7. Compenfation Curbs
XXIX. Fig. 1—11. Compenfation Balances
XXX. Compenfation Curbs and Balances
Fig. 1. Mr. Cumming’s
2. Scott’s
3—5. Hardy’s Balance
6. Berthoud’s
7, 8. Hardy’s Isochronal Compenfation
XXXI. Fig. 1, 2. Dial Work of a Clock, fhewing the Moon’s Age, Phases, &c.
XXXII. Fig. 1, 2. New Dial Work of a Small Spring Clock, fhewing the Phenomena of the Moon
XXXIII. Fig. 1—3. Dial Work

Efcapements
XXXI. Fig. 1—5. Atwood’s Theory of Balance
6. Crown Wheel
7. Huygens’s Ditto
8. Dr. Hooke’s Ditto

XXXII. Efcapements
Fig. 1. Sully’s
2. Graham’s Horizontal
3. Anchor Efcapement
4. 5. Graham’s Dead Beat
6. Grignon’s Ditto
7. Bennet’s Ditto
8. Thiout’s Efcapement

XXXIII. Efcapements
Fig. 1. Berthoud’s
2. Smeaton’s
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MIDWIFERY.

(The Plates intended for the illustration of this article have been, for obvious reasons, purposely withheld.)

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Third Ditto
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Wendel Reich

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III. Luke Stirmer

<table>
<thead>
<tr>
<th>David or Daniel Hopfer</th>
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<tr>
<td>Jerome Hopfer</td>
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<td>Christopher Jamnitzer</td>
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<td>Joft or Jodocus Amman</td>
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<td>Matthew Greuter</td>
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<td>J. F. Greuter</td>
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<td>Bartholomew Kilian</td>
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<td>Christopher Jegger</td>
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<td>Wencellaus Hollar</td>
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### MONOGRAMS OF THE ENGRAVERS OF THE LOW-COUNTRIES.

**Plate III.**

- John William Baur
- Gerard Lairesse
- John Ulric Kreuz
- Andrea Meyer
- J. J. Thourneyton
- Derick Meyer
- Rodolph Meyer
- Adrian Van Otride

**Plate IV.**

- Christian Louis Moyart
- Nicholas Berghem
- Peter Nolpe
- Nicholas Viftcher
- Peter Quaif
- John George Van Vliet
- Antonio Waterlo
- Henry Vanduer Borcht
- Peter Vanduer Borcht
- Theodore Van Keffel
- Abraham Genoels
- Herman Van Swanevelt
- John de Bifchop or Epifcopius
- Lewin Cryly
- Bartholomew Bremainburgh
- John Van Somer
- James Vanden Hayden
- Robert Van Audenarde
- A. F. Bargas
- John Van Hugtenbourg
- Peter Van Bleeck
- William Buteniveg
- John Vanden Bruggen
- William de Leeue
- John Von Londerfeil
- Herman Muller
- Peter Serwouters

### MONOGRAMS OF ITALIAN ENGRAVERS.

**Plate III.**

- J. Ant. de Brete
- Andrea Mantegna
- Nicolas da Moenda
- Agostino of Venice
- Domenico Beccafermi
- Jerome Moccet
- Leo Daris or Lion Davin
- Marc Antonio
- Marc of Ravenna
- Julio Bonalone
- Domenico Barbiere
- Nicholas Beatrice of Lorraine
- Lucas Penni
- Jean Baptifi Ghiff
- George Ghiff of Mantua
- Adam Ghiff

- Boldrini
- Martin Rota
- Antonio Fantuzzi
- J. J. Caragio
- Antonio Salamanca
- Galpar ab Avibus
- J. Baptifi Cavaleris
- Mario Kartaro
- Jaques Palma
- J. Baptifi Pagi
- Francefchi
- Cherubino Alberti
- Andrea Andreani
- Jean Louis Valfio
- Amiabil Caracci
- Antonio Tempefta
- Odoard Fialetti
- Louis Cefli
- Francifco Villamens
- Guido Reni

**Plate IV.**

- Simon Paffa
- Christopher Van Sicinom
- Hafncr John Bol
- Cornelius Van Sicinom
- John Sadeler
- Philip Galle
- Cornelius Cort
- Nicholas de Bruyn
- Affuerus Louderfel
- Jerome Wierix
- Abraham de Bruyn
- Zachary Dolendo
- Paul Morelfe
- Karl Van Sicinom
- James Matham
- James de Ghein the elder
- John or Hans Saenredam
- Bartholomew Dolendo
- William Saenredam
- Henry Hondius
- Abraham Bloemart
- Joif Hondius
- Lucas Vorfterman
- William Hondius
- David Teniers
- Cornelius Bleeker
- Michael Natalis
- Sheltius à Bolswert
- Efais Vandevelde
- Albert Flamen
- Adam à Bolswert
- Peter Molyn
MUSICAL.

Plate III.
Alexander Baldi
Joseph Ribera (1st Engraving)
Raphael Sciamino
Lucas Cambianus
Horace Borgiani
Alexander Algardi
Pietro Testa
Gioffre Marie Metelli
Salvador Rota
Antonio Francesco Lucini
Remigio Cantagallina
Stefano Della Bella
Jaques Callot
Julio Cefario Venentzi
Benedetto Calligione
Giaco Balliida Galefrucci
Antonio Maria Zanetti
Dominico Maria Bonavera
Antonio Batefra

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Characters for Time

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Ancient Musical Characters of the 14th and 15th Centuries
Arrangement of the Set of Keys on Keyed Instruments

II.
Thorough Bass, or Accompaniment

III.
Thorough Bass

IV.
Difallowances in Thorough Bass

V.
Counterpoint

VI.—VIII.
Fugues

IX.—XI.
Fundamental Basses

XII.
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XXI. XXII.
Modulation

XXIII.
Modulation

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Modulation

XXV. & XXVI.
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Air upon Three Notes, by the late M. Rouffeu

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XLV. Original Melodies to the Hymn of Offan in Temora

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XLVIII. Canon in Ogni Modo

Canone Canticzando

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Ancient Musical Instruments

III. Ancient Musical Instruments

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Ancient Musical Instruments

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4. Psalterio from the Picture of Erato, dug out of Herculaneum

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6. Abyssinian Tefudo

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Indian Musical Instruments

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Gaita
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NAVAL ARCHITECTURE.

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Chinefe Musical Instruments
Ching
King
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An East Indiaman

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3—6. Hill's Machine for drawing Ships' Bolts
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IV. Fig. 1, 2. Catoptric Cistula
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5, 6. Dispersions of Light
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2. Eye
2. Focus
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VI. Fig. 1. Heliohota
2. Bed of Horns
3. Horopter
4. Refraction
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VII. Fig. 1—12. Lens

OPTICS.

Plate
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2—4. Troughton's
5. Herfel's Lamp Micrometer
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XVI. Microscope, (See Plate XVI.)

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XIX. Fig. 1—15. Refrangibility of Light
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III. Diverfities of the Human Face
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European
Asiatic, Paleltine
Asiatic, Chinefe
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2. Plan
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III. Fig. 1—16. Ditto
IV. Fig. 1—15. Ditto
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III. Equation Mechanifm of a Planet’s Orbit
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PLATE

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3—5. By Rev. W. Pearson
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VII. Fig. 1—4. Section of the Improved Orrery for Mean Motions
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3. Ditto, Reduction of the Ecliptic to the Equator
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6. Ditto, Moon’s Horizontal Parallax only
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X. Fig. 1—5. Planetarium of the Royal Institution, by Mr. Pearson
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III. Fig. 14—23. Air Gun
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4 U 2
PNEUMATICS.

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70, 71. Araxometer
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77. Des Cartes'
78. Huygens's
79. Dr. Hooke's
80. Horizontal
81. Diagonal
82. Wheel
83. Pendent
84. Chamber
85. Vernier
X. Fig. 86, 87. Marine Barometer
88. Cafwell's
89. 90. Rowning's
XI. 91. Machine for enlarging the Scale of the Barometer
92, 93. Keith's Barometer
94. De Luc's Ditto
95. Thermometer
96, 97. Hamilton's Barometer
98, 99. Phenomena of the Barometer
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XIII. Fig. 107—117. Bellows
XIV. Fig. 1, 2. Condeners
3. Condensing Engine
4. Peer Gage
5—7. Gage of a Condenser
4—7. Freezing
8. Freezing Apparatus
XV. Fig. 1—7. Pyrmont Water, Apparatus for preparing
8. Whispering Place
9. 10. Lind's Wind Gage
11. Martin's Ditto
12. Bouquer's Ditto
13. Leffie's Thermometer
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14. Kewley's Thermometer
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2. Bent Thermometer
3. Bernouilli's Ditto
4. Amonton's Ditto
5. Florentine Ditto
6—10. Apparatus for adjusting the fixed Points of Thermometers
11—13. Cavendish's Thermometer
14, 15. Mr. Six's Ditto

PROPORTIONAL COMPASSES.

**PLATE**

XVI. Fig. 16. Rutherford's Ditto
17. Leffie's Ditto
(See Plate XV. fig. 13.)
18. Kewley's Thermometer
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PORTER BREWERY.
Fig. 1—5. Section of the Building and Machinery

POTTERY.
Vertical Section of a Furnace
Horizontal Section

PRESS.
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PRESSURE.
Water Pressure Engine
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III. Fig. 1. Bacon and Donkin's Printing Machine
IV. Fig. 1. Perspective View of a common Printing Press
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II. Fig. 1—7. Fig. 8. No. 1, 2. Fig. 9, 10.
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PROPORTIONAL COMPASSES.
I. Fig. 1—10.
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(Theres figures are at the bottom of the Plate, and are numbered fig. 1. No. 1, and fig. 1. No. 2.)
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**PYROTECHNY.**

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II. Fig. 1—23. *(See Ships, Plate III.)*

III. Fig. 1, 2. *(See Ships, Plate IV.)*

IV. Fig. 1, 2. *(See Ships, Plate V.)*

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I. Cupid and Psyche, from an Antique Marble Group, in the Capitol

II. The Farnese in different Views

I. Hercules of Dædalus

Cupid of Praxiteles

Minerva of Dipenos and Scyllis

Venus of Praxiteles

Jupiter Olympius

Minerva of the Acropolis, in Athens

II. Hercules Farnæus

Phoebus

Dionysus

III. Venus de Medicis

Apollo Belvidere

Laocoön

IV. Durga slaying Mahishasura; a Hindú Group

An Etruscan Patera, in the British Museum

A Colossal Statue, at Thebes

Persian Sculpture, at Perfepolis

A Chinefe Statue

Persian Sculpture, at Perfepolis

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I. Fig. 1. No. 1, 2. Fig. 2—6.

II. Fig. 1—5.

**SHIP-BUILDING.**

*(See Naval Architecture.)*

Construction of Boats

*(See above, under the head Boats)*

**SHIPS.**

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2, 3. Phillips’s Tubes for driving Ditto

4. Ring Rope

5. Bits

6. Application of the Messenger

6, 7. Nippers

**SILK MANUFACTURE.**

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16—24. Hitches

25—32. Bends

33—42. Splices

43—49. Hawkes

III. Rigging, Plate II.

Fig. 1—23. Blocks, Pendants, Stays, &c.

IV. Rigging, Plate III.

Fig. 1. Standing Rigging

2. Running Rigging

V. Rigging, Plate IV.

Fig. 1, 2. Rigging, and bending the Sails, &c.

VI. First Rate Man of War

Man of War’s Barge

Seventy-four

Lugger

Fire Brig

Flat-bottomed Boat

Gun Vessel (the Wolverine)

Man of War’s Long Boat

VII. Boats

Pahie

Balza

Corracedo

Life Boat

Spring Block, Fig. 1, 2.

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VIII. Malts. The different Pieces which compose the Main Malt of a 74 Gun Ship

IX. Anchors and Buys

Nun Buoy

Anchor

Kedge Anchor

Floating Ditto

Fire Grapnel

Anchor Shoe

Grapnel

Can Buoy

Creeper

Jew’s Harp

Swivel Ring

Road, or Mooring Anchor

Foul Hawke

Flat Anchor in Use

Fig. 1, 2. Block, Spring

*(See Ships, Plate VII.)*

**SHORT-HAND.**

Letters

Words

Prepositions

Terminations

Miscellaneous Examples

Common Contraction

Vowels’ Places

Figures

**SILK MANUFACTURE.**

Fig. 1. Reeling

2. Winding
STORAGE

Plate

Fig. 3. Throwing
4. 5. Doubling
6. Warping

STEAM ENGINE.

I. Fig. 1. Savery's Steam Engine
2. Papin's Ditto
3. Blakely's Ditto
4. 5. Kier's Ditto

II. Fig. 1, 2. Beighton's Atmospheric Steam Engine

III. Steam Engine on Newcomen's Principle, as constructed by Mr. Savant
(This is wrongly numbered Plate I.)

III & IV. Mr. Watt's Engine

V. Fig. 1, 2. Hornblower's Engine
3—7. Woolfe's Ditto
8. Cartwright's Ditto

VI. Boulton and Watt's Engine, on the original Contraction
(This is wrongly numbered Plate III.)

VII. Fig. 1—3. Cylinders, Pistons, &c.
VIII. Fig. 1. Steam Boat, Elevation
2. Ditto, Plan
3. Maudlly's Steam Engine
4. 5. Murray's Ditto

IX. Fig. 1—5. High Pressure Steam Engine, used with the Dredging Machine on the River Thames

IX. Fig. 1—6. Parallel Motions
(This is wrongly numbered, Plate III.)

STEREOGRAPHY.

I. & II. (Plate I.) Fig. 1—3. Fig. 4. No. 1. Fig. 4. No. 2. Fig. 5—6.

(Plate II.) Fig. 1, No. 1, 2. Fig. 2. No. 1, 2. Fig. 3. No. 1, 2. Fig. 4. No. 1, 2. Fig. 5—7.

III. Fig. 1—7. Fig. 8. No. 1.
8. No. 2. (This is once referred to at fig. 9. No. 2.)
9. No. 1, 2.

STEREOTOMY.

I. Fig. 1—8.
II. Fig. 1—9.

STOCKING FRAME.

Fig. 1. Needles
2. Perspective View of a common Stocking Frame
3, 4. Sinkers, &c.
7. Arch

STONEHENGE.

Ground Plan in 1816
Elevations
Sections

SUGAR MILL.

Plate

Fig. 1. Elevation
2. Plan

SUGAR MILL.

I. Fig. 1—6. Tourniquets, and Amputating Instruments

II. Fig. 1. Amputating Saw
2. Large Amputating Knife
3. Smaller Ditto
4. Cutting
5. Metacarpal Saw
6. Crooked Billouy
7. Probe-pointed Crooked Billouy
8. Straight Double-edged Scalpel
9. Tenaculum
10. Aneurism Needle
11. Forceps for taking up the Mouths of Vessels
12. Bone Nippers

III. Fig. 1—3. Needles for sewing up Wounds
4. Spatula
5. Lancet
6. Eye Probe
7. Cautic Cafe
8. Common Forceps
9. Probe
10. Director
11. Scissors
12. Pocket Tenaculum
13. 14. Female Catheters
16—19. Male Ditto

IV. Fracture of the Clavicle, &c.
(This Plate, and the three following Plates, are without numbers.)

V. Fracture of the Leg
Splints
Bandages

VI. Instruments for Lithotomy

Fig. 1. Sound
2—5. Staffs
6. Blunt Gorget
7. Hawkins's Cutting Gorget
8. Mr. Chine's Ditto
9. Mr. Abernethy's Gorget
10—12. Forceps

VII. Instruments for Lithotomy

Fig. 1. Mr. Earle's Stone Breaker
2. Scoop
3. Mr. C. Bell's Grooved Staff
4. Mr. A. Burn's Knife and Staff
5. Mr. Hunter's Knife
6. Mr. A. Cooper's Ditto
7. Mr. Thomas Blizzard's Ditto
8. Frere Colme's Biloure Caché
9. Screw for regulating the Blade

VIII. Trepanning Instruments

Fig. 1. Rodman's Trepanning Instrument
2. Elevator for raising depressed Portions of a Fractured Skull
3. Tripod Elevator
4. Petit's Elevator, improved by Louis
5. Old Conical Saw
6. Trepan
SURGERY.

Plate

VIII. No. 2. Trepanning Instruments

Fig. 1. Spring Forceps for extracting the Circle of Bone and Fragments
2, 3. Trephines, with sliding Centre Pins, as made by Savigny
4. Scalpel
5. Common Elevator
6. Mr. Hey's Saw, with curved Edges
7. Lenticular
8. Rafpatory
9. Mr. Hey's small straight Saw
10. Trephine, with half of its sawing edge filed away
11. Brush for cleaning the Teeth of the Trephine
12. Mr. Hey's large straight Saw
13. Centre Pin and Screw Trusses

IX. Instruments for the Extraction of Catarrath

Fig. 1. Minute Steel Tenaculum, for extrac-
2. Chine's Instrument for dividing the Capfule
3. La Faye's Cylotome for Ditto
4. 5. Scissors for enlarging the Wounds of the Cornea
6. Tube for injecting Quicksilver into the Lachrymal Sac
7—10. Anel's Syringe and Pipes
11. Ware's Stiles
12. Wathen's Tubes
13. Small Lancet for puncturing the Lachrymal Sac
14. Gibbon's Knife for Lithotomy

XI. Instruments for Couching, and the Extraction of the Catarrath

Fig. 1. Broad Silver Hook for raising the Upper Eyelid
2. Pellier's Hook for the fame Purpose
3. A slender round Couching Needle
4. Spear-shaped two-edged Ditto
5. 6. Scarp's curved Couching Needle
7. Hey's Couching Needle
8, 9. The same magnified
10, 11. Wathen and Phipps's Knives for Extraction
12. Richter's Knife
13. Wenzel's Ditto
14. Ware's Ditto
15, 16. Knives for enlarging the Wound of the Cornea
17. Forceps for taking away Pieces of the Capfule
18. Wenzel's Forceps for Ditto, and taking away Fragments of opaque Matter
19. Needle for dividing the Capfule, and Curette for extracting Fragments of the Catarrath

TRIGONOMETRY.

Plate

SURVEYING.

I. & VI. Fig. 1. Protractor (See Plate VII. fig. 3.)
2. Semicircle (See Plate II. fig. 10.)
3—9. Chain, Measuring by
10. Convergency of Meridians (Referred to as Plate II. fig. 10.)

(VI.) Fig. 1, 2. Level, Common Spirit
3. Huygen's Level
4. American Ditto
5. 6. Watering Ditto
7—11. Defaguliers's

II. & III. Fig. 1—3. Circumferentor
10. Convergency of Meridians (See Plate I. fig. 10.)

(III.) Fig. 1—6. Crofs
9. Dendrometer

IV. Fig. 1. Foot Level
2, 3. Gauging
4. 5. Rod
5. Artificer's Level
6. Artillery Foot Level
7. Gunner's Level
8—12. Mercurial Ditto
13. Plumb Ditto

V. Fig. 1—2. Levels by Mr. Ramfden
4. Troughton's Level

VI. Levels (See Plate VI.)

VI. Fig. 1—8. Plain Table
9, 10. Perambulator
11. Plotting
12. Scale
13. Quadrant for measuring Heights
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VI. Fig. 7, 8. Dendrometers (Referred to as on Plate III.)
9—11. Mr. Broad's Machine for measuring Timber

VII. Levelling

Fig. 1, 2. Adjustment of Level
3. Principles of Levelling; true and apparent Level
4—9. Practice of Levelling
10. Levelling Staves

VII. Fig. 1, 2. Sector
3. Semicircle
4. Everard's Sliding Rule
5. Cogrethall's Ditto
6—9. Roget's Ditto

VIII. Fig. 1—5. Grand Theodolite, by Ramfden
IX. Fig. 1—9. Portable Theodolite, by Troughton

X. Map of an Estate, near Earl Sheen, surveyed by James Wadmore, jun.

TELEGRAPH.

Fig. 1—13. Vocabulary and Machinery

TRIGONOMETRY.

I. Fig. 1—3. Gunter's Scale
4. Secant and Sine
5—7. Sector
WATER WORKS.

Plate

I. Fig. 8, 9. Arithmetic of Sines
  10. Sine
  11. Figure of Sines
  12. Coines
  13. Veried Sines
  14. Tangents
  15. Cotangents
  16. Secants
  17. Cofecants
  18—22. Sines

II. Fig. 1, 2. Spherical Angle
  3—8. Triangle
  9—12. Spheres
  13. Tangent

III. (The figures referred to as on Trigonometry, Plate III. are on Navigation, Plate III.)

TURNING.

Fig. 1—42. Lathe, and detached Parts of the Machinery and Instruments

VEGETABLE ANATOMY.

I. Fig. 1—11. Bark
II. Fig. 1—20. Branches and Buds
(See Plate, Vol. V. Natural History.)

VOLTAISM.

I. Fig. 1—8. Battery, &c.
(This is the only Plate of Voltaism.)

WATER WHEELS.

I. Overhot and Underhot

Fig. 1. Mr. Smeaton’s Breat Wheel
  2. Pentrouigh
  3. 4. Mr. Nouille’s Overhot Wheel
  4. 5. Buchanan’s improved Wheel and Pentrouigh
  6. Chain of Buckets
  7. Improved Breat Wheel
  8. Greasing Machine

II. Fig. 3. Breat Wheel with two Shuttles at Meffirs. Strutt’s Works
  4. Ditto improved, at the Royal Armoury Mills
  5. Burns’s Overhot Wheel
  9. Method of laying on Water

WATER WORKS.

I. Machines for railing Water
(This Plate is not numbered.)

Fig. 1. Momentum Pump
  2, 3. Mr. Boulton’s Machine for railing Water
  4—6. Hydraulic Ram
  7. Mr. Whitehurst’s Machine for railing Water
  8. Siphon Machine
  9. Machine for railing Water by the lateral Communication of a Stream
  10. Goodwin’s Siphon Machine

WRITING BY CIPHER.

Plate

I. Fig. 11. Spiral Pump, or Zurich Machine
  13. Greaves’s Bucket Machine
  14. Chremnitz Fountain
  15. Water Bellows

II. Fig. 1—8. Mr. Smeaton’s Great Engine for railing Water at London Bridge

WATER PRESSURE ENGINE.

Fig. 1—5. Smeaton’s Water Pressure Engine

WEAVING.

I. Mr. Auffin’s Engine Loom Shuttle
II. Fig. 1—4. Looms, &c.

WINDMILL.

I. Fig. 1. Captain Hooper’s Horizontal Windmill, Upright Section
  2. Ditto, Plan
  3—5. Smock Mill
(This Plate is not numbered.)

II. Fig. 1. Common Vertical Windmill
  2. Smock Mill
  3. Internal Mechanism of a Post Windmill
  4. Dutch Windmill
  5—7. Parts of the Mechanism of a Windmill
(The reference under “Rules for modelling the Sails of Windmills,” to fig. 4, Plate II. Windmill, should be to fig. 4, Plate I.)

WINDING ENGINE.

Smeaton’s Design for a Water Gin, for drawing Coals from the Pits

Fig. 1. Plan
  2. Elevation of the Frame on the Pit Heap
  3, 4. Elevations
  5. Plan

WIRE-MILL.

Fig. 1—13. Machinery for Wire-Drawing

WOOLLEN MANUFACTURE.

I. Stubbing Machine, or Billy
II. Spinning Jenny
III. Shearing Machine
IV. Carding Engine
(This Plate is not numbered)
V. Gig-Mill

WORSTED MANUFACTURE.

I. Fig. 1. Combs
  2. Supporter for Ditto
  3. Stove for heating Ditto
  4. Gilpin’s Combing Machine
  5. Breaking Frame
  6. Roving Ditto
  7. Spinning Ditto

II. Fig. 1—3. Cartwright’s Combing Machine

WRITING BY CIPHER.

I.—III. Characters and Examples
PLATES. VOL. V.

NATURAL HISTORY.

GENERAL SYSTEMATIC ARRANGEMENT OF THE PLATES OF
NATURAL HISTORY,

INCLUDING THE THREE KINGDOMS OF NATURE, ACCORDING TO
THE SYSTEM OF LINNÆUS.

*"* The Arabic Numerals on the Left, denote the Number of the Plates, according to the Systematic Arrangement of them in the Catalogue.

PLATE ANIMALS.

CLASS MAMMALIA.

ORDER I. Primates.

Genus Homo

1* Homo Sapiens, Rational Man
   (See Plates Painting)
   Anatomical Structure
   (See Plates Anatomy)

2* Varieties of Homo Sapiens, Rational Man, according to Climate
   a Americanus, American Man
   b Europæus, European
   γ Asiaticus, Asiatic, (of Palestine)
   δ Afer, African
   (See Painting, Plate III.)

Genus Simia.

1. Lettered Mammalia, Order I. Primates, Plate I.
   Fig. 1. Simia Satyrus, Black Oran Otan, or Outang, Homo Sylvestris, var. Pongo
   2. — var. Jocko, Chefnut Otan, or Outang
   3. Simia Troglohyes, (Gmel.) Satyrus indicus Tulipii. Chimpanzee
   4. Simia Lar, (Gmel.) Long-armed Ape
   5. Simia Inuus, Barbary Ape
   6. Simia Sylvanus, Pigmy Ape

Genus Lemur.

2. Lettered Mammalia, Order Primates, Genus Lemur, Plate II.
   Fig. 1. Lemur Potos, Tarier Lemur
   2. Lemur caudatus, Tailfes Lemur, or Maucauco
   3. Lemur murinus, Murrine Lemur
   4. Lemur Catta, Ring-tailed Lemur, or Maucauco
   5. Lemur tardigradus, Loris Lemur
   6. Lemur volans, (Linn.) Flying Lemur, or Flying Colugo?
   * Genus Galeopithecus (Rufus) Audebert

Genus Vespertilio.

3. Lettered Mammalia, Genus Vespertilio, Plate III.
   Fig. 1. Vespertilio Vampyrus, Vampire Bat
   2. Vespertilio auritus, Long-eared Bat
   3. Vespertilio Spasma, Cordated Bat
   4. Vespertilio leporinus, Peruvian Bat
   5. Vespertilio Spetrum, Speëtre Bat

Order Brute.

Genus Bradypus.

4. Lettered Class Mammalia, Order Brute, Genus Bradypus
   Fig. 1. Bradypus tridactylus, Three-toed Sloth
   2. Bradypus didactylus, Two-toed Sloth

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Genus Myrmecophaga.

4. Fig. 3. Myrmecophaga didactyla, Two-toed or small Ant-Eater
4. Myrmecophaga tetradactyla, Four-toed Ant-Eater
5. Myrmecophaga jubata, Great Ant-Eater

Genus Ornithorinchus.

Fig. 6. Ornithorinchus paradoxus, Duck-bill
Platypus anatinus, (Shaw,) Duck-billed Platypus

Genus Manis.

5. Lettered Mammalia, Quadrupeds, Genus Manis
Fig. 1. Manis pentadactyla, (Linn.) Five-toed Manis, or S. short-haired Manis
2. Manis tetradactyla, (Schreb.) Four-toed Manis, or Long-tailed Manis

Genus Dasypus.

3. Dasypus hexadactylus, Six-banded Armadillo
4. Dasypus novemcincus, Nine-banded Armadillo
5. Dasypus duodecemcinus, (Schreb.) Twelve-banded Armadillo
Dasypus uncinus, (Linn. et Gmel.) Ditto

Genus Rhinoceros.

Fig. 1. Rhinoceros unicornis, One-horned Rhinoceros
2. Rhinoceros bicornis, Two-horned Rhinoceros

Genus Sukotyro.

(A doubtful genus not admitted by Gmelin)

7. Lettered Quadrupeds, Genus Sukotyro
Fig. 1. Sukotyro indicus, Sukotyro
(From Nieuhoff, the Dutch traveller, and Churchill's Collection of Travels)

Genus Elephas.

Fig. 2. Elephas maximus, Elephant

Order Feræ.

Genus Trichechus.

8. Lettered Quadrupeds, Claws Mammalia, Genus Trichechus
Fig. 1. Trichechus Rufus, Arctic Walrus, or Morfe
2. Trichechus Manatus, 2 borealis, Whale-tailed Manatus

Genus Phoca.

Fig. 3. Phoca Ursina, Ursine Seal
4. Phoca gristlandica, Harp Seal
5. Phoca Viulina, Sea Calf, or Common Seal
6. Phoca maculata, Kurile or Spotted Seal

Genus Canis.

9. Lettered Quadrupeds, Dogs, Plate II. of Order Feræ
Fig. 1. Canis familiaris, Shepherd's Dog?
2. Dingo, Australasian, or New Holland Dog
3. Canis familiaris, var. Pomeranian Dog
Canis 2 pomeranus, Ditto
4. Canis var. Sibericus, Siberian Dog
5. Canis var. Iceland Dog?
6. var. Aquaticus minor, Small Barbet, or Water Dog
7. var. Aquaticus, Great Barbet, or Water Dog

10. Lettered Quadrupeds. Plate III. Dogs, Genus XV. Canis
Fig. 1. var. brevipilis, King Charles's Dog
2. var. brevis, Bull-dog
3. var. Egyptius, Naked or Turkish Hound
4. var. fricoter, Dog
5. var. Spaniel
6. var. Shock
7. var. variegatus, Small Dane
8. var. Lion, Lion Dog
9. var. hybridus, Roquet

11. Lettered Quadrupeds, Plate V. Dogs, Genus XV. Canis
Fig. 1. var. Anglicus, Mastiff
2. var. Melufus, Bull-dog
3. var. Senior, or Harlequin Dog
4. var. Dalmatian Dog

12. Lettered Quadrupeds, Dogs, Plate IV. of Order Feræ, Genus XV. Canis
Fig. 1. Old English, or Tallot Hound
2. Beagle
3. Harrier
4. Blood Hound

13. Lettered Quadrupeds, Dogs, Plate V. of Order Feræ, Genus XV. Canis
Fig. 1. Stag Hound
2. Fox Hound
3. Larger Terrier
4. Smooth Terrier
5. Rough Terrier

14. Lettered Quadrupeds, Order Feræ, Genus Canis
(No number on the Plate)
Fig. 1. Canis Lupus, Wolf
2. Canis Hyæna, Striped Hyæna
3. Canis Mesomelas, Cape Jackal
4. Canis Vulpes, Common Fox
5. Canis Lagopus, Arctic Fox

Genus Felis.

15. Lettered Quadrupeds, Plate I. Genus Felis, Lions
Fig. 1. Felis Leo, Lion, Lioness, and Young
### PLATE

16. Lettered Quadrupeds, Plate II. Order 3; Genus Felis
   - Fig. 1. *Felis Tigris*, Tiger
   - 2. *Felis Pardus*, Panther
   - 3. *Felis Leopardus*, Leopard

17. Lettered Quadrupeds, Genus Felis, Tigers, Plate II.
   - Fig. 1. *Felis Puma*, Congourar
   - 2. *Felis Lynx*, Lynx
   - 3. *Felis Uncia*, Ounce
   - 4. *Felis Caracal*, Persian Lynx
   - 5. *Felis Onca*, Jaguar
   - 6. *Felis jubata*, Hunting Leopard

18. Lettered Quadrupeds, Plate III. of Order Feræ, Genus Felis
   - Fig. 1. *Felis pardalis*, Ocelot
   - 2. *Felis Tigrina*, Margay
   - 3. *Felis Serval*, Serval
   - 4. *Felis Catus*, Wild Cat
     - α *femur*, Tame or domesticated
     - β *femur*, Tortoiseshell Cat
   - 7. *Felis γ angorensis*, Angora Cat
   - 8. *Felis ε caeruleus*, Slate-coloured Cat, (Blue or Chartreux.)

### GENUS VIVERRA.

19. Lettered Quadrupeds, Order Feræ, Genus Viverra (No number on the Plate)
   - Fig. 1. *Viverra Zibetha*, Zibet, or Indian Musk Weasel
     - 2. *Viverra Fossa*, Fossa
     - 3. *Viverra Ichneumon*, Ichneumon Weasel
     - 4. *Viverra Najus*, Brazilian Weasel
     - 5. *Viverra Ciretta*, Civet Weasel, or Civet-Cat, African Musk Weasel

20. Lettered Quadrupeds, Order Feræ, Genus Mysleta (No number on the Plate)
   - Fig. 1. *Mysleta Lutris*, Sea Otter, Greater Otter
   - 3. *Mysleta Foina*, Martin
   - 4. *Mysleta Zibellina*, Sable, or Fisher Weasel

### GENUS Ursus.

21. Lettered Quadrupeds, Order Feræ, Genus Ursus (No number on the Plate)
   - Fig. 1. *Ursus Americanus*, American Bear
     - 2. *Ursus maritimus*, (Gmel.) Polar Bear
     - 4. *Ursus Malea*, (Schreb.) Glutton
     - 5. *Ursus Metas*, Badger

### GENUS Didelphis.

22. Lettered Quadrupeds, Genus Diadelphis, &c. (No number on the Plate)
   - Fig. 1. *Didelphis Opus* (Gmel. Schreb.) Virginian Opossum
     - Didelphis Virginia (Shaw) Ditto
     - 2. *Didelphis petaurus* (Shaw) volans, New Holland Flying Opossum
     - 3. *Didelphis Murina*, Murine Opossum

### PLATE

22. Fig. 4. *Macropus Kanagurta, a. male, b. female*

### GENUS MACROPUS.

23. Lettered Quadrupeds, Order Feræ, Genus Talpa, &c. (No number on the Plate)
   - Fig. 1. *Talpa Capensis*, Cape Mole
     - 2. *Talpa longicaudata*, Long-tailed Mole
     - 3. *Talpa Europæa*, European Mole

### GENUS SOREX.

24. Lettered Quadrupeds, Order Glires, Genus Hystrix (No number on the Plate)
   - Fig. 1. *Hystrix erithaca*, Common or crested Porcupine
     - 2. *Hystrix prehensilis*, Brazilian Porcupine
     - 3. *Hystrix cristata*, Canadian Porcupine (white variety)

### GENUS CAVIA.

25. Lettered Quadrupeds, Order Glires, Genus Castor (No number on the Plate)
   - Fig. 1. *Castor Fiber*, Common Beaver

### GENUS MUS.

26. Lettered Quadrupeds, Order Glires, Genus Arctomys, &c. (No number on the Plate)
   - Fig. 1. *Arctomys Citillus*, (Schreb.) Variegated Marmot
     - 2. *Arctomys Empeira*, Canadian Marmot

### GENUS SCIURUS.

27. Lettered Quadrupeds, Order Glires, Genus Sciurus (No number on the Plate)
   - Fig. 3. *Sciurus Petaurista*, Taquan, or Taguan flying Squirrel, Sailing Squirrel (Penn.)
     - 4. *Sciurus getulus*, Barbary Squirrel
     - 5. *Sciurus vulgaris*, Common Squirrel

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**NATURAL HISTORY.**
NATURAL HISTORY.

**Plate**

**Genus Myoxus.**

26. Fig. 6. *Myoxus Myocardium* (Schreb.), *Mus arcellinarus* (Linn.) Common Dormouse. — (Donov. Brit. Quadr.)

**Genus Dipus.**

27. Lettered Quadrupeds, Order Glires, Genus Dipus (No number on the Plate)

Fig. 1. *Dipus Jaculus*, Common Jerboa (or Gerboa)
2. *Dipus Sagitta*, Arabian Jerboa
3. *Dipus cafer*, Cape Jerboa

**Genus Lepus.**

Fig. 4. *Lepus timidus*, Common Hare

**Genus Hyrax.**

Fig. 6. *Hyrax Catapha*, Cape Hyrax

**Order Pecora.**

**Genus Camelus.**

28. Lettered Quadrupeds, Order Pecora, Genus Camelus (No number on the Plate)

Fig. 1. *Camelus Dromedarius*, Arabian Camel or Dromedary
2. *Camelus Bactrianus*, Bactrian Camel

**Genus Moschus.**

29. Lettered Quadrupeds, Genus Mofchus (No number or order on the Plate)

Fig. 1. *Mofchus moschiferus*, Thibet Musk
2. *Mofchus pygmeus*, Guinea Musk
3. *Mofchus javanicus*, Java Musk

**Genus Cervus.**

4. *Cervus Alices*, Elk

30. Lettered Quadrupeds, Genus Cervus (No number or order on the Plate)

Fig. 1. *Cervus Tarandus*, Rein Deer
2. *Cervus Elaphus*, Stag or Hart
3. *Cervus Axis*, Spotted Axis

**Genus Camelopardalis.**

4. *Camelopardalis Giraffa*, Giraff, or Camelopard

**Genus Antilope.**

31. Lettered Quadrupeds, Genus Antilope (No order or number on the Plate)

Fig. 1. *Antilope Rupicapsa*, Chamois
2. *Antilope Cervicapra*, Antelope
3. *Antilope pygmeus*, Royal Antelope, or Pigmy Antelope
4. *Antilope Grimming*, Guinea Antelope
5. *Antilope Gnu*, Gnu

**Plate**

**Genus Capra.**

32. Lettered Quadrupeds, Genus Capra (No order or number on the Plate)

Fig. 1. *Capra Ibes*, Ibes Goat
4. *Capra Aegagrus*, (var. mormbica) Syrian Goat
5. *Capra Aegagrus*, (var. angorenis) Angora Goat

**Genus Aries.**

33. Lettered Quadrupeds, Genus Ovis, Aries (No order or number on the Plate)

*Aries, Ovis*, Common Sheep
var. South Down Polled Sheep of the improved breeds. From the Stock of the late Duke of Bedford, Woburn

34. Lettered Quadrupeds, Genus Ovis, Sheep (No order or number on the Plate)

*Aries, Ovis*, Common Sheep
Fig. 1. var. Norfolk Breed
2. Hereford Breed

**Genus Bos.**

35. Lettered Quadrupeds, Genus Bos, Taurus (No order or number on the Plate)

*Bos, Taurus*, Ox
Fig. 1. var. Scottish Wild Ox, the Bull
2. The Cow and Calf

36. Lettered Quadrupeds, Genus Bos, Taurus (No order or number on the Plate)

*Bos, Taurus*, Common Ox
var. Long-horned or Lancashire Breed

**Order Belluae.**

**Genus Equus.**

37. Lettered Horses, Plate I. (No order on the Plate)

*Equus Caballus*, Horse
Fig. 1. var. Shetland Poney
2. var. English Cart Horse

38. Lettered Quadrupeds, Order VI. Belluae, Genus Equus (No number on the Plate)

*Equus Caballus*, Horse
var. Suffolk Agricultural Punch Horse
var. Suffolk Mare and Foal, from the Stock of the late Duke of Bedford

39. Lettered Quadrupeds, Genus Equus (No order or number on the Plate)

*Equus Caballus*, Horse
Fig. 1. var. Race Horse, Royalist
2. var. The Hunter Skylark
Plate

Genus Hippopotamus.
40. Lettered Quadrupeds, Genus Hippopotamus (No number on the Plate)
   Fig. 1. Hippopotamus amphibius, Hipppopotamus

Genus Tapir.
Fig. 2. Tapir Americanus, Tapir

Genus Sus.
41. Lettered Quadrupeds, Genus Sus (No number on the Plate)
   Fig. 1. Sus Scrofa, (ferus a) Wild Hog
   2. Sus Babyrufis, Babyrufa
   3. Sus Æthiopicus, Æthiopian Hog
   4, 5. Sus Scrofa, (domesticus 6) Domesticated Hog

Order Cete.
Genus Monodon.
42. Lettered Mammalia, Order Cete, Genus Monodon, &c. (No number on the Plate)
   Fig. 1. Monodon Monoceros, Narwhal, or Narval
   (Sometimes Sea Unicorn, or One-toothed Monodon, so rarely having two teeth, that only a single example of the kind is known. Donov. Muf. Vide Donov. Brit. Quadrupeds)

Genus Balæna.
Fig. 2. Balena Myftecetus, Great Myftecete, or Common Whale
   3. Balena Boops, Pike-headed Whale

Genus Physeter.
43. Lettered Mammalia, Order Cete, Genus Physeter (No number on the Plate)
   Fig. 1. Physeter macrocephalus, Blunt-headed Cachalot
   2. Physeter, var. gibbosus, (Schreb.) Gibbous Cachalot

Genus Delphinus.
Fig. 3. Delphinus Phocena, Porpoise
   4. Delphinus Delphis, Dolphin

ORNITHOLOGY.

CLASS II. AVES.

Order Accipitres.

Genus Vultur.
44. Lettered Division I. Land Birds, Plate II. (No number on the Plate)
   Fig. 1. Vultur Gryphus, Megallanic Condur, or Condor

Genus Falco.
   2. Falco Chrysaetos, Golden Eagle
   3. Falco gentilis, Falcon Gentil
   4. Falco fahbbuto, Hobby

Genus Strix.
44. 5. Strix Bubo, Great Horned Owl, or Eagle Owl

Order PICÆ.
Genus Psittacus.
45. Lettered Division I. Land Birds, Plate I. Order Picæ
   Fig. 1. Psittacus Macron, Red and blue Macaw
   2. Psittacus Alexandri, Alexandrine Parrot
   3. Psittacus Æflorus, var. Amazon Parrot
   4. Psittacus garrulus, var. Ceram Lory
   5. Psittacus Moluccensis, Great red-crested Cockatoo
   6. Psittacus Banksii, Bankfian Cockatoo
   7. Psittacus pullarius, Ethiopian Parrot

Genus Ramphastos.
46. Lettered Division I. Land Birds, Plate II. Picæ (No number on the Plate)
   Fig. 1. Ramphastos picirurus, Brasilian Toucan
   2. Ramphastos Aracari, Green Toucan, or Aracari

Genus Buceros.
Fig. 3. Buceros Rhinoceros, Rhinoceros Horn-bill

Genus Buphaga.
Fig. 4. Buphaga Africana, African Beef-eater

Genus Crotaphaga.
Fig. 5. Crotaphaga Ani, (major) greater Ani Bird

Genus Glaucopsis.
Fig. 6. Glauc opin cinereus, Cinereous Wattle Bird

Genus Corvus.
47. Lettered Division I. Land Birds, Picæ, Plate III.
   Fig. 1. Corvus Corax, Raven
   2. Corvus Pica, Magpie
   3. Corvus Carypatetis, Nut-cracker
   4. Corvus glandarius, Jay
   5. Corvus crìflatus, Crested Jay

Genus Coracias.
Fig. 6. Coracias Garrulus, Roller (Garrulous Roller, Donov. Brit. Birds)

Genus Oriolus.
48. Lettered Division I. Land Birds, Order II. Picæ, Plate IV.
   Fig. 1. Oriolus crìflatus, Crested Oriole
   2. Oriolus Baltimorea, Baltimore Oriole
   3. Oriolus Pëficus, Black and Yellow Oriole
   4. Neilt of ditto

Genus Cuculus.
Fig. 5. Cuculus canorus, Common Cuckow
NATURAL HISTORY.

PLATE 48. Fig. 6. Cuculus cupreus, Coppery Cuckow 7. Cuculus indicator, Honey-guide

GENUS GRACULA.

49. Lettered Division I. Land Birds, Order II. Picz, Plate V.
Fig. 1. Gracula Quiscalis, Purple Grackle 2. Gracula canus, Bald Grackle 3. Gracula Saudalis, Dial Grackle

GENUS PARADISEA.

Fig. 4. Paradisa Regia, King Bird of Paradise 5. Paradisa Apoletis, Greater Bird of Paradise 6. Paradisa aurea, Golden Bird of Paradise

GENUS Todus.

Fig. 7. Todus macrorhynchos, Great-billed Tody (This genus should be placed after Sitta.)

GENUS TROGON.

50. Lettered Division I. Land Birds, Order II. Picz, Plate VI.
Fig. 1. Trogon Curcurui, Red-bellied Trogon

GENUS BUCCO.

Fig. 2. Bucco Lathami, Buff-faced Barbet 3. Bucco Cayennensis, Cayenne Barbet

GENUS YUNX.

Fig. 4. Yunx Torquilla, Wryneck

GENUS PICUS.

Fig. 5. Picus pileatus, Pileated Woodpecker 6. Picus Carolinus, var. Caroline Woodpecker

GENUS SITTA.

Fig. 7. Sitta Europaea, European Nuthatch

GENUS ALCEO.

51. Lettered Division I. Land Birds, Order II. Picz, Plate VII.
Fig. 1. Alcedo cristata, Crested King's Fifer 2. Alcedo venosa, Venerated King's Fifer 3. Alcedo Alcyon, Belted King's Fifer 4. Alcedo Jacta, Sacred King's Fifer

GENUS GALBULA.

Fig. 5. Gallula paradisa, Lath. (Alcedo paradisa, Gmel.) Long-tailed Jacamar, Paradise Jacamar 6. Gallula viridis, Lath. (Alcedo Galbula, Gmel.) Green Jacamar

GENUS MEROPS.

52. Lettered Division I. Land Birds, Order II. Picz
Fig. 1. Merops Aurunculatus, Wattled Bee-eater 2. Merops Novus Zealandia, New Zealand Bee-eater

GENUS UPUPA.

Fig. 5. Upupa Pomeroys, Cape Hoopoe

PLATE 52. Fig. 4. Upupa Epops, Common Hoopoe 5. Upupa Erythropygus, Red-billed Hoopoe

GENUS CERTHIA.

53. Lettered Division I. Land Birds, Order Picz, Plate IX.
Fig. 1. Certhia paradisa, Great hooked-billed Creeper 2. Certhia obscura, Hook-billed Green Creeper 3. Certhia Coccinella, Hook-billed Red Creeper 4. Certhia Cortulata, Blue Creeper

GENUS TROCHILUS.


ORDER ANSERES.

GENUS ANAS.

54. Lettered Division II. Water Birds, Order III. Anseres, Plate I.
Fig. 1. Anas Atrata, Black Swan 2. Anas Olor, Tame Swan 3. Anas Cygnoides, Chinese Goose 4. Anas Zambensis, Spur-winged Goose

55. Lettered Division II. Water Birds, Order III. Anseres, Plate II.
Fig. 1. Anas Erythropeterus, Bernacle Goose 2. Anas Canadenensis, Canada Goose 3. Anas Spatulata, Grey-headed Duck 4. Anas Mephitica, Mulcovy Duck

56. Lettered Division II. Water Birds, Order III. Anseres, Plate V.

GENUS MERGUS.

57. Lettered Division II. Water Birds, Order III. Anseres, Plate IV.
Fig. 1. Mergus Mergus, Goofander 2. Mergus Eucullatus, Crested Merganer 3. Mergus Albellus, Smew, or Nun (White Smew, Donov. Brit. Birds)

GENUS ALCA.

Fig. 4. Alca antiqua, Ancient Auk 5. Alca Cirrata, Tufted Auk

GENUS APtenodytA.

Fig. 6. AptenodytA Patagonica, Patagonian Penguin
Genus Procellaria.

58. Lettered Division II. Water Birds, Order III. Aniferes, Plate VI. Obs. with six Birds.
- Procellaria capensis, Painted Petrel
- Procellaria fuliginosa, Sooty Petrel
- Procellaria pelagica, Stormy Petrel
- Procellaria gigantea, Gigantic Petrel

Genus Diomedea.

59. Lettered Division II. Water Birds, Order III. Aniferes, Plate VI. Obs. This is the Plate VI. containing five Birds, both being lettered and numbered alike
- Pelecanus Erythrorhynchos, Rough-billed Pelican
- Pelecanus Saula, Booby
- Pelecanus Aquilus, Frigate

Genus Pelecanus.

60. Lettered Division II. Water Birds, Order III. Aniferes, Plate VII.
- Phalocrocorax aterreus, Common Tropic Bird
- Phalocrocorax phoenicus, Red-tailed T. B.

Genus Columbas.

61. Lettered Division II. Water Birds, Order III. Aniferes, Plate IX.
- Larus parasiticus, Arctic Gull
- Larus cornix, Ivory Gull
- Larus marinus, Black-backed Gull

Genus Sterna.

62. Lettered Order Grallae, Plate I.
- Sterna cinerea, (Sterna Tchegrava, Lepechin) Calfion Tern
- Sterna flegata, Noddy

Genus Rynchops.

63. Lettered Order Grallae, Plate II.
- Rynchops nigra, Black Skimmer

Genus Phoenicopterus.

64. Lettered Order Grallae, Plate V.
- Phoenicopterus ruber, Red Flamingo

NATURAL HISTORY.

PLATE
57. Fig. 7. Aptenodyta papua, Papuan Penguin
8. Aptenodyta minor, Little Penguin

Genus Procellaria.

62. Fig. 2. Platala ajaia, Roseate Spoonbill

Genus Scolopax.

63. Fig. 3. Palamedea cornuta, Horned Screamer

Genus Myteria.

64. Fig. 4. Myteria Novo Hollandia, New Holland Jabiru

Genus Cancroma.

65. Fig. 1. Cancroma Cothlearia, Crested Boatbill

Genus Scopus.

66. Lettered Order Grallae, Plate III.
- Ardea Ciocia, White Stork
- Ardea Dubia, Gigantic Heron
- Ardea exilis, Minute Bittern
- Ardea Egretta, Great Egret
- Ardea Tigrina, Tiger Bittern

Genus Tantulus.

67. Lettered Order Grallae, Plate IV.
- Tantulus Loculatus, Wood Ibis
- Tantulus melaonotis, Black-faced Ibis
- Tantulus calvus, Bald Ibis

Genus Corrira.

68. Lettered Order Grallae, Plate II.
- Corrira noctuosa, Italian Courier

Genus Scolopax.

69. Fig. 5. Scolopax leucocyphala, White Headed Curlew
- Scolopax phalopus, Whimbrel

Genus Tringa.

70. Lettered Order Grallae, Plate V.
- Tringa leucopodia, White-winged Sandpiper
- Tringa pugnax, Ruff and Reeve
- Tringa lobata, Grey Phalarope

Genus Charadrius.

71. Fig. 5. Charadrius apricarius, Alwagrim
- Charadrius Himantopus, Long-legged Plover
- Charadrius spinatus, Spur-winged Plover
PLATE

Genus Recurvirostra.

68. Lettered Order Grallae, Plate VII.
Fig. 1. Recurvirostra americana, American Avocet

Genus Hematopus.

Fig. 2. Hematopus ostralegus, Oyster catcher (Pied Oyster Catcher; Donov. Brit. Birds.)

Genus Glareola.

Fig. 3. Glareola auffricaca, Auftrian Pratincole

Genus Fulica.

Fig. 4. Fulica Porphyria, Purple Gallinule
5. Fulica crílata, Crested Coot

Genus Vaginalis.

69. Lettered Order Grallae, Plate VIII.
Fig. 1. Vaginalis alba, White Sheath-bill

Genus Parra.

Fig. 2. Parra Jacana, Chefsnut Jacana
3. Parra finenflis, China Jacana

Genus Rallus.

Fig. 4. Rallus crex, Land Rail
5. Rallus variegatus, Variegated Rail

Genus Psophia.

Fig. 6. Psophia cripitans, Gold-breasted Trumpeter

Order Gallinæ.

Genus Otis.

70. Lettered Division I. Land Birds, Order 5. Gallinæ, Plate I.
Fig. 1, 2. Otis Tarda, Buffard—male 1. female 2.

Genus Struthio.

Fig. 3. Struthio Rhea, American Ostrich
4. Struthio cafuirius, Caffowary, or Emeu
5. Struthio Nova-Hollandiae, New Holland Caffowary

Genus Didus.

71. Lettered Division II. Land Birds, Order 5. Gallinæ.
Fig. 1. Didus Ineptus, Hooded Dodo

Genus Struthio.

Fig. 2, 3. Struthio Camelus, Ostrich—male 2. female 3.

Genus Pavo.

72. Lettered Division I. Land Birds, Order Gallinæ, Plate III.
Fig. 1. Pavo crílatus, Crested Peacock
2. Pavo crílatus (var. varíus), Variegated or Pied Peacock
3. Pavo crílatus (var. albus), White Peacock
4. Pavo bicalcaratus, Iris Peacock

Genus Meleagris.

73. Lettered Division II. Land Birds, Order 5. Gallinæ, Plate IV.
Fig. 1. Meleagris Gallopavo, American or Wild Turkey

Genus Penelope.

Fig. 2. Penelope crílata, Guan

Genus Crax.

Fig. 3, 4. Crax Alector, Curassow—male 3. female 4.
5. Crax Pausi, Cuhew

Genus Phasianus.

74. Lettered Division II. Land Birds, Order Gallinæ, Plate V.
Fig. 1, 2. Phasianus Gallus, Wild Cock—male 1. female 2.
3. Ditto, var. doméísticus, domefticated varieties, Rumpled Cock
4. Ditto, Silky Cock
7, 8. Game Cock—male 7. female 8.
9, 10. pufillius 5, Bantam Cock—male 9. female 10.

75. Lettered Division II. Land Birds, Order Gallinæ, Plate VI.
Fig. 11, 12. Phasianus Gallus, var. doméísticus, varieties, Malay Cock—male 11. female 12.

76. Lettered Division III. Land Birds, Order Gallinæ, Plate VII.
Fig. 1. Phasianus Colcheicus, Common Pheafant
2. Phasianus pitius, Gold Pheafant
3. Phasianus Nycthemerus, Silver Pheafant
4. Phasianus Argus, Argus Pheafant

Genus Numidia.

77. Lettered Division I. Land Birds, Order Gallinæ, Plate VIII.
Fig. 1. Numidia meleagris, Guinea Hen or Pintado
2. Numidia crílata, Crested Pintado

Genus Tetrao.

Fig. 3. Tetrao umbellus, Ruffed or Ruff-necked Grous
4. Tetrao abelata, Pin-tailed Grous
5. Tetrao Canadenfis, Spotted Grous
6. Tetrao paradoxus, Heterochitus Grous, or Paradoxical Grous

78. Lettered Division II. Land Birds, Order Gallinæ, Plate IX.
Fig. 1. Tetrao perdis, Common Partridge
2. Tetrao ferrugineus, Hackled Partridge
### NATURAL HISTORY.

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<td><em>Tetrao gibraltaricus</em>, Gibraltar three-toed Quail</td>
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**Order Passeres.**

**GENUS COLUMBA.**

79. Lettered Division I. Land Birds, Order Passeres, Plate II.

- Fig. 1. *Columba chalcopera*, Bronze-winged Pigeon
- 2. *Columba ernestina*, Garnet-winged Pigeon
- 3. *Columba macroura*, Great-tailed Pigeon
- 4. *Columba nicobarica*, Nicobar Pigeon
- 5. *Columba curvirostra*, Hook-billed Pigeon
- 6. *Columba capensis*, Cape Turtle, or Cape Pigeon
- 7. *Columba coronata*, Great-crowned Pigeon

**GENUS ALAUDA.**

80. Lettered Division I. Land Birds, Order Passeres, Plate LXXX.

- Fig. 1. *Alauda capensis*, Cape Lark

**GENUS STURNUS.**

- Fig. 2. *Sturnus militaris*, Military Starling
- 3. *Sturnus undulata*, Undulated Starling

81. Lettered Division I. Land Birds, Order Passeres, Plate III.

- Fig. 1. *Turdus Orpheus*, Mocking Thrush
- 2. *Turdus Rex*, King Thrush
- 3. *Turdus perspicillatus*, Speckled Thrush
- 4. *Turdus crassirostris*, Thick-billed Thrush
- 5. *Turdus cyanurus*, Blue-tailed Thrush
- 6. *Turdus longirostris*, Long-billed Thrush

**GENUS AMPELIS.**

82. Lettered Division I. Land Birds, Order Passeres, Plate IV.

- Fig. 1. *Ampeus carunculatus*, Carunculated Chatterer
- 2. *Ampeus catinus*, Purple-breasted Chatterer
- 3. *Ampeus Pompadura*, Pompadour Chatterer
- 4. *Ampeus carinix*, Red Chatterer

**GENUS COLIUS.**

- Fig. 5. *Colius capensis*, Cape Cloy
- 6. *Colius erythropus*, White-backed Cloy

**GENUS LOXIA.**

83. Lettered Division I. Land Birds, Order Passeres, Plate V.

- Fig. 1. *Loxia lincola*, Linneated Grosbeak
- 2. *Loxia excaliduta*, Crested Dominican Grosbeak
- 3. *Loxia philippina*, Philippine Grosbeak
- 4. The pendulous Nell of the Philippine Grosbeak
- 5. *Loxia Cardinialis*, Cardinal Grosbeak
- 7. *Loxia fluvicola*, Fan-tailed Grosbeak

**GENUS FRINGILLA.**

85. Lettered Division I. Land Birds, Order 3. Passeres, Plate X.

- Fig. 4. *Fringilla ignita*, Fire Finch
- 5. *Fringilla flammea*, Crimson-crowned Finch
- 6. *Fringilla longicauda*, Blue-bellied Finch
- 7. *Fringilla Ptilurus*, Parrot Finch

**GENUS PHYTOTOMA.**

86. Lettered Order Passeres, Plate VIII.

- Fig. 6. *Motacilla cyanura*, Superb Wheat-ear

**GENUS MOTACILLA.**

87. Lettered Order Passeres, Plate IX.

- Fig. 1. *Motacilla biocolor*, Black and White Flycatcher
- 3. *Motacilla tyrannus*, Forked-tailed Flycatcher
- 5. *Motacilla fluvicola*, Fan-tailed Flycatcher

**GENUS PIPIRA.**

88. Lettered Order Passeres, Plate XX.

- Fig. 4. *Pipra rubicola*, Rock Manakin
- 5. *Pipra fritata*, Striped-headed Manakin
- 7. *Pipra punicota*, Speckled Manakin

**GENUS PARUS.**

- Fig. 1. *Parus macrocephalus*, Great-headed Titmouse
- 2. *Parus crista*, Crested Titmouse
- 3 Y
NATURAL HISTORY.

PLATE 88. Fig. 4. Hirundo effulenta, Efulent Swallow
5. The efulent Nest of this Swallow
6. Hirundo tahitica, Otaheite Swallow
7. Hirundo pelagia, Aculeated Swallow
3. Hirundo indica, Rufous-headed Swallow

PLATE 89. Genus Hirundo.

GENUS CAPRIMULGUS.

50. Lettered Division LAND BIRDS, Order Passeres, Plate LXXX.
Fig. 4. Caprimulgus longipennis, Leona Goatfucker
5. Capiimulgus grandis, Great Goatfucker

ELEMEHTARY PLATES TO ILLUSTRATE

THE CLASSIFICATION OF BIRDS.

Characters of the Feet in the different Orders and Genera.

ACCIPITRES.

Feet formed for affixing the Mandibles in seizing and tearing the prey, being armed with strong talus.

89. Lettered Ornithology, Elementary Plate I.
The Feet in Falco (Falco chryosastes, Golden Eagle); and Eagles, Falcons, Hawks
The Feet in Strix (Strix flammea, White Owl); striudula, brachyotos, pufferina (The Shrikes belong to this order)

PIGE.

* Feet formed for Perching.

90. Lettered Plate IV.
The Feet in Sitta (Nuthatch) European Nuthatch

92. Lettered Plate II.
The feet in Corvus (Crow) Common Crow
Paradisea (Bird of Paradise)
The same structure prevails in the feet of the genera Buphaga, Oriolus, Coracias, Upupa, Certhia, Trochilus, Cc.

** Feet formed for Climbing.

90. Lettered Elementary Plate IV.
The Feet of Picus (P. Martius, Great Black Woodpecker; P. Viridis, Green Woodpecker)
The Feet of Musophagus (Musophagae)
This structure is well exemplified in Pittaicus (Parrot), and Cuculus (Cuckow), which are familiar examples; and occurs in the genera Scythrops, Ramphalos, Trogon, Crotophaga, Galbula, Yunx, and Bucco.

PLATE

*** Feet formed for Walking.
90. Lettered Elementary Plate IV.
The Feet of Alesto (King's-fisher)
The other genera of Picus, which have the feet formed for walking, are Momotus, Buceros, Merops, and Todus.

ANSERES.

Feet formed for Swimming.

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Anas (Goose, Duck)
Alta (Ank)
Aptenodyta (Penguin)
Pelecanus (Pelican), two species
Columbus (Grebe), three species
Larus (Gull)

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Steena (Tern)

GRAIL.

Feet formed for Wading.

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Phanieopterus (Flamingo)

89. Lettered Ornithology, Elementary Plate I.
Feet in the genus Platalea (Spoonbill) P. aja

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Ardea (Heron)

89. Lettered Ornithology, Elementary Plate I.
Feet in the genus Ardea cinerea (Grey Heron)

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Recurvirostra, (Avocet)

89. Lettered Ornithology, Elementary Plate I.
Feet in the genus Tantalus (Ibis) T. igneus, Bay Ibis

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Tringa (Phalarope) T. lobata, Scallop-toed Tringa

89. Lettered Ornithology, Elementary Plate I.
Feet in the genus Charadrius (Plover, Long-legged P.)
Hematopus (Osier Catcher)
Glareola (Pratincole) P. auf-briaca

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Fulica (Gallinule)
Vignalis (Sheathbill)

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Rallus (Rail)
PLATE
91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Rallus (Rallus gallinule)

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Parra (Jacana), two species

GALLINÆ.
Form of the Feet.

92. Lettered Ornithology, Elementary Plate II.
In the genus Otis (Buffard)
Struthio (Ostrich) S. camelus, Common or Black Ostrich
Struthio camelus, Cassowary
Cercoptis (Cercops)
Pavo (Peacock) Common P.
Phasianus (Pheasant) Common P.
Menura (Menura)

89. Lettered Ornithology, Elementary Plate I.
In the genus Tetrao (Grouse), T. urogallus, Great Grouse.
T. lagoopus, Ptarmigan.
T. tetrix, Black Game

PASSERES.
Structure of the Feet.

89. Lettered Ornithology, Elementary Plate I.
In the genus Colius (Coly)

90. Lettered Ornithology, Elementary Plate IV.
In the genus Alauda (Lark), A. arvensis, Sky-lark, A. obsoleta, Dulky Lark
Pipra (Manskin)

92. Lettered Ornithology, Elementary Plate II.
In the genus Parus (Titmouse)

90. Lettered Ornithology, Elementary, Plate IV.
In the genus Turdus (Thrufh)
Motacilla (Warbler)

89. Lettered Ornithology, Elementary Plate I.
In the genus M. Regulus (Gold-crested Wren)

CLASS AMPHIBIA.

93. Lettered Amphibia, Plate X.
Fig. 5. Testudo mydas, Elculent Green Turtle
6. Testudo imbricata, Hawkbill Turtle

LAND TURTLES.
Fig. 1. Testudo denticulata, Denticulated Tortoise
2. Testudo europaea, Green Speckled Tortoise
3. Testudo spatata, Spotted Tortoise
4. Testudo picta, Painted Tortoise

PLATE
94. Lettered Amphibia, Plate I.

Fig. 1. Rana Pipa, Surinam Toad—Female with her young nestling in collides on the back
2. Rana bicolor, Two-coloured Frog
3. Rana paradoxus, Paradoxical Frog, in the fifth-like former tad-pole plate
4. Rana arborescens, Tree Frog.

GENUS LACERTA.

95. Lettered Amphibia, Plate VIII.
Fig. 1. Lacerta Salamandra, Salamander
2. Lacerta Vittata, Forked Lizard
3. Lacerta Chamaeleon, Chameleon
4. Lacerta agilis, Green Lizard
5. Lacerta lennifera, Eight-lined Lizard

GENUS DRACO.

96. Lettered Amphibia, G. Lacerta, Plate IX.
Fig. 1. Lacerta seicnoides, Australafian Galliawfsp
2. Lacerta chalcedon, Chalcides Lizard
3. Lacerta apus, Apodal Lizard

GENUS SIREN.

97. Lettered Amphibia, G. Siren, Plate VI.
Fig. 1. Siren lacertina, Eel-shaped Siren
2. Siren angulina, Anguine Siren

ORDER II. SERPENTS.

98. Lettered Amphibia, G. Croatalus, Plate II.
Fig. 1. Croatalus horridus, Banded Rattle-snake
2. Croatalus Durissus, Striped Rattle-snake

GENUS BOA.

99. Lettered Amphibia, G. Boa, Plate V.
Fig. 1. Boa constrictor, Great Boa Serpent
2. Boa Phrygia, Embroidered Boa Serpent
3. Boa horridus, Garden Boa Serpent

GENUS COLUBER.

100. Lettered Amphibia, G. Coluber, Plate IV.
Fig. 1. Coluber nasica, Horn-naed Viper
2. Coluber cerastes, Cerastes Viper
3. Coluber naja, Nagoo or Spectacle Viper

GENUS ANGUIs.

101. Lettered Amphibia, G. Anguis, Plate III.
Fig. 1. Anguis Crotalus, Coral Slow Worm
2. Anguis atris, Black Banded Slow Worm
3. Anguis Jamaicae, Jamaicae Slow Worm

GENUS AMPHIBIANÆ.

102. Lettered Amphibia, G. Amphibianæ, Plate VII.
Fig. 1. Amphibianæ alba, White Amphibianæ
2. Amphibianæ fuliginis, Fuliginous Amphibianæ
Plate

Genus Cecilia.
102. Fig. 3. Cecilia tentacula, Eel-shaped Cecilia

Genus Hydrus.
103. Lettered Amphibia, G. Hydrus
Fig. 1. Hydrus colubrinus, Colubrine Hydrus
2. Hydrus bicolor, Black-backed Hydrus

Genus Langaya.
Fig. 3. Langaya nasuta, Snouted Langaya

Genus Acrochordus.
Fig. 4. Acrochordus dubius, Doubtful Acrochordus

Ichthyology.
Class Pisces.
Order Apodes.
Genus Munena.
104. Lettered Order Apodes, Plate I.
Fig. 1. Munena anguilla, Eel Munena, or Common Eel

Genus Synbranchus.
Fig. 2. Synbranchus marmoratus, Marbled Synbranchus

Genus Sphagebranchus.
Fig. 3. Sphagebranchus rostratus, Snouted Sphagebranchus

Genus Gymnotus.
Fig. 4. Gymnotus electricus, Electric Gymnotus

Genus Gymnotorhax.
Fig. 5. Gymnotorhax munena, Eel Gymnotorhax
6. Gymnotorhax catenatus, Chain Gymnotorhax

Genus Stomateus.
105. Lettered Order Apodes, Plate II.
Fig. 1. Stomateus cinereus, Ash-coloured Stomateus
2. Stomateus niger, Black Stomateus

Genus Stylephorus.
Fig. 3. Stylephorus chordatus, Chordated Stylephorus

Genus Trichius.
Fig. 4. Trichius argenteus, Silvery Trichius

Genus Sternoptyx.
Fig. 5. Sternoptyx diaphana, Diaphanous Sternoptyx

Genus Xiphias.
Fig. 6. Xiphias gladius, Sword-fish

Genus Anarichas.
Fig. 7. Anarichas lupus, Ravenous Wolf-fish

Plate

Order Jugulares.
Genus Trachinus.
106. Lettered Order Jugulares, Plate I.
Fig. 1. Trachinus major, Great Weever
2. Trachinus deors, Small Weever

Genus Uranoscopus.
Fig. 3. Uranoscopus lacera, Rough Stargazer

Genus Callionymus.
Fig. 4. Callionymus draco, Sordid Dragonet
5. Callionymus lyra, Gemmous Dragonet

Genus Gadus.
107. Lettered Ichthyology, Order Jugulares, Plate II.
Fig. 1. Gadus morhua, Cod-fish
2. Gadus carbonarius, Coal-fish
3. Gadus minutus, Poor
4. Gadus Taur, Tau Cod-fish

Genus Bleenius.
Fig. 5. Bleenius maris, Ocellated Blenny

Genus Kurtus.
Fig. 6. Kurtus indicus, Indian Kurtus

Order Thoracici.
Genus Cepola.
108. Lettered Ichthyology, Order Thoracici, Plate I.
Fig. 1. Cepola Tria, Ribband-fish

Genus Echneis.
Fig. 2. Echneis Remora, Mediterranean Sucking-fish

Genus Coryphiena.
Fig. 4. Coryphiena hippurus, Common Coryphene
5. Coryphiena pentadactyla, Five-spotted Coryphene

Genus Gobius.
Fig. 3. Gobius minutus, Spotted Goby

Genus Cottus.
Fig. 6. Cottus grinniens, Grunting Bull-head
7. Cottus cataphractus, Mailed Bull-head

Genus Scorpéna.
109. Lettered Ichthyology, Order Thoracici, Plate III.
Fig. 1. Scorpéna Scrofa, Hog Sea-Scorpion
2. Scorpéna boreida, Horrid Sea-Scorpion
3. Scorpéna antennata, Antennated Sea-Scorpion

Genus Zeus.
Fig. 4. Zeus gallus, American Zeus
5. Zeus ciliaris, Filamentous Zeus
6. Zeus inflictor, Infidious Zeus

Genus Nyphus.
Genus Pleuronectes.

110. Lettered Ichthyology, Order Thoracici, Plate III.
   Fig. 1. Pleuronectes zebra, Zebra Sole
   2. Pleuronectes argus, Argus Flounder
   3. Pleuronectes platessa, Plaice
   4. Pleuronectes bilineatus, Bilineated Sole

111. Lettered Ichthyology, Order Thoracici, Plate IV.
   Fig. 1. Pleuronectes punctatus, Dotted Flounder

Genus Chilotodon.

110. Lettered Ichthyology, Order Thoracici, Plate III.
   Fig. 5. Chilotodon bicolor, Two-coloured Chilotodon
   6. Chilotodon fuscatus, Banded Chilotodon

111. Lettered Ichthyology, Order Thoracici, Plate IV.
   Fig. 2. Chilotodon imperator, Imperial Chilotodon
   3. Chilotodon marginatus, Bordered Chilotodon
   4. Chilotodon arcatus, Bowed Chilotodon
   5. Chilotodon rostratus, Snouted Chilotodon
   6. Chilotodon teira, Teira Chilotodon

Genus Sparus.

112. Lettered Ichthyology, Order Thoracici, Plate VII.
   Fig. 1. Sparus fallax, Falcated Gilthead
   2. Sparus surinamensis, Surinam Gilthead
   3. Sparus fuscatus, Banded Gilthead
   4. Sparus chrysurus, Golden-tailed Gilthead
   5. Sparus annularis, Annulated Gilthead
   6. Sparus menta, Cackarel

Genus Scarus.

113. Lettered Ichthyology, Order Thoracici, Plate VIII.
   Fig. 7. Scarus viridus, Green Scarus

114. Lettered Ichthyology, Order Thoracici, Plate X. & XI.
   1. Scarus cretensis, Large-scaled Scarus

Genus Labrus.

113. Lettered Ichthyology, Order Thoracici, Plate VIII.
   Fig. 1. Labrus micropodius, Large-scaled Wrasse
   2. Labrus trichopterus, Hair-finned Wrasse
   3. Labrus malapterus, Soft-finned Wrasse
   4. Labrus maculatus, Spotted Wrasse
   5. Labrus punctatus, Dotted Wrasse
   6. Labrus nelsoni, Black-bellied Wrasse

Genus Sciaena.

114. Lettered Ichthyology, Order Thoracici, Plate X. & XI.
   Fig. 2. Sciaena diacantha, Two-spined Umbre, or Sciaena
   3. Sciaena cirrhosa, Cirrofe Sciaena
   4. Sciaena punctata, Dotted Sciaena
   5. Sciaena plumieri, Plumier's Sciaena

Genus Perca.

115. Lettered Ichthyology, Order Thoracici, Plate IX.
   Fig. 1. Perca brasilienensis, Brazilian Perch
   2. Perca flectis, Rock Perch
   3. Perca punctata, Dotted Perch
   4. Perca guttata, Guttated Perch
   5. Perca maculata, Spotted Perch
   6. Perca bimaculata, Bimaculated Perch

Genus Trachycithys.

116. Lettered Ichthyology, Order Thoracici, Plate XI.
   Fig. 4. Trachycithys australis, Australasian Trachycithys

Genus Gasterosteus.

117. Lettered Ichthyology, Order Thoracici, Plate XII.
   Fig. 1. Scomber sardus, (Scomber scomber, Linn.)
   Common Mackarel
   2. Scomber niger, Black Mackarel
   3. Scomber saurus, Saliens Mackarel
   4. Scomber ruder, Red Mackarel

Genus Mullus.

118. Lettered Ichthyology, Order Thoracici, Plate XIII.
   Fig. 1. Mullus furcatus, Surmullet

Genus Trigla.

117. Lettered Ichthyology, Order Thoracici, Plate XII.
   Fig. 2. Trigla carolina, Caroline Gurnard
   3. Trigla rhenus, Swallow Gurnard
   5. Trigla cataphractus, Mailed Gurnard
   4. Trigla punctata, Dotted Gurnard

Genus Lonchiurus.

117. Lettered Ichthyology, Order Thoracici, Plate XII.
   Fig. 5. Lonchiurus barbatus, Bearded Lonchiurus

Order Abdominales.

Genus Cobitis.

119. Lettered Ichthyology, Order Abdominales, Plate V.
   Fig. 4. Cobitis fuscus, Great Loche

Genus Anableps.

119. Lettered Ichthyology, Order Abdominales, Plate V.
   Fig. 5. Anableps tetraptebolalus, Four-eyed Anableps

Genus Silurus.

117. Lettered Ichthyology, Order Abdominales, Plate V.
   Fig. 1. Silurus clarius, Long-bearded Silurus

Fig. 1. Sciaena undecimalis, Eleven-spot Sciaena
   2. Sciaena lineata, Lineated Sciaena

Fig. 4. Trachycithys australis, Australasian Trachycithys

Fig. 3. Gasterosteus aculeatus, Stickelback
Genus Platystachus.

119. Fig. 6. Platystachus anguillaris, Eel-shaped Platystachus

Genus Loricaria.

Fig. 2. Loricaria costalis, Ribbed Loricaria
3. Loricaria flavs, Yellow Loricaria

Genus Salmo.

120. Lettered Ichthyology, Order Abdominales, Plate III.
Fig. 1. Salmo bimaculatus, Bimaculated Salmon
2. Salmo fischeri, Banded Salmon
3. Salmo tumidus, Barred Salmon
4. Salmo Odoco, Odoco Salmon
5. Salmo Guentheus, Yellow-finned Salmon
6. Salmo Frederici, Frederician Salmon
7. Salmo rhomboides, Rhombic Salmon

Genus Fistularia.

121. Lettered Ichthyology, Order Abdominales, Plate II.
Fig. 1. Fistularia chinensis, Chinese Tobacco-pipe Fish
2. Fistularia tabaccaria, Spotted Tobacco-pipe Fish

Genus Esox.

Fig. 3. Esox niger, Bony Gar Fish, or Sea Pike
4. Esox Belone, Sea Pike, or Gar Fish
5. Esox brasilensis, Brasilian Pike, or Gar Fish

Genus Elops.

Fig. 6. Elops Saurus, Saury Elops

Genus Argentina.

Fig. 7. Argentina Sphyraena, European Argentine

Genus Atherina.

122. Lettered Ichthyology, Order Abdominales, Plate I.
Fig. 1. Atherina Hepsetus, Common Atherine

Genus Mugil.

Fig. 2. Mugil Tang, Tang Mullet
3. Mugil cephalus, Grey Mullet

Genus Exocoetus.

Fig. 4. Exocoetus coclalaus, Mediterranean Flying Fish
5. Exocoetus exilis, Swallow Flying Fish
6. Exocoetus Macguiger, Atlantic Flying Fish

Genus Polynemus.

123. Lettered Ichthyology, Order Abdominales, Plate IV.
Fig. 1. Polynemus paradiceus, Paradice Polynemus
2. Polynemus decadasTLuus, Ten-fingered Polynemus

Genus Clupea.

123. Fig. 3. Clupea Thrissa, Thrissa Herring
4. Clupea najs, Nalal Herring

Genus Cyprinus.

Fig. 5. Cyprinus cultratus, Razor Carp
6. Cyprinus auratus, Golden Carp, var.
7. Cyprinus phoxinus, Minnow

Order Branchiostegi.

Genus Ostracion.

124. Lettered Ichthyology, Order Branchiopteri, Genus Ostracion, Plate V.
Fig. 1. Ostracion taurinus, Eared Trunk Fish
2. Ostracion trigus, Triangular Trunk Fish
3. Ostracion natus, Snouted Trunk Fish
4. Ostracion bicaudalis, Bicaudate Trunk Fish
5. Ostracion quadricornis, Four-horned Trunk Fish
6. Ostracion cornutus, Horned Trunk Fish

Genus Tetrodon.

125. Lettered Ichthyology, Order Branchiopteri, Genus Tetrodon, Plate V.
Fig. 1. Tetrodon hifpidus, Hifpid Tetrodon
2. Tetrodon ochutus, Osculated Tetrodon
3. Tetrodon lineatus, Lined Tetrodon
4. Tetrodon lagocephalus, Hare Tetrodon

Genus Diodon.

Fig. 5. Diodon Hystrix, Porcupine Diodon
6. Diodon orbicularius, Round Diodon

Genus Syngnathus.

126. Lettered Ichthyology, Order Branchiopteri, Plate VI.
Fig. 1. Syngnathus foliatus, Foliated Pipe Fish
2. Syngnathus acus, Great Pipe Fish
3. & 4. Syngnathus Hippocampus, Sea-Horse Pipe Fish

Genus Pegasus.

Fig. 4. & 4. Pegasus Draconis, Dragon Pegasus
5. & 5. Pegasus natans, Swimming Pegasus

Genus Centriscus.

Fig. 6. Centriscus luteus, Mailed Centriscus

Genus Balistes.

127. Lettered Ichthyology, Order Branchiopteri, Plate III.
Fig. 1. Balistes vetula, Old Wife
2. Balistes maculatus, Spotted Old Wife
3. Balistes aculeatus, Aculeated Old Wife
4. Balistes monoceros, One-horned Old Wife

Genus Cyclopterus.

128. Lettered Ichthyology, Order Branchiopteri, Plate IV.
Fig. 1. Cyclopterus Lumpus, Common Lump-fucker
Plate
128. Fig. 2. Cyclopterus ocellatus, Ocellated Lump-fucker
3. Cyclopterus lineatus, Lineated Lump-fucker

Genus Lophius.
Fig. 4. Lophius marmoratus, Marbled Angler
5. Lophius Hisfris, Harlequin Angler
6. Lophius rostratus, Beaked Angler
7. Lophius ptychus, Painted Angler

Order Chondropterygi.
Genus Acipenser.
129. Lettered Ichthyology, Order Chondropterygii, Plate I.
Fig. 3. Acipenser Sturio, Common Sturgeon
4. Acipenser ruthenus, Sterlet

Genus Chimera.
Fig. 2. Chimera monstrofa, Sea-monster
5. Chimera callorhynchus, Southern Sea-monster

Genus Pristis.
Fig. 1. Pristis Antiquorum, Common Saw-fish

Genus Squalus.
130. Lettered Ichthyology, Order Chondropterygii, Plate II.
Fig. 1. Squalus glaucus, Blue Shark
2. Squalus Catulus, Lesser spotted Shark
3. Squalus Squatina, Angel Shark
4. Squalus Zygera, Hammer-headed Shark
5. Squalus Zebra, Zebra Shark

Genus Spatularia.
Fig. 6. Spatularia renticulata, Reticulated Spatularia

Genus Raja.
131. Lettered Ichthyology, Order Chondropterygii, Plate VI.
Fig. 1. Raja diabolus, Demon Ray
2. Raja clavata, Thorn-back
4. Raja undulata, Undulated Ray
5. Raja torpeda, Electric Ray
6. Raja rhinobatos, Long-noised Ray

Genus Gastrobranchus.
132. Lettered Ichthyology, Order Chondropterygii, Plates III., IV., V.
Fig. 1. Gastrobranchus coecus, Hag-fish
2. Gastrobranchus Dombyei, Dombyean Hag-fish

Genus Petromyzon.
Fig. 3. Petromyzon marinus, Marine Lamprey
4. Petromyzon fluviatilis, River Lamprey
5. Ditto, the young, shewing the under surface

Plate
ENTOMOLOGY.
CLASS INSECTA.
Order Coleoptera.
Genus Scarabaeus.
133. Lettered Entomology, Order Coleoptera, Plate I.
Fig. 1. Scarabaeus Hercules
2. Scarabaeus Chorineus
3. Scarabaeus Thyius
4. Scarabaeus moleus
5. 6. Scarabaeus cornifex. male and female
7. Scarabaeus Foer

Genus Goliathus.
134. Lettered Entomology, Genus Goliathus, Plate I.

Genus Lucanus.
135. Lettered Entomology, Order Coleoptera, Plate IV.
Fig. 1. Lucanus cervus
2. Lucanus inermis

Genus Dermestes.
Fig. 3. Dermestes vingti-guttatus
4. Dermestes sex-dentatus
5. Dermestes brachypterus
6. Dermestes pedicularius
7. Dermestes pictipes

Genus Bostrichus.
136. Lettered Entomology, Order Coleoptera, Plate V.
Fig. 12. Bostrichus phaeseus
1. Bostrichus polygraphus
2. Bostrichus typographus
3. Bostrichus piniferda

Genus Melyris.
137. Lettered Entomology, Order Coleoptera, Plate XII.
Fig. 13. Melyris viridis

Genus Ptinus.
136. Lettered Entomology, Order Coleoptera, Plate V.
Fig. 4. Ptinus Scotius
5. Ptinus Imperialis
6. Ptinus sex-punctatus
7. Ptinus tegellatus
8. Ptinus pellicornis

Genus Hister.
Fig. 9. Hister unicolor
10. Hister planus

Genus Gyrinus.
Fig. 11. Gyrinus natator

Genus Byrrhus.
137. Lettered Entomology, Order Coleoptera, Plate XII.
Fig. 1. Byrrhus pilula
**NATURAL HISTORY.**

| Plate  | Fig. 5. Chrysolina cyanipes  |
| 137. Fig. 2. Anthrenus Scorborarius |
| **Genus Anthrenus.** | 6. Chrysolina limbata  |
| **Genus Silpha.** | 7. Chrysolina didymus  |
| Fig. 6. Silpha Germanica | 8. Chrysolina boleti |
| 7. Silpha vesspilo | 9. Chrysolina 14-guttata  |
| 8. Silpha tibricola | 10. Chrysolina marginalis |
| 9. Silpha bunator | 11. Chrysolina marginata  |
| 10. Silpha obscura | 12. Chrysolina marginella |
| 11. Silpha quadrinaculata | 13. Chrysolina hauoveriana |
| 12. Silpha sinuata |

| Plate  | Fig. 1. Cryptoccephalus cordiger  |
| 135. Lettered Entomology, Order Coleoptera, Plate IV. |
| **Genus Opatrum.** | 2. Cryptoccephalus variabilis |
| **Genus Tritoma.** | 3. Cryptoccephalus distinguenus  |
| Fig. 2. Tritoma rufipes | 4. Cryptoccephalus lobatus  |
| 3. Tritoma pilosii | 5. Cryptoccephalus obscurus  |

| Plate  | Fig. 3. Cistella pallida  |
| 137. Lettered Entomology, Order Coleoptera, Plate IX. |
| **Genus Tritoma.** | 4. Cistella lutea  |
| **Genus Cistella.** | 5. Cistella lupturoides  |

| Plate  | Fig. 1. Hispa mutica  |
| 138. Lettered Entomology, Order Coleoptera, Plate VIII. |
| **Genus Cassida.** | 2. Hispa mutica  |
| **Genus Bruchus.** | 3. Hispa scabra  |

| Plate  | Fig. 6. Cystinae  |
| 141. Lettered Entomology, Order Coleoptera, Plate XII. |
| **Genus Cystinae.** | 7. Cystinae  |

| Plate  | Fig. 8. Paufus decimontis (Donov. Ind. Inf.)  |
| 142. Lettered Entomology, Order Coleoptera, Plate XI. |
| **Genus Cystinae.** | 11. Paufus decimontis (Donov. Ind. Inf.)  |
| **Genus Curculio.** | 12. Paufus decimontis (Donov. Ind. Inf.)  |
| **Genus Curculio.** | 13. Paufus decimontis (Donov. Ind. Inf.)  |

| Plate  | Fig. 1. Curculio fabulorum  |
| 140. Lettered Entomology, Order Coleoptera, Genus Chrysolina, Plate XIII. |
| **Genus Chrysolina.** | 2. Curculio palmarum  |
| **Genus Chrysolina.** | 3. Curculio elegans  |
| **Genus Chrysolina.** | 4. Curculio annulatus  |
| **Genus Chrysolina.** | 5. Curculio imperialis  |
| **Genus Chrysolina.** | 6. Curculio crenatus  |
| **Genus Chrysolina.** | 7. Curculio hemipterus  |
| **Genus Chrysolina.** | 8. Curculio brevistylus (nigrum spinosus)  |
| **Genus Chrysolina.** | 9. Curculio assimilis  |
| **Genus Chrysolina.** | 10. Curculio rhinomacer  |
| **Genus Chrysolina.** | 11. Curculio regalis (Donov. Ind. Inf.)  |
| **Genus Chrysolina.** | 12. Curculio bicornis  |
| **Genus Chrysolina.** | 13. Curculio viridis  |
| **Genus Chrysolina.** | 14. Curculio hercules  |
| **Genus Chrysolina.** | 15. Curculio betula  |
Plate 146. Fig. 5. *Carabus arenarius*
6. *Carabus granulatus*
7. *Carabus thoracicus*
8. *Carabus bimaculatus*
9. *Carabus germanus*
10. *Carabus praefius*
11. *Carabus crux minor*
12. *Carabus semipunctatus*

Genus *Tenebrio*.

147. Lettered Entomology, Order Coleoptera, Plate XI.

Fig. 1. *Tenebrio gigas*
2. *Tenebrio femoratus*
3. *Tenebrio molitor*
4. *Tenebrio curvipes*
5. *Tenebrio culinaris*
6. *Tenebrio ferrugineus*

Genus *Pimelia*.

Fig. 7. *Pimelia gages*
8. *Pimelia fepidium*
9. *Pimelia tragostia*

Genus *Helops*.

Fig. 10. *Helops lanipes*
11. *Helops fajcita*
12. *Helops fija*

Genus *Lytta*.

148. Lettered Entomology, Order Coleoptera, Plate VI.

Fig. 1. *Lytta vesicatoria*
2. *Lytta dubia*
15. *Lytta Schaefleri*

Genus *Meloe*.

Fig. 3. *Meloe procarabaeus*
4. *Meloe variegatus*

Genus *Mordella*.

Fig. 5. *Mordella bicolor*
6. *Mordella fava*
7. *Mordella dorfadi*
8. *Mordella frontalis*

Genus *Mylabris*.

Fig. 9—11. *Mylabris cichorii, var.*

Genus *Staphylinus*.

Fig. 12. *Staphylinus birtius*

Genus *Forficula*.

Fig. 13, 14. *Forficula gigantea*

149. Lettered Entomology, Coleoptera, Plate III.

Supplementary Plate of the Order Coleoptera.

* This Plate, which we have placed as an Appendix to the Coleoptera tribe, was engraved and published in the Cyclopaedia before the Proprietors had determined to under-
and these, it must be allowed, were not chosen altogether with that due attention to accuracy which the intricacy of this branch of Natural History demanded. These insects were copied; we understand, from specimens in the very valuable cabinet of Mr. Francillon; but owing to the dispersion of that collection by public sale, the means of comparison has pulled away, and the death of the artist then employed, as well as of the zealous proprietor of that collection, has opposed a period to enquiry further. The far greater and more costly portion of the Francillonian Cabinet is indeed preferred, being incorporated in the princely cabinet of Alexander McLeay, Esq., a cabinet to which true science is never refused an easy access; but the insects in question having been removed from their respective situations, in Mr. Francillon's drawers, they can be no longer recognized as the specimens from which the figures in this plate are taken; and this, in some few instances at least, it must be confessed, is requisite to enable us to speak of them with certainty. We may observe, moreover, that very few names accompany the articles reprepented in this Plate of Mr. Edwards; and of these few there are certainly faulty. Hispa is doubtful (a true Hispa has been since given in Plate 141, fig. 8.). Bruchus is erroneous, and appears to be, with the exception of the antennæ, Attelabus Coryli; (a true Bruchus is infested by us in Plate 141, fig. 9.) and his insect named Attelabus, has much the appearance of Mylabris, except in having pectinated instead of moniliform antennæ: nevertheless this may be a Curculis, and allied to Apium. (See Plate 148, fig. 9.) Lampyrus is indifferent; Canthis uninterpretable. With these, and some few other exceptions, the Plate should be preferred, as it contains other insects infested, the repetition of whose figures has been purposely avoided in selecting the materials for the rest of the Plates of Coleoptera.

We believe Curculis, No. 1, to be Curculis bispinoseus; No. 3, to be Curculis Imperialis, the Brazilian or Diamond Beetle; No. 4, Curculis vitata, of Jamaica; Cerambyx, No. 3, Cerambyx marginatus; Necydalis, No. 2., N. cerulea; Lampyrus, fig. 1., L. vulgaris, male (having wings); No. 2, the female (beingapterous, or without wings); Elater, No. 1., E. ocellatus, West Indies; No. 2, is uncertain, but is, no doubt, an Elater, placed on its back, to show the situation of the pointed sternum in that genus, by striking which upon the breast, the insect is enabled to spring up with instantaneous velocity when laid down in that position.
NATURAL HISTORY.

Plate

Order Lepidoptera.

Genus Papilio.

154. Lettered Entomology, Order Lepidoptera, Plate I.

Fig. 1. Papilio Helcer, Eq. Tr. 1. Upper figure on the left hand.
2. Papilio Eclusi, Eq. Tr. 2. Right-hand side, middle figure.
3. Papilio Deiocus, Eq. Actib. 2. Left-hand side, middle figure.
4. Papilio Agamemnon, Eq. Actib. 2. Lowell figure on the left hand.
5. Papilio Machaon, Eq. Actib. 3. Lowest figure on the right hand.
7. Papilio Mecystas, Eq. Actib. 5. Butterfly with erect wings, in the middle of the Plate.

Genus Sphinx.

155. Lettered Entomology, Order Lepidoptera, Plate VII.

Fig. 1. Sphinx rustica. The largest figure in the lower part of the Plate.
2. Sphinx vitis. The largest figure in the upper part of the Plate.
3. Sphinx Elba. Shewing the natural erect position of the wings in this family of Sphinxes, when they are at rest. Placed on the left hand, towards the middle of the Plate.
4. Sphinx fusiformis, (Sesia, Fabricius). Upper figure on the left hand.
5. Sphinx crysos, (Sesia, Fabricius). Lowest figure in the Plate on the left side.
6. Sphinx tipus, (Sesia, Fabricius). Smallest figure in the Plate, and placed in the centre, in a flying position.
7. Sphinx Polymena, (Zygena of Fabricius, Donov. Inf. China). Right hand, towards the middle of the Plate.
8. Sphinx fausta, (Zygena fausta, Fabricius). Bottom figure of the Plate on the right hand.

Genus Phalæna.

156. Lettered Entomology, Order Lepidoptera, Plate I.

Phalæna

Fig. 1. Phalæna Atlas (Bombyx fam.), with wings expanded.

157. Lettered Entomology, Order Lepidoptera, Plate II.

Fig. 1. Phalæna Saturnus (Bombyx).

158. Lettered Entomology, Order Lepidoptera, Plate I.

Plate

Order Neuroptera.

Genus Libellula.

158. Lettered Entomology, Order Neuroptera, Plate I.

Fig. 1. Libellula indica.
2. Libellula grandis, (Ephne genus, Fabr.)
3. Libellula clavata, (Ephne, Fabr.)
4. Libellula linearis, (Agrion genus, Fabr.)
5. Libellula virgo, (Agrion, Fabr.)

Genus Ephemera.

Fig. 7. Ephemeræ varia

Genus Phryganea.

Fig. 8. Phryganea varia

Genus Hemerobius.

159. Lettered Entomology, Order Neuroptera, Plate II.

Fig. 1. Hemerobius chryops.

Genus Myrmeleon.

Fig. 2. Myrmeleon Libellulides.
3. Myrmeleon Americanus, (Acalaphus Americanus, Fabr.)
4. Myrmeleon barbarus, (Acalaphus barbarus, Fabr.)

Genus Panorpa.

Fig. 5. Panorpa communis
6. Panorpa coa

Genus Raphidia.

Fig. 7. Raphidia ophiogis

Order Hymenoptera.

Genus Cynips.

160. Lettered Entomology, Order Hymenoptera, Plate XI.

Fig. 1. Cynips quercus folii

Genus Tenthredo.

Fig. 2. Tenthredo bimaculata
3. Tenthredo femorata
4. Tenthredo fulvicornis

Genus Sirex.

Fig. 5. Sirex gigas
6. Sirex juvenus
Plate

Genus Sphex.
160. Fig. 7. Sphex lobata
161. Lettered Entomology, Order Hymenoptera, Plate III.
Fig. 1. Sphex fabulosa, (Ammophila, Kirby)

Genus Ichneumon.
160. Lettered Entomology, Order Hymenoptera, Plate XI.
Fig. 8. Ichneumon flavicornis
9. Ichneumon perfunctorius

Genus Scolia.
161. Lettered Entomology, Order Hymenoptera, Plate III.
Fig. 2. Scolia flavifrons

Genus Thynnus.
Fig. 3. Thynnus emarginatus

Genus Leucopsis.
Fig. 4. Leucopsis dorfigera

Genus Tipula.
Fig. 7. Chalcis flavipes

Genus Chrysis.
Fig. 8. Chrysis flendiida
9. Chrysis amethystina
10. Chrysis faetcula
11. Chrysis ignita

Genus Vespa.
162. Lettered Entomology, Order Hymenoptera, Plate XIII.
Fig. 1. Vespa cinata
2. Vespa tricolor
3. Vespa arcurata
4. Vespa faetcula

Genus Apis.
Fig. 5. Apis felina
2. Apis violacea
7. Apis aemula

Genus Formica.
Fig. 8. Formica gigas
9. Formica bengalensis
10. Formica tibamata

Genus Mutilla.
Fig. 11. Mutilla Americana, (female)
12. Mutilla bengalensis
13. Mutilla rubra

Plate

Order Diptera.

Genus Oestrus.
163. Lettered Entomology, Order Diptera, Plate II.
Fig. 1, 2. Oestrus equi
3. Oestrus bovis
4. Oestrus ovis

Genus Tipula.
Fig. 5. Tipula ruosea
6. Tipula bicornis
7. Tipula variegata
8. Tipula cornuta
9. Tipula punctata
10. Tipula atroca
11. Tipula plumosa
12. Tipula pellicornis

Genus Diopsis.
Fig. 13. Diopsis ichneumonea

Genus Musca.
164. Lettered Entomology, Order Diptera, Plate IV.
Fig. 1. Musca grigga, hair of the antennae naked
2. Musca bidentata
3. Musca bifaceta
4. Musca cuparia
5. Musca vibrans
6. Musca fucularia
7. Musca fisciflora
8. Musca onopordinis
9. Musca felissa
10. Musca faetcula
11. Musca Chameleon, (Stratiomys Chameleon, Fabr.)
12. Musca morio
13. Musca clavicornis, (Ceria clavicornis, Fabr.)
14. Musca foetidis, (Rhagio foetidis, Fabr.)
15. Musca triangularis
16. Musca analis, (Bibio analis, Fabr.)
17. Musca tenax, (Sympus tenax, Fabr.)
18. Musca pendula, (Sympus, Fabr.)
19. Musca florea, (Sympus, Fabr.)
20. Musca lurida
21. Musca vespsiformis
22. Musca noctula
23. Musca bilineata
24. Musca uliginofa, (Nemotelus uliginofus, Fabr.)

Genus Tabanus.
165. Lettered Entomology, Diptera, Plate IV.
Fig. 1. Tabanus bovinus
2. Tabanus tropicus
3. Tabanus bicornis
4. Tabanus phoebe
5. Tabanus rupestris
6. Tabanus caecutenus

Genus Culex.
Fig. 7. * Culex pipiens, natural size and magnified
NATURAL HISTORY.

Genus Empis.
165. Fig. 8. Empis forcipata
9. Empis borealis

Genus Stomoxys.
Fig. 10. Stomoxys rostrata
11. Stomoxys irritans
12. Stomoxys calcitrans
13. Stomoxys pungens

Genus Conops.
166. Lettered Entomology, Order Diptera, Plate I.
Fig. 1. Conops ferruginea
2. Conops aculeata
3. Conops petiolata

Genus Asilus.
Fig. 4. Asilus tennentus
5. Asilus giganteus
6. Asilus craboformis

Genus Bombylius.
Fig. 7. Bombylius major
8. Bombylius medius

Genus Hippobosca.
Fig. 9. Hippobosca equina
10. Hippobosca ovina
11. Hippobosca avicularia
12. Hippobosca kirundinis

Aptera.

Genus Termes.
167. Lettered Plate V. Aptera
Termes bellicosus, Great African White Ant
Fig. 1. Labourers
2. Soldiers
3. King
4. Males, which are furnished with wings
5. Pregnant Females, or Queens
(All the above are represented of their natural size.)
6. Termes bellicosus, their Nefts in the distance

Genus Lepisma.
Fig. 7. Lepisma Polylopa
8. Lepisma punctata
9. Lepisma obtura
10. Lepisma lineatus

Genus Podura.
Fig. 11. Podura Villosa, Upper and Under Surface

Order Aptera.

Genus Pediculus.
168. Fig. 3. Pediculus cygni, Swan’s Loupe
4. Pediculus corvi, Crow’s Loupe
5. Pediculus picea, Magpie’s Loupe
6. Pediculus grui, Crane’s Loupe
7. Pediculus Columba, Pigeon’s Loupe
8. Pediculus pruinodis, Plover’s Loupe
9. Pediculus naiades, Bee’s Loupe

Genus Pulex.
Fig. 10. Pulex irritans, Common Flea, natural size, and magnified

Genus Acarus.
Fig. 11. Acarus reduvius, Tick

Genus Trombidium.
Fig. 12. Trombidium aquaticum
13. Trombidium abflegrens

Genus Hydarchna.
Fig. 14. Hydarchna geographica
15. Hydarchna abflegrens

Genus Nymphion.
169. Lettered Entomology, Order Aptera, Plate I.
Fig. 1. Phalangium Groffipes, Linn. (Nymphion, Fabr.)

Genus Pycnogonum.
Fig. 2. Phalangium balcnarum, Linn. (Pycnogonum, Fabr.)
Fig. 3. Phalangium hirtutum, Linn. (Pycnogonum, Fabr.)

Genus Phalangium.
Fig. 4. Phalangium Cancroides, (Tarantula, Linn. Trans.?) natural size, and magnified
5. Phalangium cornutum, (Scorpio cimicoides, Fabr.)

Genus Tarantula.
Fig. 6. Tarantula reniformis, male and female
7. Tarantula caudata

Genus Aranea.
170. Lettered Entomology, Order Aptera, Plate II.
Fig. 1. Aranea extensa
2. Aranea globofa
3. Aranea bimaculata
5. Aranea falcata
6. Aranea angulata
7. Aranea Tarantula
8. Aranea avicularia
9. Aranea maculata

The Positio of the Eyes in different Tribes of Spiders.
NATURAL HISTORY.

PLATE

171. Lettered Entomology, Order Aptera, Plate III.
   Fig. 1, 2. Scorpio afr. Great Scorpion. Upper Surface, No. 1. Under Surface, No. 2.
   5. Scorpio europeus, European Scorpion.

CRUSTACEA.

GENUS CANCER.

172. Lettered Crustacea, Order Cancer, Plate I.
   Fig. 1. Cancer furcata.
   2. Cancer facicularis.
   3. Cancer Euripus (Dorippe Euripus).

173. Lettered Crustacea, Order Cancer, Plate II.
   Fig. 1. Cancer menejlo (Portunus menejlo).
   6. Cancer forcipus (Portunus forcipus).
   7. Cancer mammillaris (Orthyra mammillaris).
   8. Cancer lunaris (Maluta lunaris).

174. Lettered Crustacea, Genus Cancer, Plate III., IV., V.
   Fig. 1. Cancer depressus.
   2. Cancer perlatus.

GENUS PAGURUS.

175. Lettered Crustacea, Genus Cancer, Plate VII. Entomology.
   Fig. 3. Cancer frigatus (Pagurus frigatus).
   5. Cancer dubius (Pagurus dubius).

176. Lettered Crustacea, Order Cancer, Plate VI.
   Fig. 1. Cancer arrofor (Pagurus arrofor).
   2. Cancer canaliculatus (Pagurus canaliculatus).
   3. Cancer excavatus (Pagurus excavatus).

GENUS ASTACUS.

177. Lettered Crustacea, Genus Cancer, Plate VII., Entomology.
   Fig. 4. Cancer variegatus (Ascaris variegatus).

178. Lettered Crustacea, Genus Cancer, Plate VIII., Entomology.
   Fig. 2. Cancer flavivulgaris (Ascaris flavivulgaris).

GENUS SQUILLA.

179. Lettered Crustacea, Order Cancer, Plate VI.
   Fig. 4. Cancer ampulla (Gammarus ampulla).
   6. Cancer linearius (Gammarus linearius).
   5. Cancer mantis (Gammarus mantis).
   6. Cancer spinosus (Gammarus spinosus).
   7. Cancer paludofus (Gammarus paludofus), natural size, and magnified.

GENUS SCOLOPENDRA.

Fig. 9. Scolopendra moriflora.

GENUS JULUS.

Fig. 10. Julius terrestris.

CLASS VI. VERMES.

ORDER APHIDAE.

GENUS ASCARIS.

Fig. 1. Ascaris vermicularis.

GENUS ECHINORYNCHUS.

Fig. 2. Echinorynchus lucii.
   2. Echinorynchus candicans.

GENUS OCTOPUS.

Fig. 4. Octopus vulgaris (Octopus vulgaris).

GENUS LINGULATA.


GENUS PAGURUS.

Fig. 1. Pagurus flavus, Order Cancer, Plate I.
   2. Pagurus brevidens, Ditto.

GENUS ASCARIS.

Fig. 1. Ascaris lumbricoides, Order Cancer, Plate I.
   2. Ascaris scolytus, Ditto.

GENUS SCOLOPENDRA.

Fig. 9. Scolopendra moriflora.

GENUS JULUS.

Fig. 10. Julius terrestris.

CLASS VI. VERMES.

ORDER APHIDAE.

GENUS ASCARIS.

Fig. 1. Ascaris vermicularis.

GENUS ECHINORYNCHUS.

Fig. 2. Echinorynchus lucii.
   2. Echinorynchus candicans.

GENUS OCTOPUS.

Fig. 4. Octopus vulgaris (Octopus vulgaris).

GENUS LINGULATA.


GENUS PAGURUS.

Fig. 1. Pagurus flavus, Order Cancer, Plate I.
   2. Pagurus brevidens, Ditto.
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<th>Fig. 4. <em>Fasciola Scorpii</em>, the minute Figures which accompany the larger ones denote the natural size.</th>
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<td>5. <em>Fasciola lucigerina</em>, Ditto.</td>
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**Genus Tænia.**

179. **Lettered Vermes, Order Intestina, Plate V.**

Fig. 1. *Tænia folium*, grouped into folds in order to include the whole animal, which is of extreme length, within the limits of the Plate. Found in the human body.

2. The head, natural size, of a specimen twenty feet in length.

3. Head magnified.

7. Two joints retaining the external skin, and shewing the alternate disposition of the ocula along the edges of the joints as they usually appear.

8. Two joints shewing their lateral disposition when they occur on both the margins of each joint, which sometimes happens.

4. A portion of the joints of the natural size, divided of the outer skin, and disclosing more fully the alternate lateral ocula, together with the alimentary canals, as they communicate from one joint to the other.

5. The middle system of vesels illustrated in another portion of four joints.

6. Another portion deprived of the outer coating, and displaying all the canals in their relative situation. Vide Carlisle in Linn. Trans. v. 2. *Tænia lata.* Carlisle in Linn. Trans. 2. *Tænia oculis lateralisbus solitariis,* Linn. Ameo. Acad. 2.?

10. A portion of several joints exhibiting the ocula, which are disposed in a single feries down the center of the joints.

11. Another portion divided of the outer coating, and shewing the fylferm vesels down the center within, and also the lateral alimentary canals. Found in the intestines of mankind.

9. *Tænia canina,* head, and a portion of the body, confining of the five first joints. Found in the dog.

**Genus Gordius.**

180. **Lettered Vermes, Genus Gordius, Plate IV.**

Fig. 1. *Gordius aquaticus.*

**Genus Lumbricus.**

Fig. 2, 3. *Lumbricus terrestris.*

**Genus Hirudo.**

Fig. 4. *Hirudo muricata.*

5. *Hirudo geometra.* The smaller figures at No. 1. denote the eggs and natural size of the animal: No. 4. magnified shews the animal affixed by the broad pedal-like tail with the body extended horizontally: No. 3. the same contracting into an arched form: No. 2. when most contracted, arched, and elevated, preparatory to walking, which it does somewhat in the manner of the larve of the Geometra tribe of moths, or as usually defribed as if measuring the ground like a pair of compasses.

**Genus Planaria.**

Fig. 6. *Planaria crenata.* No. 1, 2, 3, 4, 5, shews various positions and contractions of this animal.

**Genus Siphunculus.**

**Genus Limax.**

Fig. 8. *Limax aerter.*


**Genus Onchidium.**

181. **Lettered Vermes, Order Mollusca, Plate VII.**

Fig. 1, 2. *Onchidium typha.*

**Genus Laplifia.**

Fig. 2. *Laplifia depilans.*

**Genus Doris.**

Fig. 3. *Doris argo.*

4. *Doris radiata.*

5. *Doris papillosa.*

**Genus Aphrodita.**

Fig. 6. *Aphrodita aculeata.* No. 6. small, upper surface, right-hand figure.

No. 6. ditto, under surface, left-hand figure.

No. 6. large size.

7. *Aphrodita humilis.*

**Genus Nais.**

182. **Lettered Vermes, Genus Nais, Plate V.**

Fig. 1, 2, 3, 4. *Nais serpentina,* highly magnified, the natural size being three quarters of an inch in length, or not exceeding that of the cluther shewn on the duckweed, fig. 5.

5, 6, 7, 8, 9, 10, 11. *Nais vermicularis,* highly magnified, natural size one-tenth of an inch.

12, 13. *Nais proboscidea,* highly magnified, natural size three-fourth of an inch.

**Genus Actinia.**

183. **Lettered Vermes, Genus Actinia, Plate II.**

Fig. 1. *Actinia diaphana.*

2. *Actinia cerasus.*

**Genus Holothuria.**

184. **Lettered Zoology, Class Vermes, Plate I. of Mollusca.**

Fig. 1. *Holothuria elegans.*

2. *Holothuria pentactae.*
**NATURAL HISTORY.**

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<td>Solen grandis, the lowest figure in the plate</td>
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<td>2.</td>
<td>Solen radiatus, No. 1. outside, No. 2. inside, smaller shell</td>
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<td>Solen frigilatus</td>
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<td>5.</td>
<td>Solen vagina, No. 1. outside, No. 2. of a younger shell, shewing the teeth of the hinge</td>
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<td>Solen enfis</td>
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<td>Tellina squamata, No. 1. outside, No. 2. inside (Donov. Brit. Shells)</td>
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<td>3.</td>
<td>Tellina fabula, one valve of this shell is marked externally with very fine oblique subflexuous striae, the other smooth or dentilute of striae (Donov. Brit. Shells)</td>
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<td>4.</td>
<td>Tellina bimaculata, inside and outside (Donov. Brit. Shells)</td>
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<th>Plate</th>
<th>Genus Cardium.</th>
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<td>Fig. 2.</td>
<td>Mactra radiata</td>
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<td>Fig. 2.</td>
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<td>Pholas dafilus, No. 1. side view; No. 2. the two lateral valves united at the hinge; No. 3. inside of one of the lateral valves</td>
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<td>4.</td>
<td>Pholas costata</td>
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<td>5.</td>
<td>Pholas friata, No. 1., the lowest figure, exhibits a side view of this shell, as composed of several valves; No. 2., the uppermost figure, shews the tellaceous valves at the top or hinge side of the shell; No. 3. the manner in which this species of Pholas buries itself into ships' bottoms or other timber</td>
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### Plate 184
1. Fig. 3. 4. Holothuria fusus
2. Holothuria pellucilus
3. Holothuria squamata. No. 1. upper surface; No. 2. lower surface, in a quiescent state; No. 3. with the tentacula expanded
4. Holothuria interna, No. 1. with tentacula expanded; No. 2. tentacula retracted

### Plate 185
1. Lettered Vermes, Order Mollusca, Plate VI.
2. Sepia octopus
3. Sepia media. No. 1. upper surface; No. 2. under surface

### Plate 186
1. Lettered Vermes, Order Mollusca, Plate IV.
2. Medusa pulmo, No. 1. upper surface; No. 2. under surface
3. Medusa campanula

### Plate 187
1. Lettered Vermesology, Vermes, Mollusca, Plate III.
2. Asterias Caput medusa
3. Asterias pelcinata
4. Asterias phalerata
5. Asterias ophiura, a upper surface, b under surface

### Plate 188
1. Lettered Conchology, Genus Chiton, Plate IX.
2. Chiton arundo
3. Chiton squamatosus
4. Chiton olivaceus, No. 1. outside, No. 2. inside, small

### Plate 189
1. Lettered Conchology, Genus Lepas, Plate XIII.
2. Lepas anatifera
3. Lepas anserifera

### Plate 190
1. Lettered Conchology, Genus Pholas, Plate VIII.
2. Pholas dafilus, No. 1. side view; No. 2. the two lateral valves united at the hinge; No. 3. inside of one of the lateral valves
3. Pholas costata
4. Pholas friata, No. 1., the lowest figure, exhibits a side view of this shell, as composed of several valves; No. 2., the uppermost figure, shews the tellaceous valves at the top or hinge side of the shell; No. 3. the manner in which this species of Pholas buries itself into ships' bottoms or other timber

### Plate 191
190. Lettered Conchology, Genus Pholas, Plate VIII.
2. Pholas dafilus, No. 1. side view; No. 2. the two lateral valves united at the hinge; No. 3. inside of one of the lateral valves
3. Pholas costata
4. Pholas friata, No. 1., the lowest figure, exhibits a side view of this shell, as composed of several valves; No. 2., the uppermost figure, shews the tellaceous valves at the top or hinge side of the shell; No. 3. the manner in which this species of Pholas buries itself into ships' bottoms or other timber
PLATE

Genus Arca.

195. Lettered Conchology, Genus Arca, Plate VIII.

Fig. 1, 2. Arca tortuosa, No. 1. outside, lower figure. No. 2. inside
3. 4. Arca sinuosa, No. 1. the outside, lower figure, No. 2. inside, the upper figure
5. 6. Arca nodosa, No. 1. outside, lower figure. No. 2. inside
7. Arca nebulosa

Genus Ostrea.

Pecten, or Scallops.

196. Lettered Conchology, Genus Ostrea, Plate XII.

Fig. 1. Ostrea Jacobae
2. Ostrea subfuscita
3. Ostrea nodosa
4. Ostrea lineata
5. Ostrea obtusa
6. Ostrea varia, various sizes
7. Ostrea obsoletus, nat. size (Donov. Brit. Shells)

Genus Mytilus.

193. Lettered Conchology, Genus Mytilus &c. Plate XI. B.

Fig. 6, 6. Mytilus edulis, var. purpureus, (Donov. Brit. Shells) inside and outside

Genus Pinna.

197. Lettered Conchology, Genus Pinna, Plate VII.

Fig. 1. Pinna nigra, inside and outside, small size
2. Pinna muricata, shelling the byssus or beard
3. Pinna rubra, ditto
4. Pinna fragilis

Univalves.

Genus Argonauta.

198. Lettered Conchology, Order Univalve, Plate IV.

Fig. 1. Argonauta argo, Paper-filer Shell
2. Argonauta vitrea, called the Glassy Nautilus, a shell of unusual rarity

Genus Nautilus.

199. Lettered Conchology, Genus Nautilus &c. Plate XI. A.

Fig. 3. Nautilus pompilius, Great Nautilus.
4. No. 1. the largest of the ordinary size; No. 2. young, No. 3. section of the young shell, shelling the chambers and the siphunculus

Genus Conus.

200. Lettered Conchology, Genus Cyprea, Plate XIV.

Fig. 1. Cyprea tigris, upper and under surface
2. Cyprea aurora, Aurora or Orange Cowry of the South Seas
3. Cyprea argus
4. Cyprea Arabica
5. Cyprea annulata, upper and under surface
6. Cyprea saxifara
7. Cyprea maculata
8. Cyprea vespa
9. 9. Cyprea moneta, upper and under surface
10. 10. Cyprea pediculus

Genus Bulla.

199. Lettered Conchology, Genus Bulla, &c. Plate XI. A.

Fig. 6, 6. Bulla nigeria, No. 1. the outside, No. 2. the lower figure, shelling the mouth

Genus Voluta.

201. Lettered Conchology, Genus Voluta, Plate I.

Fig. 1. Voluta torminata
2. Voluta porphyria
3. Voluta oliva
4. Voluta pallida
5. 5. Voluta pometis, No. 1. the back, No. 2. shelling the mouth
6. Voluta episcopalis
7. Voluta Ethipica
8. Voluta indica

Genus Buccinum.

202. Lettered Conchology, Order Voluta, &c. Plate II.

Fig. 1. Buccinum harpa
2. Buccinum patulum
3. Buccinum maculatum
4. Buccinum frigillatum

Genus Strombus.

203. Lettered Conchology, Order Univalve, Plate III.

Fig. 5. Strombus echiura
6. Strombus fugilis
7. Strombus lentiginosus
8. Strombus urceus

Genus Murex.

204. Lettered Conchology, Order Univalve, Plate III.

Fig. 1. Murex hostellum
2. Murex longicauda
3. Murex muricatus
4. Murex tulipa

Genus Trochus.

205. Lettered Conchology, Order Univalve, Plate III.

Fig. 5. Trochus niloticus
6, 6. Trochus perspicuus. No. 1., right-hand figure, shelling the convex surface; No. 2. left-hand, the concave surface or under side
7. Trochus pisula
8. Trochus turritus

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5 A
PLATE

GENUS Turbo.

199. Lettered Conchology, Genus Bulia, &c. Plate XL A.

Fig. 7, 7. Turbo trilineatus, (Donov. Brit. Shells) smallest figure shews the natural size
8, 8. Turbo fissiformis, (Donov. Brit. Shells) ditto

GENUS Helix.

Fig. 9, 9. Helix bentina

GENUS Nerita.

Fig. 10, 10. Nerita carena, the figure on the left hand exhibits the carinated umbilicus

GENUS Haliotis.

204. Lettered Conchology, Genus Haliotis Plate VI.

Fig. 1, 1. Haliotis Afinum. The lower figure shews the outside or upper surface of the shell, as the animal moves; the upper figure exhibits the hollow of the shell, when deprived of the animal
2. Haliotis tuberculata
3. 4. Haliotis fuscina, outside and inside
5. Haliotis levigata

GENUS Patella.

* Shell valved within.

205. Lettered Conchology, Genus Patella Plate (blank)

Fig. 1, 1. Patella equestris. The upper figure shews the outside of the shell, which is rugose; the lower one the inside, which is smooth, and furnished with an internal lip or valve in the hollow center
2, 2. Patella fornicate. The figure on the left hand exhibits the outside; that on the right hand the inside, with the broad inner lip or valve
3. 3. Patella fragata. No. 1., the lower figure, shews the frigate outer surface; No. 2., the upper figure, the concave hollow beneath, with the inner lip or valve

* * Shell at the Apex perforated.

4. 5. Patella fissa
5. Patella fissaflora
6. Patella greta
7. Patella ranaeta
8. Patella lobata
9. Patella nimbofa. The upper figure shews the outside surface; the lower one the hollow cavity, or inside

*** Apex of the Shell entire.

206. Lettered Conchology, Genus Patella Plate XVI.

Fig. 1. Patella granatina. The upper figure shews the outside; the lower one the concave, or inside

PLATE

206. Fig. 2, 2, Patella Auricula, two varieties. The figure in the middle of the left-hand margin shews the outer surface; the others the concavity
3. Patella vulgata, var.
4. Patella frigata
5. Patella foigata
6. Patella virgata
7. Patella anatina

GENUS Dentalium.

207. Lettered Conchology, Genus Dentalium Plate (blank)

Fig. 1. Dentalium elephantium

GENUS Serpula.

Fig. 2. Serpula trigeret, various examples adhering to a Peclen, (Offrea)
3. Serpula trigeret, ditto, adhering to the valve of a Mytllus
3. Serpula vermicularis, intermixed with S. trigeret
4. Serpula vermicularis, detached
5. Serpula filiformis
6. Serpula reticulata
7. Serpula papillofa
8. Serpula tortuofa
9. Serpula anguina
10. Serpula penis

GENUS Teredo.

208. Lettered Conchology, Genus Teredo Plate X.

Fig. 1. Teredo navalis, exhibiting the manner in which the timbers of ships' bottoms are sometimes perforated by this destructive creature
2. Teredo navalis, a single shell detached from the timber, is shewn at the bottom of the Plate

GENUS Sabella.

Fig. 3. Sabella Belgica
4. Sabella albepicta

ELEMENTARY PLATES OF CONCHOLOGY.

UNIVALVES.

209. Lettered Conchology, Elementary Plate I.

Fig. 1, 1. 1. The part denominated the Bafe of an univalve shell, illustrated by examples selected from different Genera, as in Dentalium, Turbo
2, 2, 2. the Apex, as in Dentalium and Patella
3. 3. the Front, as in Turbo, Buccinum
4. 4. the Back, as in Turbo, Helix
5, 5. the Sides, as in Turbo, Buccinum
6, 6, 6. the Body, as in Helix, Mures
7. 7. the Belly, as in Nerita
8. the Whorl, as in Turbo
9, 9, 9. the Spire, as in Turbo, Mures,
10, 10. the Sutures of the Spire or Whorl, as in Mures, Turbo

NATURAL HISTORY.
NATURAL HISTORY.

210. Lettered Conchology, Elementary Plate II.

Fig. 11. The part denominated the Pillar or Columnella, as in *Murex*.  
12, 12, 12. the Aperture, as in *Murex*, *Helix*, *Nerita*.  
13, 13, 13. the Lip, as in *Voluta*.  
14. the Beak, as in *Murex*.  
15. the Canal, as in *Murex*.  
16, 16. the Umbilicus, as in *Trochus*, *Nerita*.  

211. Lettered Conchology, Elementary Plate III.

Fig. 17, 17. The part denominated the Operculum, as in *Trochus*, *Murex*.  
18. the Involute Spire, as in *Nautilus*.  
19, 19, 19. the Chambers, as in *Nautilus*, the Chambered Patella, and the Ammonite, (found fossil).  
20. the Siphunculus, as in *Nautilus*.  
21. the Epidermis, as in *Turbo*.  

BIVALVES.

Fig. 22. The part denominated the Base of a Bivalve Shell, as in *Venus*.  
23. the Summit, as in *Patella*.  
24, 24. the Beak, as in *Chama*, (Cor.). *Mytilus*.  
25. the Sides, as in *Venus*.  

212. Lettered Conchology, Elementary Plate IV.

Fig. 26. The part denominated the Margin, or Limb, as in *Tellina*, (cornua).  
27, 27. the Disk, as in *Venus*, *Tellina*.  
29, 29. the Posterior Slope, as in *Macra*, *Tellina*, *Venus*.  
30. the Lunule, as in *Venus*, *Tellina*, (a. & b.).  
31, 31. the Cartilage, or Hinge, as in *Tellina*, *Venus*.  
33, 32. the Ears, as in *Patella*, (Offrea, Linn.).  
33, 33. the Ligament Perforation, (Aperture in the upper valve of the Shell through which the ligament of the animal passes, by which it adheres to extraneous substances, as in *Anomia*).  

213. Lettered Conchology, Elementary Plate V.

Fig. 34, 34. The Length and Breadth of a Bivalve Shell, as in *Solen*, *Mytilus*.  
35. the Inside of a Bivalve Shell, as in *Mytilus*, (rugosus).  

Plate 213. Fig. 37. The part denominated the Cicatrix, Impression of the Spaces to which the animal-inhabitant of the Shell adheres.  
38, 38. the Byssus, or Beard, as in *Mytilus*.  

MULTIVALVES.

Fig. 39, 39. The part denominated the Base of a Multivalve Shell, as in *Leptes*.  
40, 40. the Ligament, as in *Leptes*, (anatlera).  
41, 41. the Operculum, as in *Leptes*, (Balanus vulgaris).  

* Vide article Conchology, which these Elementary Plates are intended to illustrate.  

ORDER 4. ZOOHYTES.

GENUS TUBIFORA.

214. Lettered Zoophytes, Genus Tubifora, Plate I.

Fig. 1. *Tubifora mylula*.  

GENUS MADREPORE.

* Consisting of one Star.  

Fig. 2. *Madrepore fungites*.  
3. *Madrepore plicus*.  
4. *Madrepore Agathyrsus*.  
5. *Madrepore foliaceus*.  

*** With numerous united Stars.  

215. Lettered Zoophytes, Plate II.

Fig. 1. *Madrepore labyrinibica*.  
2. *Madrepore phrygia*.  
3. *Madrepore grya*.  
4. *Madrepore avrolata*.  

**** Aggregated distinct Stars and porous tuberculate prominent Undulations.  

Fig. 5. *Madrepore australis*.  

***** Ramose, with distinct Stars, and tuberculated porulea Undulations.  

Fig. 6. *Madrepore porites*.  

GENUS ISIS.

216. Lettered Zoophytes, Genus Isis, Plate I.

Fig. 1. *Isis Hippuris*.  
2. *Isis coccinea*.  

GENUS ANTIPATHES.

Fig. 3. *Antipathes sulphureus*.  
4. *Antipathes Myriophylla*.  

GENUS GORGONIA.

217. Lettered Zoophytes, Genus Gorgonia, Plate II.

Fig. 1. *Gorgonia tepida*.  
2. *Gorgonia cerotophyta*.  
3. *Gorgonia americana*.  
4. *Gorgonia espiritualia*.  
5 A 2.
PLATE 218. Lettered Zoophytes, Genus Gorgonia, Plate I.

Fig. 1. Gorgonia nobilis, Red Coral, or Noble Coral
2. Part of the branch of Gorgonia Nobilis magnified, and exhibiting the animals
3. Gorgonia umbraculum
4. Portion of a branch magnified
5. Gorgonia reticulata
6. Portion of a branch magnified

Genus Alcyonium.

219. Lettered Zoophytes, Genus Alcyonium, Plate III.

Fig. 1. Alcyonium gorgonoides

Genus Spongia.

220. Lettered Vermes, Order Zoophytes, Genus Flustra, Plate VIII.

Fig. 1. Flustra foliacea
2. Flustra bombycina
2. A portion of a branch magnified to shew the cells
3. Flustra carbasca
3. Magnified to shew the cells
4. Flustra verticillata
4. Magnified to shew the cells

Genus Flustra.

221. Lettered Vermes, Order Zoophytes, Genus Tubularia, Plate I.

Fig. 1. Tubularia magnifica, Magnificent Tubularia, or Animal Flower
The figures in this Plate display the animal in its young and full-grown state, and exhibit likewise the full expansion of the tentacula

Genus Tubularia.

222. Lettered Zoophytes, Genus Corallina, Plate VI. & VII.

Fig. 1. Corallina officinalis
2. One of the branches magnified
3. Corallina squamata
4. A branch magnified
5. Corallina incrustata
6. Corallina opunlia
7. Corallina cornutula
8. A branch magnified

Genus Sertularia.

223. Lettered Vermes, Order Zoophytes, Genus Sertularia, Plate VIII.

Fig. 1. Sertularia fruticosa
1. A branch magnified

PLATE 223. Fig. 2. Sertularia quadridentata
2. A branch magnified
3. Sertularia pinifer
3. A branch magnified
4. Sertularia filicina
4. A branch magnified

Genus Hydra.

224. Lettered Vermes, Order Zoophytes, Genus Hydra, Plate V.

Fig. 1. Hydra viridis, Green Polype
2. Hydra grifida, Grey Polype
3. Hydra fusca, Brown Polype
4. 5. 6. Clusters of the different species, as they live at the roots of aquatic plants immersed in water
8. Those marked with a star are magnified.

Order V.

Infusoria.

Genus Brachionus.

225. Lettered Animalcules, Clas Vermes, Plate I.

Fig. 1-6. Brachionus urceolaris, in various states of expansion and retraction
7. Brachionus fritatus
8. Brachionus tripus
9. Brachionus uncinatus
10. Brachionus quadridentatus

Genus Vorticella.

226. Lettered Vermes Infusoria, Plate II.

Fig. 1. Vorticella polypina
12. Vorticella polypina, a cluster magnified
13. Vorticella anaftatica, the group shewing the manner in which they aggregate in clusters; and also figures of the single-headed, double-headed, and quadruple-headed, separate
14. Vorticella pyralia, a cluster
15. Vorticella opercularia, a group, shewing the fleshtiform animal expanded
16. Vorticella umbellaria
17. Vorticella digitalis
18. Vorticella nebulifera

Genus Trichoda.

227. Lettered Vermes Cercaria, Plate IX.

Fig. 8, 9. Cercaria Lernna, in the entirely expanded position it assumes when moving, and two others
9. Cercaria inequata, extended and subretracted

Genus Cercaria.
PLATE 226. Fig. 10. Cercaria lupus  
11. Cercaria podura

Genus Kolpoda.
Fig. 12. Kolpoda pyrum

Genus Paramecium.
Fig. 13. Paramecium oviferum  
14. Paramecium chrysostri  
15. Paramecium marginatus

Genus Vibrio.
Fig. 16. Vibrio angustilcula  
17. Vibrio glutinis, the smaller figures denote the  
natural size  
18, 19. Vibrio aniger, in two positions  
19. Vibrio olor  
20. Vibrio lunula  
21, 22. Vibrio pacilifer, variously connected

Genus Leucophra.
Fig. 22. Leucophra cornuta

Genus Enchelis.
Fig. 23. Enchelis punctata  
24, 25. Enchelis retrograda, two figures  
25. Enchelis trunca  
26. Enchelis caudata

Genus Volvox.
Fig. 27. Volvox globator  
Obst. All the Vermes infusoria are microscopic objects

Addenda to the Zoology.

PLATE 227. Fig. 14. a, a, The three masses of luminous sub-
stance, which are applied to the three last 
rings of the abdomen  
b, b, The arrangement of the cellular or interstitial substance on the other abdomi-
nal rings, which give the pale colour to the 
whole belly of the insect
15. Diffusion of the common Glow-Worm, ex-
ploiting the facts of luminous matter in situ,  
on the last ring of the belly.  
a. The fac on one side  
b. One of the facts of the Glow-Worm taken  
out and very highly magnified.  
a. The external part of the face, composed of an  
ter weaving of a spiral fibre.  
b. The luminous substance seen at one end

17. Elater nothilus, with a portion of the  
shell of the thorax removed to uncover  
one of the organs of light, of which there  
are two, one being situated on each side,  
at the posterior part of the thorax.  
a. The yellow transparent spot of the thorax  
b. The oval mass of luminous substance  
surrounded by an irradiation of the  
interstitial substance.  
c. The ends of the muscles which are on the inside of the  
thorax

18. The luminous apparatus of the elater nothilus,  
considerably magnified.  
a. The radiated appearance of the interstitial  
substance around the oval mass of luminous  
substance.  
b. The arrangement of that  
substance when it passes down between the  
muscles.  
c. The ends of the muscles of the back.  
d. The shell of the thorax

19. Elater ignitus.  
a. The yellow part of the  
thorax.  
b. The small mass of luminous  
substance, seen on removal of the shell of the  
thorax

Obst. The preceding objects were those appointed by  
Dr. Macartney for the explanation of his article  
Luminous Animals, which will be found placed  
under the leading article, Light.

In addition to those, we have, ourselves, conceived  
the propriety of introducing another figure of the  
Nereis genus, that of Vianelli being, confes-  
edly, very doubtful. This animal is, therefore,  
not merely introduced by us as a species highly  
phosphorescent, under certain circumstances, in  
common with most others of its tribe, but in order  
laterwise to convey a more accurate idea of the  
Nereis genus, than the figure copied from Via-
elli will afford. The species we have introduced,  
is the Nereis carulae of some authors, fanguinea  
of others, and is, beyond any doubt, a genuine  
Nereis of the Linnean Syllem.

The figure by Vianelli, is contained in a small tract  
written in the Italian language, entitled "Nuove  
scoperte intorno le luci notturne dell' acqua marina;"  
and which, besides being most evidently depicted  
from a very mutilated object, is entirely different  
from that included in the third volume of Ame-
nitates Academicae, which Linneaus himself gave  
very shortly afterwards as the same animal: and  
even this latter, like that of Vianelli, if we mis-
take not, must have been delineated likewise from
an imperfect animal. We have, indeed, a strong suspicion, that the animal represented by Vianelli, cannot be of the Neris genus.

In conclusion of this note, it may not be amiss to add, that no animal has been more indefinitely described than the Neris noctilucia. The only specific character assigned to it in the last edition of Systema Naturae cura Gmelin, is Corpores vis conficientes, which being applicable to every minor species, can be no criterion of the individual kind that author had intended; and the same vague character occurs again in Mull. Zool. Prod. n. 2623. In the twelfth edition of Linn. Syll. Nat. the body of Neris noctilucia is described as consisting of twenty-three joints, which is the number represented in the Plate inserted in Ameis. Acad. t. 3, but this distinction is totally at variance with the subject of Vianelli’s tract; for in that figure there are no more than about eleven joints in the body, instead of the twenty-three which Linnaeus has described.

**BOTANY.**

Illustration of the Twenty-four Linnean Classes, according to the Number of the Staminæ.

228. Lettered Botany, Plate II.

Fig. 1. Clas 1. **Monandria**, one stamen, as in *Salicornia*, *Callitrichis*, &c.

2. 2. **Diandria**, two stamens, as in *Veronica*, &c.

3. 3. **Triandria**, three stamens, as in *Hordeum*, *Agrostis*, &c.

4. 4. **Tetrandria**, four stamens, as in *Ilex*, &c.

5. 5. **Pentandria**, five stamens, as in *Borago*, *Primula*, &c.

6. 6. **Hexandria**, six stamens, as in *Allium*, *Erisippermum*, *Ornithogalum*, &c.

7. 7. **Heptandria**, seven stamens. Tiennials, *Dianthus*, *Rheum*, *Petrocarpa*, *Pancopia*, and *Josefa* are of this class.

8. 8. **Octandria**, eight stamens, as in *Epilobium*, *Ceratiola*, &c.

9. 9. **Enneandria**, nine stamens, as in *Butomus*.

10. 10. **Decandria**, ten stamens, as in *Sedum*.

11. 11. **Dodecandria**, twelve stamens, as in *Sempervivum*; above twelve, and less than twenty stamens, as in some other genera.

12. 12. **Koandria**, twenty or more stamens inserted in the calyx, as in *Mefphlous*, *Pyrus*, and some other fruit-bearing plants, including *Fugaria*, *Riber*. &c.

229. Lettered Botany, Plate III.

Fig. 13. Clas 13. **Polyandria**, many stamens, and inserted into the receptacle or base of the flowers, as *Papaver* (poppy), *Trollius* (great butter-cup), *Ranunculus*, &c.

230. Lettered Botany, Orders, Plate IV.

Fig. 1. **Monogynia**, one style or stigma (with five stamens), as in *Salix*, *Cytisus*, *Anchusa*, *Borago*, &c.

2. 2. **Diogynia**, two styles (with ten stamens), as in *Grifolspermum*, *Melites*, *Scleranthus*.

3. 3. **Triogynia**, three styles (with ten stamens), as in *Silex*, *Stellaris*, &c.

4. 4. **Tetragynia**, four styles, with four stamens, as in *Rupia*, *Potamogeton*, *Sagina*, &c.; with five stamens, as *Parnassia*, &c.; with six stamens, as in *Papaver*. &c.

5. 5. **Pentagynia**, five styles (with ten stamens), as in *Oxalis*, *Scuriana*, *Lycbius*, &c.

6. 6. **Hexagynia**, six styles, as in *Butomus*.

7. 7. **Heptagynia**, seven styles (with seven stamens), as in *Suaea*.

8. 8. **Decagynia**, ten styles (with ten stamens), as in *Neurada* and *Phyllocaes*.

9. 9. **Dodogynia**, twelve styles (with twelve stamens), as in *Sempervivum*.

10. 10. **Polygynia**, many styles, as in the 1st, 2d, 3d, and 4th. order of Clas Syngenea.

11. 11. **Gynofermes**, naked seeds, as in *Ajuga*, *Teucrium*, *Satureja*, &c.
NATURAL HISTORY.

Plate
230. Fig. 12. Angelospermia, seeds inclosed in a pericarpium or seed-velvct, as in many genera, Anterbinum, Cybarla, &c.

231. Lettered Botany, Orders, Plate V.

Fig. 13. Siliquoloa, pericarpium a filicula, as in Thalaspi (shepherd’s purse), Draba, &c.
14. Siligula, pericarpium a filique, as in Raphanus, Sinapis, Brastica, &c.
15. Polygonum Equalia, flowers compound, all the florets hermaphrodite, as in Leontodon, Hieracium, &c.
16. Polygonia Superfusa, florets of the disk hermaphrodite, those of the radius female, as in Bellis (garden daily), Tussilago, Senecia, &c.
17. Polygramia Vereoptera, flowers of the disk male, those of the radius female, as in Calendula, Chryogenum
18. Polygramia Fragiflora, florets of the disk hermaphrodite, those of the radius neuter, as in Gentaeas, Sclerocarpus, Radbeckia.
19. Polygramia Segrega, many partial cups contained in the common calyx, which separate and surround the floecula, as in Echinops, Gundelius, Spharatus, &c.
20. Triiactia, have the polygamy or parts of fructification on three different plants, as in Ficus, and also Ceratonia.
21. Felices, fructification doriferous (on the back of the leaf), as in Asplenium, Adiantum, Trichomanes, &c.
22. Musci, anthers without filaments; female flowers distinct and without pifiilum: feeds a naked corculum without cotyledon or tunic. With or without a calyptra or veil, as in Bryum, Hypnum, Buskium, &c.
23. Hepaticae, herbaceous frondose in general, the fructification originating from what is at the same time both stem and leaf, as in Marchantia, Jungermanla, &c.
25. Fungii, mushrooms, as in Agaricus, Boletus, &c.

Class Cryptogamia.

Addenda to the Musci, in Illustration of the Fringes of Musci.
* Furnished with single Fringes.

232. Lettered Botany, Plate Fringes of Musces.

Fig. 1. Tetraphis. Fringe of four teeth, as in Mnium pellucidum. These are cret, acute, firm, polished, and permanent.
2. Oxypleurum. Fringe of eight teeth, as in Bryum albidum. Capule without an apophysis.
3. Spiactium. Fringe of 16 teeth, dilated at the base, approaching each other in pairs.
7. Conostomum. Fringe of 16 tapering teeth, approaching each other in pairs, and all cohering at the points, as in Bryum tetragonum, Dickson, Grimmia conostoma, Smith Engl. Botany.
8. Dietramus. Fringe of 16 flat, somewhat inflected teeth, cloven half-way down.
9. Trichostomum. Fringe of 32 linear (straight) teeth, approaching each other in pairs, sometimes joined at the base in pairs.
11. Syntrichium. In some species of Tortula the teeth are united into a cylinder at the base, pierced with numerous holes, upon which some recent botanists have founded this new genus.

* * The following Genera are furnished with a double Fringe, some few Species of Orthotrichium and one of the Buxbaumiae perhaps excepted.

Fig. 2. Orthotrichium. Capule terminal. Outer fringe of 16 teeth; inner of 8 or 16 linear ones, sometimes altogether deficient. Veil furrowed.
23. In Buxbaumia folios the outer fringe is scarcely perceptible; it is represented at fig. 16.
22. Polytrichum. Outer fringe of 32 or 64 flat inflexed teeth; inner, a transverse orbicu
Apetalous

Vide article Fringe of Mosses, by Sir J. E. Smith.

Class Cryptogamia.

Addenda in Illustration of the Genera of Fungi.

233. Lettered Botany, Fungi, Plate I.
Fig. 1. Genus Agaricus

234. Lettered Botany, Fungi, Plate II.
Fig. 1. Genus Merulius (eburneus)

233. Lettered Botany, Fungi, Plate I.
Fig. 2. Genus Boletus
3. Hydnum
4. Clavaria
5. Phallus
6. Clathrus
7. Helvella
8. Peziza

234. Lettered Botany, Fungi, Plate II.
Fig. 2. Genus Cyathus

233. Lettered Botany, Fungi, Plate I.
Fig. 9. Genus Lycoperdon

234. Lettered Botany, Fungi, Plate II.
Fig. 3. Genus Sphaeria (digitata and bombardica)
4. Tubera
5. Rhizomorpha (phosphorea)

233. Lettered Botany, Fungi, Plate I.
Fig. 10. Genus Mucor
* The preceding are Linnæan genera in the Gmelinian Systema Naturæ, including the Fungi genera of the 12th edit. Linnaeus, with others selected by Gmelin from Persoon, Willdenow, Todé, and other writers on this tribe of Cryptogamia. To these the contributor of the article Fungi for this Cyclopædia has added the following genera:

234. Lettered Botany, Fungi, Plate II.
Auricularia (reflexa)
Nidularia (campanulata)
Trichia (dendalata and nudata)
Uredo (syræs), known in agriculture by the name of plant
Æcidiium (anemones)

Botanical Arrangement of Tournefort.

* Section, Herbaceous Plants and Under-shrubs.
† Petalled.
A. † Flowers Simple, Monopetalous, Regular.

235. Lettered Tournefort’s Syll. Botany, Plate I.
No. 1. Class 1. Bell-flowered, as in Belladona, Campanula, and Convulcus. Letter a

Plates

denotes the flower, b thefr fruit, c the seeds, in the different plants intended to illustrate the following classes:

235 & 236. Lettered Tournefort’s Syll. Botany, Plate II.
No. 2. Class 2. Funnel-shaped, as in Borago (offici-nalis) Solanum dulcamara, &c.: a the flower, b the fruit, c the seeds
† † Simple, Monopetalous, Irregular.

236. No. 3. Class 3. Perfonate, as in Arum
a the flower, b the fruit, c the seeds

236. No. 4. Class 4. Labiate, as in Salvia, Lamium, Thymus
a the flower, b the fruit, c the seeds
† † † Simple, Polypetalous, Regular.

237. Lettered Tournefort’s Syll. Botany, Plate III.
No. 5. Class 5. Cruciform, as in Raphanus (Raphanis)
Thlaspi (Brasii Pastoris) Chelidonium
and Petasitiun
a the flower, b the fruit, c the seeds

237. No. 6. Class 6. Rosaceous, as in Rosi, Nymphea, Hypericum
a the flower, b the fruit, c the seeds

238. Lettered Tournefort’s Syll. Botany, Plate IV.
No. 7. Class 7. Umbellate, as in Phellandrium, Foeniculum
8. 8. Caryophyllaceous, as in CaryophylUus
a the flower, b the fruit, c the seeds
9. 9. Lilaceous, as in Crocus, Narcissus
a the flower, b the fruit, c the seeds
† † † Simple, Polypetalous, Irregular.

239. Lettered Tournefort’s Syll. Botany, Plate V.
No. 10. Class 10. Papilionaceous, as in Pifum, Er
drum &c.
a the flower, b the fruit, c the seeds
11. 11. Anomalous, as in Aquilegia
a the flower, b the fruit, c the seeds

B. † Flowers Compound, Polypetalous, Irregular.

239. No. 12. Class 12. Flocculosus, as in Echinopus
a the flower, b the fruit, c the seeds
13. 13. Semi-flocculosus, as in Lontodon

240. Lettered Tournefort’s Syll. Botany, Plate VI.
No. 14. Class 14. Radiate, as in Helianthus, Afor
a the flower, b the fruit, c the seeds
† Apetalous (without petals).

15. 15. Apetalous Staminiferous, as in Avena
a the apetalous flower, floren
ting calyx, or staminiferous organ, b the fruit, c the feed

Plate
Late
41. Lettered Tournefort's Syll. Botany, Plate VII.
   a the feminiferous organs, (thefe having, according to Tournefort, no flowers,) b the fruit, e the seed
   17. Adeptalous, without apparent fruit, as in Fungi, Mufci, &c.

   * * Section Trees and Shrubs.
   † Adeptalous (without petals).
   Irregular.

   No. 18. Clafs 18. Adeptalous

42. Lettered Tournefort's Syll. Botany, Plate VIII.
   No. 19. Clafs 19. Amentaceous, as in Quercus, Pinus, &c.
   † Petalled.
   Irregular.

   No. 20. Clafs 20. Monopetalous, as in Heydsfarum
   Regular.

43. Lettered Tournefort's Syll. Botany, Plate IX.
   No. 21. Clafs 21. Rosaceous, as in Rubus.
   22. Populaceous, as in Pifum, Colutea, &c.

Obf. The importance of the Syſtem of Tournefort, the outline of thefe classifcation is here laid down, will be felt underflood by thoſe who are aware of the attachment of the French Botanifs, even of the latest times, to the method of this early author: a botanif, whose labours preceded thoſe of Linnaeus by nearly half a century.—It has been truly obferved, that Tournefort is to the French in the science of botany, the foundation-stone upon which all their fylltems areedified. This pre-dilefion in favour of their own fylltems, to the exclusion of that the Swedish naturalif laid fdown upon the sexual organs of plants, may yet havfe revolution; but that in the prefent time is more than can be well expected. As the botanical department of this Cyclopaedia has been almoft from the commencement allotted to one of the moft able profeffors in the science, it is very far from the intention of the writer of the prefent article to enter into the comparative merits of the prevailing fylltems of this time, the Linnaean in Britain, under the auspices of its many learned advocates, and that of the French, founded on a "natural method" not very different from that of Tournefort, and as improved by Juffieu and Guertner. We only wish to offer some apology for the great number of plates devoted to the fylltem of the celebrated corollift M. Tournefort than to the sexual fylltem of Linnaeus; the latter being a naturalift whom from adopion we may almoft deem our own, and we muſt confefs with all his imperfections our moft favourite author.

The great talents of one of our ablefl and moft experienced Botanifs at this period, we are well aware have been directed to the advancement of a "natura

Plate

Vegetable Anatomv.

244. Lettered Vegetable Anatomy, Plate I.
   Fig. 1—8. Difsections of the cortex or bark of various plants, of the natural size and magnified, designed to shew the ftructure of the layers of which they are composed, &c.

245. Lettered Vegetable Anatomy, Plate II.
   Difsections explanatory of the difpofition of the layers which appear internally in the stems or branches: fig. 1, 2, 3. horizontal fections; fig. 4, 5. perpendicular fections; fig. 6, 7, 8. shew the longitudinal difpofition of the vessels upon flipping off the outer bark or cortex
   Fig. 9—13. Various appearances and difsections of the buds of plants. Fig. 14—17. of the flower, &c.

19. A bulbous root, shewing the exterior imbrications
18. A horizontal fection of a bulbous root, shewed

* Robert Brown, Efq. who, without rejecting the sexual organs as useful auxiliaries, regards more particularly the germination of plants, with the number and form of the Cotyledons, as essentially characteristic in a fylltem founded on a natural clasfification.
Plate 245. — Ing the concentric layers of which it is composed.

Fig. 20. Perpendicular section of a bulbous root.

MINERALOGY.

246. Inscribed Natural History, Plate I.

View of Mount Aetna, from Spallanzani's Work.

This is a general view of Mount Aetna, the adjacent country and the sea; and is intended to shew the effects occasioned by the eruption of the volcanic matter at different times. A points out the loftiest summit of the Mount. H is Nicolosi, and marks the Mount Rosso or Red Mountain, formerly a plain, but in 1699, a new vertex opened in it, and discharged the dreadful torrents of lava which overflowed the land, till reaching the sea, it formed the promontory of lava in the sea extending as far as letter Y. G, near this new opening of Aetna, is the mountain Montpeliere or Montpilier.

Various other interesting spots are marked in the plate, for which consult the article AETNA, Mount.

247. Inscribed Natural History, Plate II.

A View of the Crater of Mount Aetna.

A A A. One edge of the lava of 1787, which overflowed from the upper crater. B B the circumference of the crater, with its cleft C C through which the internal part is discernible. D the flat bottom of the crater. E the aperture in the bottom through which the larger column of smoke F F arose. G G is that part of the edge of the crater from which its internal part is best seen. H H is the smaller column of smoke to the north-east. Vide article Mount AETNA for further explanation.

248. Inscribed Natural History, Plate IV.

View of the Crater of Mount Vesuvius. Drawn by the same hand, and at the same time as the preceding.

249. Mineralogy, Plate II.

Bafalt. The Mountain of Aifa, called La Coupe, or the Col d'Aifa, near the village Entrague, in the Viverrais, above the torrent of Volant.

This plate affords an example of the formation of bafaltic columns, and illustrates the hypothesis of the Huttonian system, according to which the bafaltic matter has been originally of volcanic origin, and while in a state of fusion cast out of the crater of the mountain. In its progress this lava has formed a wavy channel down the mountain side. According to St. Fond, this is the most remarkable and best characterized crater in all the Viverrais. The ends of the columns may be distinctly seen before the bafalt reaches the river.

GEOLGY.

250. Geology, Plate I.

Fig. 1. The upper figure in this Plate exhibits the dip, dyke, fault, slip, trouble, &c. described and referred to in the article Coal.

251. Geology, Plate II.

Fig. 1—10. Sections of various Strata.

252. Geology, Plate III.

Fig. 1. Strata : being a sketch of the arrangement of the strata through England, by Mr. R. Bakewell. Lat. 54° 35' to 54° 45'.

2. Section of the strata through part of Dorsetshire and Devonshire, by Mr. R. Bakewell.

3. Perpendicular strata.

4. Horizontal strata.

5. Inclined strata, consisting of greywacke clay-flate, compact felspar, porphyry finte, trap, clink-flone and granite, valley of Long Sleddale, Westmoreland.

6. Undulate strata: shewing the wavy structure of the beds of slate, called shillet, in Devonshire.

253. Geology, Plate IV.

Fig. 1. 1. Metallic veins exemplified, with a "rider, &c.; and also the interfeftion (or "cutting-off") of metallic veins.

2. Columnar and amorphous bafalt, interfefted by bafaltic dykes.

3. Lime-flone broken and intected in bafalt, being in a bafaltic rock on the coast of Antrim. Whifflone dykes, or bafaltic veins, passing through chalk, and changing it into marble—under figure 4. (See article Geology. Suppl. Vol. XXXIX.)

Addenda to the Geological Illustrations.

254. Plate Ichthyologie, or Ichthyological Remains.

Mineralized remains, or impressions of fishes, on black shillet slate, found at Illeben, in Germany.

255. Fossils, Extraitous, Plate I.

Fig. 1. Mineralized remains of an encrinus, Encrinus Illiformis, or "flone lily," in relievo, on a flab of stone.

2. Transverse fection of the lily-head.

3. The lily-head half broken through transversely.

4. Bottom of the lily-head, shewing the peduncle by which it is connected to the main stem of the encrinus.

CRYSTALLOGRAPHY.

256. Lettered Crystallography, Plate I.

Fig. 1—7. Various forms of the crysals of adaman-
tine fpar.


262. Lettered Crystalization, Plate VII.

Fig. 27. The Octahedron, regularly formed.

Plate

62. Fig. 5. The Hexahedral prism, or equiangular six-sided prism
12. The Rhomboidal dodecahedron
14. The Pyramidal dodecahedron, or double six-sided pyramid

37. Crystallography, Plate II.

Fig. 17—21. Mechanical division of an hexahedral crystal of calcareous spar, and extraction of the primitive crystal, or nucleus


22, 23. Mechanical division of the dog's-tooth spar, erroneously fig. 6, 7. Plate I.

Fig. 24. Rhomboids of calcareous spar, a secondary crystal, with the primitive nucleus.

50. Crystallography, Plate V.

Fig. 56. The base of the six-sided prism, divided by sections parallel to each of its sides, and producing the triangular prism, the ultimate form obtained by mechanical division

39. Crystallography, Plate IV.

Fig. 48, 49. The cube divided by sections parallel to the sides, and producing a series of smaller cubes, considered as the form of the integrant molecule

37. Crystallography, Plate II.

Fig. 26. The primitive rhomboid of the tourmaline, with its division. This crystal is divisible both in the direction of the six faces, and in that of the short diagonals; by which latter sections the rhomboid is reduced to fix tetrahedrons, surrounding the nucleus, as here represented

Decrement of the Edges of the Crystals.

24. & 258. Crystallography, Plates II. & III.

Fig. 27, 28. The rhomboidal dodecahedron, which figure may be formed from a cubic nucleus, by the superposition of decreasing laminae.

21. Crystallography, Plate III.

Fig. 29. Congeries of cubes, confiding of integrant molecules, forming the cubic nucleus, with the pyramids raised on three of the faces

22. Crystallography, Plate II.

Fig. 27. The form of the crystal, produced by the combination of these integrant molecules, when complete

Decrement in Breadth and Height.

23. Crystallography, Plate III.

Fig. 30. A crystal of iron pyrites, with twelve pentagonal faces, in which the two kinds of decrement are combined

Plate

258. Crystallography, Plate III.

Fig. 31. The cubic nucleus of this variety is shewn

32. The formation of the crystal by decrements

33. Decrement of the dog’s-tooth spar, (the metamorphic crystal of Häiyl) represented complete in Plate 257. fig. 22. The present figure supposes the hypothesis of a decrement by two ranges in breadth. It represents the upper pyramid of this crystal placed on the upper planes of the primitive nucleus, which being partly visible, dislopes more clearly the progressive effects of the decrement by two ranges

34. A secondary crystal, which is a rhomboid much more obtuse than the nucleus, is represented as surrounding the nucleus in the variety of calcareous spar, called by Häiyl, equiaxe.

The nucleus (presumed to be the primitive rhomb of carbonate of lime) progressively divided to explain its structure.

The face at letter A, fig. 35, shews the same face of the rhomb as is represented in fig. 34, but symmetrically divided, and the same shews the gradual division of the rhomb, by mechanical separation down to letter I d.

258. Crystallography, Plate III.

Fig. 36. Decrements on the angles of a crystal, shewn in the regular octahedron formed on a cube

259. Crystallography, Plate IV.

Fig. 37. The arrangement of the integrant molecules on one of the triangular faces of the octahedron

259. Crystallography, Plate IV.

Fig. 38. Rhomboid crystal

39. Another example of the decrements on the angles, exemplified in the division of the rhomboid, fig. 38., which differs somewhat from that of the cube, producing a very obtuse rhomboid, encircling the nucleus; found among the secondary crystals of olivite, iron ore.

Further illustration of the different variations, of which the decrements of the rhomboid, both of the superior and inferior angles, are susceptible. The rhomboid is shown at fig. 45; the divisions at fig. 46, 47.

Intermediate Decrements.

Fig. 48. A parallelopiped undergoing a decrement, by two ranges on the angle of its base

49. A crystal, in which all the three decrements round the same solid angle are intermediate

50. Another example of intermediate decrement in one of the faces of a cubic nucleus, taking place on the angles, by the subtraction of double molecules

51. The cubic nucleus, marking the decrements parallel to the lines k m, &c. by subtrac-
NATURAL HISTORY.

Plate 259.

52. A polyhedral crystal of thirty faces, produced by the cessation of decrement, before the formation of the pyramid round each face of the nucleus.

53. Example of intermediate decrements on the two lateral angles of a rhomboid, (as at fig. 47.), the decrements taking place by ranges of double molecules, producing in the complete result a fold of twelve faces, disposed fix and fix towards each summit, as in one variety of calcareous fpar, or double-pointed dog’s-tooth fpar.

Compound secondary Forms of Crystals.

Fig. 54. A secondary crystal, an icosahedron bounded by eight equilateral triangles, and twelve isosceles triangles. Occurs in iron pyrites.

Fig. 55. A calcareous fpar (Analogue of Haüy’s), composed of twenty-four trapezoidal faces, fix of which are vertical, and twelve others disposed fix and fix. The different trapezoidal faces are shown in the figure.

260. Crystallography, Plate V.

Fig. 56. The end of the regular six-sided prism, which, for its molecule, presents us with the triangular, or three-sided prism.

57. A cubic nucleus divided into its cubic molecules.

59. Superior face of the second lamina, A.

Ditto, further mechanical division of the integrant molecules, B.

Ditto, ditto, C.

58. Explanation of vacuities on the edges of a crystal, given by Haüy.

60. An oblique prism with rhomboideal bafes, so situated that the faces A D, a d', and C D, c d', are vertical; and B D are the acute angles of the base, and that the latter proceed in an ascending direction from A to C.

Interflet this prism into halves, by means of a plane passing by the diagonals, drawn from B to D, and from b to d', so that the half situated on the left remaining fixed, the other is reversed without being separated, and the figure presented will be as shown at fig. 61.

62. Another example of grouping, in which crystals are interfolded into each other, is extremely common. This combination is illustrated by a cube, and M N r, an equilateral triangular facet, produced by a decrementation of one range round the angle A.

63. A second cube modified in the same manner, and affixed to the other by its corresponding facet, will afford the double crystal represented.

Plate

To illustrate the Notation of Crystals.

Fig. 64. Represents an oblique paralleloped, its faces of which have angles of different measures.

65. The effect of decrement shewn.

66. An oblique paralleloped.

67. Primitive molecules.

68. Bibinary fpar of Haüy.

69. Primitive form of a rectangular prism, which has oblique-angled parallelogram bases, one of which is longer.

70. The oblique prism, with rhomboideal bafes.

71. The rectangular prism, with rectangular bases.

72. The rectangular prism, with rhomboideal bases.

73. The rectangular prism, with square bafes.

74. The cube.

75. The most common variety of chrysoberyl, cymohane, the nucleus of which is regular paralleloped, as represented fig. 71.

76. The prism.

261. Crystallography, Plate VI.

Fig. 77—84, &c. Several figures inserted to illustrate the manner in which the symbol employed in the definition of crystals by Haüy, and other crystallographers are expressed.

86. Octahedron, with scalene triangles.

87. Octahedron, another variety.

88. The regular octahedron.

83, 84. The primitive octahedron, composed of eight isosceles triangles similar, four in each.

85. The tetrahedron when become a prim form.

86. The regular six-sided prism.

87. The same, in which three fold angles, taken alternately, are replaced by faces, while the intermediate angles remain untouched.

88. Rhomboideal dodecahedron, in which each fold angle is composed of three planes, and may be assimilated to a summit of obtuse rhomboid.

89. Primitive form of the tournaline.

90. One variety of the tournaline.

Supplemental Plate, lettered Crystalization, Plate VI.

262. Crystalization. See Mineralogy, Appendix.

Fig. 1. Cube.

2. Rhomb.

3—5. 29. Varieties of the Prism.

6. Pyramid.

7, 8. Table.

9. Icoahedron.


11. Lens.

12. Rhomboideal Dodecahedron.


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PLATE
262. Fig. 27. Regular Octahedron
16. Truncation on the angles
17. on the edges
18. Bevelment on all the edges
19. 30. on all the lateral edges
20. on the angles

Acumination, the acuminating planes
at each angle let on the lateral planes
21. 26. on the lateral edges
22. 24. on the lateral planes
23. on the lateral angles
25. on the alternating lateral planes
29. double eight-sided pyramid,
four planes at each extremity
let on the alternate lateral edges
31. double fix-sided pyramid, with
the planes joined obliquely,
or metallic crystal

The primitive Forms of Crystals are,
Fig. 1. The Cube
2. Rhomb
7. 8. Rectangular Table
27. Octahedron
13. Tetrahedron
5. Hexagonal Prism
12. Rhomboidal Dodecahedron
14. Dodecahedron with triangular faces

The integrant Molecules are;
Fig. 13. The Tetrahedron
29. Trihedron
1. Cube

Instruments employed in the Study of Crystallography and Mineralogy.
261. Fig. 91. Nichollon's instrument for determining the weight or specific gravity of solid bodies
26. B. An instrument for determining the electricity of minerals
22. A. An instrument for determining the electricity of the tourmaline
93. Goniometer for measuring the angles of crystals
(Vide Mineralogy, Appendix, Vol. XXXIX.
—Vide also article Crystal, Vol. X.; and Crystallisation, Supplemen tal Vol.)

Appendix to Geology, Mineralogy, Mining, &c.

PLATE
Safety Lamp, as made by Mr. Newman, Little Street, Leicester Square
(See Wire Gauze)
250. Fig. 2, 3. Dr. Clanny's Safety Lamps
Steam Safety Lamp

* * * By attending to the above classification, the whole of those Plates of Natural History, which the proprietors have allotted to this Cyclopaedia, may be readily reduced to numerical order, and be by that means, it is presumed, more easily distinguished when required for reference than by the original plan, in which the plates of each section were lettered separately from the rest. They now follow each other, not only in numerical order throughout their whole extent, but also in the order of the Linnaean System, as nearly as the number of plates appropriated to the respective Sciences would conveniently allow. The miscellaneous nature of some few plates, which it has been lately thought desirable by the proprietors to introduce, renders it impossible to place them strictly in the order of system.

ERRATA

ON THE

PLATES OF NATURAL HISTORY.

Some few errors having been committed by the writing engravers in lettering the names upon the plates of Natural History, which it will be very desirable to correct, the reader is requested to observe, that wherever the names upon the plates are found at variance with those inserted in this printed index, the preference is to be invariably given to the latter; and that the names upon the plates may be corrected by a reference to this index. The following errors occur to us in passing over the plates for the purpose of composing the present classification.

QUADRUPEDS.
19. For Brasilian Weefel, read Brasilian Weefel
26. Taguan Squirrel, r. Taquau S.
29. Molpymæus, r. Mos pygmaæus
31. Antilope Grimma, r. Ant. Grimmia

BIRDS.
46. For Ramphaéos Aracani, read R. Aracari
G. Crotophage, r. G. Crotophaga
52. Merops Novæ Zealandæ, r. Novæ Selandizæ
53. Certhia coccina, r. C. coccinea
54. Certhia caerulea, r. C. caerulea
55. Anas Olot, r. A. Olor
56. Anas Creca, r. A. Creca
57. Manderine Drake, r. Mardine Dr.
58. Genus Apetenodès, r. G. Apenotyda
D. Chiororynchos, r. Chlororhynchos
### NATURAL HISTORY

#### Plate

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<th>Page</th>
<th>For</th>
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<td>61.</td>
<td>For Gen. Laurus, <em>read</em> Gen. Larus</td>
</tr>
<tr>
<td>62.</td>
<td>G. Phenicopterus, <em>r.</em> Phoenicopterus</td>
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<tr>
<td>67.</td>
<td>Charad. africanaus, <em>r.</em> C. apricarius</td>
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<td>68.</td>
<td>Fulica porphyrys, <em>r.</em> F. porphyrio</td>
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<td>71.</td>
<td>Genus Dodo (<em>Latin name</em>), <em>r.</em> G. Didus</td>
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<td>73.</td>
<td>Meleagris gallopavo, <em>r.</em> M. Gallopavo</td>
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<td>78.</td>
<td>Tetrao ferruginus, <em>r.</em> T. ferrugineus</td>
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<td>79.</td>
<td>Columba Crythroptera, <em>r.</em> C. Crythroptera</td>
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<td>81.</td>
<td>Turdus perfpicalatus, <em>r.</em> T. perfpicillatus</td>
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<td>82.</td>
<td>Dampis Pompodora, <em>r.</em> A. Pompadora</td>
</tr>
<tr>
<td>88.</td>
<td>R. headed Swallow, <em>r.</em> Rufous-headed Swallow</td>
</tr>
<tr>
<td></td>
<td>Acculeated Swallow, <em>r.</em> Aculeated Swallow</td>
</tr>
</tbody>
</table>

#### Reptiles.

| 101. | For Anguis Coraline, *read* A. Corallinus |
|      | A. Jamaicenfis, *r.* A. Jamaicenfis |
|      | Amphifbasna fulginofa, *r.* A. fulginofa |
|      | Snowted Langaya, *r.* Suouted L. |

#### Fishes.

| 105. | For Genus Stromateus, *read* Gen. Stomatæus |
|      | Sternopyx diaphena, *r.* Sternopyx diaphana |
|      | Genus Anarhicas, *r.* Gen. Anarhichas |
| 112. | Sparus Surinamensis, *r.* Sparus Surinamenfis |
|      | Sparus fasiatus, *r.* Sparus fasiatus |
| 116. | G. Scomber Mackarel, *r.* G. S. Mackarel |
| 117. | Ditto |
| 119. | Platylachus anguilaris, *r.* Platylachus anguilaris |
| 120. | Salmo bimaculatus, *r.* S. bimaculatus |
|      | S. Gafteropelecus, *r.* S. Gafteropelecus |
| 121. | Filularia tabaccaria, *r.* F. tabaccaria |
| 122. | Genus Atherine (*Latin name*), *r.* G. Atherina |
| 123. | Clupea Triflæ, *r.* C. Thrilæ |
|      | C. Phoxinus Minnew, *r.* C. P. Minnow |

#### Insects.

| 136. | For Bolfrichus pubifcens, *read* B. pubifcens |
|      | P. fociatæ, *r.* P. fociatus |
|      | P. afflatus, *r.* P. afflatus |
|      | P. faccicornis, *r.* P. faccicornis |
| 137. | Anthrenus scrophulariae, *r.* A. scrophulariæ |
| 138. | Caffida grafixi, *r.* C. graffæ |
| 141. | Paufus fichteli, *r.* P. Fichteli |
| 160. | S. gigas, *r.* Sirex gigas |
|      | S. juvencus, *r.* Sirex juvencus |
|      | S. lobata, *r.* Sphex lobata |
| 163. | No. 13. Tipula ichneumonea, *r.* Diopsis ichneumonea |
| 164. | Rhagis fcolopacea, *r.* Rhagio fcolopacea |
| 168. | Headlines G. Frondbidium, *r.* G. Trombidium |
|      | 12 F. aquaticum, *r.* 12 Trombidium aquaticum |
|      | 13 F. abflargens, *r.* 13 Trombidium abflargens |

#### Worms.

| 178. | For Headlines for Vermes, *Order* Inteflata, *read* Order Inteflina |

#### Shells.

| 192. | For Tellina fabula, *read* Tellina fabula |
|      | Tellina bimaculata, *r.* Tellina bimaculata |
| 226. | Paramæcium, *r.* Paramæcium |
|      | Rolipoda pyrum, *r.* Kolpoda pyrum |
PLATES. VOL. VI.

ANCIENT AND MODERN ATLAS.

PLATE

I. Ancient Geography—Imperium Car. Mag. ad finem faculi post Chrift. VIII.

A few copies, only, of this Map were published with the parts of the Cyclopaedia. The proprie-
tors having afterwards determined to engrave the maps on a larger scale, it was cancelled, and a
Map of the World, as known to the ancients, substituted in its stead as the first of the Ancient
Atlas.

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III. Britannia Romana, cum Hibernia et insulis adja-
centibus
IV. Peloponnesus, quae ante Aepia, Pelagia, et Argos, antequam Romanæ ditionis fuit, &c.
V. Hellas, sive Graecia Propria, Thesfalia et Epirus, antequam Romanæ ditionis fuerunt
VI. Macedonia et Thracia, antequam Romanæ ditionis fuerunt
VII. Asia Peninsularis, cum Insulis adjacentibus
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X. Italia Regio Alpina, quæ vulgo dicitur Gallia Cifalpina
XI. Italia Media, vel Italia propria pars borealis, ante diviſionem ab Augusto factam
XII. Italia Ulterior, cujus pars Australis Magna Graecia, ob Græcorum colonias, dicta, ante
 diviſionem ab Augusto factam
XIII. Sicilia, provincia Romanorum, cum Insulis ad-
 jacentibus
XIV. Italia in regiones undecim ab Augusto descripta,
cum Insulis Corfica et Sardinia
XV. Imperium Romanum
XVI. Hispania Romana
XVII. Galliae, sicut ab Augusto divisa, pars meridionalis
XVIII. Galliae, sicut ab Augusto divisa, pars septen-
 trionalis. Additur, Gallia Qualis fuit inueute
 feculo quinto Ærae Christianæ in 17 provincias
divertita
XX. Rhaetia et Noricum, provincia Romanorum

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XXI. Germania Magna, quae nunquam Romanis paruit
XXII. Terra Filiorum Israelis, antequam in duo Regna
divertita fuit, cum Terra Philiflaorum, parte
Phenices, &c. Etiam, Judæa et Regiones
finitima circiter initium Ærae Christianæ.

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South part of Russia in Europe
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INDEX OF THE PLATES.

Containing a List of all the Subjects represented on the Plates, arranged in alphabetical order, and classed under the several Sciences or Departments to which they pertain; together with References to the particular Plate and Figure where each Subject is delineated.

The Roman Numerals denote the Plate; the Arabic Numerals, the Figure.

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Barn, Common, i. 1.
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ERRATUM,

The following Plate has been accidentally omitted, both in the Catalogue and in the Index. The Binder is required to place it immediately after the other Plate of Architecture numbered XV.

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