THE

CYCLOPÆDIA;

or,

Universal Dictionary

of

ARTS, SCIENCES, AND LITERATURE.

VOL. XXXIX.
THE

CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY


WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.

ILLUSTRATED WITH NUMEROUS ENGRAVINGS,

BY THE MOST DISTINGUISHED ARTISTS.

IN THIRTY-NINE VOLUMES.

VOL. XXXIX.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, & BROWN, PATERNOSTER-ROW.


1819.
X, A double consonant, and the twenty-fourth letter in the English alphabet; which, however, begins no English word.

The x of the Latins, and χ of the Greeks, are compounded of c, and σ; whence, to this day, the letter x in the English and French has the same sound with c r or k r. Thus we pronounce Alexander exactly as if written Alexsander or Aleksander.

The Italians have no x at all in their language, but both speak and write Alessandro. The Spaniards pronounce the x like our c before s; viz. Alessandro, as if it were Alessandro. The Portuguese pronounce it like h.

In foreign words, used in English, we sometimes soften the x into a double r; as Bruxelles, for Brusselles, &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 Dacconus 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. Astley observes, that this is a mistake; the letter X being found in the Ducoan 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 deno numero tibi dat ritenendam.

When laid flat, thus $\chi$, it signifies a thousand; and when a dafh is added over it, $\bar{X}$, it signifies ten thousand. If before X denotes the subtration, and after X the addition of unit; thus, IX = 9, and XI = 11. X before L or C

\[ \text{denotes the subtraction of 10 from 50, or 100: thus, XL = 40, and XC = 90.} \]

X on the French coins denotes those flruck at Amiens. We often meet with the Greek letters X and P joined in this manner, $\chi\pi\rho\alpha\nu\theta\gamma\nu\mu\alpha\iota\nu$ 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 initial letters of a proper name; but as no reasons are given for either of those 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 Constantine the Great, who made use of it to denote xeproto, 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 xepicomon, useful; as we learn from Isidore, Orig. lib. i. cap. 20. See Phil. Trans. No. 474, sect. 1.

X, with a P, or Greek R, in the middle of it, is also the monogram of the name of CHR1ST, 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 Constantine, and the succeeding emperors. See Labarum.

B XABEA,
XABEA, in Geography, a fea-port of Spain, in the province of Valencia, near the coast of the Mediterranean; 36 miles N.N.E. of Alicante.

XABORECTORA, in Ancient Geography, a name given by P. Mela to Abarros, a river of Meopotamia.

XACA, in Geography; see XACA.

XACUA BAY, a large bay on the south coast of the island of Candia; 18 miles S.E. of Settia.

XAGUA BAY, a large bay on the south coast of the island of Cuba. This is one of the belt 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° 10'. W. long. 81° 20'.

XANTES, 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 Mariegalante. N. lat. 15° 56'. W. long. 61° 32'.

XALAPA, a considerable town of Mexico, or New Spain, in the fertile province of Tlascala, formerly famous for the fair held on the arrival of the fleet of vessels 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 flaky, while pure waters issue from a white land, and fertilize the country. The population consists of 243 Spanish families, 182 Melizones, and 361 Indians. When north winds prevail at Vera Cruz, it always rains at Xalapa; but the climate is effeemed 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 Angeles. 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 Mexico; and separated from Chiapen 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 infernal 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 Compostella 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 Saragozza.

XAMACA, a river of America, which runs into the gulf of Mexico, 16 miles from Vera Cruz.

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

XAMELLalah, an Arabic 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, F. 20.

XAMI, a name given by some of the old writers to the ecreation of the Greeks, or carrot-tree. See CHAPEX.

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 Mongallo, which runs into the Indian sea, opposite to the island of the same name.—Also, one of the Querima 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 GUIAPA, 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 Roer, near the Rhine; 7 miles N.E. of Gueldres.


Gen. Cbl. Male, Cal. Perianth of one leaf, in five or fix small, deep, imbricated, roundifh, concave, acute figments, with a pair of minute opposite feales at the bafe. Cor. Petals five, roundifh, fpreading, larger than the calyx. Stam. Filament one, columnar, erect; anthers five, two-lobed, forming a peltate concave disk, full of gluten, their under fide burifling, and difcharging the pollen.

Female, Cal. like that of the male, permanent, inferior. Cor. as in the male. Stam. Filament none; anthers five, prifmatic, erect, imperfect. Pij. Germen superior, roundifh, with five furrows; fyle none; £igmas five, roundifh, thick, emarginate, feated on the germin. Peric. Capsule small, globofe or oval, with five furrows, five cells, and five valves, burifling at the furrows, their membranous partitions adhering to the central column. Seeds numerous, oblong, imbedded in the pulp, inferted in a double row upon the five-angled columnar receptacle.

Obf. 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, fefible. Capsule of five cells, with many pulpuy feeds.

1. X. scandens. Twining Xanthé. Wildl. n. 1. (Quaopya scandens; Aubl. Guian. 898. t. 343.)—Leaves obvate, feelfy. Capsule globofe.—Native of the forefts of Guiana, flowering in November. The fperm is shrubby, with knotty branches, twining round neighbourifing trees. Leaves oppofite, on fhort flalks, fimple, entire, thick, and smooth, three or four inches long, with a thick mid-rib, and a fhort blunt point, but no branching veins. Panicles at the ends of the drooping branches, compound, three-forked, smooth. Flowers small, yellow; their partial flaks longer than the calyx. Petals feelfy. Capsule about the fize of a black currant, feelfy, crowned with the black feedmar all meeting in a point. Seeds red. Every part of the plant, when wounded, discharges a transparent, white, vifcid, refinous juice. The Indians call this species Quapyoa. See Quaopya.

2. X. par-
   —Native of the same country. Differs from the preceding in having thinner leaves; smaller flowers, with shorter petals and an oblong, thicker, yellowish fruit. The bark and leaves, if cut or broken, discharge a yellow glutinous juice, which, when dried, resembles Gamboge, and is, like that substance, soluble in water. Aublet.

XANTHICA, xantè, in Antiquity, a Macedonian festival, so called because it was observed in the month Xanthus, at which time the whole royal family with the army was purified. See Illustration.


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

Female flowers below the male, on the same plant, doubled. Cal. Involucrum two-flowered, of two opposite, acutely three-lobed leaves, (their middle lobe longest,) befit with hooked prickles, and closely enfolding, as well as united to. the germen, except the lobes, which are free. Cor. none. Pfl. Gemen oval, bipid; styles two pair, capillary; stigmas simplex. Peric. Drupa dry, ovate-oblong, cloven at the point, clothed all over with hooked prickles. Seed. Nut of two cells.


Obs. Linnaeus Remarks, that the fruit of Xanthium could scarcely have been well understood, without a previous knowledge of that of Ambrosia. Thefe 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 syncarionous order; while the dispersion of their flowers, and the general nature of their female flowers, and fruit, necessarily refer them to the Diclini, or in the artificial system of Linnaeus, the clafs Monocotyledon.

1. X. Strumarium. Common Burweed, or Small Burdock. Linn. Sp. Pl. 1400. Willd. n. 1. Ait. n. 1. Fl. Brit. n. 1. Eng. Bot. t. 2544. Fl. Dan. t. 970. Bigelow Bot. 221. (Xanthium ; Fuchs's Hist. 579. Camer. Epit. 626. X. feu Lappa minor; Math. Valgr. v. 2. 545. Bardana minor; Ger. Em. 829.)—Stem without thorns. Leaves heart-shaped; three-ribbed at the base. —Native of dung-hills, and rich moor 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 soil is rich and rather wet, and found it called, by the modern Greeks, σαμνήχια a name alluding to its bur-like property, rather than to the quality on which its ancient appellation is founded. The root is annual. Herb branched, rough, dark green, rather fettid, of a coarse rank habit, with furrowed, rather hairy, branchies. Leaves alternate, falked, heart-shaped, acutely lobed, and toothed or serrated; their two lateral ribs marginal, for a small space, at the base, as in the great Burdock, Arctium Lappa, and a few other plants. Male flowers globular, green, few together, in axillary or terminal clusters, about the upper part of the branchies; female in axillary sessile tufts. Fruit elliptical, double-pointed, hard, near an inch long, befit with firm, prominent, awl-shaped, hooked prickles, which attach themselves to the coats of animals, and thus serve to disperse the feed.

2. X. orientale. Oriental Burweed. Linn. Sp. Pl. 1400. Willd. n. 2. Ait. n. 2? Linn. Fil. Dec. 33. t. 17. “Schkuhr Handb. v. 3. 239. t. 291.” — 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 Linnaeus, with other seeds for the Upal garden, in 1761. Sir Hans Sloane is recorded by Ray as having introduced this Xanthium into England in 1685; but their plant seems to have been a flight variety of the firit, figured by Moreion, fect. 15. t. 2. f. 2, found in America, and not answering to the distinctive characters of the present species, though Morifon, and others who speak of this variety, are cited by Linnaeus and Willdenow. The true X. orientale is an annual herb, of a more slender habit than the Strumarium, and more hardy, though less hairy. Their effential differences are indicated in our specific characters. The most remarkable feems to be the taper base of the leaves, in the present species, and the union of their three ribs, at a greater or less distance, above the inference of the footstalk. The fruit is twice as large as the foregoing, with peculiarly strongly hooked thorns.

3. X. echinatum. Compound-thorned Burweed. "Murray in Comm. Goett. for 1784, with a figure." Wildl. n. 3.—"Stem without thorns. Fruit oval; its prickles hooked, crowded, compound at the base." Annual.—Its native country unknown. Willdenow. We have not seen either a specimen or figure.

4. X. spinifum. Spinos Burweed. Linn. Sp. Pl. 1400. Willd. n. 4. Ait. n. 3. (X. spinifum, atriplicis folio; Moril. fect. 15. t. 2. f. 3. X. luftanticum spinifum; Herm. Parad. 246, with a figure. Volkm. Norib. 404, with a figure. X. luftanticum, laciniatum, validissimis aculeis mainum ; Magnol. Hort. 208. t. 20.)—Stipulas thorny, three-cleft. Leaves lanceolate, three-lobed; hoary beneath.—Native of the south of France, as well as of 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 leaves are not inelegant. Their upper surface is of a fine green, nearly smooth; the lower downy and white. The thorns are in fact fipulas, 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 leifer
burdock is sometimes known by writers, and which is
found to be a very troublesome weed. See Weeds.

**XANTHOCYXUS**, 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
composed of *xanthos*, yellow, and *χοξος*, juice. — Roxb.

Cor. Petals five, orbicular, nearly sessile, opposite
to the calyx-leaves, and twice as long. Nectaries
of five broad, short, abrupt, porous glands, opposite to
the petals, alternate with the filaments, inserted into the receptacle
under the germen. *Stam.* Filaments twenty, united into five
oblong, linear, flat bodies, alternate with the nectaries, and
above twice as long: anthers flat, roundish, of two lobes
and two cells. *Pyl.* Germen superior, globose; style
scarce any; stigmas five, spreading horizontally, obtuse,
deciduous. *Peric.* Berry globose, succulent, with five ovate
seeds, immersed in the pulp, some of which are generally
abortive.

*Eff.* Calyx of five leaves. Petals five. Nectaries
five, abrupt. Stamens united into five sets, alternate with
the nectaries. Berry with from one to five seeds.


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fame bud as the leaves, of a dark copper-coloured purple, like *Veratum nigrum*, and though not gay or brilliant, not inegalent, when contrasted with the foliage. The root and stem are internally of a bright lemon-colour. The affinity of this plant to *Cimicifuga*, *Aloe*, *Helichorus*, &c. would lead us to suspect, though there is no remarkable fetor, that its properties might be active, and accordingly it seems that the American physicians have employed it successfully in practice, as a tonic or stimulant. Probably its qualities may not be dissimilar from those of *Helichorus triangularis* of Linnaeus; *Coptis triangularis*, Sabl. Tr. of Linn. Soc. v. 8. 305. Pursh 390. Bigelow Am. Med. Bot. v. 1. 60. t. 5; the root of which the late-mentioned writer informs us is purely and intensly bitter, strengthening the stomach and other visceras, and promoting digestion. It makes a yellow tincture, like that of Geranium in flavour and medical virtues.


Gen. Ch. *Cal.* none, unless the corolla be taken for such. *Cor.* inferior, of one petal, in fix 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 veritable. *Pist.* German superior, ovate, with the rudiments of many seeds in each cell; style cylindrical, with three furrows; stigma simple. *Peric.* Capsule projecting beyond the closed permanent corolla, ovate, with three blunt angles, woody, almost horny, 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 fleshy.


Mr. Brown, from whose 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 numeros, crowded, narrow, graceful, of great length, linear, somewhat triangular, or two-edged, spreading every way; recurved at the extremity; dilated, and half-sheathing, at the base; rigid and elastic when dry. *Flower-floak terminal*, quite simple, round, often many feet in length, smooth, firm, hard, and durable. *Spéé* terminal, solitary, cylindrical, dense, many-flowered, resembling a catkin, sometimes equal in length to the floak itself. *Flowers* fleshy, closely crowded, small, white, each accompanied by numerous, imbricated *bractées*, tapering at the base into a claw, the innermost gradually smallaff. *Capsules* of a shining chestnut, partly black.

The structure of the seeds agrees with Bory's, Labill. Nov. Holl. t. 107. Brown Prodr. v. 1. 286; nor are these two genera very dissimilar in foliage or inflorescence. They are placed at the end of the *Aphelandeae*, because of their fleshy albumens, and the black crustaceous skin of their seeds; *Brown*.

1. *X. arbores*. Arboreous Yellow-gum. *Br.* n. 1.—"Stem arborecent. Leaves two-edged; triangular beyond the middle; flattened in front. Stalk scarcely the length of the very long spike. *Bractées* and corolla bead-lefs." —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-floaks stand solitary.

See n. 3.

2. *X. australi*. Southern Yellow-gum. *Br.* n. 2.—"Stem arborecent. Leaves compressed longitudinally. Stalk shorter than the elongated spike. *Bractées* and outer segments of the corolla, down to the point. —Native of New South Wales, from whence we received specimens in 1790, 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-house 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. arborea*; 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 goats, or edge. From the centre of the head of leaves arises a single footflok, eighteen or twenty feet in height, perfectly straight and erect, terminating in a spike of a spiral form. This large flok 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 *arborea*; the latter, regarding the inflorescence, to the *Hafliele*; 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 *Aloe* into one species. The Yellow Reif 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 thebage natives of the country. The juice, fluid at first, soon hardens in the sun, into a concrete brittle form, of a dull orange colour. Burnt on hot coals, it emits a fragrant smoke, smelling like a mixture of balm of Tolu and Benzoin, approaching in some degree to Storax. This reif is perfectly soluble in spirit of wine, but not in water, nor even in effential oil of turpentine, unless digested in a strong heat. The varnash 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 scent, 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.


Native of New South Wales, from whence we received specimens in 1790, 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-house 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. arboere;* 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 goats, or edge. From the centre of the head of leaves arises a single footflok, eighteen or twenty feet in height, perfectly straight and erect, terminating in a spike of a spiral form. This large flok 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 *arborea*; the latter, regarding the inflorescence, to the *Hafliele*; 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 *Aloe* into one species. The Yellow Reif 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 thebage natives of the country. The juice, fluid at first, soon hardens in the sun, into a concrete brittle form, of a dull orange colour. Burnt on hot coals, it emits a fragrant smoke, smelling like a mixture of balm of Tolu and Benzoin, approaching in some degree to Storax. This reif is perfectly soluble in spirit of wine, but not in water, nor even in effential oil of turpentine, unless digested in a strong heat. The varnash 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 scent, 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. Lesser Yellow-gum. Br. n. 5. — "Stem none. Leaves triangular; flat in front; rather concave beyond the middle. Stalk many times longer than the spike. Bracteas scarcely longer than the tufts of flowers, all, like the corolla, beardless."—Gathered by Mr. Brown, in New South Wales. The spike of this species measures from five to eight inches. Brown.

6. X. braechata. Long-bracteate 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. Bracteas subtending the tufts twice or thrice the length of the flowers, lanceolate and diverinated, all, like the corolla, beardless."—From the same country. The spike is only from three to six inches in length. Brown.

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

XANTHONYXULYM, received its name from governor Cadwallader Colden, because of the yellow hue of the wood, to which ſtate, yellow, and ſtate, wood, alludes. We make no figure to follow the example of professor Martyn, in rectoring the proper orthography; nor is it requisite to burthen 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 Xanthonyxulym, or Xanthonyxylon.—Linna. Gen. 519. Schreb. 634. Willd. Sp. Pl. v. 4. 753. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 352. Pursh 209. Swartz Ind. Occ. 570. Jull. 374. Lamarch Dict. v. 2. 38. Illinit. t. 811. Garttn. t. 68. (Fagara; Duham. Arb. v. 1. 229. t. 97. Swartz Prodr. 33.)—Clafs and order, Dioces Pentandria. Nat. Ord. "Hederaceae," Linna. rather his Dumou. Terribinatceae affine, Jull.

Gen. Ch. corrected. 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.

Femal, Cal. like the male, inferior, permanent. Cor. like the male, deciduous. Fil. Germs from two to five, roundish, each terminating in an awl-shaped style, longer than the petals; stigmas obtuse. Peric. Capsules from one to five, flatked, each of one cell, and two coriaceous valves, burking at the inner margin. Seeds solitary, roundish, polished, pendulous from an upright brittle-flaked flalk.

Eff. 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 on each, seeds solitary, pendulous.

Obs. This genus is distinguished from Fagara, (see that article,) by having separated flowers, either three-cleft, or five-cleft, and pendulous seeds. Botanists appear to have mistaken its real character, taking the calorys for a calyx. To this error Linnaeus and Dubamel 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 superceding the former; and Willdenow admits species from Swartz, whose petals by their presence contradicts his essential character. We have not seen living specimens of Xanthonyxulym, 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 Gartner seems to have discovered a distinctive mark of Xanthonyxulym, in the flatked pendulous seeds, we leave them for future inquiry. The whole genus is shrubby or arborescent, with alternate, pinnate, sometimes only ternate, entire, or somewhat crenate leaves, and clustered, or panicled, flowers. The stem is, in most infances, armed with prickles, that are sometimes very formidable. The wood is hard, and serviceable for many purposes.

Sec. i. Stem without prickles.

1. X. ternatum. Three-leaved Yellow-gum. Swartz Ind. Occ. 570. Willd. n. 1. (Fagara trifoliata; Swartz Prodr. 33.)—Prickles none. Leaves ternate, obovate, slightly emarginate, shining; dotted beneath.—Received by Sir Joseph Banks from the island of Dominica. A shrub, six feet high, with roundish, subdivided branches, angular when young. Leaves on smooth, spreading, channelled footflaks. Leaves on partial small flalks, entire, rigid, veiny; contracted at the base; paler beneath, and minutely dotted with black. Clusters axillary, compound. Flowers small, whitish. Germs three, contiguous, like one three-lobed germs. Stigmas three, fertile. Capsules three, each of two hemispherical valves, with two internal, membranous, whitish valves. Seeds solitary, roundish, polished. Swartz.

2. X. emarginatum. Emarginate Yellow-gum. Swartz Ind. Occ. 572. Willd. n. 2. Ait. n. 1. (Fagara emarginata; Swartz Prodr. 33).—Brown, affinis, terebinthi folio alato, ligno odorato candito, 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 Ligannum rorum, a corruption of Lignum 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. Leaves about three pair, rarely with a odd one, above an inch long, veiny, rather coriaceous, and shining. Clusters terminal, somewhat compound, erect. Flowers minute, whitish. Calyx in five deep, ovate, acute, permanent segments. Petals only three, ovate, concave, spreading, twice the size of the calyx. Stamens three, very short. Germs three-lobed, with three fertile stigmas. Capsule fleshy more than one perfect, with two internal, as well as external, valves, and one orbicular, black, shining seed. Swartz.

3. X. acuminatum. Pointed-leaved Yellow-gum. 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. Leaves three or four pair, laurel-like, shining. Gymnos terminal, subdivided in a forked manner. Flowers crowded, small, white. Calyx of three minute oval 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.

Sec. 2. Stem prickly.

4. X. punctatum. Dotted Yellow-gum. Willd. n. 4. "Weit
"Welt St. Croix 236."—Stem prickly. Leaves ternate, or pinnate, oblong, finely crenate; dotted beneath.—Native of the island of Santa Cruz. Willdenow.

5. X. spinosum. Prickly Triandrous Yellow-wood. Swartz Ind. Occ. 574. Willd. n. 5. (Fagara spinosa; Swartz Prodr. 33.)—Stem prickly. Leaves pinnate, with many pairs of fiddle, ovate, pointed leaflets; prickly beneath, as well as the branches. Flowers triandrous. Native of dry mountainous situations in Jamaica. A frutic, about 6 feet high, with a round, branching, upright stem. Spines (rather we presume prickles) scattered, prominent, needle-like, as long as the finger-nail; base of the main stem stronger, and thicker at the base. Leaves a foot long, with a compressed footstalk, round and prickly at its base, and, if we understand right, furnished with a pair of prickles before each pair of leaflets, which are nearly fiddle, eight or ten pairs in all, ovate, with a short emarginate point, veiny, rigid, smooth, and shining, very minutely crenate at the edges, their mid-rib occasionally prickly. Cyms terminal, with minute, white, crowded flowers. Calyx with three ovate acute segments. Petals three, ovate, larger than the calyx. Filaments scarcely any. Anthers ovate, converging. Germin in three distinct lobes. Stigma three, fiddle, obtuse. Fruit not observed. Swartz.

We have been more full in our descriptions of Dr. Swartz's four species, that the reader may compare their characters with Fagara. Nothing is said of their flowers being sepaled, or dioecious.

6. X. Clava Herculis. Great Prickly Yellow-wood. Linna. Sp. Pl. 1455, excluding the synonymy of Duhamel. Amev. Acad. v. 3. 16. Willd. n. 6. Ait. n. 2. Swartz Obs. 375. (X. spinosum, lentisci longioribus folis, euonymi fructu capsulari; Catebe Carolin. v. 1. t. 26, according to Linnaeus. X. aculeatum, fraxini filifolii et puneatique folis; Pluk. Phyt. 239. f. 4.)—Stem prickly, with broad angular prickles. Leaflets ovate, pointed, crenate; nearly equal at the base; 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 prickles, which are thick at their base, angular and sharp at the point. Leaves a foot long, pinnate, as in all the following species; their common footstalks armed with scattered straight prickles, one-third of an inch long; leaflets about seven pair, on short partial stalks, unequally divided by their smooth mid-rib, and somewhat falcate, an inch and a half or two inches long, bordered with shallow unequal notches, smooth and rather shining. Clysters terminal, compound. Flowers polygamous, there being some united ones, though not perfecting seed, on one tree, and others entirely female, on another. The former have a minute five-toothed calyx. Petals five, thrice as long, ovate, crenate, or a little incurved. Filaments five, twice the length of the petals, and inserted between them. Anthers oblong, crenate at the base. Germs roundish, abortive, with five awl-shaped erect styles, and simple stigmas. The female flowers have a five-toothed calyx; five concave petals; no stamens. Germens five, united into a roundish body. Styles none. Stigma peltate, slightly convex, a little elevated, with five furrows. Capsules five, combined, or one of five lobes, each lobe having two valves, and containing a roundish, black, shining seed. Our description of the fructification is taken from Dr. Swartz. The leaves bear but a flight resemblance to the Gillick-tree, or any other species of Phylacia, being decidedly crenate.

7. X. aromaticum. Aromatic Yellow-wood. Willd. n. 7. (Euonymo affinis aromatica, f. Xanthoxylon spinosum, fraxini folium cheumif scrim; Pluk. Amath. 78. t. 393. f. 2.)—Stem with opposite prickles. Leaflets ovato-lanceolate, ferrated; unequal at the base: common footstalk prickly. Panicles terminal.—Native of Chufan. "A frutic with straight prickles. Leaflets two, three, or four pair, pointed, one inch and a half long, marked with pellucid dots; rounded near the base, at the upper edge; contracted at the lower. Common footstalk betit with strong, nearly opposite, prickles." Willdenow, from a dried specimen, without flowers. Pluket's says, "the fruit is a single, round, rough, or warty capillum, tautly turgid of campshair, lined with a white, smooth, inflipid membrane, containing a black polished seed, with a hollow whitish scar, in which lies the thread connecting the seed with its capsule." This very accurate description determines the genus. He adds, that the Chinese use this fruit instead of pepper.

8. X. sesquifolium. Shooter-leaved Yellow-wood. Lamarck n. 2. Willd. n. 8. (Euonymo affinis aromatica, five Xanthoxylum spinifolium, fraxini angulitse folio punctatum; Pluk. Amath. 76. t. 392. f. 1.)—Stem prickly. Leaflets lanceolate, finely ferrated; nearly equal at the base: common footstalk downy and prickly. Panicles axillary.—Brought from the islands of Chufan, like the preceding. The leaves are a foot long. Leaflets ten to eleven pair, with an odd one, each three inches in length, pointed, dotted; slightly downy beneath. Footstalk sometimes without prickles. Willdenow. Pluket's figure represents the panicle much like the preceding, but lateral. The capsula seem to be one, two, or three from each flower.

9. X. juglandifolium. Walnut-leaved Yellow-wood. Willd. n. 9. (X. americanum, five Hercules arbor aculeata major, juglandis folia alternis parum filifosis; Pluk. Phyt. t. 239. f. 63.)—Stem prickly. Leaflets oblong, pointed, obscurely ferrated; unequal at the base: common footstalk more or less prickly. Panicles terminal.—Native of Hispaniola and Nevis. Leaves pinnate, with an odd one; leaflets alternate, coriaceous, two or three inches long, marked with dintant, scarcely visible, pellucid dots; their edges entire to the naked eye, but under a magnifier appearing furnished with close dintant ferratures; contracted near the base, at the upper edge; rounded at the lower, rather downy beneath. Common footstalk betit with a few short scattered prickles. Panicles terminal, much branched, dense, downy. Capsules four or five, rather downy, pointed. Seeds black.

10. X. rigidum. Rigid Yellow-wood. Willd. n. 10.—"Stem prickly. Leaflets elliptical, entire, emarginate, painted; their veins hairy beneath; mid-ribs and footstalks prickly."—Native of South America. Humboldt and Bonpland. Leaflets four pair, coriaceous, on very short stalks; the upper ones largest, two inches long; lower but half an inch; their base rather unequal; sometimes having a short, obtuse, crenate point; their upper side polished, reticulated with veins; under paler, with one long, reddish, awl-shaped prickles on the mid-rib of each, of which there are several on the common stalk. Flowers not seen. Willdenow.

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 pair, nearly sessile, smooth; the largest six inches long, and an inch and a half broad. *Panicles* large and much branched, composed of numerous, small, white flowers, having flaments and pistils in the same individual. *Panicles* three, four, or five from each flower, redish, each containing a black, shining, oily seed. These *panicles* 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. 413. Ait. n. 2. Pursh n. 1. (X. Clava Hercules, Linn. Sp. Pl. 1455. X. ramiformor; Michaux Boreal.-Amer. v. 2. 235. Fagara fraxini folio; Duham. Arb. v. 1. 239. 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 tincture of the bark and *capsules* is recommended in rheumatism and the tooth-ache, whence its English name. *Purp.* A large deciduous shrub, whose branches are armed with sharp, conical, compressed, brown prickles, very broad at the base. *Leaves* four or five pair, with an odd one, an inch and a half long, on short partial flanks; contracted at each end; more or less distinctly 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 nine, and occasionally with very numerous ones. The flowers are small, yellow-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 inflorescence 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 Hercules*, as appears by the herbarium of Jacquin, purchased formerly by Sir Joseph Banks, and even by that of Linnaeus. The two species, nevertheless, are widely different.


14. *X. hierophyllovum*. Various-leaved Yellow-wood. (Macqueria Commeronii; Juss. 374, under Xanthoxylum.)—Young branches prickly; their leaves with very numerous serrated leaflets, on prickly common flanks; old ones unarmed, their leaves of seven entire leaflets, on unarmed common flanks. *Panicles* axillary. *Capsules* solitary.—Gathered in the Isle of Bourbon, by Commeron, some of whose specimens are in our possession. Nothing can be more paradoxical than the appearance of this shrub. We must rely on its discoverer for the accuracy of his 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 most. *Leaves* alternate; common footstalk of each five or six inches long, round, straight, channelled, bevel with numerous prickles, like those of the branch, but smaller; *leaflets* from 4 to 6, more or less opposite or alternate, oval, bluntish, smooth, crenate 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 defolute of prickles, each consisting of three pair of obovate, bluntly pointed, entire, coriaceous, veiny, smooth *leaflets*, with an odd one; the lowestmost *leaflet*; *common footstalk* channelled, smooth. *Panicles* compound, rather shorter than the leaves; their stalks unarmed, compressed, and angular. *Panicles* 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 elatic tunic, or lining of the capsule.

For *X. trifoliatum*, Linn., see *Panax Ateculatum*.

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

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

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

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.

Therophrastus gives us expressly the etymology of the name, observing that it was called so from its colour; the Dorians calling a yellowish-white *ξανθον*; *xanthus*.

*XANTHUS*, in *Ancient Geography*, a famous river of Aisia Minor, in the Troade. According to Pliny, it had its source in mount Ida, and discharged itself at the port of the Achaeans into the Hellespont, after having joined the Sinois.—Allo, a river of Aisia 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 Aisia 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 fulfilled in the time of Strabo.—Allo, a town of the Isle of Lesbos.

*XANTIPPE*, a Biography. See *Socrates*.

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

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

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

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

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

XAVIER. See SABI.

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

XAVIER, Saint. See Saint Xavier.

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

XAUXA, a town of Peru, in the bishopric of Guamanga, containing two churches; 90 miles E. of Lima. S. lat. 12°. W. long. 75° 50'. See XAUJA.

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

XAUXA, 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 Barbary. The fore and main masts are called block-masts, being short, and formed square at the head, to receive sails, to receive the jibs, &c. The mizen-mast is fitted with a top-mast, &c. similar to a small English ship, and which has been lately added, to keep them better to the wind. The xebecs have no bowsprit, but a small boomkin, wounded 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 flap, and the hounds set up, similar to the runners in English cutters or sloops, to toggle fixed in the foils. These foils are easily shifted when the vessels go about. The main-mast is nearly upright, and rigs as the fore-mast. Each mast carries a latteen-fail, the largest side 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 fail extended by a fleet at the clue. The upper lee-yard-arm is worked by a brace, and the sail supported by vangs near the mast. The mizen-mast carries a latteen-fail, similar to the main and fore masts. Vessels with latteen-fails will lie one point nearer the wind than a square-rigged vessel. Xebecs, particularly in France, have been rigged similar to polarcars; but they never fail so well as they did in their primitive situation.

The xebec, generally equipped as a corsair, 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 fail for this purpose, without danger of overturning. As these vessels are ideally 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 foppers. 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 foppers.

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 astern, it is usual to extend square furls upon the main-mast, and frequently upon the fore-mast; and as the failure are rarely used in a heavy wind, they are of an extraordinary breadth. When the wind is unfavourable to the course, and yet continues moderate, the square yard falls are removed from the masts, and laid by, in order to make way for the large latteen yards and failure, which soon after assume their place; but if the foul wind increases to a gale, these failure are also lowered down and displaced, and small latteen yards, with proportional furls, 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 fiders. Falconer.

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

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

XEKIAS, in Biography, a name given by the Chinefe and Japanece to an Eastern philosopher of mythological origin and character, called also Buddha among the Indians, Sonomoadom in Siam, and after his death Foe or Fotoki, who pacificated 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, differentiated 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 Tolpoine, called by the ancients 'hylobii," i.e. "fylvan hermits; and that in his 50th 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 Japanece 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.

Budda, 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 wicked, after various migrations, to the habitations of the blest. Amidus, who, according to the Chinefe, is Xekias himself, prefigures in these habitations, and is the mediator, through whose intercession bad men obtain 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 as sacred, and which is illustrated by innumerable commentaries.

The doctrine which Xekias delivered towards the close of his life to his ecstatic disciples was very different. Vacuum, or void, was, according to his instruction, the principle and end of all things, simple, infinite, eternal, but devoid of power, intelligence, or any other similar 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 nothingness, 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 substances. The emanations from this fountain became, in the popular theology, objects of the grosser superstition and idolatry.

The doctrine of Xekias was embraced by innumerable disciples. Among these, one of his most eminent successors was Tamo, a Chinefes, 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 Brahmins, 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 Lydia; 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 imployer might have passed over into India, and propagating his doctrine among an ignorant and superstitious people, became an object of universal veneration. Brucker's Philol. by Enfield, vol. ii.

Appendix. See Boodh, Brachmans, China, Japan, &c.

XEL, in the Materia Medica of the Ancients, a name given to the fruit fel.

XELSA, in Geography, a town of Spain, anciently a Roman colony, called Julia Celsa.

XELVA. See CHELV.

XENDAY, a town of Japan, in the island of Niphon; 115 miles N. E. of Jedo. N. lat. 39°. E. long. 141° 52'.

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, δακτυλιον, q. d. gifts, in some Ancient Customs, were gifts, or presents, made to the governors of provinces, by the inhabitants thereof.

The word occurs pretty frequently in charters of privileges; where quietus et xenit denotes an exemption from making such presents to kings and queens, upon their travelling through such precincts.

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 Écija.

XENINHPHIDEI, a word used to express a fort of invocatory spirit, mentioned by the adepts, as delighting to discover the occult qualities of bodies to men.

XENISMI, ενοικως, in Antiquity, sacrifices offered at the Athenian festival Anaea.

XENOCRATES, in Biography, a famous Grecian philo-

osopher, was born at Chalcidon, in the first year of the 96th Olympiad (B.C. 396), and attached himself at first to Elechines, but afterwards became a follower of Plato, and suc-

ceeded Speusippus in the chair of the old academy (B.C. 339). His temper was gloomy, his aspect severe, and his manners were little tinctured with urbanity. Plato took pains to correct these obliquities of his disposition and character; and as he highly respected his master, 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 alliteration 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 testimony; 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 occa-

sion 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. (I. x. v. 383;)

thus translated,—

"What man, whose bosom burns with generous worth,
His friends enthrall'd, and banish'd from his fight,
Would take 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, wishing to mortify Aristot-

e, on account of some accidental pique, sent Xenocrates a magnificent present of 50 talents; he accepted only 30 mines, 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 mani-

fested a superiority to that kind of jealousy and revenge which might have actuated more timid minds, when it is considered that Aristo
tle had instituted a school in the Lyceum, in opposition to the academy over which Xenocrates presided.

In the use of food he was singularly abstemious; his habil-

ia was invincible by the seducing arts of Phryne, a cele-

brated Athenian courtesan; and his humanity was testified by the shelter which he afforded to a sparrow that was pur-

sued by a hawk, and fled into his bosom, 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 be

nife, 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 deftitute of the habits 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 116th Olympiad (B.C. 314), or the 82d year of his age, when he acciden-

tally fell in the dark into a retainer of water; and the

sagacious tenets were Platonic; but in his lectures he adopted the language of the Pythagoreans. In his sys-
tem, 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 stars 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 which is liable to change. Diogen. Laert. Plut. de Virt. Mor. De Is. et Osir. De Anim. Gent. Cicero de Nat. Deor. Brucker's Hist. Phil. by Enfield, vol. i.

XENODOCHUS, formed of ξένος, stranger, and ὁδοιπορός, I receive, an ecclesiastical officer of the Greek church, the same with the hospitaler, or a person who takes care of the reception and entertainment of strangers. St. Isidore, a priest and solitary, surnamed Xenodochus, lived in the fourth century. He was thus called, because entrusted with that office in the church of Alexandria.

XENOPHAROCHUS, formed of ξένω, stranger, and παροχός, of ἀμφίπορος, I furnis, 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 sect, was born at Colophon, about the 56th Olympiad (B.C. 556) and having left his country, took refuge in Sicily, where he gained a sobriquet by reciting, in the court of Hiero, elegiac and iambic verses, which he had written against the theogonies of Hekod and Homer. From Sicily he removed to Magna Graecia, where he became a celebrated preceptor in the Pythagorean school, without ad-
hering fealty to the doctrines of Epimenides, 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, always has been from eternity, without deriving its existence from any prior principle; that nature is one and uniform; that what is one is similar in all its parts, in which it would be many; that the one infinite, eternal, and homogeneus universe, is immutable and incapable of change; that God is one incorporeal eternal being, and, like the universe, 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 stars arise from vapours, which are extinguished by day, and ignited by night; that the fun conflits 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 suns as there are different climates of the earth; that the moon is an inhabited world; that the earth, as appears from marine shells, which are found at the tops of mountains, and in caverns far from the sea, was once a gener-
al mass of waters; and that it will at length return into the same state, and pass through an endless series of similar revolutions.

The doctrine of Xenophanes concerning nature is so obscurely 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, accordi

The doctrine of Xenophanes concerning nature is so obscurely expressed by those who have transmitted an imperfect account of it, that it has been misunderstood and misrepresented. Some have confounded it with the atheistical system of Spinoza; by others it has been accommodated to the ancient doctrine of emanation; and others have maintained 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 universe to be one in nature and subsistence; distinguishing in his con-
ception between the matter of which all things consist, and that latent divine force, which he considered not as a distinct subsistence, 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 of the same nature with the universe; τὸν Θεὸν ἐν ὑπὸ τοῦ ἀκατηγόρητον. When he asserted 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 nonentity to entity, or the reverse. Accordingly, the ancients 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 nature 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-

fessed 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 Aristotheus.

XENOPHON, the son of Gryllus, an Athenian, was distinguis-

hished as a philosopher, commander, and histori-

an. His engaging appearance whilst he was a youth in-
duced Socrates to admit him into the number of his disci-

ples. 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 Peloponnesian war, and mani-

fested 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, Xen-

ophon, after the death of Cyrus, advised his fellow-fielders to attempt a retreat into their own country under the auspices of the victor. His advice was regarded, and he was chosen as their commander. In the exerci-

cise 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 Chaeronea, he displeased the Athenians 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 Elis. In this asylum he enjoyed the pleasures of domestic life with his wife and two children for several years, and avoided himself of the leis,
ure 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 105th
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"Cyropædia," or "Institution of Cyrus," is generally regarded as a work of fiction rather than of real history, exhibiting, under the name of the elder Cyrus, the picture of a perfect prince, according to his own conception of the character. His "Anabasis" (or Ascent) is an account of that memorable expedition of the younger Cyrus, in which he himself appears so conspicuously. This work appeared under the name of Themistogones of Syracuse, to whom Xenophon himself ascribes it; nevertheless it has been universally ascribed to Xenophon: but if this be the case, it must have been written from memory, long after the events, which are differently related by Diodorus. Among his political works we may enumerate his accounts of "The Republic and Laws of Sparta;" "Of the Republic of Athens and its Revenues;" his "Præfate of Agesilus;" and his "Hiero, or Dialogue on Tyranny." Of a miscellaneous class, he wrote a treatise on "Oeconomics;" "On Hunting;" and "On the Office of Master of the Horse." The character of Xenophon, portrayed in his writings, seems to have exemplified virtue and humanity, kind and generous feelings, and a considerable degree of piety blended with superstition. In his Anabasis he exhibits a singular degree of credulity and regard to celestial warnings, which, in his view of them, governed his conduct, and were miraculously verified by the event. For his preference of the Spartan to the Athenian government and manners, derogating from his patriotism, the only apology is his beneficence. His style has been always admired for its purity, simplicity, and correctness; and his works are reckoned amongst the most perfect of the Greek classics, and have palled, collectively and separately, through several editions. Laertiæ. Ælian. Hist. Var. Fabr. Bib. Græc. vol. ii. Brucker’s Philof. by Enfield, vol. i.

XENOXUA, in Geography, a town of European Turkey, in Macedonia; 36 miles S.E. of Akrida.

XÉQUETEPEQUE, a town of Peru, in the government of Truxillo, on the Pasco Mayo; 55 miles N. of Truxillo.


Gen. Ch. Common Calyx imbricated; scales numerous, elliptic-lanceolate, saccate, 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; theohe 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. Pifl. (in the same florets) German short; style thread-shaped, longer than the flaments; stigma clowen; in the female florets, Stam. none. Pifl. 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.


Obf. Gaertner has long ago observed, what indeed no one could overlook, that the essential character of this genus, as given by Linnæus, answers to his first species only, X. annuum. This stands in the Syll. Peg. making a distinction by itself, characterized by a chaffy receptacle; whereas the other fections, "with a naked receptacle," receive all the numerous species besides, and directly contrast the generic character, "receptaculum polareum." Gaertner, Juffieu, and Willdenow, have properly corrected this oversight, as we have shown under Eichhornium. The true Xeranthemum, therefore, would be left with a solitary species, sufficiently well marked indeed to be so distinguished, as far as the Linnæan 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 fine, white, close, cottony down, easily rubbed off. Leaves alternate, feflle, lanceolate, acute, undivided, entire; tapering at the base. Flowers solitary, on long, terminal, slightly scaly, flanks. 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. Linn. Sp. Pl. 1201. X. imperatum; Willd. n. 2. Ait. n. 21; excluding the fyn of Morifon. X. capitulus imperatis; Hall. Enum. 700. t. 23. X. no. 122; Hall. Hist. v. 1. 52. Ptarmica Imperati; Ger. Em. 606, no figure. Jaccæ olear folio, minore flore; Bauh. Pin. 274.)

Outer calyx-scales roundish-elliptical, awned, smooth at
the keel; inner lanceolate, spreading. Crown of the seed lanceolate, shorter than the calyx. — Native of dry hilly ground in Austria, Hungary, France, Italy, and Greece; it is found in Switzerland, Spain, and Germany. This species is a hardy annual, common in our gardens, ever since the time of Gerarde and Lobel, flowering in July and August. The first variety, and especially the fimbifoliate kind, figured by Philip Miller in his *Icones*, is preferred for cultivation. The flowers with their stalks, dried quickly, prefer their shining purple colour very long, and make part of the winter decorations of a chimney-piece; but for this purpose, the back of every coloured scale of the calyx should be drawn, while fresh, over the edge of a blunt knife, to keep the flower open after it is dried. The stem is erect, branching, bearing linear-lanceolate, white, cottony leaves, and numerous flowers, an inch or more in diameter. The outer calyx-scales are membranous and shining, pale, quite smooth, each with a bright orange midrib, most conspicuous upwards, and terminating in a smallawn-like point.

In the variety B the flowers are of a smaller diameter, and the calyx spreads less; but we do not find that its outer scales are more acute, though somewhat variable in that respect; the inner are less strikingly purple, and turn browner as they fade. This variety we have from the Valais, as the undoubted plant of Haller, from the late Mr. Davall. Both kinds have a pleasant aromatic scent, different from the strong colour of the following.

1. Xeranthemum, Cylindrical Xeranthemum, Sm. Prodr. Fl. Græc. n. 2046. (X. orientale, flore minimo, calyce cylindraceo; Tourn. Cor. 38. X. oleæ folio capitulis simplexibus, incaucam, fescenta, flore purpuraceo minore; Morif. v. 3. 43. feet. 6. t. 12. f. 1.)—Outer calyx-scales elliptical, pointless, woolly at the keel; inner lanceolate, erect.—Native of Germany and Asia Minor. Gathered by Dr. Sibthorp in the Bithynian Olympus, or in its neighbourhood. Seeds of this species were given to Mr. Davall by Professor Lachenal at Bâle, for the common X. annuum, as figured by Haller; but on seeing the real plant of that author, above described, from the country of the Valais, he allowed them to be distinct. Mr. Davall first detected the true specific difference, in the woolly scales of the calyx, which, moreover, want the red mid-rib of the preceding species. Morifon indeed describes this mid-rib, which proves that he confounded X. annuum B, as many other people have done, with our *cylindricalum*; for Mr. Davall observed the strong difegniable fmmel in his fpecimens, by which Morifon characterizes the plant before us.

2. X. orientale. Oriental Xeranthemum. Willd. n. 3. Ait. n. 3. (X. annuum; Linn. Sp. Pl. 1221. X. orientale, fructu maximo; Tourn. Cor. 38. X. oleæ folio, capitulis compacitis; Morif. v. 3. 44. feet. 6. t. 12. f. 4. Jacea oleæ folio, capitulis compacitis; Bafl. Phil. 272.) J. incana, flore oleæ; Dalech. Hiift. 1193. Lob. lec. 545. f. 1.)—Outer calyx-scales roundish, membranous; inner ovate, pointed, erect. Crown of the seed ovate, awned, longer than the calyx.—Native of Armenia and Syria. The leaves of this species appear to be broader and more elliptical than either of the foregoing. But its most striking difference is visible in the ovate scales, forming the crown of the seed, each of them ending in a long point, far overlapping the upright radiating scales of the calyx. We have never seen a specimen, but the figures above cited render the plant sufficiently intelligible. Wildenow describes the flowers the size of X. annuum, or larger. Surely Lamarck's t. 692. f. 2. cannot be intended for this plant! We know nothing answerable to that figure.

**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. annuum); the reflexed-leaved eternal flower (X. retortum); the golden eternal flower (X. speciosissimum); the vilifery eternal flower (X. sambroides); the proliferous eternal flower (X. proliferum); the leafy-flowered eternal flower (X. vellitum); 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 blotting the seeds in pots of light fresh mould, in the autumn or spring, or at other seasons for a seccus, plunging them in a moderate hot-bed, to bring forward the plants. In the spring they may also be trown 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 pricking out, and afterwards in dry weather.

The other forts 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 established 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 thorny green-home 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 forts 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 alocpecia, 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 state, which conflits 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 forts of food. It is to be removed by a better and more full kind of fodder, and other forts of keep, and by being turned into a good falt-marsh pature. See *Surfeit*.

**Xerequaro**, 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 Badajos**, or Xeres de las Caballeros, a town of Spain, in Estremadura; 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 Guadalete; near which a battle was fought between the Moors and Goths, in the year 713, in which Roderick, the last king of the Goths, lost his life. The environs are celebrated for that excellent wine corruptly called sherry. The bold and richell fort of sherry is called "pagarette," from the Spanish word *pago*, a diörique, and particularly applied to this vintage. In one aranzado (an acre of vineyard) they plant 1800 vines at regular distances.
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rances. 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-twentieth, Mr. Swinburne says, are religious; 15 miles N.N.E. of Cadiz. N. lat. 36° 41'. W. long. 6° 15'.

XERES 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.

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

XERES NUEVA, a town of South America, in the province of Venezuela.

XERES. See Chulutaeca.

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 paeis.

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 smaller. Corolla of both flowers longer than the calyx, of two valves, awl-shaped, membranous, awnless. 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, rushy, dry, smooth grasses. Leaves awl-shaped, straight and finely, with a very short filiform. Stem terminated by alternate sheaths, each containing from two to four short spikelets, of few flowers. Xerocloa is akin to Aptlado, whose character requires correction. Brown.


XERODES, in Animals, a term which is applied, and which serves to express any fort of humour that is attended with the property of excitation or dryness. See TUMOUR.

XEROMYRON, formed of ἕρως, dry, and μούση, 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, ἕρωςφαγος, formed of ἕρως, dry, and φαγεῖν, to 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 Abstinencia, cap. 9. speaks of the xerophagia as a thing commendable in time of persecution.

XEROPHTHALMIA, ἕρωςφαγος ἐπικύρως, compounded of ἕρως, dry, and ἐπικύρως, eye, a kind of ophthalmia, in which the eyes itch, and are red, but without swelling or watering.

XEROPHYLLUM, in Botany, from ἕρως, dry, and φυλλος, a leaf, a genus founded by Michaux upon Helonia apsbdolodes of Linnaeus. —Michaux Boreal.-Amer. v. 1. 210. Wild. Enum. 492. —We confest 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 Helonia. It seems the bafes of the ferns are dilated in the apsbdolodes, more than in other species of Helonias. See that article.


Gen. Ch. Col. none. Cor. of one petal, superior; limb in fix deep ovate-oblong, acute, permanent segments; the three outer ones narrowest, spinous-pointed, flouette, externally glandular. Stam. Filaments fix, inserted into the lower part of each segment, thread-shaped, very short, equal; anthers erect, linear, half as long as the corolla. Fil. Germ. inferior, turbinate; style one, short; stigma tumid, oblong, undivided. Peric. Capule ovate, rough, crowned with the faded corolla, with three cells, and many seeds.

Eff. Ch. Corolla in fix deep segments, permanent; three outermost narrowest, spinous-pointed. Stamens inserted into the base of each segment. Stigma club-shaped. Capule 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, whose stem is round, alternately branched; the wood formed of parallel tubes, as in the generality of the monocotyledonous tribe: bracteae quarter of an inch in diameter, thickly clothed with the imbricated, deeply furrowed, permanent bracts of the last year's foliage, each crowned with the reflexed base of a leaf, by which the whole branch assumes a singular feasty appearance. Leaves alternate, two inches, or more, in length, linear, rigid, channelled, falcate, with thick entire edges, and a pungent spinous point; their base theathing, fibrous, and somewhat woolly. Flowers terminal, one or two at the end of each branch, on simple stalks, an inch long, rough, like the deren, 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 least, appears reddish. Each flower is about half the size of a flowerdrop. Nothing is known of the ripe fruit, in which 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 2s. 11d. sterling, nearly.

XEROTES, in Botany, ἕρως, dry, ἐν ψείμα, a name chosen by Mr. Brown to express the arid dry habit of this genus, in preference to Lomandra, by which it is designated in the work of M. Labillardiere. This latter appellation, formed of ψείμα, a border, or rather fringe, and ἐν, a male, is designed to indicate the ocassionally 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. 1. 159. (Lomandra; Labill. Nov. Holl. v. 1. 92.) —Cliffs and order, Dioscorea Hexandria. Nat.
XEROTES.


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

Female, Cal. Perianth of six separate, permanent leaves. Cor. none. Stam. imperfect. Pij. German superior, ovate, with three furrows; styles three, short, combined at the base; stigmas obtuse. Peric. Capsule cartilaginous, the centre of three cells and three valves, with partitions from each valve. Seeds solitary, peltate.


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 Calamari. Root fibrous. Stem none, or generally very short; sometimes divided, and clothed with sheathing foliage. Leaves granny, linear, either flat or channelled, rarely thread-shaped; their base dilated, membranous, half sheathing; their extremity sometimes toothed. Flowers terminating the stem, or radical stalk, either panicked, racemose, spiked, or capitate. Inner leaves of the calyx often different from the outer in texture or size. When the flowers are female, they are inviolate with imbricated membranous bracteas; the male ones are sometimes flaked, without bracteas. Bark of the capsule at length separating, and occasionally a little pulpy. In some species, the stem of the seed adheres so loosely, as to resemble a distinct tunic. The embryo is longitudinal, straight, in the bottom of a cartilaginous albumen. Xerotes is allied in many points to the Palmæ. See that article. Brocas.

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

1. X. flexilis. Spiral-leaved Xerotes. Br. n. 1. (Draçena obliqua; Thunb. Draçen. 6. t. 1. f. 2.)—Stem somewhat 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, filariated leaves, an inch or an inch and a half long, spreading in two directions; their sheathing bafes imbricated, and bordered with a long, thin, torn, flipulaceous membrane at each side. Male flowers small, whitish, in long, mostly branched, rigid, filariated spikes or clusters, separated into little small-like tufts, accompanied by brown scaly bracteas. Female flowers rather larger, in round solitary heads, terminating short leafy branches in the forks of the stem.

2. X. mucronata. Pointed Xerotes. Br. n. 2.—Stem somewhat branched. Leaves shorter than the branches, but longer than the male spikes, two-ranked, straight, or slightly twisted; their points withering, acute; their margins roughish, 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. collina. 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 testile.—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 blunter at the point; rough with marginal teeth; dilated and jagged at the base. Tufts of flowers in the male spikes testile.—Gathered on the south coast of New Holland by Mr. Brown.

5. X. leucopetala. White-headed Xerotes. Br. n. 5.—Male, as well as female, flowers capititate. Receptacle woolly. Leaves narrow, smooth-edged, longer than the perfectly simple stalk, bearing one or two heads of flowers. Stem short.—Gathered by Mr. Brown, in the tropical part of New Holland.

Sec. 2. Female flowers racemose or spiked; male ones racemose or panical; partial stalks featterd; flowers drooping.

6. X. paniculata. Few-flowered Xerotes. Br. n. 6.—Flowers few in the male cluster, in diffus whorls. 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. (Draçena filiformis; Thunb. Draçen. 6. t. 1. f. 1.)—Leaves thread-shaped, femicylindrical, elongated; flattened in front; rough-edged; finely fricated at the back; round at the point. Male cluster feecrly branched. Stem short.—Gathered near Port Jackson, New South Wales, by Dr. White, and Mr. Brown. The root is woody. Stem feecrly any. Leaves several, a span or more in length, erect, rigid, very fnder; flattened and whitish in front, with a green, fricated, central farrrow; 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 stalks. Flowers featterd, in pairs, drooping, whitish, small; the outer fegments of the calyx smaller, and more membranous than the inner. Bracteas awl-shaped, acute, at the base of the partial stalks. Mr. Brown notices three varieties: a, male perianth nearly globular, twice the length of the partial stalk; b, male perianth nearly globular; partial stalk longer than that part, or the bracteas: c, male perianth turbinate; partial stalk shorter than it, or the bracteas. The leaves feem variable in breadth and flatness.

8. X. tenisliformis. Fine-leaved Xerotes. Br. n. 8.—Leaves thread-shaped, elongated; channelled in front; deeply fricated at the back. Male clusters somewhat divided, their branches alternate. Stem short.—Observed by Mr. Brown, on the southern coast of New Holland.

9. X. gracilis. Slender Xerotes. Br. n. 9.—Leaves very long and narrow, channelled; fricated beneath; flat and entire at the point. Male panicles lax, alternately branched; partial stalks fultary. Stem short.—Found by Mr. Brown at Port Jackson.

10. X. dentilata. Small-toothed Xerotes. Br. n. 10.—Leaves elongated, thread-shaped, comprefled, channelled, with two or three terminal teeth. Male clusters fimple or divided. Stem short.—Gathered by Mr. Brown at Port Jackson. We have some fpecimens which answer to this defcription, in the teeth of their leaves, but they seem nearly akin to X. filiformis to be feparated from that fpecies, and they exactly accord with Thunberg’s fig. 1, drawn from a dried fpecimen. We are not, however, certain of their being Mr. Brown’s dentilata.

11. X. laxa. Loose-flowered Xerotes. Br. n. 11.—Leaves elongated, linear, flat, entire at the point. Male panicles
XEROTES.

paiciles loose, with whorled branches, and distant clusters; partial stalks solitary, shorter than the nearly globular perianth, but longer than their minute bracteas."—Gathered by Mr. Brown, in the same country with the two last.

Sec. 3. Flowers either foaked or paniced, their branches and tufts opposite or whorled. Male perianthia fife, imbricated with bracteas. Capsule smooth. Leaves toothed at the end.

12. X. rigida. Rigid Xerotes. Br. n. 12. Ait. Epit. 376. (Lomandra rigida; Labill. Nov. Holl. v. 1. 93. t. 120.)—Stem very short. Stalks and spikes much shorter than the foliage. Leaves two-ranked, carilaginous; convex beneath; abrupt, 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; finely divided, and three-pointed, at the end. Common flower-flats 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 bracteas. Three alternate flaves, according to Labillardiere, are longer than the rest, and bear clowes, 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 flat."—Found by Mr. Brown, near Port Jackson.

14. X. fluvioctis. 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. Paiciles lanceolate, rather denfe, with opposite bracts. Flower-flats flat. 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 fribated; 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 bracteas. Capsule ovate, acute, twice as long as the calyx, chestnut-coloured; pale yellow at the base; its coat separating in irregular fragments.

16. X. hybriis. 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 panicizes 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 some garden near London, possibly at Kew, and were much struck with the delightful fragrance of its copious panicles of male flowers, reminding the scent of Crocosmia coccinea, Meijikeyrahymum montiflorum, 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-flats 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 flattish panicle, from six to fourteen inches long, composed of numerous triangular branches, from four to eight in a whorl, beset with numerous tufts, or whorls, of feathery flowers, accompanied by several scaly, inner bracteas, and subtended by about three long, spreading, external ones, with needle-like points. The flowers, and whole paniciles, 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. dillani. Distant-flowered Xerotes. Br. n. 18.—"Stem none. Leaves very long, channelled, very rough at the edges. Male panicile with undivided branches, and distant tufts of flowers. Partial flats shorter than the calyx."—Native of the tropical coast of New Holland. The male paniciles 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 panicile undivided. Flowers five or six in each tuft; their partial flats 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 panicile six inches. Brown.


21. X. multiflora. Many-flowered Xerotes. Br. n. 21.—"Stem none. Leaves very long, channelled, smooth at the back and edges. Male panicile with undivided branches, each bearing from one to three many-flowered tufts. Partial flats 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 panicile with undivided branches, each bearing from one to three many-flowered tufts. Partial flats 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. Banksii. Bankian Xerotes. Br. n. 23.—"Cauliflora. Leaves two-ranked, flat, rough-edged. Female panicile denfe, about the length of its two-edged flate; branches quadrangular, very short."—Gathered by Sir Joseph Banks, in the tropical part of New Holland, where it was not found by Mr. Brown.

Sec. 5. Flowers of each sex in a cylindrical cask-like spike.

24. X.
XERES, 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 Vosges; 7 miles E. of Epinal.

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

XERKENA, in Ancient Geography, a country of Asia, on the confines of Lesser Armenia, of which it makes a part.

XEROS, 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 Achemenes, 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 afflict 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 mount 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 lashes to be inflicted on the sea, and a pair of fetters to be thrown into it, but his tyrannical and cruel disposition by beheading those to 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 one of this countless host 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 subsequent overthrow and dispersion of Mardonius's army of 400,000 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 Artabatus, 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.

XISTA, or Xystis, an Attic measure of capacity, answering to the Roman sextary.

XESTES; an ancient Greek liquid measure, which is = 2 cotylis. See Measure.

XIMETLA, in Geography, a town of Mexico, in the province of Xalisco; 30 miles S.E. of Purificacion.

XISSI, a town of the duchy of Warwick; 20 miles S.E. of Poen.

XIBACA, a town of Japan, in the island of Nippon; 20 miles S.W. of Mexico.

XICOCO, called also Sikoka, and Sikoji, 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 Nippon, 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 many towns within the country. N. lat. 33° 30'. E. long. 132°.

XICONA. See XICONA.

XILCA. See CHILCA.

XILOA. See quiloa.

XILoca, a river of Spain, which rises in the south part of Aragon, about 7 miles N.E. of Albarracin, and at Calataud changes its name to Xalon.

XILOTEPEC, a town of Mexico, in the province of Guadaluca; 90 miles S.S.W. of Panuco.

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 Nangafaki. N. lat. 32° 45'. E. long. 132° 47'.

XIMAGUINO, a town of Japan, in the island of Xico; 10 miles S. of Awa. N. lat. 35° 50'. E. long. 130° 30'.

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

XIMENES, Francis, Cardinal, in Biography, was born in 1437 in Old Castile, 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. Distinguished by his humble life and devotion, he became confessor to Queen Isabella; and still retaining his customary mode of living, he was far engaged in his death by his attachment to the archbishopric of Toledo, the richest benefice in Europe next to the papal see; but his real affection was to accept this high prelacy 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 far from relaxing in it...
in his fervities, he indulged them to the extreme of selfmortification and penance. Having thus acquired a complete mastery over his own passions, and poising political talents in a very high degree, he was thought peculiarly fitted to exercise dominion over others; and accordingly Ferdinand and Isabella entrusted him with a principal share in the administration. When a strong party was formed among the Cathilians to deprive Ferdinand of the authority as regent, devoted upon him by the will of the queen, he was defeated by every peril 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 succeeded 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 75th 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 less firmness and inflexibility, he prosecuted a plan for extending the royal authority, which the nobility had very much circumscribed. The measures which he adopted for this purpose excited violent opposition, but he perfidiously, 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 superlitiad 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 professorships, and conducted under excellent regulations. Here he printed the Complutian Polyglott, (see Polyglott,) the Mozarabic liturgy, and the theological works of Tolstaus. Here he also established a splendid monastery for the education of indigent females of quality, which served as a model for that of St. Cecily, 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 belt of his knowledge he had not misappropriated a crown of his revenue. Robinson's Charles V. vol. ii. p. 158.

XIMENES, in Geography, a town of Spain, in the province of Leon; 10 miles S. of Alorga.

XIMENESIA, in Botany, Cavan. Ic. v. 2. 60. Ait. Hort. Kew. v. 5. 85, a genus which can by no means be separated from Palusia. See that article. Nothing can be more trifling as a generic, or even specific distinction, than the difference between the fynogenous orders of Polygonum-superba, and P. fruticulosa, of the Linnean sytem, provided the form of the flories be alike. The ptil, of which rudiments are found in several genera of the latter, may occasionally become perfect, as it does now and then in Helianthus, and this overles the distinction.

XIMENIA, owes its name to Plummer, who consecrates 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 skilled in the language of the country, he collected a great store of information concerning the properties and medical uses of the plants and animals of New Spain, and especially of Mexico; whom he composed a work, printed in four books, at Mexico, in 1615, which is quoted with approbation by De Laet, in many parts of his own publication. It is some consolation to find any of the apostles turning their minds to the study of their Maker's works; as we cannot suppose such 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 mifunderstood!—Plum. Nov. Gen. 6. t. 21. Linn. Gen. 190. Schreb. 255. Wildl. Sp. Pl. v. 2. 338. Mart. Mill. Dict. v. 2. Ait. Hort. Kew. v. 2. 352. Jaff. 259. Lamarr. Illust. t. 297. Point in Lam. Dict. v. 8. 804.—Clas and order, Observations Monographica. Nat. Ord. Auran^, Jaff.


Obf. Plummer's figure represents but three petals. Linnaeus has left a note, that his correspondent Allamand found but seven flaments. Swartz and Jacquin describe eight.

1. X. americana. Thorny Ximena. Linn. Sp. Pl. 497. Hort. Cliff. 493. Wildl. n. 1. Ait. n. 4. Swartz Obs. 149. (X. multilora; Jacq. Amer. 106. t. 177; f. 31.) X. aculeata, flore villoso, fructu luto; Plum. l. 260. t. 261. f. 1. Heymansiis spinoa; Asb. Guian. 324. t. 125? and H. inermis; ibid. 325?)—Branches spinous. Leaves oblong. Stalks many-flowered.—Native of the neighbourhood of Carthagena, as well as of Hifpaniola, flowering in September and October, and ripening fruit in December. Jacquin. Of the rocky shores of Hisfpaniola, flowering in July. Swartz. We believe Linnaeus never saw any specimen of this, except in Cliffort's herbarium. That before us was given to the younger Linnaeus by Jaff. Joseph Banks. Though Miller might have the plant at Chelsea in 1759, it would now probably be vainly sought for in any collection. The stem is either shrubby or arboreous. Young branches spinous, round, flattened. Leaves two or three together, in alternate tufts, from buds of many years' duration, fleshed, elliptic-oblong-obtuse with a minut point, rarely emarginate, entire, single-ribbed, smooth on both sides, about two inches long. Footstalks quarter of an inch
inch long, smooth. Thorns lateral, erect, longer than the foot-talks, awl-shaped, stout, but sparingly produced. Flower-talks axillary, or rather from the same bud as the leaves, not half their length, deflexed, round, divided into from three to five smooth, single-flowered partial tals. Calyx spreading quadrangular. Petals four, white, fraggy, from the base almto to the apex, on the infide; smooth exter-

... Filaments (Amyris and XIPHIAS, clufive fecond this Species Ifnard, leaves, very on towards Leaves foliariis Willd. Aublet. Stalks prefume as negroes, Jacquin from Calyx leaves, footstalks, Floiuer-Jilahs JulTieu Alpinus, M. genus." however, not Linnaean Syjlema. X. of compars long, to Lyclum, which defines it under the title of "Makaira." This fish was cafl on the ifle of Rhé, near Rochelle in France. Its length was 330 feet or 98 centimetres, and its weight 265 kilograms; 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-tailed sword-fish" is also described by Cepede, from the sword or finot preferred, with the fore-part of the head, in the Paris Musewm. Shaw's Zoology, vol. iv. part i.

XIPHIAS, also ued to express a fiery meteor, in form of a sword. See Acontias.

XIPHIAS, in Afronomy. See Dorado.


Gen. Ch. Cal. none. Cor. inferior, of six petals, regular, permanent; the three outer ones largest. Stam.
Filaments three, linear, opposite to the three inner petals; anthers ovate. 
\textit{Pijf.} German superior, globosae; 
\textit{fylle} thread-shaped; stigma simple. 
\textit{Peric.} Capsule at first fleshy, then dry, roundish, with three furrows, and three cells. 
\textit{Seeds} numerous, roundish, pointed, inferted into a fleshy, central, nearly globular, receptacle.

El. 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 \textit{Wachendorfia}. See that article.

\textit{Xiphion adscendens.} Many-flowered Xiphidium. Swartz Prod., 17. Ind. Occ. 80. Vahl n. 1. (X. albidum; Lamareck Illhtr. v. 1. 131. X. album; Willd. n. 1. Ixia; Linn. in Lefl. L. 175.)

\textit{X. xerocolum;} 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. Maffon is recorded by Dr. Swartz as having gathered the white-flowered kind, \( a \), at the foot of some hills, near Sandy Point, in the latitude-mentioned island; \( b \) 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. 

\textit{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. 

\textit{Leaves} numerous, alternate, sessile, somewhat laciniate, leaf-shaped, pointed, entire, or minutely serrate, furnished with numerous longitudinal ribs.

\textit{Clavate} compound, terminal, erec, of many spreading, simply racemose, branches, more or less hairy, with a very minute bracteae under each partial flower-flake. 

\textit{Flowers} not half an inch in diameter. Three outer petals green, and 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.

\textbf{Xiphilitus, John,} in \textit{Biography}, was born at Trebizond, in the 11th 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. 

Before 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.

\textbf{Xiphion,} or \textit{Xiphium}, in \textit{Botany}, \( \xi = \omega = \) Dioecoides, so called from the sword-shaped leaves, appears evidently, by the account of that ancient writer, to be \textit{Gladiolus communis}, Linn. Sp. Pl. 52. Our Common Cornflag, \textit{Xiphium} nevertheles is retained by Linnaeus as the specific name of a common, but very elegant and fragrant bulbous \textit{Iris}, with blue and yellow flowers. To this it seems he was led by Tournefort, who applies the name of \textit{Xiphion} to the whole tribe of bulbous-rooted species of \textit{Iris}, of which he makes a separate genus, characterised by the root. This is rather unfortunate, as the Linnaean \textit{Iris} \textit{Xiphium} has rather awl-shaped than sword-like leaves.

\textbf{Xiphoides,} \( \xi = \omega = \), in \textit{Anatomy}, a cartilage placed at the bottom of the sternum, called also \textit{enosiformis}.

It is about an inch long, and shaped like the point of a sword. Whence its appellation, from \( \xi = \omega = \), sword, and \( \omega = \omega = \), figure.

\textbf{Xiphonoe Promontorium,} in \textit{Ancient Geography}, a promontory of Sicily, near port Xiphonius.

\textbf{Xiphos,} \( \xi = \omega = \), among the Athenians, a capital punishment, by beheading with the sword.

\textbf{Xipixapa,} in \textit{Geography}, a town of South America, in the audience of Quito; 80 miles N.W. of Guayaquil.

\textbf{Xiquacon,} a town of Mexico, in the province of Mechoacan; 50 miles S.E. of Zacatula. N. lat. 18° 4'. W. long. 102° 34'.

\textbf{Xiquena,} a town of Spain, in the province of Málaga; 15 miles W.N.W. of Lecia.

\textbf{Xiquito,} a town of Japan, in the island of Xino; 16 miles S. of Naka. N. lat. 33° 26'. E. long. 133° 15'.

\textbf{Xir}, a word used by the chemists to express mercury.

\textbf{Xisimum,} a word used by some of the chemical writers to express vinegar.

\textbf{Xivert,} in \textit{Geography}, a town of Spain, in Valencia; 7 miles N.W. of Segorbe.

\textbf{Xivry le Frang,} a town of France, in the department of the Mofelle; 9 miles S. of Longwy.

\textbf{Xixona,} a town of Spain, in Valencia. In the neighbourhood of this town a great number of perfoms are employed annually to collect the drug called Kerme, and a small district, called \textit{de la Grana}, produces some years to the value of 20,000 dollars; 15 miles N. of Alicante. N. lat. 38° 32'. W. long. 40° 42'.

\textbf{Xizaboras,} mountains of South America, in the province of Venezuela.

\textbf{Xoana,} in \textit{Ancient Geography}, a town of India, on this side of the Ganges.

\textbf{Xochicocito,} in \textit{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 Weil Indies.

\textbf{Xochitenacatl,} in \textit{Ornithology}, a name given by some to the toucan, or American great-beaked magpie.

\textbf{Xochitenacatl, Allia,} 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 ruf 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.

\textbf{Xocotlan,} or \textit{Xocuttan,} in \textit{Geography}, a town of Mexico, in the province of Xalisco; 15 miles S.W. of Purification.

\textbf{Xocochohitl,} the Indian name of the clove-berry-tree, or the \textit{caya carpefolvina}, the bark of which is used in medicine.

\textbf{Xodracel,} in \textit{Ancient Geography}, a town of India, on this side of the Ganges. Potelamy.

\textbf{Xoles,} an island of the Mediterranean, on the coast of Egypt, near the mouth of the Nile, called "Xebenniticum:;" and also a town of the same name. Steph. Byz.

\textbf{Xois,} a town of Egypt, in the Nome, denominated Xoites Nomos. Potelamy.

\textbf{Xola,} in \textit{Geography}. See \textit{Sooloo}.

\textbf{Xolo.} See \textit{Glolo}.

\textbf{Xomtoll,} in \textit{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.

\textbf{Xorullo,}
XORULLO, or Jorullo, *Volcano of*, in Geography, a balsatic cone of New Spain, which appeared above ground on the 15th of September 1759, and which is 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 subterraneous noises, and earthquakes were felt, which excited conflagration in the inhabitants.

XOOUHQUITICPATLI, 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, *Quindecinvir*. See *Quindecinvir*.

Authors, and especially antiquaries, make use of such abbreviations, which they borrow from medals, and other monuments of antiquity, where those names are prefixed.

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

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

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

XUCHEIS, or *Zecheis*, 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 XULLOE, an island 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 island, 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. 115°.

XULLABELLA, an island in the East Indian sea, about 25 miles long, and 6 broad. S. lat. 2° 15'. E. long. 120° 12'.

XULLAMANCOLA, an island 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 Set-chen; 150 miles S.W. of Pao-king. N. lat. 30° 18'. E. long. 103° 20'.

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

XUQUI. See Jegui.

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, E. to the miners of Potoí, and brought in considerable number to the great fair of Salta; but now in a declining state. See Jujuy.

XYLAGIUM, a name given from authors to the lignum fumftum or guaiacum.

XYLANDER, William, in Biography, whose family name was Holtsmann, was born in indigent circumstances at Augsburg, in 1532, and enabled by public liberality to study at Tubingen and Basil, 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 amplitude 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, Pintarch, Strabo, and Credrenus. His life was prematurely terminated in consequence of hard study, in 1576, at the age of 44 years. Moreri.

XYLARIA, in Botany, from *xylos*, wood, a name given by some cryptogamic botanists to the first section of the genus *Sphéria* in Perforo. (See that article.) The idea appears to have been suggested by the old name of *Hypoxylon*, 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 fame with Hyala. It subsisted in the time of Pliny.

XYLINA, IXIL, a town of Aia, in the Colchide, and country of the Lazi. It was situated on the right bank of the Arcamis, near its mouth in the Euxine sea, north of Chorôdia.

XYLINE, a town of Cappadocia, in Cappadocian Pontus. Ptol.

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

XYLÁLOE, compounded of *xylon*, wood, *aloë*, aloes, in Medicines, the lignum aloes; called also agarholcum. See *Aloe*, and *Calambar*.

XYLÁLO-BALSAM, *Xylálo-balsam*, compounded of *xylon*, wood, and *balsam*, balm, 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 *balsamum* or *balmum* of Gilded.

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
ballam.

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

**XYLOCARACTA,** or *XYLOCARACTE,* in the *Materia
Medica,* a name by which some authors have called the
carap; or *Cilicia dulcis,* the sweet pipe-tree.

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

**XYLOCARAPUS,** 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
*carapus* and *opocarpamus.*

**XYLOCARUS,** in *Botany,* from ἕνδον, wood, and
ἐκαρπός, fruit, alluding to the woody texture of the feed-
in Lamarck Dict. v. 8. 806.—Clafs and order, *Orandria
Ch. Car. Perianth inferior, of one leaf, club-shaped,
continuous, somewhat coloured, with four roundish teeth.
Cor. Petals four, ovate-oblong, rather coriaceous, widely
spreading, twice the length of the calyx. Nectary erect,
ovate, inflated, somewhat fleshy, with eight marginal
segments. Stam. Filaments no other than the eight seg-
ments of the nectary, linear, obtuse, marginate, shorter
than the petals; anthers eight, attached to the inner side
of the filaments, and of the same length, linear-oblong, abrupt.

*Pyl.* Gern man superior, ovate, smooth, slightly rugged at the
base; style very short and thick; stigma abrupt, broad;
bordered, its margin furrowed, its silk furrowed croft-
wife, and perforated. *Peric.* Drupa large, globous, dry,
with a thick coat; externally smooth, marked with four or
five furrows; internally woody and fibrous. *Seeds.* Nuts
eight, ten, or more, angular, unequal, irregular; their
outer skin soft, and rather fiky; inner woody and fibrous;
kern in some degree woody, brittle, with a prominent
embryo.

Eff. Ch. Calyx oblong, with four teeth. Petals four.
Nectary inflated, with eight teeth bearing the anthers.
Drupa superior, dry, woody, with four or five furrows.
Nuts numerous, angular, irregular.

as above. Willd. n. 1. (Granatium littoreum; Rumph.
Amboyn. v. 3. 92. t. 61. Cadal gaba of the natives of
Ceylon. *Candilanguy* in the Tami language.)—Native of
muddy thickets on the sea-shores of Amboyna, Ceylon,
and other parts of the East Indies, among *Rhizophora*
branches, flowering in November, and bearing fruit in January and
February. A tree varying greatly in size, sometimes little
more than a shrub; its wood elegantly veined, but so
twisted and knotty, that no large handseme pieces can be
procured. The trunk is erect, with a hard, deeply cracked
bark; the bead dense, roundish, or oblong. Larger branches
scattered; smaller generally opposite, numerous, clothed
with a greyish bark. *Leaves* opposite, falkled, spreading,
oblong, obovate, or elliptical, acute, entire, rather larger
than those of an apple-tree; dark-green, smooth and shining
on the upper side; veiny beneath, with a prominent mid-
rib. *Pooiflakes* short, roundish, spreading, a little curved,
rugged, of a chestnut-brown. *Chlifers* scatcered or axillary,
flakked, rather spreading, shorter than the leaves; their sub-
divisions opposite, or three-forked, with round, smooth, red,
tough, naked *filcs;* the ultimate ones shorter than the
flowers, which are small, yellowish, or dirty white. Their
nectary somewhat resembles a Lily of the Valley, but these
flowers have no smell. The *fruit* is larger than a pome-
granate, sometimes the size of a child's head of three years old,
and contains from eight or ten to two hundred angular unequal
or bigger, which do not appear to be used as food. There is a very remarkable disproportion between
the magnitude of the *flowers* and *fruit.* Rumphius, from
whom, as well as from Koenig, we take our description, hints
that the *flowers* are perhaps dioecious. It is certain that
most of these, so numerous in each cluster, must be abortive,
or there would not be room to perfect the *fruit.*

**XYLOCASIA.** See *Cassia.*

**XYLOCCUCUM,* in the *Materia Medica,* a name given
by some of the later Greek writers to the carob-tree, or
filica dulcis.

**XYLOCOLLA,** a word used by some of the ancient
writers to express what was more usually called *naurecola,*
glot made of the ears and genitals of a bull.

**XYLOCOPIA,** *Robur* *Cassii,* among the Greeks, a punish-
ment with a cudgel. See *Fustigation.*

**XYLODON,** in *Botany,* from ἕνδον, wood, and ἐκαρπός,
a *tooth,* an appellation given by Perlooon to the third fiction of
his genus *Sistotrema,* *Syn. Fung.* 550. (See that article.)
The lamelle of that genus, (which is intermediate, as he justly
says, between *Boletus* and *Hydnum,* though, in our opinion,
most 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 *filica
dulcis,* by some of the old Greek writers.

The word expresses a sweet orweet-fruited tree.

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

**XYLOMA,** so called from the firm or woody fululence
of the whole fungus, and the jagged or radiating margin
of one of the most common species, *X. acerinum,* the *flower*
being apparently composed of ἕνδον, wood, and ἐκαρπός,
—Clafs and order, *Cryptogamia Fungi.* Nat. Ord. *Fungi
Angiocarpi.*

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

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

Meth.* 5. t. 2. f. 4.—Thick, tuberulated; internally carti-
laginous, and white at the base.—Frequent on the leaves
of *Salix caprea.* This, according to Perlooon, is generally
clofed, but he has found it in the spring, as delineated in
the work quoted, breaking, in the upper part, into several por-
tions, like the shell of a tortoise, from whose interstices the
fine powdery *feeds* flew off like *fimoke.* The breadth of the
whole fungus is about half an inch; its colour black.

—*Oblong, thickish, 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 thickcens is coniderable with
regard to the size. The lower *frutum* is white and firm, as
in the foregoing.

3. *X. acerinum.* Maple Xyloma. Perf. n. 3. (Spharia
macrocarpa; Ehrh. Carm. Beitr. v. 7. 171.)—Dilated, somewhat orbicular, thin, flat, black, slightly cor-
rugated towards the centre.—Frequent on the leaves of

Acer
Acer platanoides, and A. campestre, in the autumn. It consists 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 circumcised by a very striking yellow, or tawny, discoloration of the leaf. Perfoon says he has observed the surface of this species, though usually almost even and uniform, cracking into waved bordered figures. We can see something of this in a specimen from professor Schrader.

4. X. punctatum. Sycamore Xyloma. Perf. n. 4. Obl. Mycol. v. 2. 100.—Diluted, thin, imperfectly orbicular, somewhat convex, black. Receptacles unequal, aggregate, parallel, oblong, blunt, superficial. —Often 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, especially at the circumference of each. The wrinkles, or receptacles, are frayed like the clefts of an OPOGRAPHIA (see that article); but much more shallow, as well as more uniform in colour.

5. X. fellare. Starry Xyloma. Perf. n. 5. Obl. Mycol. v. 2. 100.—“Thin, pitchy; the margin fringed with radiating fibres.” —Found by Perfoon, on the leaves of Phyto- lemma spicatum, though rarely. About half an inch broad, more or less, of a handom appearance, with an uniform smooth disc, very black; the marginal fringe either black, or greyish. No distinct receptacles have yet been noticed.

6. X. rubrum. Red Xyloma. Perf. n. 6. Obl. Mycol. v. 2. 101.—“Aggregate, orbicular, somewhat confluent, red.” —Generally found in autumn on the leaves of Plana Injum varia, rarely on P. spinosa. At first fight the red colour of this species, all the others being black, causes it to be taken for an A. Platanus, or Urnus; but on examination the internal substance proves to be solid, uniform, scarcely containing distinct receptacles, or feel-reefs; its genus, however, is reckoned by Mr. Perfoon as very doubtful. The patches are each from two to four lines broad, rather thick, with darker-coloured superficial dots, visible only with a microscope. Perfoon.

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

7. X. penisoides. Cup-like Xyloma. Perf. n. 7. (Peziza conica; Sovern. 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 disc.—Found on fallen leaves of oak in December; more rarely, and in lefs perfection, on those of beech. The specimens are pretty uniform in size, larger than mustard-feeds, 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. spheroidees. Dot-like Xyloma. Perf. n. 8.—“Scattered, dot-like, softish, with an open disc, and a collapsed inflexed border.” —On the leaves of Salix caprea. This at a distance resembles Sphero phloris; but under a magnifier it looks like some Peziza, with a crispel margin. The outside is black; the disc, rarely all displayed, is paler.

9. X. hylteroides. Oblong Xyloma. Perf. n. 9. “Ic. et Defer. Fung. t. 10. f. 3. 4.”—“Elliptical, shining, ranged nearly parallel.” —On the fallen leaves of Hawthorn, in the spring. Each plant is one-third of a line long, ovate, or elliptical, of a shining black; solid within. A longitudinal line feeds to mark the place where it finally bursts.

10. X. farctrum. Willow Xyloma. Perf. n. 10. (“Spre- ria fuliginosa; Ebrh. Crypt. v. 290.”) —“Aggregand and rather crowded, orbicular, thin, with a somewhat convex disc.” —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. populina. Aspen Xyloma. Perf. 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 disc here and there greyish.


14. X. alnca. Alder Xyloma. Perf. n. 14.—“Mi- nute, scattered, roundish, plaited.” —This species is met with in summer, upon Alder-leaves, while they are still green. It consists of a few black different dots.

These minute productions are necessarily very obscure in their characters and economy. The present genus is marked by its internal solidity, of a corky or woody substance, having nothing of a gelatinous nature, nor are there any distinct round capsular receptacles, as in SPHERIA. See that article.


Gen. Ch. Cut. none. Cor. Petals four, regular, equal, linear; externally hairy; a little dilated and concave at the tip; revolute soon after expansion. Nectary four glands at the base of the germin. Stem. Filaments four, very short, inserted rather above the middle of each petal, and becoming prominent by its recurvation; authors linear, inflexed, of two lateral parallel lobes, with a membranous edge; imperfect in some of the flowers. Pyll. Germin superior, roundish; style crect, rigid, the length of the petals, deciduous; Stigma vertical, club-shaped, obtuse, often small and abortive. Pyt. Follicles woody, very thick, ovate, of one eccentric small cell, and bursting into two diovicated 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 eccentric cell, with two winged seeds.

1. X. pyriformis. Wooden-pear. Brown n. 1. (Bankia pyriformis; Gaertn. v. 1. 280. t. 47. f. 1. Lamarck Illuir. v. 1. 242. f. 54. f. 4. White’s Voyage 224. t. 21. Hakea pyriformis; Cavan. Ic. v. 6. 25. t. 336.) —Gathered on the eastern coast of New Holland, near Port Jackson, by the firr 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 roughy 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 downy, de-
ciduous, roughy down: those of young plants, according to
Mr. Brown, are toothed. Feowflats flatish, an inch long,
smooth. Stipulas none. Spikes axillary, opposite, catkin-
like, cylindrical, dense, much shorter than the leaves, many-
flowered, shaggy with roughy down. Flowers simple, hardly
an inch long, in pairs, each pair accompanied with one small
downy bractia; all of them abortive, except the lowermost,
so that from specimens seen in fruit only, the flowers were
judged to be fertile. The fruit is ovate, or inervertly
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 stig-
ma, and no germen, are necessarily abortive. Many of the authors
too have, as above-mentioned, an imperfect appearance;
but having never seen living flowers, we cannot tell whether
this be an error, or defect, or merely owing to their having long
ago performed their office. It is possible that the roughy
hue of the flowers and young leaves, so rich and beautiful in
our specimens, may partly, or 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
blossomed 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 choice
garments 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 Bybus
of the ancients. See also Math. Valgr. v. 1. 376.

XYLON, Xylon, among the Athenians, a punishment
inculcated, by putting the offender into the trucks.

XYLOPHYLLA, in Botany, very expressively named
by Linnaeus, after Rumphius, from xylon, wood, and
xylon, a leaf, in allusion to the hardiness and rigidity of its foliage,
which indeed serves the purpose of both leaves and flowers.
(Phyllanthus; Browne Jam. 188.)—Clafs and order.
Monocia Monadelphia. (Pentandria Trigynia; Browne,
Juff.

Gen. Ch. Male, Cal. Perianth in fix regular
segments; the three innermost largelst. Cor. Petals none,
unless the calyx, or its inner segments, be taken for such.
Nectary of six globular glands. Stam. 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. Fil. Germin
superior, sessile, roundish; styles three, short, spreading;
stigmas three-cleft. Peric. Capsule roundish, with three
furrows, three cells, and six elastic valves. Seeds two in
each cell, roundish.

Eff. Ch. Male, Calyx in fix deep segments; three
of them inferior. Petals none. Nectary of six globose
 glands.

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

Stigmas three-cleft. Capsule of three cells, with fix elastic
valves. Seeds two in each cell. 1816. Dr. Sim's, in Curt. Mag. 1021, has justly
indicated this genus as too near Phyllanthus (fee that
article); where the seeds are erroneously said to be fertile.
Whether the difference between their neftarias be permanent,
we have not seen enough to determine. At any rate,
these two genera must stand next to each other, in the Lin-
nuce artificial fytem, as well as in every natural one.

Mant. 221. Wildl. n. 1. Swartz Obf. 112. (Xylo-
phyllus ceramicas ; Rumph. Amboyn. v. 7. 19. t. 12.)—
Leaves linear, alternately toothed. Flowers solitary at
each tooth.—Found only on the lofty, flaty, cold mountains of
the island of Ceram. The trunk is shrubby, scarcely so
thick as a man's arm, dividing above it into many round
branches, as thick as the finger. These 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
feellite, at each notch. Of their structure nothing is known;
nor of the fruit, except what Rumphius relates, and this,
that Dr. Swartz observes, does not agree with the genus
before us, Linneas 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 close, and is red, bearing a roundish-oblong fruit,
resembling a Bay-berry, or the Abris of Alpinus, (and
Linneas,) green, hard, with a small point. When opened,
a small nucleus is found, resembling a grain of rice, fixed
on the flalk, and tainting sweet, like a Fliberd, being enclosed
in a white skin." It is very unlikely that the kernel of
any species of this genus should be edible.

Mant. 221, excluding the synonym. Wildl. n. 2. Ait.
28. Swartz Obf. 113. Curt. Mag. t. 1021. (Gennel-
phylla aspleniophila; L'Herit. Sert. Angl. t. 39. Phyllan-
thus n. 1. Browne Jam. 188. Heminontis affinis, ame-
ricana epiphyllanthos, &c.; Plunk. Phyt. t. 36. f. 7.)—
Leaves rhomboid, crenate; notches crowded, each bearing
one or more flatlke flowers.—Native of lime-floke rocks,
near the sea-foke, in the West Indies. Mr. Waller is re-
corded in Hort. Kew. as having first sent this elegant and
fingular shrub to his friends in England, in 1783. If we
mitake not, the marquis of Rockingham, who died in 1782,
received it from Mr. Waller some time before; the original
having been long one of the dowager marchioness's finest
plants. It flowers in a flow copiously in August and
September. The flum is four or five feet high, with a
round bushy head. Leaves a foot long, alternate, flatlke,
alternately pinnate; leaflets twelve or more, nearly fellite,
one or a half or two inches long, ovate-rhomboid, acute,
hard and rigid, ereet, flarised, smooth; entire towards the
base. Flowers copious, small, green, on simple crimson
flalks; thole of the female flowers much the longest.
Both floum and pinnate sometimes occur in the same flower,
according to Dr. Swartz.

Swartz Prodr. 28. Wildl. n. 3. (Phyllanthus speciafo;)
Jacc. Coll. v. 2. 36o. Ic. rar. t. 616. Swartz Ind.
Occ. 1107. Schneev. Ic. t. 30.)—Leaves pinnate, lan-
colate, pointed, crenate; notches crowded, each bearing
one or more flatlke flowers.—Native of the hloing rises
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 falkate, but those characters vary. Dr. Swartz
153
lays a stress on the flowers being polygamous in *latifolia*, monoeocious in *Arbutfola*; but nothing is more variable than this circumstance. It is difficult to lay which of the two Schneevogel's figures represents.

4. *X. falcatu*. Sickle-leaved Sea-side Laurel. Swartz Prodr. 28. Willd. n. 4. Ait. n. 2. Andr. Repof. t. 331. (Phyllanthus Ephyllanthus; Linn. Sp. Pl. 1302. Ph. americana plants, flores e fingulis foliorum crebris proferens; Comm. Hort. v. 1. 199. t. 102.)—Leaves scattered, linear-lanceolate, somewhat falcate, dimly toothed. Flowers nearly felfile, many together at each tooth.—Native of the Bahama islands. Cultivated for above 120 years past in the flowers of England and Holland, flowering in July and August. The *fem* is five or six feet high, shrubby, with round branches. Leaves not pinnate, with a flat stalk, as in the two laft, but fattered irregularly over the branches, each proceeding from a fealy bud, simple, five or fix inches long, one-third of an inch wide, rigid, ftriated, tapering at each end; entire towards the base; alternately toothed in the upper part, the teeth an inch or more fufder. *Flowers* crimson, on short ftalks, fome male and fome female in each tuft; the latter fewest.

5. *X. anguifolia*. Narrow-leaved Sea-side Laurel. Swartz Prodr. 28. Willd. n. 5. Ait. n. 3. (X. elongata; Jacq. Hort. Schonbr. v. 3. 53. t. 348. Poirret n. 7. Phyllanthus n. 2; Browne Jam. 188. Ph. americana, anguli ci et longi folio, ramosa, caulecens; Plin. Phyto. t. 247. f. 4. Ph. anguifolia; Swartz Ind. Occ. 1111.)—Leaves pinnate, linear-lanceolate, rather dimly toothed, fcarceiy curved. Flowers on short ftalks, polygamous, one or more from each tuft.—Native of fkyony rocky situations, in the western part of Jamaica. *Swartz*. Cultivated in the English fflowers before 1789, flowering in July and August. Aiton. This agrees with our fecond and third fpecies, in having feveral alternate *tegfeis*, on a flat or channelled, bordered common *ftalk*; but fearceiy half as many on each *ftalk* as in thofe; and of a longer narrower form, not copiously crenate, but fparingly and rather dimly toothed, more in the manner of *X. falca*. The *fem* is only two feet high. The *flowers* are lefs copious than in the laft-mentioned fpecies, and, according to Dr. Swartz, there are fome perfect, intermixed with the male and female ones. Their colour is red; the male ones palel. (Jacquin's figure exprefles the contrary.) Plinnet's engraving, fuch as it is, manifestly agrees with this fpecies, but with no other. Linnaeus, no doubt, conftituted this, and, at one time, the *latifolia* also, with the *falcata*. Browne's synonymes are retitled by his own fpecies, though unmarked.

6. *X. linearis*. Linear Sea-side Laurel. (X. anguifolia *β*; Swartz Prodr. 28. Willd. n. 5. Phyllanthus linearis; Swartz Ind. Occ. 1113.)—"Leaves pinnate, linear, tapering, plant, crenate; their common *ftalk* bordered. Flowers feveral from each notc."—Native of fady fkyony banks of rivers, in the western part of Jamaica. *Swartz*. The *fem* is fcarceiy a foot high, erect, with round branches. Common *footftalks* four or five inches long, fattered, crenated, (rather defcribed,) bordered. *Leaves* linear, rather breadtht in the middle; tapering at the base; ending in a very long acute point, ftriated, paler beneath, two inches long, of a thinner fubftance than the foregoing fpecies, which circumstance, added to its humbler ftature, and different colour, has induced Dr. Swartz to conftider it as diftinct. The *flowers* are white, monoeocious, from three to fix at each notc of the leaves, on capillary *ftalks*, four lines in length.


8. *X. ramiflora*. Siberian Sea-side Laurel. Ait. Hort. Kew. ed. 1. v. 1. 376. ed. 2. n. 4. Willd. n. 7. (Pharylanthus? fuffructicum; Pallas It. v. 3. 716. t. E. f. 2.)—Leaves elliptical, flatkilled. *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 faw the plant alive, merely gefuled at its genus. By his figure, its habit is altogether that of a *Phyllanthus*. The *fem* is bfly, with many ftrait, wand-like, leafy branches, each a fpan long. *Leaves* scattered, thin, hardly an inch in length, blunt, crenate, or somewhat wavy. *Flowers* fix or eight together, making a little axillary tuft, accompanied by minute red *flipulas*, or *bracteas*. Segments of the *calyx* five, concave, white, with a coloured margin. *Anthers* five, thick, obtufe, furrowed at the outside. *Germen* in the fame flower, as we preffume from Pallas's defcription, very small. *Styles* three, thread-shaped, fimple, the length of the *flamen*. The genus of this fpecies is, at best, very doubtful, as Willdenow has already remarked.

*Phyllanthus* and *Xylophylla* are fo totally different in habit, and the latter is, in this refept, fo very peculiar, that a clear character between them is much to be defired. The true *Xylophylla* are all of Weft Indian origin. The tropical *Phyllanthi* are natives of the East Indies; a few hardy fpecies grow in North America.

*Xylophylla*, in *Gardening*, contains plants of the tender exotic kind for the flove, in which the fpecies cultivated are, the long-leaved love flower (*X. longifolia*), the broad-leaved love flove (*X. latifolia*), and the falcated love flove (*X. falcata*). The *frik* is a branching angular plant, but the fecond has round branches; and the *lait* is woody in the items and branches.

*Method of Culture.*—These plants are increased by fowing 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 hot bed; they may afterwards be managed as other flove-plants of a fimilar growth.

They are also, fome of them, capable of being raised by off-sets, slips, and cuttings, affifted by a hot-bed in the fame manner.

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

They afford variety, and are curious in fove collections among other plants of fimilar growths.

E. *XYLOPIA*,

*XYLOPIA,*
XYLOPIA.

XYLOPIA, in Botany, altered by Linnaeus from Xylopi- crum of Browne, a name which the latter took from Pluket, whose Xylopiocrum, formed from Xylo and piocrum, alludes to the bitternes 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 constructed in the most unexceptionable manner, we might have had its restoring it; but Xylopia is now too firmly established to be lightly disturbed, and is found nothing can be better.—Linn. Gen. 459. Schreb. 375. Willd. Sp. Pl. v. 2. 1750. Mart. Mill. Dict. v. 4. Aiit. Hort. Kew. v. 3. 350. Juff. 284. De Cand. Syll. v. 1. 499. Poiret in Lamarck Dict. v. 8. 816. Lamarck Illust. t. 495. Gaertn. t. 69. (Xylopliccrum; Pluk. Almagr. 395. Xy- lopicrum; Browne Jam. 250.)—Claus and order, Polyan- dria Polygynia. (Gynandria Polyanthera, Linn.) Nat. Ord. Coadunatae, Linn. Annea, Juff. Annonaceae, De Candolle.

Gen. Ch. Cal. Perianth inferior, of one leaf, in from three to five deep, broad, ovate, coriaceous, rather acute, permanent segments. Cor. Petals six, fleshy, linear-lanceo- late, coriaceous, much longer than the calyx; the three outermost large. Stam. Filaments none; anthers numerous, oblong, quadrangular, abrupt, parallel, crowded, seated on the mound, nearly globular, receptacular, in several rows. Pct. Germanic several, on short stalks, compressed; styles tapering, crowded together; stigma 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, tunicated at the base.

Eff. Ch. Calyx lobed, coriaceous. Petals six; the three outermost large. Capsules stalked, angular, compressed, of two valves. Seeds one or two, tunicated.

The plants composing this genus are trees or shrubs, with oblong or lanceolate (entire) leaves, and axillary, bracteate, simple or divided flower-stalks. The wood is bitter; bark and fruit aromatic. De Candolle, who describes eight species, of which the first is still the least understood.

Linnaeus, by a misapprehension of the true character of his own class of Xyloxiaceae, (see that article,) has placed this genus under the Annonaceae, from Annona, Univeria, &c., to which it is closely allied, both in natural and artificial distinctions.

Few genera have hitherto been less understood.

t. X. muricata. Rough-fruited Bitter-wood. Linn. Sp. Pl. 1567. Willd. n. 2. De Cand. n. 1. Aiit. n. 1. (X. frutescens; Gaertn. v. 3. 359. t. 69, excluding the synonym of Aubl.) Xyloplicium n. 1; Browne Jam. 253. t. 5. f. 2.)—Leaves ovate-lanceolate, pointed; clothed with close-preffed hairs beneath. Branches zigzag, nearly smooth. Stalks with several flowers. Fruit muricat. Found by Dr. Patrick Browne, at the foot of the moun- tains, in Sixteen-mile walk, Jamaica. His specimen, drawn in the plate above-cited, is in our hands, but deprived of the leaves. This deficiency is supplied by another very large and perfect one, gathered in Jamaica, by Mr. Maffen. 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 source is unknown to us. The leaves are certainly not "bearded at the point," nor do we perceive in what sense they are termed "arigone beneath." These are Wilkenow's expressions, adopted by De Candolle. Sir Joseph Banks sent a living plant of this species to Kew garden, in 1793; but if it survives, 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 extreme, which is slightly fleshy. Leaves alternate, on short thick stalks, spreading, rather ovate than lanceolate, with a blunt or emarginate, smooth point; their length two inches, or a little more; their margin entire, slightly revolute; their upper surface smooth and shining, reticulated with veins; under paler, more opaque, clothed with fine, scattered, close, fleshy hairs, after a while deciduous; mid-rib fleshy, rough with minute tubercles at the back. Flower-stalks cori- pious, axillary, solitary, short, knobby, bearing from two to five flowers. Calyx three-lobed, scarcely downy. Petal half an inch long, densely fleshy on both sides; the three innermost very narrow, triangular-awl-shaped. 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 ge- nus, we have thought a full description requisite.

2. X. Juvata. Shrubby Silky Bitter-wood. Aubl. Guian. 215. 1742, 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. fetosa; Poiret n. 4, according to De Candolle. Embora feu Pindaiba; Pf. Bras. 71. Ibira; Marcgr. Bras. 99.)—Leaves lanceolate, pointed; glaucous and fleshy beneath. Branches fleshy. Stalks with few flowers. Capsules smooth.—Found by Marcgraf 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 spe- cific distinctions between this and the first species. The smoothness of the fruit, the filkinness of the branches, and narrowness of the leaves, appear sufficient to ascertaining the present plant. Marcgraf lays the bark affords a tough kind of cordage. The fruit, equal in size to hazel-nuts, is aromatic and acid, serving, when powdered, instead of pepper.

3. X. Jalcifolia. Willow-Leaved Bitter-wood. "Humb. and Boupl. unpublished. Dunal Monogr. 121. t. 17, 2." De Cand. n. 3.—"Leaves oblong, with a blunter point; fleshy beneath. Stalks short, fingle-flowered, with small bractees."—Found by the celebrated travellers baron Humboldt and M. Bonpland, near Epsinal, in South America. A tree with blackish branches, marked with white dots. Leaves narrow, an inch and a half or two inches long, three or four lines broad, on short stalks, fingle-ribbed, without veins; smooth and green above; villous beneath, with close-pressed, fleshy hairs, of a rufous grey. Capsules from five to seven, gibbous, slightly pointed, not burring. Seeds one or two. De Cand.

4. X. hygrophyla. 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 bractees."—Gathered by Humboldt and Bonpland, at Buga, in South America. The branches are round, blackish, rugged, rough with whitish points. Leaves an inch and a half long, four lines broad, on very short stalks, fingle-ribbed, veinlets; somewhat shining above; paler beneath; the young ones silky at the under side. Stalks axillary, with three or four flowers, and roundish con- cave


Native of Cayenne. Branches wand-like, slightly rugged. Leaves on short stalks, smooth on both sides, three or four inches, (the author, by mistake as we presume, lays three or four lines,) in length, and from twelve to fifteen lines broad; shining above; rather glaucous beneath. Stalks single-flowered, axillary, very short, each bearing an extremely minute bracteas. Calyx deeply three-cleft. Petals ovate, acute, scarcely 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.

XYLORICRUM. See Xylopia supra.

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

XYLOSMA, in Botany, from $\xi\lambda\sigma\mu\alpha$, wood, and $\epsilon\nu\rho\sigma\varsigma$, a fnell, a name given by Dr. George Forster to the Myroxylon of his father; the latter appellation having been appropriated by Linnaeus to a different genus. (See Myroxylon.)—Fort. Prod. t. 72. Schreb. Gen. 703. Willd. Sp. Pl. v. 3. 544. Mart. Mill. Dict. v. 4. Point in Lamarck Dict. v. 8. 817. Lamarck Illutr. t. 827. Myroxylon; Fort. Gen. t. 63. Juss. 444. Lamarck Dict. v. 193. Clavis and order, Dioscia Polyandra. Nat. Ord. uncertain. Juss.


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

1. X. fulvoleuca. Serrated Sweet-wood. Fort. Prod. n. 380. Willd. n. 1. (Myroxylon fulvoleuca; Fort. Gen. 63. n. 1.)—Leaves ovate, ferrated.—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 specimine 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, as long as possible, kept from the knowledge of our European voyagers.

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

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

XYLOSTEO, Dod. Pempt. 411. Tourn. 609. t. 379. Juss. 212. Pursh 161. (Chamæceraeæus; Tourn. ibid.), a word formed of $\xi\omicron\alpha\omicron\nu$, wood, and $\omicron\nu\omicron\alpha$, bone, being synonymous with a Swis name for the same thubs, which allude...
alludes to the hardnct of their wood, and perhaps to its tubular form, filled with pith, as a bone is with marrow. The authors who retain this genus split the Lonicera of Linnaeus, (see that article,) into several, without necessity or utility, offering, in our opinion at least, great violence to nature.

**XYLOSTROMA,** so called from ξυλοστρόμα, wood, and στρομα, a ftratum, or layer, because this fungus forms indefinite expansions, like cloth or leather, in the inside of the trunks or branches of trees.—Tode Fung. Mecklenb. v. 1. 36.—Claris and order, Cryptogamia Fungi. Nat. Ord. Fungi angiocarpi?

Efl. Ch. Expanded, coriaceous, two-fided, shapelefs, concealed; surface smooth and even. Seminola globules very minute, attached to internal fibres.

1. **X. gigantum.** Oak Leather. Tode as above, t. 6. f. 51. Sowerb. Fung. t. 358. (Racodium Xylostroma; Perl. Syn. Fung. 702.) Fungus coriaceous quercinus hematicus; Rall Syn. 25. "F. amplifimus; Scop. Pl. Subterr. 116. t. 44." Byffus candida β; Lightf. Scot. 1004.—This singular production is found in the centre of the trunks of growing oaks, spreading in a form of a piece of a cloth or leather, with numerous ramifications, through some of the largest trees. But whether it is, like the Boletus labrymanis, or Dry Rot, in wrought timber, theca of their decay, or its confluence, we have not sufficient information to decide. Tode's observations countenance the former opinion. He says the wood of the trees, occupied by this fungus, becomes rotten and perfectly dry. Its smooth surfaces are owing to the smoothness of the ffurces, through which it spreads in a tender flate, and its branching indeterminate figure arises from the irregularity and subdivision of these furces. The inode is fpongy, or partly hollow, occupied with branching fibres, bearing numerous little ovate capfules, or receptacles, whose apex appeared to Mr. Sowerby to have an opaque lid. The whole fungus is very durable, remaining unchanged for many years. Its hue is generally a uniform buff or pale tan colour; but Perfoon notices a whitish variety, more compact than the usual kind; and a faffron-coloured one, found by Schrader. We cannot well reduce the Xylostroma to any other genus of this natural order. The Racodium, Perf. Syn. 701, defined as "expandé and soft, resembling cloth in its denely interwoven fbrces," seems to us but a vague affœblage; the frst species being Byffus nigra, which some make to be a Lichen, others a Conflera; the second a Macor.

**XYLOSTROTEN,** formed of εξοστρομα, wood, and στρομα, laid, among the Ancients, an appellation given to Molac or chequered work.


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

**XYMPATHY,** a word used by some of the old medical writers for sympathy.

**XYNERESIS,** formed of εξο, or στρ, together, and ενεργεια, I ftrive, a word used by Hippocrates, and others of the ancients, to express a firm cohesion or confection of any two things. Some use it to express that firm flattening together, or clenching of the teeth, which happens in convulsions.

**XYNIA,** in Ancient Geography, a borough of Thefaly, on the confines of Perrhebia, near a lake of the same name. Livy.

**XYNOECIA,** formed of εξο, or στρ, with, and οικα, I inhabit, a feast 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 Prytanæum.

**XYPHOID,** in Anatomy, a name given to the cartilage, which forms the inferior extremity of the sternum. See the description of the sternum, in the article Lungs.


Gen. Ch. (corrected from Brown and Gartnér), Cal. Perianth inferior, of three concave chaffy leaves; the outermost hooded, deciduous; the two lateral ones keeled, compressed, curved, acute, converging, permanent. Cor. Petals three, large, spreading, flat, crenate; with narrow claws, as long as the calyx. Nectaries three, feathery, alternate with the petals; suspècted by Brown and Kunth to be barren flaments. Stam. Filaments three, inferted into the claws of the petals, much shorter than the limb, thread-shaped, erect; anthers oblong, incumbent. Pfyl. German superior, obovate, three-lobed; style one, thread-shaped, rather longer than the claws of the petals, three-leafed at the summit; stigmas obtuse, entire, or jagged. Peric. Capsule roundish, of one cell and three valves, with three more or less prominent receptacles, running down the middle of each valve. Seeds numerous, minute, roundish or elliptical, acute.


A genus of perennial herbs, with fibrous roots. Leaves radical, numerous, sword-shaped, or thread-shaped; dilated, equitant, and membranous at the base. Flower-stalk perfectly ample, wrapped in a sheath at the bottom. Head terminal, solitary, its scales membranous, single-flowered, closely imbricated; the outer ones sometimes empty, and unlike the rest. Alterni posterior. Brown. Flowers almost invariably yellow.

Linnaeus was acquainted with but one species, X. indica. Several others have been determined by various authors, inasmuch 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 just mentioned divides this genus into two sections. Those species which belong to the frst section have a capule of one cell, whose receptacles are separate at the base; of these there are thirteen found in New Holland. The second section 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 seen half the species in any flate, much less their ripe capsules. We are poftellcd of ten, which appear to be definite, and which can be referred, with tolerable certainty in general, to as many described species. For the remainder we shall cite our authorities.

**XYRIS.**

Linn. Zeyl. 14. Wild. n. 1. Vahl n. 1. (Gladiolus indicus, flore tripetalod; Rudb. Elyt. v. 2. 17. f. 8. Gladiolus lucifi Lucacis malabaricae, e capitato botyioide floriferia; Pluk. Almag. 170. t. 416. f. 4. Kotschettipullu; Rhode Hort. Malab. v. 9. t. 71. Rammotta; Herm. Zeyl. 41.)—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-flats, lax, acute, almost the breadth of the nail; but he never saw any so broad as in Rhode’s figure. The flower-flats are several, rather more slender than a pigeon’s quill, furnished with six or eight furrows, and twisted in the lower part. Head rather smaller than a Hazel-nut, with roundish scales. Our specimens, gathered by the late Mr. Smeathman at Sierra Leone, have no leaves, but the flat and head answer exactly to the above description. The scales are from twenty-five to thirty in each head, rounded, or nearly orbicular, convex, closely imbricated, obtuse, brown, but little polished, divided lengthwise into three nearly equal flaps, or regions, (as is the case in most of the species that we have seen); the middle region here is slightly hairy or downy, the side ones smooth. The flowers are pale. The head in these specimens is nearly globose; not oblong, as in Gartner’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. indicus may be, it cannot belong to this species. He describes the leaves very long and graily, twirled as well as the flats.

2. X. pubescens. Downy-leaved Xyris. Pursh n. 2.—Stalk vilrated, almost cylindrical, enveloped in a downy sheath. Leaves greatly elongated.—Received by professor Desfontaines, from the Weit Indies. Nearly related to X. indica, but differing in several characters peculiar to itself. The roots are long, as thick as the finger, with soft, rather fleathy, nearly simple, fibres, as thick as a raven’s quill; and producing from the crown a great number of soft, flacid, 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 straight, rather slender, twirled at the lower part, where they are each embraced by a cylindrical, rivated, downy sheath, three or four inches long, terminating in a little short acute leaf. **Head of flowers** oval, obtuse, the fize of a large pea, formed of numerous, imbricated, very close, unequal, whitish scales; the outer ones a little dilated, oval, nearly flat, scarcely pointed, the inner narrower, obtuse, rather concave. **Pursh.** See our X. aniceps, which has also a very long leafy-pointed sheath, but it is quite smooth.

3. X. macrocephala. Great-headed Xyris. Vahl n. 2.—“Stalk with one acute angle. Head and scales ovate; the latter grey at the back.”—Native of Cayenne. Described from the herbarium of professor 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 side. Head when in fruit twice as big as a Hazel-nut, ovate, with obtuse scales. This differs from the reef in the breadth of its leaves, and the size of the head. **Vahl.**

4. X. platycaulon. Broad-stalked Xyris. Pursh n. 4.—Stalk compressed, dilated, rivated, smooth; twirled below; with a lax, dense, abrupt sheath at the base. Heads globose, abrupt at the summit.—Gathered by Commeron in Madagascar. Leaves wanting in the specimens. **Stahl’s** a foot high; two or three lines broad. **Sheath** at least three inches long, smooth, rivated, rather lax, cloven lengthwise, obliquely truncated at the summit. **Head** hardly so big as a pea, flatish at the top, with broad, obtuse, concave, shining, chestnut-coloured scales, the outer ones keeled towards their point. **Poirot.** We have enlarged the author’s specific character from 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 **flats.**

5. X. aniceps. Small-headed Two-edged Xyris. Lam.-marck Illuir. v. 1. 132. Vahl n. 3.—“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 **flats,** which are several, a foot or more in height, twirled, smooth, by no means iriater. **Head** scarcely so large as a pea, with roundish, convex, hardly emarginate, scales. **Petals** yellow, finely toothed. **Vahl.** A Guiana specimen, communicated by Mr. Rugge, 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 distant and dissimilar parts of the world. We have suspected this Guiana species might be Poirot’s X. pubescens n. 2; but the sheath at the base of the **flats** is not pubescent.

6. X. complanata. Flat-stalked Xyris. Brown n. 1.—“Stalk compressed flat, dilated, nearly straight; carilaginous and rough at the edges, four times as long as the fword-shaped, straight, bordered, roughish leaves. Spike oblong or cylindrical. Scales orbicular, tupid.”—Gathered by Mr. Brown, in the tropical part of New Holland. The **flats** is a line and a half broad. We have seen no specimen.

7. X. fuscra. Rough Xyris. Br. n. 2.—“Stalk two-edged, twirled, with rather acute and rough angles. Leaves linear, roughish. Head ovate or oblong.”—From the same country. The **flats** is barely 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 **flats** are from fifteen to eighteen inches high.

9. X. americana. Blue American Xyris. Aubl. Guian. 40. t. 14, very bad. Vahl n. 4. Symb. v. 3. 8. Wild. n. 3. Poirot n. 6. (Jupical; Pfl. Bral. 235.)—Stalk two-edged in the upper part. Head ovate-oblong. Scales polished, emarginate, with a small callous intermediate point. **Native of moist pastures in Brazil, flowering in the rainy season, according to Poirot, whose synonym was verified by Vahl, from an inspection of Maregrava’s herbarium. Aublet found the same 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 Eriocaulon; the scales of the **head,** and the flowers, being moreover very ill drawn. We have never met with a specimen answering to this species. Vahl says the leaves are graily, narrow, and acute, half the length of the **flats,** 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 at the head. The latter is obtuse, rather bigger than a pea. **Scales** oblong, concave, cloven at the point, with a brownish, rather callous point in the notch. **Vahl.** The **corolla** is said to be blue, of which we know no other influence 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 Lamark'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. tertia.** Twisted-leaved Xyris. (X. indica; Pursh n. 1, excluding the synonyms.)—Leaves linear, spirally twisted, as well as the stalk, which is two-edged below, quadangular at the upper part. Head globular. Flowers polished, rounded, somewhat emarginate, pointless, with a small silky disc. —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; perennials, bearing yellow *flowers* in June and July. He calls the leaves "longissimi graminis." In our specimens they are from one to ten inches long, a line broad, acute, many-ribbed, roughish at the edges, perfectly grassy; the outermost degenerating into broad, short, chéfnut-coloured, pointed, imbricated scales. *Stalks* solitary, about two feet high; nearly round, though two-edged and frilated, at the bottom, as well as very much twirled, even more than the leaves; the upper part is less so, 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 chéfnut-coloured. *Scales* almost orbicular, convex; dilated and thin at the edges; marked at the back, just below the notch, with a pale, greenish, silky foot. Two or three of the lowermost of all are smaller, flatter, a little keeled.

12. **X. pusilla.** Dwarf Broad-leaved Xyris. Brown n. 4. —Stalk two-edged, smooth, like the short, hollow-shaped, two-ranked, equitant leaves. Head orbicular, compressed, 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 *stalks* are from two to six inches high, pale green, a little zigzag and twirled, somewhat quadangular; 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, or reticulated, surface in the dry state. *Head* the size of a pea. *Scales* orbicular, convex, of a shining chéfnut-brown, pale at the edges; the lowermost equal, without *flowers,* in an early state covering the whole head, and furmished with a brown, green, pointed keel.

13. **X. dentiflata.** Tooth-leaved Xyris. Br. n. 5.—Stalk roundish, smooth. Leaves short, linear-awl-shaped; rough with minute marginal teeth. Head globosely. 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 size of the last, or rather taller. The *root* consists of very small fibres. *Leaves* from one to two inches long, not a line broad, their fine reticulations seeming to form the little teeth, at the margin and keel. *Stalk* slender, frilated or angular towards the top. *Head* twice the size of the last, of more numerous, bright-chéfnut *scales,* with thin, pale, often jagged margins, and a little green short keel, or point, not extending beyond the scale. The two lowermost *scales* are barren, as in the preceding, and in a young flato enclose the whole head.

14. **X. paludosa.** Bog Xyris. Brown n. 6.—Stalk more or less angular at the top. Leaves somewhat tubular; that of the stalk longer than the sheath. 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 *pulchiflora* hereafter described.


17. **X. pulchiflora.** Few-flowered Xyris. Willd. n. 2. Phytogr. 2. t. 1. f. 1. Vahl n. 8. Br. n. 7.—Stalk quadranugular. 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, fleshy, slender, frilated, roughish. *Leaves* several, erect, sometimes nearly as tall as the stalk, grassy, very narrow, taper-pointed, frilated, roughish, especially at the edges, where they are minutely toothed, or crenate, as in *X. dentiflata* n. 13. *Head* the size of a large pea. *Scales* chéfnut-coloured, with a membranous, dilated, shining margin of a golden yellow, and each tipped with a green, triangular, projecting 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 flag-like shape, is well expressed in Willdenow's, otherwise miserable, figure. The two lowermost *scales* are barren, and closely pressed to the next. *Corolla* yellow.

18. **X. tricuspis.** 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 *stalk* is a foot and a half high, slender and rufhy, bluntly triangular, even, smooth to the touch, though Mr. Brown remarks that its most acute angle is roughish. *Head* rather ovate.
XYRIS.

ovate than perfectly globose, one-third of an inch in length. Scales elliptical, abrupt, or partly emarginate; their disk elliptic-oblance, 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 thinning brown, paler outwards. Three, four, or more, scales, at the bottom of each head, are distichous of flowers, shorter, much narrower, abrupt, oblong, not elliptical, with a peculiarly narrow disk, and have the appearance of bracts. Corolla rather large, yellow, turning white in decay.

19. X. juncea. Rusty Xyris. Brown n. 9.—"Stalk roundish, slightly 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 stalk is only eight or ten inches high. We have no specimens answering to the above characters.

20. X. gracilis. Slender Xyris. Brown n. 107.—Stalk thread-shaped, smooth, fearfully twisted. Leaves linear, straight, rough-edged. 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 fourth 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 scales are smaller, linear-oblong, and of a more uniform brown. The stigmas are long, and undivided. Stalk somewhat compressed, feldom above a foot high; Mr. Brown says a foot and half.

21. X. filiformis. Thread-shaped Xyris. Linn. Hill, p. 135. Vahl n. 9. Poiret n. 9.—Stalk thread-shaped, compressed. Leaves linear-awl-shaped, compressed, two-ranked. Head and scales elliptical; disk and margin uniform, with flight traces of a keel.—Gathered by the late Mr. Smeathman, as well as by Dr. Adam Aszleis, in marady fondy ground at Sierra Leone. The root is small and fibrous. Leaves four or five, feldom more, 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 says fearfully half an inch. Stalk solitary, fix 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 thinning; the two lowest scales empty, rather pelted, milk oblong, and roundish keeled; the rest elliptical, bluntly pointed, very smooth and even, without any limited disk, but sometimes marked with beautiful concentric veins; their keel fearfully different, except in the form of a short pale elevation, near the apex, but not projecting into a point. Corolla yellow, small.

22. X. flexuosa. Wavy-leaved Xyris. Br. n. 11.—"Stalk thread-shaped, twisted, smooth, as well as the zigzag, slender, 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.

23. X. teretifolia. Cylindrical-leaved Xyris. Br. n. 12.—"Stalk, as well as the leaves, round, straight, and roughish. Head ovate, many-flowered. Scales imbricated every way, torn into many segments."—From the same country. Stalk eighteen inches high. Brown.

24. X. lacer. Jagged-headed Xyris. Br. n. 13.—"Stalk round, smooth. Head nearly globose, 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.

25. X. fabulata. Awl-leaved Peruvian Xyris. "Fl. Peruv. n. 1. 46. f. b." Vahl n. 10. Kunth n. 1.—"Stalk thread-shaped; roughish at the top. Leaves linear-awl-shaped; their feathes woolly at the margin. Head oblong, about three-flowered."—Native of marhy, cool, highly elevated, mountainous situations, in Peru, flowering in September. Root perennial. Plants growing together in patches. Leaves about an inch long; villous at the base. Stalk slender, about eight inches high. Flowers yellow, two or three only in each head.

26. X. vivipara. Viviparous Xyris. Kunth n. 2.—"Stalk somewat compressed; roughish at the top. Leaves linear-pencil-shaped; their feathes fringed. Head globose, at length leafy and viviparous."—Gathered by Humboldt and Bonpland on the banks of the river Ooonooko, between the mouths of Venturuis and Quivarues, flowering in May. Root fibrous, perennial. Leaves all radical, two-ranked, from two to four inches long, erect, bluntish, fringed, smooth, except a little smoothness at the back; their feathes keeled, fringed, roughish also at the back. Stalks about a foot high, smooth, except some roughish points towards the summit; enveloped at the base with a fringed, keeled, bluntish, smooth, rough-backed feath, an inch and a half long. Head globose, rather abrupt, the size 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. Kunth.

We are not told whether this leafy tuft originates in the vegetation of one or two of the seeds; or in the germ being supplantet in the flower by a bud; or, which is the leaf likely, in a proflerous elongation of the stalk, independent of the parts of fructification altogether.

27. X. operculata. Imbricated Xyris. Labill. Nov. Hol. v. 1. t. 10. Brown n. 14. Poiret n. 13. Curt. Mag. t. 1158.—Capsule partly three-celled. Stalk round. Leaves thread-shaped. Head obovate. 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 character of the five-ranked scales of the head, and the numerous, gradually diminishing ones, distique of flowers, at its base; so that, but for Mr. Brown’s authority, we should have supposet our Port Jackson plant to be exceptionally and widely different. Dr. White’s specimens are without leaves. The stalk is about eighteen inches high, round, or slightly angular, quite smooth. Head obovate, full half an inch long, with five rows of very numerous obovate scales, whose broad convex disk is of a bronze-like hue; the margin brown and brown, 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 globose. 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 precise specific discrimination. Whether the leaves of any of the species be really toothed, in a living state, we have considerable doubt. Their foliage partsake greatly of the cellular texture, so remarkable in the neighbouring genus *Erica caulon*; with which also they closely accord in *infarscence*, 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 scarcely better understood than the other.


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

1. *X. undulatum*. Waved-leaved Xyfmalobium. Dryand. in Ait. t. 104. Linn. Suppl. Linn. Sp. Pl. 312. Wildl. Sp. Pl. v. 1. 1262. See *Asclepias*, n. 1. Apocynum aficanum, lapathi folio; Comm. Raf. 16. t. 16.—Leaves undulated, naked. Corolla bearded.—Native of the Cape of Good Hope. Sent to Kew garden, in 1783, by Mr. John Graefe. "This is a green-house plant, fowing in July. Mr. Aiton marks it as a *Eropeus*; but Com- melin fays the thick, white, perennial *root* fends up every year, in the early spring, two or three thick, round, green, leafy *flens*. All authors fpeak of the *leaves* as opposite; but in our Linnsean fpecimens, gathered at the Cape by Thunberg, they are alternate, fefile, three or four inches long, ovato-lanceolate, gradually tapering to a blufhi point, with a thick midrib, and numerous interbranching veins; nearly smooth on both fides; undulated and rough-filt at the margin. Umbels axillary, flalked, much shorter than the leaves, with hairy flalks, and linear hairy *bracteae*. Flowers green, their segments denfly beaded at the extremity, with white fhyagg hais. Follicles covered with spreading hairy filaments, an inch long. Every part of the plant, when wounded, discharges a copious milky fluid.

2. *X. grandiforum*. Large-flowered Xyfmalobium. (Asclepias grandiflora; Linn. Suppl. 170. Thurb. Prodr. 47. Wildl. Sp. Pl. v. 1. 1264. See *Asclepias*, n. 26.)—Leaves flalked, hairy. Corolla smooth.—Gathered by Thunberg, at the Cape of Good Hope, but as yet a stranger to our gardens, nor does the Linnean collection contain a fpecimen. The *flam* is faid to be fimpie, erecf, and hairy. *Flowers* large, axillary, flalked; but, as far as we can gather, the umbel is not elevated on a common flalk, as in the foregoing. *Corolla* fpeckled like *Fritillaria Meleagris*, and of a fimilar colour.

*XYSTARCHA*, in Antiquity, the mafler or director of the *xyitus*.

In the Greek gymnasium, the *xyfarcha* was the fect officer: the *firl* was the gymnasifarch. The *xyfarcha* was his lieutenant, and prefided over the two *xyfti*, and all exercises of the athlete therein.

*XYSTIC*, among the *Ancients*, a delegation given to the athlete, because they performed their exercifes in the *xyitus*.


*XYSTRIS*, in Botany, Schreb. Gen. 138. Poiré in Lamarck Dict. v. 8. 822, is one of those genera of pro- fessor Schreber's, to which we have adverted under WHE- LERA, (fee that article,) as being unintelligible to all but those who may have access to the learned author's herba- rium, or to fome record in his manuscripts. The name is Greek, *xystris*, a curry-cumb, or firper.—Clays and order, *Penandria Monogyna*. Nat. Ord. Epacrides of Brown?

Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, lanceolate, acute, spreading, hispid, permanent segments, each contracled at the base. Cor. of one petal: tube very short; limb in five deep, ovate, obture, veiny, spreading segments. *Stam.* Filaments five, filigfe-flaped, erecf, spreading at the summit, shorter than the corolla, inserted into the middle of its tube; anthers oblong, erecf. *Pyl.* Germen superior, globose, pointed; filyles two, ca- pillary, erecf, combined in the lower part; Rigmas obtufa. *Peric.* Drupa globose, furrounded at the bafe by short, prostrate hairs, inserted into the middle of the calyx. *Seed*. Nut globose, furrowed, of ten cells; kernels oblong.

Whether this genus be founded on some New Holland fpecimen of the natural order of *Epacridae*, and whether the rigid or prickly habit of the plant fuggifhed the name, can only be matter of vague conjecture. We acknowledge the division of the *flint*, and the hispid segments of the *calyx*, to be exaggerations of the supposed natural order. In total darkness, however, any glimmering of light is welcome, and we will therefore hazard another conjecture, not altogether inconfiuent with the former. As Schreber places *Xyfritis* immediately after the *Jaccinia* of Linnaeus, can it poibly be fupported on *Jaccinia ruifilosa*, of whom fructification no botanif, as yet, has given any fufficient account? There feems an af- fociation of ideas between the habit of *Rufcus*, and the name of *Xyfritis*; and the globose pointed figure of the *fruit*, as copied from Plunier in *Dill. Hort. Elbh* t. 123, fupports as part of the above defcription, though the permanent *calyx* is drawn obtufa, and not apparently hispid.

*XYSTUS*, *xystris*, formed of *xystris*, to pollify, or rub, in the Ancient Architecture, among the Greeks, was a long fpa- cious portico, either open, or covered over; in which the athlete, and others, practifed wrestling and running.

The *xyitus* made a neceffary part of a gymnasium. The athlete, who practifed in it, were thence called *xyfifici*.

*XYSTRUS*, among the Romans, was an alley, or double row of trees, meeting arbor-awife at top, and forming a shade to walk under.
The twenty-third letter in the English alphabet, 

Y

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

"Y dat centenos et quinquaginta rovenos."

When a dash was added at top, Ý, 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 virtue and vice, 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 pales 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. 30° 32'. E. long. 102° 20'.

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

YABARGULSKAIA, a town of Russia, in the government of Tobolik, on the Irtisch; 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 Ochotlik. 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 Irkutz; on the borders of China; 48 miles S.S.W. of Selenginsk.

YACINTE, St. See St. Yacintz.

YACONG TALA, a number of small lakes in Thibet, situated near each other. N. lat. 30° 50'. E. long. 78° 39'.

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

YADI, in Geography, a river of Russia, which runs into the Oblikaa gulf, N. lat. 68° 25'. E. long. 72° 38'.—Also, a river of Russia, which runs into the Oblikaa 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 Ruffis, in the government of Kazan; 122 miles W. of Kazan. N. lat. 55° 34'. E. long. 45° 44'.

YAGONMEW, a town of Pegu; 58 miles S. of Prome.

YAGA. 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 Otabalo: upon this place being taken by Huana Capac, the 12th yaca, he, instead of throwing any clemency to them on account of their magnanimity, being exasperated at the noble renitence which they made against his arms, 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 Arabian idolaters, 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 lieutenancy, in the province of Guayaquil; 25 miles N.E. of Guayaquil.

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

YAGUARIPÉ, a river of Brazil, which runs into the Atlantic, S. lat. 13° 14'.

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

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

YAH, in Hindoo 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° 22'.

YAIK, a considerable stream of Asiatic 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 Pentinftoi fea. N. lat. 60° 30'. E. long. 160° 52'.

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

YAK, in Zoology, the bos gruntenus of the Linnean system, 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 buffy-tailed bull of Tibet; and in Hindoostan it is denominated foora goy. It is about the height of an English bull, which it refembles 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 are high and arched; the rump low; over the shoulders rises a thick mufle, like the protuberance peculiar to the cattle of Hindoostan, 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 straight pendant hair that descends below the knee, and sometimes trailing on the ground; from the chieft, between the legs, issue a large pointed tuft of frightful 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 are, as they appear to be, fullen and fuppicious, and very impatient at the near approach of strangers. Their lowing is not loud, but a kind of feecially audible grunting noise. They are palette 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 Tartars, called Dukbha, who live in tents, and tend them from place to place; they at the same time afford their herdmen 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 theas, they are universally used for driving away winged insects, flies, and midges, 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 bezooar 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 "chowrabádas," or bracers, attending him, each furnished with one of these tails, mounted on silver or ivory handles, to brush away the flies. The Chineefes dye them of a beautiful red, and wear them as tufts to their summer bonnets.

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

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

YAKE DSÁKE, a lake of Tibet, about 12 leagues in circumference. N. lat. 44° 40'. E. long. 95° 24'.

YAKSÁI. See AKSHÁI.

YAKSHA, in Hindoo Mythology, a race of malignant beings of hideous form, into whom the souls of bad men are said to migrate; particularly the souls of fuch as in this life are addicted to forcid and base paffions, or absorbed too much in worldly prosperity. In the plural, they are termed Yakshás; and are affigned as faves or fervants to Kuvera, the Plutos of the Hindoo Pantheon. Another race of beings of a like description is called Rakshás (See the artifice). Raksháni and Yaksháni are the feminines of these races of demons. These names, and some note of their characters
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 goddess of malignant beings; one race of whom are in the masculine termed Yaka, which article, and others thence referred to, the reader desires of information concerning them may consult.

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

YAKUTSK, a town of Russus, 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 500 houses, mostly of wood, with some stone churches, and is defended by a wooden fort. The belt fables are found near this town and Nerchink: 500 miles N.E. of Irkutsk. N. lat. 62° 5'. E. long. 129° 14'.

YAKUTSK, the Province. The Yakutes, or, as they denominate themselves, Zobka, 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 Sayan mountains as far as the Angara and the Lena. Perforated by the Burats 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 bows; 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 frippled waistcoat with sleeves; their breeches do not extend below the middle of the thigh, but their long boots, called jarii, 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 Yakute has a wife in every place where he stops, but he never abandons them together. Notwithstanding this licence, they are jealous to excess, and the worst 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 yout, 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. Chamos, or forcers, are regarded as interpreters of the gods; they grant their mediation to the stupid Yakute, who implores it with trembling, but always pays for it. In the idolatry of the Yakutes, we find all the absurdities and superstitions practices of the ancient Kamtechaduses, Koriaks, 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 boit in his stead, 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 latter is interred, their throats are cut over the corpse. This bloody ligation is the homage paid to his attachment to these animals, who are supposed 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 such is the memorial that is erected. A fire is then kindled, and the lait proof of friendship for the deceased is left roasting and eating upon the spot these favoured animals: the feast being concluded the company disperses. The fame ceremonial is observed for a woman, except that instead of a horse, they sacrifice her favourite cow. Their houses, like the yorts of the wandering Koriaks, are circular, spacious, and constructed with poles, fewer in number, but ranged in the same manner, and kept together 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 feltoons, and the infide of the yort is ornamented in the same manner. The tarte of the ornaments is governed by the caprice of the proprietor, and there is in them a fort of wildness that is sufficiently 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 house. See YUAGHHERES.

YALE, a town of the island of Ceylon; 56 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.

YALEFUL, 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 Kingston. 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 Russus, in the Karlovo sea. N. lat. 75°. E. long. 68° 24'.

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

YALOFFS, YALOFFS, Jalefs, or Jalousfs, an active, powerful, and warlike race of negroes, and esteemed the most handfoe of those 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 Yaloffs differ from the Mandingoos, (see MANDING,) not only in language, but likewise in complexion and features. Their noses are not so much deprected, nor the lips so protuberant, as among the generality of Africans; and although their skin is of the deepest black, they are considered by the white traders as the molt fightly 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
their manners, superstitions, and government, however, they
have a greater resemblance to the Mandingoes than to any
other nation; but excel them in the manufacture of
cotton cloth, spinning the wool to 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:

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| Eleven| Fookang Ween, &c.

YAMA, in Geography. See JAM.

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
recurrance in the sacrificial ceremonies of the Hindoos;
oblations 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 corre-
ponding with the Grecian Pluto or Minor. Under our
article MAMI, the great law-giver of that name is sup-
posed to have been the same person as the Minos of an-
tiquity. 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, Dhamma-
rajia, or king of justice; Purijepis, lord of the Puris, or
patriarchs (see PIRIS); and Mimita, meaning death; a
name also of Kala, or Siva. (See those articles.) Sujan-
ya, and Vaivasvata-yama, are others of his names, de-
vided, it is said, the first from a term denoting cemelins 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 SURYAVANSA. He is also named Sradha-
dera, or lord of the obsequies, in honour of deceased an-
celors, of which a copious account is given under SRADHA.
As well as the Seventh Mami, Yama bears likewise the
name of Satyaavrota. He is also named Adhibhurota; this
name is said to be derived from a species of wood, by the
attrition of which fire is produced, wherewith to light the
pale 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 facri-
cial and other fires, the reader will find many particulars
under our articles PAVARA, SAGNIKA, SAMI, and
others thence referred to. Anbeka is another name of Yama; it means death, or the defroger: thus the compound
Kal-anbeka-yama is Yama, the defroyer of Kal or Time, a
personification of great bolderms 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-

Park’s Travels, vol. i.

In connexion with this brief account of the Yaloffs, we
cannot forbear mentioning an anecdote that 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 ambassad or 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 admission into the presence of Damel,
they announced the object of their embassy in the following
singular manner:—" With this knife," said the ambassad or,
" Abdulkader will confecnd to have 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 ambassad or 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 ad-
anced 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 allayed their thirst,
lift down, overcome with fatigue, to sleep among the bulrushes.
In this situation, they were attacked by Damel before day-
break, 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 founds of the highes
approbation, by the family men. When his royal
prisoner was brought before him in irons, and thrown upon
the ground, the magnanimous Damel, instead of setting his
foot upon his neck, and stabbing him with his spear, ac-
cording to the custom in such cases, addressed him in the follow-
ing 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
thrust 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 stab 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 preference 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." Abdulk-
ader 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 Foota Torra, and
refused to them their king.

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

MALTIOROVSK, a town of Ruffia, in the govern-
ment of Tobolok, on the river Tobol; 168 miles S.W. of
Tobolok. N. lat. 56° 8'. E. long. 66° 32'.

YAM, in Botany, a large lusty root, eatable when boiled
or roasted, of which there are several species, all natives of
their country, and highly useful to voyagers, as they
will, like potatoes, keep for a considerable time without
spoiling. See DISCOREA.
like belly, the variegated being, the wonderful infector of pains, &c.

His abode is in the infernal city of Yampur, whither the Hindoos believe that a departed soul immediately repairs; and receiving a juft sentence, ascends to Swarga, the first heaven, or descends to Narak, the naffy hell; or is re
turned to earth, according to its merits or demerits, where it attains the form of some animal, unless its offences had been such as deferved condemnation to a vegetable or even to a mineral prizon. This extensive theory of transmigra
tion 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 fame with Serapis; and the latter from a Sanskrit term, implying thirst of
blood. In the Puranas, Yama is defcribed as attended by two dogs, named Serbura and Syama; the firft name signifies varied, and it has other appellations meaning flained or spotted. When we add that it was also called Tri-fres, or the three-headed, little doubt can be entertained of its
being the fame with the Cerberus of the Greeks. Syama means Marka. See Serbura, Syama, and Tri-mes.

As Dherma Raja, or the king of justice, Yama is defcribed in the Puranas as having two countenances. "One, called his divine countenance, is mild and benevolent; and tho' alone it fee who abound in virtue. In this form, he is called an emanation of Vifhnu. He is attended by a fervant named Karmala, who conducts the righteous on self
moving cars into the preence of their judge. His other countenane or form is more especially named Yama. He is then deified with large teeth and a monftrous body, and is thus seen only by the wicked. His attendant is named Kalmala, who drags the wicked with ropes round their necks over rugged paths; and at the command of Yama some are beated, some cut to pieces, some devoured by monftrons, and thrown headlong into hell. He is unmer
ceful, hard is his heart, and every one trembles at his fight."

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

In the seeming contradictions of mythology, Yama is found to be identified, or nearly fo, with both Siva and Vifhnu (see tho' articles) as well as with Mino, Kala, and others. This may be reconciled, as in the mythology of Greece, by recollecting that almost all the deities melt 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 affigned him, under the name and character of Pataladevi, or goddes of the infernal regions. (See Pataladevi.) In heaven Diana is Luna, and Par
vati is Swardee, or queen of heaven. On earth they are distingufhed by the names of Diana and Bhudevi, the latter meaning goddes of the earth. These similarities or coincidences could be carried to a great extent.

Some of the ceremonies still in ufe as propitiating Yama, or his confort Sakiti, (which fee,) have been found by Sir W. Jones and others, as strikingly refembling tho' of the Eleusinian goddes; and there can be no doubt but the investigation of the mythical fables of the Hindoos has thrown great light, and may throw still greater, on many obfure and unintelligible passages of our ancient poets of Europe.

We do not find any direct representation of Yama, or any minute defcription of his person and attributes, in the mythical works before the public; nor many particulars of his family. We have already noticed him as the off
spring of the fun; this he shares in common with several other of the heroic perfonages of the Hindoos. Yama is indeed one of the many names of Surya, or the fun. The river Yamuna, or Jumna, or rather perhaps the damfel who was poetically metamorphofed into that interesting fream, is fabled as the twin sister of Yama. She is poetically called the "blue daughter of the fun." Days are especially fet apart for certain ceremonies to their honour. On one, Yama is said to have entertained her brother; and the re
membrance of it is prefered in an existing ufe of Hindoo young ladies feafing 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 beauteous fister; but his base offers are rejected by her with virtuous expoultuation. In some accounts, a divinity named Swadha is defcribed as the goddes of funeral obfequies; and as fuch we fhould 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 Kasya, Kri
tantA, Sraddhadeva, Tapas, and Vaivasvat.

YAMAMAK, in Geography. See JAMAMA.

YAMANCHALINSKOI, a town of Ruffia, in the government of Caucaufus, on the Urul; 20 miles N. of Gurfew.

YAMASCA, a river of Canada, which runs into the St. Laurence, N. lat. 46°. W. long. 72° 45'.

YAMASCO, a town of Canada, at the conflux of the Yamasca with the St. Laurence.

YAMBLAK, one of the Aleutian islands; see Jamblo.

YAMBO. See JAMBO.

YAMBURG, a town of Ruffia, in the government of Peterburg, on the Luga. The cloth manufactory at this place was inftituted by Catharine II., prefently after her accession to the throne: it contains 56 looms, and employs 600 perfons. The cloths are fold at St. Peterburg at a low price; 20 miles E. of Narva. N. lat. 59° 15'. E. long. 28° 30'.

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

YAMIMKA, a river of Ruffia, which rises in the government of Tobolsk, and runs into the Iriftich, 14 miles S.S.W. of Koslovo.

YAMINA, a town of Africa, in the kingdom of Bam
barra, near the Niger. This town, according to Mr. Park, was large, covering the fame extent of ground as Sanfanding; but having been invaded and plundered a few years fince by the king of Kaarta, it was, when he was there, half in ruins. N. lat. 13° 46'. W. long. 3° 50'.

YAMON BAY, a bay on the north coaft of the island of Lucan. N. lat. 14° 21'. E. long. 122° 37'.

YAMSCEVSKIAI, a fort of Ruffia, in the government of Kolivan, on the Iriftich. N. lat. 51° 53'. E. long. 77° 30'.

YAMSKAIA, a gulf of Ruffia, in the Penzinfskoi fea, between Cape Pillatschin and the continent. N. lat. 60° 20'. E. long. 154° 14'.

YAMSKOI, a town of Ruffia, near the gulf of Yams
kaia; 2500 miles E. of Tobolsk. N. lat. 60° 12'. E. long. 153° 34'.

YAMUMINTI, in Hindoo Mythology, the name of one
of the wives of the amorous Hindu 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 source 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 Srinagar, or Serinaur, in a footherly course, nearly parallel with the Ganges, approaching its farther stream to within forty miles, at the village of Garudvara (Gurdwar), in N. lat. 30° 22'; it is then of nearly equal width. The Yamuna enters Hindooftan Proper, in the province of Delhi, varying its distance from eighty to fifty miles from the Ganges. The country between them is called Dooba, 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 polleffions of the Maharrattas. 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 Hindus, of these two grand streams more particularly. To heighten the mysticlm, (any teryory connection being still more deeply venerated,) it is feigned that a third river, the Saraswat, 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 goddeses, Parvati, Lakshmi, and Saraswat; 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 perfonages sufficient will be found in the articles given under their several names in this work. The fable of the "three platted locks," as this supposed union of these rivers is poetically called, often occurs in the writings of the Hindoes: it is noticed in our articles JUNCTIONS, TRIVENI, and ZENNAR. Under SUTTEE, an account is given of the supposed pronemesh of the Hindoes to this crime. At the confluence now under our notice, it not only loses its name, but assumes a meritorious form. Of this, fea more under SUTTEE.

The river goddess Yamuna is made by mythologists to be the fame with Lakshmi, comfort of Vishnu, and twin fiver of Yama, the judge of departed fpirits, and ruler of the infernal regions. Of these perfonages sufficient occurs under their respective names.

**YAMUTHA**, one of the Alentian islands. N. lat. 53° 40'. E. long. 180° 29'.

**YAMYAL KONDA**, a town of Africa, in the kingdom of Yani.

**YAMYAMA KONDA**, a town of Africa, in the kingdom of Tornani.

**YANA**, a river of Ruffia, which rises in a lake, situated in lat. 63° 40', long. 131° 14', and running due north, being supplied by many small streams, empties itself in 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 circle of Rajamundry; 28 miles S.E. of Rajamundry.

**YANATONG**, a town of Burmah; 40 miles S. of Mellone.

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

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

**YANINSKOI**, a town of Ruffia, in the government of Irkutsk, on the Angara; 160 miles N.N.W. of Irkutsk. N. lat. 54° 30'. E. long. 103° 20'.

**YANFONG**, a town of Corea; 40 miles E.S.E. of Ou-tchuen.

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

**YANGBONRAW**, a town of Pegu; 60 miles S. of Lundley.

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

**YANG-HO**, a river of China, which joins the San-camho, N. lat. 40° 23'. E. long. 112° 45'.

**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. 120° 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 Hoang-ho, or the Yellow river: it carries on a great trade in all manner of Chinefes works, and is rendered extremely populous, chiefly by the sale and distribution of the salt that is made on the tea-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° 26'. 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 Hantcheou.

**YANG-TEE-KIANG**, a river of Afia, which rises in the mountains of Tibet, and after crossing the empire of China, from east to west, 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 equaling, if not exceeding in size, the Yellow River (which lee). 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 Yunnan and Sechuen. Then striking 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 Que-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 pales between the province of Ho-nan and Kiang-fei, and with a little inclination from the E. towards the N., its copious streams glide smoothly through the province of Kiang-nan, and is disembogued into the sea, which bounds China to the E. in the 32nd degree of N. 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 one and a half, but it was much deeper than the Yellow river. There these two great Chinese rivers, taking their sources in the same mountains, passing 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 occasioning unfulful torrents, they may do injury in particular instances. This tract includes the principal portion of the Chinese 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 expelled, and the most brilliant actions been performed, which history has transmitted to posterity. When the gentlemen of the embassy had crossed the Yang-tse-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, interspersed 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 thos 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-fan," (which see.) The ground to the southward of the river gradually rofe to such 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 quality of the cotton-flax that produces the cloth usually called Nan-kin in Europe. The down enveloping the field, 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-kin 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 Nan-kin cotton degenerate in both particulars when transplanted to another province, however little different in its climate. Lord Macartney's Embassy, 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 Burfall, and divided into Upper and Lower, on the north side of the river Gambia. See PISANIA.

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

YANIMAZCU, a town of Africa, in the kingdom of Yani. N. lat. 13° 30'. W. long. 14° 1'.

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 Douellia 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 Quang-fu; 1177 miles S.S.W. of Peking. N. lat. 23° 1'. E. long. 106° 51'.

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. Colebrooks, president of the Asiatic Society of Calcutta, is very curious and important. The Hindoos, being so prone to mysticism, can fancy various wifhes in occult figures and practices. Figures similar to the magic squares, abracadabra, &c. of western wizards, are still used and venerated by the knaves and fools of Asia; these are generally called yantra: as are peculiar figures or hieroglyphics, appropriated to certain Hindoo 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 "Agamafaltra, 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 OGHAM, O'M, and SHASTA.

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. 35° 54'. E. long. 106° 31'.

YAO-NGAN, or YAO-GAN, a city of China, of the first rank, in Yen-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 interspersed with mountains, which are covered with fine forests and fruitful valleys, and produces abundance of fruit; 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. 101°.

YAO-TCHEOU, a town of Chines Tartary; 380 miles E.N.E. of Peking. N. lat. 45° 43'. E. long. 122° 14'.

YAO-TCHEOU, or YAO-CHIOO-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 Nem-chang-foo; 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 least correctly, spelled jai; under which article we find we have sufficiently described it, although reference has occasionally been made to this article;
YAR

ticle; which is therefore thus given, chiefly to point to the more lengthened description.

YAR Island, in Geography, one of the group called Carolines; which see. In this island, a kind of crocodile is the object of their worship. Here are also a number of magicians, who impose upon the credulity of the inhabitants, by leading them to believe, that they have communication with the evil spirit; and by this imposture, they commit with impunity all sorts of crimes. They procure maladies and even death to those whom it is their interest to destroy.

YAPANDAIN, a town of the empire of Birmah, on the Irrawaddy, 40 miles W. of Ava.

YAPIZLACA, or Llanos de Manfo, 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 Manfo, or the Plains of Manfo, 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.

YAPOC, a river of Surinam, which runs into the Atlantic, near Cape Orange.

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 Viatsia; 72 miles S.W. of Viatska. N. lat. 55° 36'. E. long. 48° 34'.

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

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

YARD, Virga, 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 seven ells. To reduce ells, therefore, into yards, divide. 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 Flemish 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 seventeen 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 Terra, or Virga Terra, 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.

YARD-Manure. See Farm-Yard, Compost, Dung, Manure, and Manuring.

In order to prevent the vegetation of weeds in this manure, the manure is turned up in the yard in rows when it is about two feet in depth, leaving proper room between each row to put the fresh dung from the stables, cow-houses, and hog-flies. After the manure thus thrown up has got a fair heat, it is again turned over, which moilily destroys or prevents the weeds from growing, when the manure is ready for being taken out upon the land.

The uts and powers of the long and short-yard dung manure are very different in different climates of it.

The opinions and practice of the farmers in the county of Norfolk, in regard to the use of long or short dung or yard manure, are much divided. Comparative trials are wanting to fully ascertain this important point.

It is, however, a prevailing idea in the above country, that long dung is best for strong land, and short for light soils; but that the general practice is that of spreading short in all cafes.

In Eifex, too, it is now the practice of many enlightened farmers to make use of long dung or yard manure with great advantage; though what may be said to be the general custom of the district is to clamp and employ that which is in the shortest state. Some farmers there, however, do not like to see their yard-manure too long in the heaps, as there is loss in turning it. In the practice of duning for wheat, it was there observed, on long and extensive experience, that it should be long freio dung, as the superiority of such dung to that which the farmers so generally prefer, fuel as has been moved and turned over until quite rotten, was, one load of it, worth fix of that of a year old and rotten, as with such dung a crop of wheat is always certain.

In Oxfordshire, and many other counties, the same is the case with many farmers, though the common practice is to mine and turn yard-manure until it is reduced into the short state, and then to apply it to the land.

On this very interesting point of management, the writer of a late work on Agricultural Chemistry has suggested, that a flight incipient fermentation is undoubtedly of use in the heaps of this sort of manure, as by means of it a disposition is brought on in the woody fibre to decay and disolve, when it is carried to the land, or ploughed into the soil; and that this sort of fibre is always in great excess in the refuse of the farm, especially that of the yards; but that too great a degree of fermentation is very prejudicial to such mixed yard-manure, when in the heaps; and that it is better that there should be no fermentation at all before the manure is used, than that it should be carried too far, the excess of fermentation tending to destroy and disfigure the most useful part of the manure.

During the violent fermentation which is necessary for reducing farm-yard manure to the state in which it is termed fitis min or dung, not only a large quantity of fluid, but likewise of gaseous material is lost; insomuch that the dung or manure is reduced one-half, two-thirds, or more of its weight; and that the principal elastic matter dillengaged is carbonic acid with some ammonia; both of which, if retained by the moisture in the soil, would be capable of becoming an useful food or nourishment of plants.

Besides the disfipation of gaseous matter when fermentation is pushed to the extreme, as in the case of short dung, there is another disadvantage attending it in the loss of heat, which, if excited in the soil, is useful in promoting the germination of the feed, and in affilting the plant in the first stage of its growth, when it is most feeble and most liable to disease; and the fermentation of the manure in the
fail must be particularly favourable to the wheat-crop, in preserving a genial temperature beneath the surface late in the autumn and during winter. Moreover, it is a general principle in chemistry, that in all cafes of decomposition, fulfances combine much more readily at the moment or time of their difengagement, than after they have been perfectly formed; and in fermentation beneath the floor the fluid matter produced is applied instantly, even while it is warm, to the organs of the plant, and consequently 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 state. And it is flapped, 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 caufe their rapid growth.

The application of yard-dung, or manure in the long flate, 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 is another question 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 confuming 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 firit of the above counties, the writer of the account of the agriculture of it fays, are againft 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-Fall, a term used among our farmers 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 caufed by weaknefs of the peculiar muscles which should act in the drawing up; and proceeds sometimes from a violent flip or strain, sometimes from a blow on the back, and sometimes from extreme wearinefs in long journeys.

The method of curing this is, first to wash it with oil of rofe, after this with warm white wine, and finally, to anoint it with a mixture of oil of rofe 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 drefled once in twenty-four hours, till the cure is perfected.

There are some other diítemperatures to which this part is subject in a horse, as the being foil at the end, so that the creature voids its urine in the sheath; in this cafe, the method of cure is to draw out the penis, and cleanse the end of it from any foulefs 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 flinking matter from the penis; this is peculiar to flone-horses, and principally affects them after the time of their courting 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 dilfolve in a pint of white wine an ounce of roach-alum by boiling; and four or five times a day this is to be ufed, injecting it up into the yard with a syringe, blood-warm. This will prove a certain cure.

Yard-Foul, the filthy, furred state of the yard and sheath in animals of the horse kind, which oftentimes produces difeafe.

It is removed by well washing and cleaning the parts, by the free ufe of soft-soap and water.

Yard, Mattering of, a difeafe in the yards of horses, produced by different caufes, in which matter is formed. It is removed by the ufe of cooling washes, and keeping the parts clean and perfectly free from dirt and nafsnefs.


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 fails to the wind.

All yards are either square or latteen; the former are suspended athwart the masts by the flies, 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, six-sevenths of the main-yard; main-topfall-yard, five-sevenths of the main-yard; fore-topfall-yard, seven-eighths of the main-topfall-yard; mizen-topfall-yard, two-thirds of the main-topfall-yard; topgallant-yards to 74-gun ships, two-thirds all under three-fifths of their topfall-yards; royal-yards, half of the topfall-yards; crofs-jack-yard and spritfall-yard, the fame as the fore-topfall-yard; spritfall-topfall-yard and driver-yard, the fame as the fore-topgallant-yard; and the fludding-fall-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; topfall-yards, five-eighths of an inch to every yard in the length; topgallant-yards, three-fifths of an inch to every yard in the length; royal-yards, half the diameter of the topfall-yards; spritfall-yard and crofs-jack-yard, the fame diameter as the fore-topfall-yard; spritfall-topfall-yard and driver-yard, the fame diameter as the fore-topgallant-yard; and the fludding-fall-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-one of the given diameter; the second quarter, seven-eighths; the third quarter, seven-tenths; and the arms or ends, three-fourths. From a middle line struck on the tree or fpar the yard is to be made from, half of the several dimensions above is to be set.
YARDS.

set off, and the yard then fawn to its fiding; it is then
canted, and a middle line struck on one of those sides, and
the middle and the quarters squared up thereon from the
middle line on the firt side, and the fame diameters set off as
before, then fanned and fawn square to the upper fide; it is
then fawn eight-square the whole length.

The main and fores 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-side, 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 fheave-hole in their arms
for the topfart-fllets, and are left square the length of the
fheave-hole; but this method weakens the lower yards.

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

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

Battening of Yards.—Main and fores yards, main, fores, and
mizen topfart-yards, have oak batters nailed on their
fleres nearly the fame length and breadth, one inch
to three-quarters of an inch thick; their ends rounded and
fpaped, and the edges chamfered. The fore-fide has no
batters.

Clearing of Yards.—The fling-cleats, a, (fig. 17. Rig-
ging, 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 fhooulder one-third its length; the
breadth one-fourth the length; the thicknes two-thirds
the breadth, made of elm, and nailed once the given dia-
meter 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 thick-
nesses two-thirds its breadth. Yards for merchant ships have
their cleats sometimes failed from the folid.

Topfart-yards have fpop-cleats, nailed on the fore-fide of
the yard, once the given diameter on each fide of the flings.
Those within the arms, on the fore and after fides of the
main and fore topfart-yards, three inches to every yard in
the length; and mizen topfart-yards, two inches and a quarter.

Topgallant-yards the fame as topfart-yards.

Royal-yard-cleats are once the diameter on each fide
the middle afunder, and twice their length within at the
arms. Crofs-jack-yards have fpop-cleats, nailed on the fore-fide of
the yard, half the diameter on each fide of the flings; therofe
at the arms, one inch and a half within their outer ends to
every yard in length, and nailed on the fore and after
fides.

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

Sprit and fpirt-topfart-yards have fpop-cleats nailed on
their under fides; the fpirtflail-yard once the diameter on
each fide the flings; the fpirt-topfart-half the diameter
one each fide: thofe 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 thofe at the flings.

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

Boat-yard-cleats are once the given diameter afunder at
the flings; thofe in the middle, others one-third from the end,
such as lugs, latteef, and fettees, and the length of the
cleat within at the arms.

Yards are fitted at their outer ends for rigging out
fludding-fails. Main and fores yards have four boom-iron;
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 compofed of a ring, a
neck, and ftraps.

The ring, through which the boom flides, is of the fame
diameter in the clear as its topmaft-fludding-fail boom;
breadth three-eighths the diameter, and from five-eighths to
three-quarters of an inch thick. In one fide a lignum vitae
collar is fitted, one-third in length the diameter of the boom-
ring. The neck is fquare, and connects the ring to the
ftraps; each neck one inch longer than the diameter of the
ring, and one-fourth its length in fize.

The ftraps 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; thicknes at the inner part,
three-eighths of an inch; they increase in fubftance towards
the neck, and are made to the fhape of and let in their
thicknes into the yard-arm. They are bolted, and have
two hoops made to the fize of the yard-arm, one clofe to
the end, and the other near the neck.

Inner boom-iron are made after the fame proportion
as the outer ones, but differ in fhape. The ftraps are made to
compafs the yard at one-third the length of the topmaft-
fludding-fail boom within the end, and the ring is feparated
from the ftrap by a collar; the upper part of the ring opens
with a hinge on one fide, and the heel of the boom is chafed
therein.

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

Boom-iron, on the yard-arms of ships in the merchant
service, differ much in fhape. The ring the boom flides
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 ftraight neck, projecting from the ftraps, with a fhooulder
in the middle of the neck, and the part without left fquare.
The boom-ring has a fhank on the under part, with a mor-
tife that fits the neck, and then faddened by a ferew-nut,
or a fping-fockock, that goes on the neck next the ring.

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

Topgallant-yards, main and fore, mizen-yards, fpirt and
fpirt-topfart-yards, have their arms fitted with a ferrule-hoop
and fping-eye-bolts, as the topfart-yards.

Mizen-
YAR

Mizen-topfahl 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 scarf four feet beyond the first quarter, next the middle, or flings, which is in all five-eighths the length of the yard, adding four feet. The scarfs line straight, from each quarter next the middle to one-fourth the infallance 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 scarfs and haunches are trimmed straight, and out of winding on the inside, and a line struck along the middle, and a chain-coak set off, each about two feet four inches long, and one-third the diameter broad; and the butts 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 winding, and fayed as the mafs, (which fee, and the Plate of Mafs,) and bolted together fore and aft through the middle, in the butt of every coak; the heads are to be driven from the thimneft part of the scarf, and clenched on a ring, and the haunches nailed.

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

Another method of scarfing yards together made of two trees, which is the strongest, and takes fefs trees than the former, is by providing two trees that will hold the diameter beyond the fishe, and scarf together similar to the former. Then the deficiency of the diameter towards the middle is made good by long fishes of fir, from four to six inches thick, as the fize of the yard may require, extending two feet in length at each end beyond the long square on the affide, and each of fufficient breadth to form the eight-square on the outside. The inner surfaces of the fishes are caoked and fayed clofe upon the yard, the coak extending near the whole length. The yard is then finned as before directed, and hooped and bolted, as in the Plate of Mafs-making.

YARD-Arm is that half of the yard which is on either fide the maff, when it lies athwart the ship. See the preceding 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 manufactures, and 453 houfe; 7 miles S.E. of Birmingham.

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

YARE. See Segovia Nurva.

Yare, among Sailors, implies as much as, nimble, ready, quick, expeditious. Hence, to be yare at the helm, as some fay, signifies to fet a fresh man at the helm.

YARECA, in Geography. See JARECA.

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

YARENSK, a town of Russia, in the province of

Utiug, on the Vitchegda; 92 miles N.E. of Utiug. N. lat. 62°. E. long. 47° 50'.

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

YARIN, a word used by some of the chemical writers to express the flos aris.

YARKAN, Yarkand, Irken, or Tarkian, in Geography, a town of Cañgar, or Little Bucaria, where the grand gran of the Eluth Tartars chiefly refides. The town is large, and well built of bricks dried in the fun. The environs are fertile, and the palace of the khan large, but not handsome. In 1400 this town was taken and plundered by Timur Bec; 90 miles S.E. of Cañgar. N. lat. 38° 19'; E. long. 78° 19'.

Yarkand, or Tarkand, suggested to be the Oechardes of Potelmo, a river of Afia, which palls 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 Langburgh, 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.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 next 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 suppressed by Henry VIII. Over the river Tees at this place is a handfome stone bridge, communicating with the county of Durham. The town, formerly more considerable than at present, still carries on a good trade by water, particularly in corn and lead for the London market. In 1761 the town fuffered severely from 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 Plegg, and county of Norfolk, England, is situated on the E. coaft 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 3594, and the inhabitants were 17,077. A market is held here on Saturday, and a fair in Easter week. The town, which fends 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 ma- Griffiths of the town, hold a court there during the herring-fair. The corporation poftes also the privileges of courts of admiralty and of record. Yarmouth isingularly situated on a long, narrow, sandy peninsula, having on the E. the German ocean, and on the W. the river Yare, which, after pointing N.E. towards the sea, suddenly 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 easterly part of Great Britain. Yarmouth church lying in E. long. 1° 45' from Greenwich.

The firft mention of this town is in Domesday-book, which renders it probable, that it had its beginning in the early part of the Anglo-Saxon dynasty. When the sand- bank, on which it stands, and which, thrown up by the sea, impeded,
impested, or at least diverted, the course of the Yare, was sufficiently consolidated, habitations were formed on it by the fishermen who returned 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 succesor, 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. The following year, to guard against the Spanish invasion, outlooks were constructed, the south mouth was raised, and planted with cannon, and a boom was laid across the entrance of the harbour. Coeval with the first fortification of Yarmouth was probably the castle, 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 independents had gained an ascendency in the state that a garrison was admitted here. During the American war, forts and batteries were constructed, and barricades for a considerable body of troops were erected for the defence of the place. Indebted for its original existence, and subsequent increase to the fishery, Yarmouth very early possessed a very numerous shipping. In the summer of 1310, when Edward II. ordered the several ports of England to send ships to Dublin, to convey troops over to Scotland, Yarmouth furnished fix, while even Bristol and Gloucester, although so conveniently situated 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 1095 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 1597, 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 Cōmbouf-hee books of 1800 it had advanced to be the eighth, the ships of the port being 375, the tonnage 32,957; navigated by 442 men, while Bridol possessed 186 ships, carrying 26,403 tons and 1674 mariners. Yarmouth was early distinguished, and still remains unrivalled, for the herring-fishery. About 1220 the abbots 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 reftoring 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 fishings season commences. The boats fitted out for the fishery are decked, and average from forty to fifty tons burthen, 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 falted, 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 woolen 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 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 Josias Johnson, a Dutchman, who had been invited from Holland for the purpose. The principal or north pier is in length 265 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 states 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 consequently afford a most desirably shelter in stormy weather, on a tract of coast projecting a great way into the German ocean, and peculiarly delitute 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, confuting of four principal streets, crofled at right angles by 156 lanes, called rows, fo 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 flanding in the front of the cart. The town is enclosed by a wall on the north, east, and south sides, in length 2240 yards, which, with the well fide along the river, 2030 yards, make the circuit two miles and 750 yards. Although fo 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 Lofinga, bishop of Norwich, in 1123; but it was greatly enlarged in 1525. It confits of a nave, two filies, and a tranfept, and had lately a fpire 136 feet high, a diftinguifhed fea-mark in the midit of a long tract of low and dangerous coaft; but in 1803 it was taken down. The other public buildings of Yarmouth are, the town-hall, a handsome building, with a Tuscan portico, situated near the centre of the quay; the council-room, which also serves for alfembles; 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 expence 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 moft extensive in Europe. Its length from the fourth gate to the bridge is 1014 yards, beyond which it reaches 1016 yards farther, making its whole extent a mile and 270 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 maintained with the county of Suffolk, which stretches up the west bank of the river. As a fashionable watering-place, Yarmouth is well provided with every accommodation, and consequently much frequented. On the beach a bathing-house was erected in 1856, commanding a fine view of the roads and shipping; and in 1778 a new theatre was opened. Opposite to Yarmouth, and for about two miles north and south of the town, the coast is nearly a level common, elevated 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 loose pebbles called shingles; 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 Historical Guide to Great Yarmouth, 12mo. 1806.—


YARMOUTH, South, a sea-port, borough, and market-town, in the S.W. half of Well Medina liberty, in the Isle of Wight, and county of Southampton, or Hampshire, 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 is governed by a mayor, twelve burgesses, a steward, a town-clerk, &c. was incorporated by James I., and sends two members to parliament. In 1811 the houses in the borough and parish were 88, and the inhabitants 427. A market is held here on Saturday, and two fairs annually. Yarmouth is built on a bank sloping to the sea, and seems to have been formerly much larger than it is at present. The church is situated in the middle of the town. The market-house has over it the town-hall. Here was a castle, built by Henry VIII. on the site of an ancient church, which had been destroyed by the French. This fortress is defended by some pieces of cannon, and a small garrison. Between Yarmouth and Lymington a packet sails daily.—Beauties of England and Wales, Hampshire, by J. Britton and E.W. Brayley, 8vo. Lond. 1808.

YARMOUTH, a sea-port town of Massachusetts, in Barnstable 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 district of Maine, and county of Cumberland, with 3293 inhabitants; 9 miles N.E. of Portland. N. lat. 43° 45'. W. long. 70° 8'.

YARMUG, or YARUN, a town of Palestine, in the district of Saplet, on a river of the same name, which runs into the lake of Tiberias, chiefly inhabited by Christians; 24 miles S.E. of Saplet.

YARMUK, a river of Syria, anciently called Marfias, which runs into the Orotetes, near Apamea. In 656 a battle was fought on the banks of the river, between the Christians and the Saracens, in which the former were defeated.

YARN, denotes spun wool. See WOOL, and WOOLEN Manufacture.

YARN, Marking. See MARKING.

YARN, in Rope-Making, is spun from hemp, and is called twenty-five, twenty, and eighteen thread yarn, which differs only in the fineness; 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 so in proportion.

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 Tobolsk, on the Irtysh; 52 miles N. of Tobolsk.

YARRA. See JARRA.

YARRINGLES, or YARRINGLE-Blades, a kind of reed, or instrument, with which bands of yarn are wound on to clues, or balls.

YARROW, in Botany. (See ACHILLEA.) Perhaps this old English name originated in the Spanish Terreia, or Terwa, an herb; our Common Achillea Milfolium having been formerly called, in that language, Milbyas Terwa, or Thonfand-leaved Herb, a transliteration of its Latin appellation.

The leaves and flowers of the common yarrow, or achillea milfolium of Linnaeus, which is in flower on our ditch-banks, and in dry pastures, the largest part of the summer, are greatly recommended by some of the German physicians, as mild collaborators, vulneraries, and antiphlogistics, in diarrhoea, hemorrhages, hypochondria, and other affections. They promise, says Dr. Lewis, by their several qualities, to be of no inconsiderable efficacy. They have an agreeable, though weak, aromatic smell, and a bitterish, roughish, somewhat pungent taste. The leaves, having the greatest bitterness and astringency, are chiefly directed for medicinal use; the flowers have the strongest and most pungent smell, are remarkably acid, and promise to be of the greatest efficacy, if the plant has any such efficacy, as an anodyne or antiphlogistic. The virtue of both leaves and flowers is extracted by watery and spirituous menstrua; the astringency most perfectly by the former; their aromatic warmth and pungency by the latter; and both of them equally by a mixture of the two. The flowers, distilled with water, yield a penetrating effital oil, poffieing the flavour of the milfoil in perfection; in confistency somewhat thick and tenacious; in colour very variable, from a greenish-yellow to a deep green and bluish-green, and fine blue, which differences depend in a great measure on the oil in which the plant is produced; the flowers gathered from moist fresh grounds yielding generally a blue oil, and those collected from dry commons a green one, with a greater or less admixture of yellow. The extract obtained by infusipating the yellowish tincture made in rectified spirit, is more agreeable in smell than the flowers, of a moderately warm penetrating taste, somewhat like that of camphor, but much milder, accompanied with a slight bitterish and fulminating quality. The achillea pinnica of Linnaeus, called vneescwerti, or biffard pellitory, is perennial, grows wild on heaths, and in moist shady grounds, and is found in flower from June to the end of summer. The roots of this plant have a hot biting taste, approaching to that of pellitory of Spain, with which they nearly agree in their pharmacetical properties, and for which they have been sometimes substituted in the shops. They are by some recommended internally as a warm stimulant and restorative; but their principal use is as a medicatory and irritant. Lewis.

YARROW, in Agriculture, a plant of the herbage kind, which is common but useful in the pasture-field in many cafes. It has long ago been noticed, by the writer of the "Effays on Rural Affairs," as valuable for cultivation in grazes-lands in different sorts of soil. It succeeds on moist loams, but is most proper for dry burning gravels, sands, and
YAS

and chalks. It is said to possess the singular quality or property of repelling drought on the moist and arid soils; so that if a green spot appears in a burnt-up close-fed pasture ground, it may almost with certainty be concluded to be watered by this plant. In pastures there is not any fort of plant which is eaten down more closely than this, by every species of domestic animal. It has been remarked with surprise, that spots of rich dry land, which were almost wholly filled up with these plants, were eaten down bareer 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 belt bullock pastures and grounds, where it is said to be highly grateful to every fort of live-stock of the cattle kind, and particularly so to sheep, which bite it as fat as it grows or rifes: so that on tolerably well-fed pastures or grounds it is rarely suffered to come into flower. The seeds of it are, therefore, to be obtained from some of the spots which well filled up 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, devotes the preference to moist 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 rises in a mountain called Yarrow Clough, 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 base 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 agogebalus of authors. See GODWIT.

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

YASASCHNA, a river of Russia, which runs into the Kolma, at Verchnei Kovimfik.

YASCHAMBOU, a town of Persia, in the province of Adirbeitzan; 198 miles S.W. of Tauris.

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 incitates the belief of one God, the Creator of heaven and earth, and to whom belong the absolute dispofal and dominion of events.

YASUDA, in Hindu Mythology, the name of the foster-mother of the Hindoo Krishna; it is said to mean the giver of honour.

YASUDERA, the name of the wife of Budha, or Boobh, or deity of the Hindoos, and of other people. See Bhoobh.

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

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

YATCHEVRA, a town of Corea; 25 miles S.W. of Outehous.

YATCHING, a town of China, in Foo-lien; 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. 65° 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 a setze, for it does not appear that he performs any religious rite. It is his duty to read and expound to his disciples the scriptures of the Jainas in their proper languages. 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 inculcates it in religious duties. Parents sometimes vow or promise their first-born to the deity, in the hope of obtaining the blessing of sanctity in their family. They serve their novicete with their guru, or preceptor, and perform for him many domestic offices. After a proper period, when arrived at a sufficient age and progress in their studies, they are admitted as yatis. The ceremony om occasion is simple. The novice 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 novice is pulled out by the root at five pulls; and camphor, musk, sandal, farfion, and sugar, are applied to the scalp: he is then shorn, and placed, with joined palms, the pouture of respect and supplication, before his guru, who pronounces a mantra (see MANTRA) in his ear, and invests him with the drefs 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 for his viéctuals, a cloth to tie them up in, a long stick 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 distraction of any insect. The Jainas are the sect that fo 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 of England, in the county of Berks. Here Alfred overthrew the Danes in 876; 4 miles S.E. of Eal Illey.

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.

YAUACACA,
YAW

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

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

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

YAVI, a town of Peru, in the diocese of La Plata; 85 miles E. S. 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 running. See Steady.

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

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

YAWS, in Medicine, a fever 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. Nofologists have denominated it Frambista, from the French Framboise, 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. 56.) 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 perspicuous 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 speek of a little ichor as drying upon the surface; while Dr. Winterbottom say, 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 precursiory symptoms, the earlier authors asserting, that the general health is not impaired during the first stages; but others, especially Dr. Winterbottom and Dr. Dancer, affirm, that a febrile state usually precedes it. On the whole, however, it 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 firrrence, 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 pungent 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 largest. Their duration and progress are various in different constitutions, and at different periods of life. Children suffer less severely 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 tubercules 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 pellucid of much facility, and are not the least of any pain, except when they appear upon the soles of the feet, where they are confined and compressed 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 forcible glutinous fluid, which forms an ugly fest 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 depression 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. About 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 affumes the appearance of an ulcer, and instead of being elevated above the skin like others, it is considerably depressed; the surface is foul and flougy, and pours out an ill-conditioned ichor, which spreads very much, by corroding the surrounding found skin: this is what is called the mother or mother yaws." When arrived at its acme, however, the eruption continues a considerable time without undergoing much alteration, often without very materially injuring the functions, and it seldom proves dangerous, except from the milchievous interference of ill-directed art.

The yaws is propagated forcibly 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 whole 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 scarcely ever escape it." (Nat. Hist. of Guiana, p. 387.) 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 indispition. 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 pustules 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 superseded it, and cleared the skin of the eruption, yet left the patient still susceptible of, or rather still impregnated with, the virus, which speedily evinced its presence by a reappearance of the symptoms more severe and tedious than before. In truth, the disease, it would seem, like the purulenter 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 super- feting 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 restricting 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 slow and superficial ulcera-tions, 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 doves of mercury, according to the circumstances of the individual habit. The effects of mercury, however, exhibited so as to excite salivation, 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 thenegroes the bonc-ache. "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 pustules become 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 fores with them, after carefully removing the crusts. The major-yaw sometimes remains large and troublesome after the relt of the eruption has altogether disappeared. It requires to be treated with gentle elasartories, and soon affumnes a healing appearance under these applications. Stronger caustics are requisite after the cure of the crab-yaws, or tedious excrements, which occur on the soles of the feet.

We may add, that the anonymous writer in the Edinb. Med. Essays, and after him Dr. hillary and others, have deemed the yaws to be the Hebrew leprosy, described by Moses. (Leviticus, chap. xiii.) In some respects, and es- pecially in the appearance of what is called "raw flesh" in the leprous spots, together with whiteness of the hair, the de- scription 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 depression 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 leucæ; and it is conjoined in the latter with cutaneous depression. 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 had fill in the employment of Elihas, and even converting with the king, after the leprosy had been inflicted upon him, "and his feed for ever." (2 Kings, chap. v. vi. and viii. v. 4.) See Dr. Bateman’s Practical Synopsis of Cutan. Difeases; and the Works above quoted.

YAXARTEs, or YAKARTEs, the Syr-Daria, in Geography, a river of Russia, that falls into the Aral.

YAXLEY, a small market-town in the hundred of Norman-Crofts, 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-Crofts. The market was for a long time difcontinued, 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 Yalkefley, who died in 1794, 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 Tlaolaca; 10 miles E.S.E. of Puebla de los Angelos.

YAYAUHQUITOTOL, in Ornithology, 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 size of the starling, and is beautifully variegated with green, blue, yellow, and grey.

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

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

YAYYOS, or YAXYOS, a town of Peru, and capital of a jurisdiction, in the archbishopric 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 paltures 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 Sarmites were for the most part given to Europe, five years before Alexander.

YAZOO, a river of the state of Georgia, which runs into the Mississipi, N. lat. 32° 39'. W. long. 91° 10'.

YAZO0, Little, a river of West Florida, which runs into the Mississipi, N. lat. 32° 13', W. long. 91° 10'.

YAZVA,
YAZVA, a river of Ruffia, which runs into the Vifchera, 8 miles E. of Gerdis, in the government of Perm. YBAGUE, a town of South America, in the kingdom of New Grenada.


YCONOMIIUS. See Oeconomus. YDALA, in Geography, a town of Sweden, in Blekingen; 10 miles S.S.E. of Konghback.

YDRIA. See Hydria. YDRINUS, or Hydrinus, a name given by fome to the obfipites, or ferpent-flone.

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

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

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

YEADON, a township of Yorkshire, in the Weft Riding, with 1693 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 Pegomgraw.

YEANING, among Sheep-Farmers, a term used to fignify the act of bringing forth the young in animals of the fheep kind. It is faid that in the polled breeds of fheep the lambs are yeaned with the greateft ease and facility, and in the large-horned breeds with the greateft difticulty and inconvenience. See Sheep.

YEANING-Time, the feaning of yeaning in fheep, which is different in different breeds of them, but probably the moft early in the Dorleftire breed, as they may be managed fo as to lamb at a very early period. In general, however, the management is fuch, 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 cafes and situations. When yeaned too early there is often great loss, on account of the inclemency of the feaning, unlefs the ewes have been kept very well for some time before it takes place. Confequently, in all fuch cafes, they fhould, for some weeks at least before the yeaning time, be plentifully fupplied with proper food, fo that the health and Strength of them and that of their young may be promoted and preferved againft this period. Proper feltered situations, yards, and ifpots of ground, fhould also be provided for this purpofe, by which the lives of numbers may be faved. See Sheep.

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

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

YEAR, Anxus, in the full extent of the word, is a fystem or cycle of feveral months; ufually twelve.

Others define year, in the general, a period, or space of time, meafured by the revolution of some celefial 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 fun, moon, &c. fubmit their revolutions, and return to the fame point of the zodiac, are refpeftively called the years of Jupiter and Saturn; and the folar and the lunar years.

As there is no luminary whole changes and revolutions are fo frequent and remarkable as thofe of the moon, fome have thought that all nations at firft measured and divided time according to the various afspects of this planet. Acci- dentally the Egyptian year originally confifted of a fingle luion; afterwards it included two or three months, and was defined by the flated returns of the feafons. It has been alfo fuppoled, that feveral ages muft have elapfed before the idea of adjufing the length of the year to the courfe of the fun became general, though repeated ob-ervations were made on his motion in the eclipfie. The Indians, the Chaldeans, and Egyptians, who in a very early period applied their attention to astrony, at length found, by comparing the motions of the fun 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 luions, in every one of which were reckoned 30 days: and hence alfo, it is faid, arose the division of the eclipfie into 360 equal parts, or degrees.

Years, properly, and by way of eminence fo called, is the solar year; or the space of time in which the fun moves through the twelve figns of the eclipfie.

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 affumed 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 vicifitudes of feafons feem to have given occasion to the firft infitution of the year. Man, naturally curious to know the caufe of that diverfity, foon found it was the proximity and distance of the fun; and, upon this, gave the name year to the space of time in which that luminary, performing his whole courfe, returned to the fame point of his orbit.

And hence, as it was on account of the feafons, in a great measure, that the year was infituted, their chief regard and attention were, that the fame parts of the year always correspond to the fame feafons; i.e. that the begin-ning of the year should always be when the fun was in the fame 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 juft; i.e. none of them whole parts did not shift, with regard to the parts of the fun’s courfe.

We may naturally fuppofe that the commencement of the year would be determined by the date of some confiderable event, fuch as the creation of the world, the univerfal deluge, a conjunction of planets, the incarnation of our Saviour, &c.; and of course it has been referred to different points in the eclipfie. The Chaldean and Egyptian years were dated from the autumnal equinox. The ecclefiaftical year of the Jews began in the fpring; but in civil affairs they retained the epoch of the Egyptian year. The ancient Chinefe 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 folstice. This likewife is the date of the Japanese year. Demifchid,
or Gemischid, king of Persia, observed on the day of his public entry into Persepolis, that the sun entered into Aries; 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 Neuruz, viz. New-day, and is still celebrated with great pomp and festivity.

The ancient Swedish 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 solennized 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 feast. 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 EROCHA and CHRONOLOGY.

They were the Egyptians, if we may credit Herodotus, that first formed the year, which was lunar-folar, 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 Chaldean year of 360 days, which they afterwards reformed.

Some missionaries report, that the lunni-folar 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 33' on account of the motion of the stars in longitude, the Indian tropical year will be 365 d. 5 h. 50' 56". The Mexicans received the lunar-folar year from the Indians or Chinefe, and divided it into 19 months of 20 days; adding five days to the last month, and dating the year from March. That the ancient Grecian year was lunar-folar, 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. 42.

It has been said that Mercurius Trimegillus 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, Romans, Persian, Ethiopic, Arabic, &c. years were all different.

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

The imperfectness of the lunni-folar 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, incorporated 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. xvii. Synccul. Chron. p. 121.) The length of the solar year was represented in a golden circle fixed upon the tomb of Ozymandes; and this circle was 365 cubits in circumference, laying on each cubit a day of the year inscribed, together with the heliacal risings or settings of the stars. This Ozymandes 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 Chaldeans and Egyptians to other nations; but it has not been a priori- nated 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. xvii.); 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 Eudoxus are said to have obtained it, as a secret, from the Egyptians, about 800 years after Herodotus, and to have carried it into Greece; which shows 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 superfluous nations were required by law to admit any addition to a form of the year which had been so long established among them.

The reformed year of the Chinese consisted of 365 d. 5 h. 20', which were divided into 24 months, each of these equal parts including 15 d. 5 h. 14' 30". (Du Halde, Hyde, Relig. Vet. Perp.) The quantity of the Indian year was somewhat different from that of the Chinese: the lunar year contained 364 d. 22 guris, 1 pull; and the solar year 365 d. 15 guris, 30 pulls, 22½ puts; 60 pulls = 1 pull, 60 guris = 1 day; so that their solar or rather sidereal year consisted of 365 d. 6 h. 12' 7". 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. Ricciolius, and Tycho Brahe, 365 days, 5 hours, 48 minutes, 2 seconds.
The solar year is either astronomical or civil.

Year, Solar Astronomical, is that determined precisely by the observations of astronomy; and is of two kinds, tropical and sidereal or aërial.

Year, Tropical or Natural, is the time which the sun employs in passing through the zodiac, or from one equinox, or one tropic, to the same again; which, as before observed, is 365 days, 5 hours, 49 minutes; or, more accurately, 365 days, 5 h. 48' 48".

This is the only proper or natural year, because it always keeps the same feasons 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 \( n - m \) 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 \( n - m = a - m \times 24 \) hours, the interval from the time when the sun was on the meridian on 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 equinoctial plane in 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.

Year, Sidereal or Aërial, is the space of time in which the sun, going from any fixed star, returns to the same. 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 passes 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, \( bh \), of right ascensions is less, and the other when the difference, \( fm \), is greater than the difference, \( Zm \), before observed; then \( bh \) 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 \( bh = bZ \times t \) : the time, \( t \), in which the right ascension is increased from \( b \) to \( Z \) ; 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, \( Zm \), in 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; \( 360° - 50°, 25 : 360° :: 365 \text{d.} 5 \text{h.} 48' 48'' : 365 \text{d.} 6 \text{h.} 9' 11''4'' \) the length of the sidereal year.

Year, Anomalous, 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 \( 1^°, 75 \); the anomalous year must be longer than the sidereal year, by the time which the sun takes in moving over \( 1^°, 75 \) of longitude at its apogee; but when the sun is in its apogee, its motion in longitude is \( 58' 13'' \) in 24 hours; hence \( 58' 13'' : 11^°, 75 :: 24 \text{ hours} :: 4^°50'' 39'' \), which added to \( 365 \text{ d.} 6 \text{ h.} 9' 11''4'' \), gives \( 365 \text{ d.} 6 \text{ h.} 14' 24'' \), the length of the anomalous 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 Anomalous Year.

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 occupations 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 bissextile.

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:

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<th>Month</th>
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<td>January</td>
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<td>February</td>
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<td>30</td>
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<td>December</td>
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March 1

Year, Bissextile, or Leap, is that consisting of 366 days; or it has one day extraordinary; which day is called the intercalary, or bissextile day.

This intercalary, or additional day to every fourth year, was first appointed by Julius Cæsar; who, to make the civil year keep pace with the tropical ones, contrived that the fix 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 sixth of the calends of March. Hence, as in that year, they reckon this day twice over, or add bis sexto calendar, the year itself came to be called bis sextus, and Bissextile; 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 farther reformation in this year was made by pope Gregory. See Gregorian Year, and Calendar.

Year, Lunar, is a system of twelve lunar months. See Lunar.

Hence, from the two kinds of synodical lunar months, there arise two kinds of lunar years; one astronomical, the other civil.
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 fee.

Year, Lunar Civil, is either common or embolismic.

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

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

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. Sextilis, 30. 7. September, 30. 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 subject to any precise season; to remove which inconvenience, that prince ordered so many days to be added yearly as would make the rate of the heavens correspond to the first month, without incorporating these extra 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 inflected in the calendar. Romulus retained the former names and number of the months; but adapted their quantity nearly to the course of the sun, aligning, as we have flirted, fix 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 inflected, 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. Sextilis, 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 alphabetical 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, defiring to have it fixed to the winter solstice, ordered 22 days to be intercalated in February every second year, 23 every fourth, 22 every fifth, 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 truth, let things run to the utmost confusion. And thus the Roman year floated till Julius Cæsar made a reformation. See Calendar.

For the manner of reckoning the days of the Roman months, see Calendars, None, and Ides.

Year, Julian, is a solar year, containing, commonly, 365 days; though every fourth year, called biflextile, 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 131 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 stood, 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 affiUted by SoQeneses, 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 anni confuliun, the year of consulship. See Julian Calendar. Year, Gregorian, is the Julian year corrected by this rule; that whereas, on the common footling, every secular or hundredth year is biflextile; on the new footling, three of them are common years, and only the fourth is biflextile.

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 435, 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 fifths to the frit of April. To remedy this irregularity, which was still increasing, pope Gregory XIII., in the year just mentioned, called together the chief astronomers of his time, and concerted this correction; and, to refile 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 fift of October to the fiftenth. He exchanged the lunar cycle for that of the epacts; and in order to refile 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 fiftenth; and by this means, the vernal equinox has been refiled 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 1700, the error of ten days was grown to eleven; upon which the Protestant states of Germany, to prevent farther confusion, accepted the Gregorian correction. See Reformed Calendar and Style.

Yet is even the Gregorian year far from being perfect; for we have shewn, 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 Nebonassar, on account of the epocha of Nebonassar, 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 fix 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 elapsed, 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 astronomy, for comparing the ancient observations with the modern.

This defultory 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 Siculus (lib. i.), Plutarch (in the Life of Numa), and Pliny (lib. vii. 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 fix, like that of the people of Acarnania. Thofe authors add, that it is on this account they reckon fuch a vast number of years from the beginning of the world; and that, in the history of their kings, we meet with fome who lived 1000 or 1200 years.

But Herodotus is silent on this point: he only fays, that the Egyptian year confifted of twelve months, as we have above represented it. Besides, we learn from Scripture, that from the times of the flood, the year was compofed of twelve months; Cham, confequently, and fion Mifraim, the founder of the Egyptian monarchy, muft have had this custom: and it is very probable his defendants fhould alter it. Add, that Plutarch fpeaks of it with great uncertainty, and as no more than a report; and Diod. Siculus, 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 fome other nations.

F. Kircher, however, maintains, that besides the solar year, there were fome of the nomes or cantons of Egypt which used a lunar one; and that in the remotef ages there were fome 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, others three, and others four, &c. (Oedip. Egy. tom. ii. p. 252.) A late author obferves, that Varro has afirmed of all nations, what we have here quoted of the Egyptians; and adds, that Laecanamus takes him to talk on that subject. We do not know in what places of Varro, or Laecanamus, he has seen this: all we can fay is, that Laecanamus (Divin. Init. 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.) fays, 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 fome 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 ἂναται νημειαι, 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 anus Abincus, as being intituled foon after the battle of Actium.

Year, Ancient Greek, was lunar, confifting 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 embolimic 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 fame terms or feasons of the year. With this correction, though erroneous, it subsifted 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. Εἰσοδευσις, containing 29 days. 2. Οἰκοδομη, 30. 3. Βοσκήμα, 29. 4. Μακεδονία, 30. 5. Ποσειδια, 29. 6. Ποσελίδα, 30. 7. Γενέα, 29. 8. Αἰγουσία, 30. 9. Εὐφρανία, 30. 10. Νότια, 30. 11. Φαγέπλωθος, 29. 12. Συμφώνια, 30.

The Macedonians had other names for their months; so had the Syro-Macedonians, Smyrneans, Tyrians; so also the Cyprians, Paphians; and fo the Euthynians, &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 Μακεδονίας; as the Macedonian year commenced not at the summer solstice, but at the autumnal equinox. The months stand thus: 1. Αὔων, 30 days. 2. Αὐλός, 29. 3. Αὐτοκράτορ, 30. 4. Περίπος, 29. 5. Αὐτοκράτορ, 30. 6. Πανος, 29. 7. Λιπίδας, 30. 8. Διονυσία, 29. 9. Μαχαίριας, 30. 10. Λαός, 30. 11. Γενέα, 30. 12. Συμφώνια.

Year, Modern Macedonian, is a solar year, whose beginning is fixed for the frist of January of the Julian year, with which it perfectly agrees.

This year was particularly called the Attic year; and the intercalary month, after Poidion, was called Ποιδιάς, or letter Poidion.

Year, Ancient Hebrew, 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 embolimic month.

Tradition reports, that Abraham preferred in his family, and transmitted to posterity, the Chaldean 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, Mofes
The year of Nifan, during which and, which the Mofes began to use, was the 13th year, or the 4th in the embolimic year, 30. Adar, in the common year, 30. Adar, in the common year, was but 29. In the defective year, Cileu was only 29 days; and in the redundant year, Marchefvan was 30 days.

Though sometimes it contains 13 months; the names, &c. of which are as follow: 1. Muharram, containing 30 days. 2. Safar, 30. 3. Rabia, 30. 4. Rabia, 30. 5. Jamada, 30. 6. Lutter Jamada, 30. 7. Rajab, 30. 8. Shaaban, 29. 9. Ramadan, 30. 10. Shawal, 29. 11. Dulkadah, 30. 12. Duluhejja, 29; and in the embolimic year, 30. An intercalary day is added every 24, 5th, 7th, 10th, 13th, 15th, 18th, 21st, 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.

The year, Ethiopian, is a solar year, perfectly agreeing with the Attic, except in this, that the names of the month are different. It begins with the Egyptian year, on the 29th of August of the Julian year.


The year, Attic, is the Egyptian year.

The year, Macedonian, is the year, which the Persians began to use in the year 1079, and which was formed by an intercalation made six 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 epocha; for whereas the Nabonassaran began on February 26, this began on June 16. As to the galenic year, it is absolutely the first and jufleft of all the civil years yet invented, as being found, by calculation, to keep the solstices 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 Per£an Calendar.

The year, Arabic, Mabometan, 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.

The year, Syrian, is a solar 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 same, as follows:


The 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; 349th lunation added to the 4th year makes 1447 days, nearly. By this adjustment, 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 352 or 367 days, have varied 14 days from the course of the sun in the space of an Olympiad; and, at the end of 70 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 Epocha.

The year, Persia, 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 distinguit with it from the fixed solar year, called the gelamian year, which the Persians began to use in the year 1079, and which was formed by an intercalation made six or seven times in four years, and then once every fifth year.
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 presents, and offered oaths to the
gods for the preservation of each other.
Lucan represents it as a practice of a very ancient standing,
even in his time, and refers it to Numa.
Ovid intimates the fame ceremony in the beginning of his Faht:
"Poffera lux oritur, linguifque animifque favete :
Nunc dicenda bono funt bona verba die."
And Pliny more expressly, lib. xxviii. cap. 1, "Primum
anni incipientis diem latus prefectionibus invicem fauftum
ominantur."
In Russia at the new year is annually held a feast of the
dead, called Radzizl Szabol, on occasion of which every
body visits the grave of his relations, lays some vioculums
upon it, and then hears masses, in payment for which the
priests get the vioculums. 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 more 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 re-
ceived 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
fong; but more generally, especially in the north of Eng-
lnd and in Scotland, the house was entered very early in the
morning by some young men and maidens selected for the
purpose, who prefented the fipced bowl, and hailed you with
the gratulations of the fefon. In the reign of queen Eliza-beth,
the chief officers of state, and several of the queen's household
servants, gave new year's gifts to her majesty, confenting, in
general, either of a loan of money, or jewels, trinkets, wearing-
appearal, &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 30l., and the other spiritu-
al lords 2cl. and 1cl. Many of the temporal lords and great
officers, and most of the peeresses, gave rich gowns, petticoats, fmocks, kirtles, silk kaimings, cymbals garters, sweet-
bags, doublets, mantles, some embroidered with pearls,
garnets, &c., looking-glasses, fans, bracelets, calkets tufted
with precious ftones, jewels ornamented with spaxks of di-
monds in various devices, and other costly trinkets. These
presents also consisted of books, and appropriate gifts from
physicians, apothecaries, &c. The queen, though the 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 kindnes 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-
ert her holy influence, and though originating in the heat-
then world, became sanctified by the Christian virtues.
We shall here add, that the rejoicings on new year's tide
were succeeded by the obfervance of the "Twelfth-day,"
called, from the idea that the Eastern magi, who are faid 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 waaffil
bowl; which fee. Drake's Shakspeare, vol. i.

YEAR.

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 first of January, on which day the
German and Italian year also begins.
Stowe observes, that William the Conqueror having been
crowned on the firft 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 thefe two terms was usually
expressed in both ways, as 1748-9, or 1748-5. But by the act
for altering the style, the civil year now commences with January
1st. See New Style.
Since the Conqueror, the King's prayers, 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 first Sunday in Advent, which is always that next St.
Andrew's day, or the 25th 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 Jewifh 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 ecclesiasti-
cal matters. Before this period, Tifri was reckoned the com-
memoration 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 firft
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 sabbatical years. And therefore, although
their ecclesiastical year began from Nisan, and all their fe-
fivals 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 22nd 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 the year
of 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-
stored, 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 answer-
ing 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 fim COLUTI ARA fudagau, q. d. feast of New-year's day.
The Mexicans, according to D'Acosta, begin the year on
our
If the lease be but for half a year, or a quarter, or any left time, this lease is reputed as a lease or tenant for years, and is so styled 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 lease for years may be made to commence in futuro, though a lease for life cannot.

With regard to emblems, or profits of land sowed 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 to Midsummer, for ten years, and in the last year lows 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 sow what he never could reap the profits of. But where the lease for years depends upon an uncertainty; as, upon the death of the lessor, being himself only tenant for life, or being a husband feared 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 certain to expire at a time foreknown, but merely by the act of God, the tenant or his executors shall have the emblems 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 emblems shall go to the lessor, and not to the leasee, who hath determined his estate by his own default. Blackfr. Com. vol. ii.

YEARLINGS, in Rural Economy, a term applied to young near cattle of the heifer kind in the second year. It is observed in the Gloucestershire Report on Agriculture, that until within these few years, it was there esteemed a bad practice to let them be put to 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.

Y E A R N, in Hunting, signifies to bark, as beagles properly do, at their prey.

Y E A R N I N G, in Rural Economy, a term applied to runnet, used for curdling milk in some places. See Dairying and Runnet.

Y E A S T, Yeast, or Burg, the foam or flower of beer, or other liquor in fermentation.

The yeast of beer is used for a leaven or ferment in the making of bread; as serving to swell or puff it up very considerably in a little time, and to make it much lighter, lofier, and more delicate. But when there is too much of it, it renders the bread bitter.

The use of yeast 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 witnesses 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-yeast may be kept fresh and fit for use several months by the following method: Put a quantity of it into a close canvas bag, and gently squeeze out the moisture in a screw-press, 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 the method of preferring it, or raising nourishment of it; for want of which they obtain 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 lasting, and fit for carriage, by this easy expedient. 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 proposes this method of procuring fresh fermented bread at sea.

The process is as follows: Boil flour and water together to the consistency 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 described under Pyrexia Water, for the impregnation of water with fixed air; and the process is to be conducted in a similar 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 continue during several minutes, the unabsorbed 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 cask. The orifice at i should also be larger than is necessary in the other operations, on account of the superior viscosity of the mixture. When, after repeated agitation, the mixture which has ascended into the funnel does not subside into the cask, it may be supposed incapable of absorbing more air.

Pour the mixture, thus saturated, into one or more large bottles, or narrow-mouthed jars; cover it over loyally with paper, and upon that lay a plate or board with a weight to keep it steady. Place the vessel in a situation where the thermometer will stand from 70° to 85° and stir 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 state, and before it has acquired a thoroughly vinous smell, mix the quantity of flour intended for bread, in the proportion of six pounds of flour to a quart of the yeast, and a sufficient portion of warm water. Knead them well together in a proper vessel, and covering it with a cloth, let the dough stand 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 simple water.

When the operation is finished, the cask, in order to prevent its contracting a disagreeable taint, should be well washed. Henry's Account of a Method of preferring Water at Sea, &c. p. 26, 1781.

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 vessels, a white substance, not unlike curd, separates and floats upon the surface. If this substance be removed, the yeast loses the property of exciting fermentation. This substance possesses many of the properties of gluten, though it differs from it in others. Its colour is much whiter. It has not the same elasticity, and its particles do not adhere with the same force. It diffuses more readily in acids. Dr. Thomson considers this as the real fermentative principle, and thinks it may be considered as gluten somewhat altered, and rendered much more capable of decomposition. He thinks also that it existed in the raw grain originally, but underwent considerable modifications by the malting process, and perhaps others during the fermentation of the beer from which it separated.

The fame distinguished chemist states, in support of this opinion, the experiments of Fabroni and Thènard. Fabroni, by heating the juice of grapes, and passing it through a filter, separated an adhesive matter, which pollutes the properties of gluten, and deprived of which the juice refused to ferment, though it was fermented as well as usual when this principle was again added. Thènard likewise found in the juices of all the fruits he examined a substance similar to that described by Fabroni, and which, according to him, is absolutely the same with pure yeast. This substance is infusible; does not change vegetable blues, is infusible in water, loses three-fourths of its weight when dried, and is decomposed like animal substances. When eight parts of it were distilled, they left 2.83 of charcoal, and yielded 1.61 of water, 1.81 of oil, and a quantity of ammonia, which, when saturated with muriatic acid, formed 1.46 of muriate of ammonia. The gas obtained weighed 0.33, and consisted of one-fifth of carbonic acid, and four-fifths of carburetted hydrogen, requiring 13 times its bulk of oxygen to consume it. Nitric acid, even when much diluted, converts it into a species of tallow. With potash it forms a soap, while ammonia is diffused. When mixed with sugar and a sufficient quantity of water, fermentation takes place, carbonic acid is diffused, and a vinous liquor formed. By this action, the ferment loses the whole of its azote, and becomes incapable of exciting fermentation when mixed with a new portion of sugar. In further corroboration of this opinion, Dr. Thomson adduces an experiment of Kirchhoff, which he thinks throws considerable light on the nature of yeast. Barley-meal contains both gluten and flour. Pure flour infused in hot water is not converted into sugar; nor does gluten become saccharine matter when heated in the same manner. But if a mixture of pure dried pulverized wheat-gluten and potato-flour be infused in hot water, the flour is converted into sugar. During the process an acid is formed to be evolved. The gluten is little changed in appearance or quantity, and may most of it be separated by filtration. What is singular, however, it is incapable of inducing the same change upon flour 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>315</td>
</tr>
<tr>
<td>Gluten</td>
<td>480</td>
</tr>
<tr>
<td>Water</td>
<td>13.592</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15.142</strong></td>
</tr>
</tbody>
</table>

[Vol. XXXXIX]
Besides some traces of phosphoric acid and silica. But it is evident, as Dr. Thomon observes, that all these ingredients are not essential, and he considers the gluten only as deferring that appellation.

Some of the French chemists have considered the principle of fermentation to reside in an imperfect species of sugar, which they have denominated the sweet principle, and which they state to exist in combination with real sugar in all fruits containing that principle. This sweet principle they suppose to differ from pure sugar, in being incapable of crystallizing. A familiar example of it we have in treacle or molasses, which, according to them, is the sweet principle of the sugar-cane. This doctrine, however, has not met with many adherents; for, as Dr. Macculloch observes, although chemistry has not hitherto discovered the methods of separating the sugar from the sweet principle, the results of fermentation leave no doubt that the latter conficts of sugar combined with the vegetable extractive matter, or gluten, as it is denominated by most chemists. Thus molasses consists of a certain portion of real sugar, in such a state of combination with a variety of substanves, and the fermentative principle among the rest, that it cannot be made to crystallize, or be otherwise obtained in a separate state. This is demonstrated by the well-known fact, that molasses may be made to undergo the fermentative process, and to yield alcohol, in precisely the same manner as a simple mixture of sugar and yeast. The sweet principle of molasses, therefore, must be in fact nothing else than sugar, unless we suppose two different substanves capable, by the same means, of producing the same result, which is totally unprecedented in chemistry, besides being in itself extremely improbable.

Upon the whole then, in the present state of our knowledge, we are obliged to conclude that the essential principle of yeast, or the real fermentative principle, is either identical with gluten, or closely allied to it. Of its real nature, however, and modus operandi, we are totally ignorant, and shall probably long remain fo.

The yeast of beer is that 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 moisture, it retains its properties for a long time, and it is a pity this practice is not more generally resorted to, as fluid yeast in warm weather soon becomes accecent and putrid, and not only loses its properties, but imparts a most disagreeable flavour to the bread, &c. with which it is mixed. Yeast may be readily dried by first separating its watery parts as much as possible, and afterwards expouing it in shallow vesseLS to the air, or to a gentle heat in a stove. In this way, it may be obtained in thin lamina, and requires only to be preserved in clove vesseLS in a dry place, when it will be always ready for use, by diffusing it in a little warm water. A popular method of preparing yeast is by drying it upon bunches of twigs. See Bread, Brewing, Fermentation, and Wine.

Yeast, Medicinal Properties of. Yeast has been highly extolled as an antifeptic remedy in diseases, when a putrid diahtesis was supposed to prevail; as in low typhus fevers, gangrene, &c. A good method of exhibiting it is, to mix one or two table-spoonfuls of it with a quart of infusion of malt or mild porter, and to take a wine-glaSSful of this mixture frequently. Many practitioners also have spoken highly of the good effects of a fermenting poultice composed partly of yeast, when applied to foul and gangrenous ulcers. The good effects of this remedy, if in reality it possesses any, may probably be attributed to the carbonic acid gas generated by its agency. See Fever.

YEATS, Mrs., in Biography, the celebrated tragic actress, who, in conjunction with Mrs. Brooke, the novelist, a lady of considerable literary merit, undertook, in 1773, at all risks, the conduct and government of the opera, and all its domestic concerns; the enterprize for which they were but faintly qualified. In the first place, Mrs. Yeats, though possessed 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 saved a considerable sum by their salaries 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 success was certain, to govern a most froward family by deputation, at the extreme hazard of being ruined.

Mrs. Brooke, who had resided some time at Quebec, after its conquest, with her husband, the Rev. Dr. Brooke, chaplain to the army in that colony, indeed knew French, had a good taste 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 best composers, the greatest singers, and the most capital and renowned dancers, were engaged; for during nine years, from 1773 to 1782, we had Saccini, Trutta, and Anfoffi, to compose; Pacchierotti, Anfani, and the Gabrielli, to sing; and Madlle. Heynol, the Veltris, and Le Pasq, to dance.

Mrs. Yeats did not enrich herself by her opera enterprise; but she had the address to escape ruin. And Mrs. Brooke, who risked no property, lost no reputation by imprudence, or the want of talents in the persons she engaged.

YECATY, in Geography, a town of Hindoostan, in Myfore; 20 miles N. of Seringapatam.

YEDCORA, a town of New Mexico, in the province of Hiaqui; 50 miles E. of Riochico.

YEDACOTTA, a town of Hindoostan, in Myfore; 15 miles N. of Dindigul.

YEDAPADY, a town of Hindoostan, in the Carnatic; 8 miles N. of Sankeridurgam.

YEDAPILLY, a town of Hindoostan, in Myfore; 2 miles N.W. of Venkatighery.

YEDDUMUNALUM, a town of Hindoostan, in the Carnatic; 18 miles E. of Tanjore.

YEDKAST. See Jeddakast.

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 Hindoostan, in Lahore; 15 miles N.N.E. of Jallindar.

YEHUNGSHAUL, a town of Hindoostan, in Lahore; 40 miles W.N.W. of Lahore.

YELASURAM, a town of Hindoostan, in Palnaud; 20 miles W.S.W. of Timerycotta.

YELCHORE, a town of Hindoostan, in the circle of Guntoor; 3 miles N.E. of Innaconda.

YELCOUR, a town of Hindoostan, in the Carnatic; 15 miles N. of Chittoor.

YELDOOR, a town of Hindoostan, in Myfore; 12 miles N.E. of Colar.

YELFOLA, a town of Spain, in Galicia; 18 miles N. of Santiago.

YELION, a word used by some of the barbarous writers to express glass.

YELL ISLAND, in Geography, one of the Shetland islands, 20 miles long, and about 8 broad, but intersected 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, and covered withpeats: there is but little heath, but abundance of a rough sort of grass called lithob, which grows naturally, and affords tolerable pasture for sheep, horses, and black cattle. Though the crops raised are 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, as well as the generality of the peafants of Scotland.

N. lat. 63° 56'; W. long. 1° 20'.

YELLAGOOD, a town of Hindoosan, in Golconda; 43 miles S.E. of Canould.

YELLAGOOODY, a town of Hindooftan, in the province of Madura; 25 miles W. of Madura.

YELLANG, a town of Burmah; 14 miles S. of Mellane.

YELLOOR, a town of Hindoosan, in Baramaul; 6 miles N.N.W. of Nameul.

YELLOW, a bright colour, reflecting the most light of any after white. See Colour.

The word is formed from the Italian giallo, or the German geel, which signifies the same; or from the Latin galbanus, 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 quercitron-barke (see Quercus), and the Weld, or Refecla Luibola, which see. In order to obtain calicoes of the finest yellow or more delicate lemon colour, it is necessary to dry the pieces in the open air, as the Rove would not fail to injure such colours; how-drying having a tendency to change a yellow into an orange.

In the operation of dyuing 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 dyuing 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 alumine; 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 pyrolineous acid, by means of lime and alum, in the following manner:

The pyrolineous acid is first passed through a still, to distil it of a portion of the tar which is always dissolved in it; it is then tannated 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 calceous sulphate, and preferred for use. Mr. Parkes cautions the manufacturer against the use of lime in the procuces 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 faccharum saturni, or acetate of lead. Mr. Parkes mentions a method of producing yellow 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 possesses one very important advantage; viz. that 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 to second time into the acetate of alumine. Parkes’s Eff. vol. ii.

Turmeric like-wise 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 perniciousnes 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 readily gives out both to water and spirit. The watery decoction dyes prepared of a very durable orange-yellow; the colour is imbied by the cloth in a moderate warmth, without boiling.

The fullé or fullig 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 pernicious in the air. This is called extins coriaria, or Venise jumach.

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. Hellot observes, in his Art de Teindre, that all leaves, barks, and roots, which on being chewed discover a flight altringency, as the leaves of the almond, peach, and pear trees, alf-bark (especially that taken off after the first rising of the sap in spring), the roots of wild patience, &c. (see Lea), 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 Chinees are famous for their yellows in dyeing, which never change with washing. They make this dye of the flowers of the acacia, in a manner in which we might ufe 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 vesel over a gentle heat, till they crisp up in the manner of tea-leaves: they then add them to the ripe feeds 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 Ngo-boang, king-boang, and boang along.

The first of these is the brightest yellow: to dye five or six
fix ells of filk of this colour, they use a pound of the flowers of the acacia, about two ounces of the seeds, and four ounces of alum.

The king-hoong 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 filk is dry from the dipping in this, they give it a second dipping in a slight tincture of Brazil wood: this brings it to the fine strong yellow we see.

The hoong, or pale yellow, is made of the same ingredients as the first, only instead of four ounces of alum 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 Chinese 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 boiling 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. sur les Coutum. de l’Afrique, 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, Aurora, panfy, nacreate, Isabella, and chamois colour, which are all casts 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 sand-beat 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 filk 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 alum 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 filk 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 filk and wool of a yellow colour.

The indigo which remains undissolved in making Saxon blue, and collected by filtration, if digefled with spirit of nitre, dyes filk and wool of all shades of brown, inclining to a yellow.

Cloth and filk may be dyed green with indigo; but they must first be boiled in the yellow dye, and then in the blue. Phil. Trans. vol. 131. part 1. p. 129, &c. See Dyeing.

Painters and enamellers make their yellow of malficot, or, as some write it, malficet, which is ceruffle raised to a yellow colour by the fire; or with yellow ochre. Limners and illuminers make it with saffron, French berries, orca-nette, &c.

Mr. Boyle tells us a most beautiful yellow may be procured by taking good quickfiver, and three or four times its weight of oil of vitriol, drawing off, in a glass retort, the saline menstruum from the metallic liquid; till there remains a dry yellow-white calx 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.

Brantão observes, that it was anciently the custom to paint a man’s door yellow, and strew 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 difolved by water; that from the red, rouge is prepared by a process which is kept secret; that the colours of most flowers are changed by alkalies 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 it has its green colour restored by means of alkalies.

Yellow Copper, in Mineralogy, copper pyrites. See COPPER ORES.

Yellow Earth, a soft yellow mineral subfubstance, found at Wehraw, in Upper Luffata, associated with clay and argilaceous iron-dine: it is sometimes used as a yellow pigment. The characters given of this subfubstance 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 Jameron with the lithomarge family, and is thus described by him. Its colour is ochre-yellow, of different degrees of intensity; it occurs mafive; it is dull in the crofs fracture, but glistening in the principal fracture. In the large, the fracture inclines to flaty; in the small, the fracture is earthy. The fragments are tubular, or indefinitely angular. It becomes shining in the freak; it is opaque and very soft, palling into friable; it foils the fingers lightly, and adheres to the tongue; its feel is rather greasy; 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 Ngseyag, in Transylvania. See TELLURIUM.

Yellow Cow-Wheat, in Agriculture. See WHEAT.

Yellow Dead Nettle. See WHEED.

Yellow Devil's Bit. See WHEED.

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.

Vessels 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 Plague, 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 *emberizus lutus*; and by Linnaeus *emberizus citrinella*; and by some *hortalanus*; and by others *lutes*; and by others *chirroes*. The bill is of a dusky 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 lesser coverts of the wings are green; the others dusky, edged with rust colour; the back of the same colours; the rump of a rusty red; the quill-feathers dusky, edged on their exterior sides with yellowish-green; the tail is a little forked; the middle feathers are brown; the two middlemost edged on both sides with green, the others on their exterior sides only; the interior sides of the two outmost 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 moss, dried roots, and horse-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 beside this another kind, which is much smaller, and of a browner colour on the back; this is called by some authors *sirina*.

**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 stand well; but mixed with white lead, and several other pigments, its colour flies 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 first to one of the second, and putting them into a sublimer, and subliming them in a sand-hearth by means of a furnace particularly adapted to the purpose. 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 foreign parts adhering to it in the glafs, and levigated into an uniform powder. It may be also obtained from common orpiment by subliming it in the same manner. This pigment may be rendered warmer, or more inclined to orange, by increasing the proportion of the sulphur, and vice versa. 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 said to be a peculiar property in some sorts of animals, of both the sheep and cattle kinds, to afford meat which has a yellow call or appearance.

It is suggested that this defect must be hereditary, as no pasture or particular food can either produce or remove it, as sheep which have been tried in the manner here described and found yellow have been sent to the Thames marshes, kept there a year, and when slaughtered have proved as yellow as gold. It may probably depend upon some physiological principle, which mere examination after death has not yet shown. These remarks are equally applicable to beef as mutton, and are the result of information on the subject derived from a well-experienced Smithfield saleman.

**Yellow, Nepetes.** See Galloolino.

**Yellow Oat-Grafs,** in Agriculture, a sort of grafs which thrives well in meadows and pastures, as well as upon hills where the foil is of a calcareous nature, flowering in the middle of summer. It is a rather coarse grafs, which, though tolerably sweet, is thought by many to be much inferior to the meadow and felce grafses; and which Withering has asserted not to be relished by cattle; but which Swayne thinks one of the best grafses of this kind for the use of the farmer.

The proportional value which the grafs, 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 grafs 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 remarked, that this species of grafs is pretty generally cultivated in many districts and parts of this country; and that it would appear from the above details to be a valuable grafs, though inferior to many others. See Avena Flavefenci, Grass, and Grass-Land.

**Yellow Ochre.** See Ochre.

**Yellow Rattle,** See Weed.

**Yellow Scur or Milk,** a disease in lambs, which takes place while they are young, and in which they appear quite dull and faint-lef; their ears instead of being upright lie flat and flumber on their heads; they are very lank in the fides and bellies, and their breathing is very short and unequal. These appearances are succeeded by a purging of a yellowish milky coloured matter, which, in some cases, has come on before the disease is noticed; but at other times, the lambs die without having had any or only a slight discharge of excrement. The body or carcase appears well fed; the excrement in the intestines, which last are sometimes in some degree swelled, resembles in colour that passed at the anus, while the faumach is particularly full of coagulated milk.

It is a disease which never appears or shews itself in hard seafons, but only when the weather is warm, growing, and genial, and there is great plenty of new grafs. In general it does not affect them after they are three weeks old. It is mostly ascribed to their eating more milk than they can digest; and it is even said, that they not unfrequently fall until their faumachs burst.

The lambs being young, and of little value, remedies to prevent or remove the disease are seldom tried; but those of the aromatic cretaceous 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 flift clayey soils; that it continues annually, for any length of time, to afford a great weight of produfe, which is of the very best quality; that it is equally fit for pasture herbage or for hay, and that it may be applied to one or other of these purpofes at any period as convenient; that it has likewise this advantage, that as it continues to grow with equal strength in the end as in the beginning of the summer feafon, it may admit of being pafured upon in the early spring, when necessary, without endangering the lofs of the hay-crop, which cannot be the cafe with any other plant ufually cul-

tivated, except clover, which is unfit both for early pafure and for hay; and that it is still more valuable, as growing to the greatest perfection on fuch soils as are wholly unfit for producing fum-fcin, the only fort of plant yet cultivated in the
the field, which seems to have qualities approached 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 Lavaterus pratensis.

Yellow-Boat Wafh, 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 Wafh of Saffron. See Tincture of Saffron.

Yellow Wafh of Turmeric. See Turmeric.

Yellow Breaches Creek, in Geography, a river of Pennsylvania, which runs into the Susquehanna, N. lat. 40° 13'; W. long. 76° 51'.

Yellow Creek, a township of Ohio, in the county of Columbiana, with 491 inhabitants.—Alló, 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 Macartney'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 furnished 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 17,520,000,000 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 depostions from the Yellow river alone; for supposing that sea to extend northward from that river, and to include the gulfs of Po-che-lee and Liao-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 embassy crossed it was so great, as to require, agreeably to the superstitious notions of the Chinese crew, 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, confecrated 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 flung 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 into it from the vessel's prow the several cups of liquids which he had provided, and concluded with throwing in alof that which held the sail. All the ceremonies being finished, and the bowls of meat removed, the people feasted 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. Embafly 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 Liao-tong.

YELOWs, 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 swells itself by a particular yellowness in the eyes and the inside of the mouth, with a considerable degree of conftipation 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 Caffile soap, made up with a sufficient quantity of treacle; and the second morning afterwards giving one consolidated of half an ounce each of nitre, refin, and Caffile 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 farron, and fix drachms of fucccinine aloes, formed into a ball with yfup of buckthorn. But if the rhubarb should be thought too expensive, it may be omitted, and the same quantity of cream of tartar, and half an ounce of Caffile 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 Ethiopia's mineral, and one ounce of Caffile 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 forge-water to three quarts; the liquor then drained off, and sweetened with honey.

In this disease, balls of Caffile 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
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 substanies directed below: Two ounces of salt of tartar, four ounces of cinnamon or anisomy; 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 rowel.

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: Ethiopis' 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 relieving the animal.

The yellows in near-cattle is a common disease, arising from obstruction in the gall-duets, and confin 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 part of the diseaf; and there is a little fleas, with indisposition to move, and a want of appetite for their food. When in the pastures, they moly 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 slate 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 permanently removed. As the changing slate of the weather has often a great effect in retarding or hastening the removal of the diseaf, care should be taken to house the animals in all unfavourable feasons.

On the first appearance of the diseaf, 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-feeds, 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 clofe vessel, first fencing the soap 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.

When the beast is strong, a little blood may sometimes be taken away with advantage; but it should not be turned out into the pasture 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 balsam 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 opened through the whole of the diseaf; in which intention a drink compofed as below may often be useful: Barba-
does aloe, in powder, one ounce; castor-oil, four ounces; syrup 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 faponaceous drink at the fame time.

When this complaint is removed, the general health of the animals may soon be restored by the proper use of cor-
dial strengthenings drinks, formed of the different aromatic pectoral feeds in the powdered slate.

The yellows is not a very common disease among sheep, 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 Leicesteter breeds, which, from their more tender constitutions, are more liable to complaints.

The appearances of the diseaf are a yellowness over the whole body, but particularly diftinguishable in the white of the eye. The wool, too, has a little of the tinge, and is slightly hard. The paffages of the belly are of a whiffil-
ous appearance; 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 hardness in the right-fide, about the heat of the liver. The caufes are any thing which has a tendency to obftrude the gall-duets, but they are by no means evident; their effect, however, seems generally to harden the liver, and invariably to impede the paffage of the bile from it into the bowels. In some cafes, small ftones, formed in the gall-
bladder, produce it; and at other times, it is caufed, 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 diseaf is to be attempted by the use of strong purgatives, and fuch remedies as act strongly on the ftemae. A strong folution of purging salts will partly tend to produce this effect; and ten grains of peccacuana, which is kept every three hours in a little warmed ftrong beer, is said to be attended with the most beneficial effects, when continued for five or fix days together, and a dose of purging fals given after it, to give the bowels. Calomel and foap may likewise be often given with great benefit, as well as some of the above faponaceous remedies.

YEMANA, or JEMAMA, in Geography, a country and city of Arabia, which M. D'Anville, probably milled by some map and uncertain accounts, places on a river called Aftan, and which he represents as a stream in Neger, though Niebuhr mentions it merely as a wall or brook, which runs under 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 Amamé or Imamé, renowned for the prophet Mofeilama, whom the historian Gibbon ascribes to Yemama, and which town is in the dioclet of Suria. But this cannot correspond with D'Anville's Jemama, which is in the province of Ared, D'Anville only by that of Lafta on the E. Niebuhr also informs us, that Aijana, a town of Ared, is remarkable for the new prophet Wahhab; and therefore Gibbon seems 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 Altan, which, if it existed, would certainly be followed by the caravans from Lahfa to Mecca, while they seem to prefer a fandy defect.

Pinkerton's Geography.

YEMBA. See Emba.

YEMELLA, a town of Hindoostan, in Golconda; 24 miles E.N.E. of Rachore.

YEMEN, a province of Arabia, comprehending the finest and most fertile part of Arabia, reprefenting, as Gibbon has observed, the Arabia Felix of antiquity, surrounded by the Red sea, or Arabic gulf, and by the province of Hadramaut, Nadjed, and Hedsjas. Yemen is naturally divided into two parts, differing greatly in foil and climate: that bordering on the Red sea is a dry and fandy plain, nearly two days' journey in breadth, and is fcorched by the moft torrid 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 confiderable power; but many are petty fchiefs, who are, however, perfectly independent: the most confiderable of these princes is the imam, who refides at Sana. There are feveral other independent fates, as Aden, Kaukeban, Kobail or Hafcid-u-Bekil, Abu-Arifch, a large district between Abu-Arifch and Hedsjas, inhabited by free Bedouins; Khaulan, Sahan, comprehending the principality of Saade; Nedsjeran, Kachtan, Nehm, East Khafan, Dejof or Mareb, Jafa, and feveral others. The fafe intermixture of fertile and barren territory, and the fame productions, appear every where through the whole province: the imam, however, seems to be matter of the richest, the moft agreeable, and the moft interesting part of this tract of country. It would not be easy to explain difintly the extents and limits of this sovereign's territories, as they are fo inter- fected 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 fubdivision of the kingdom of Sana into thirty governments or counties. Tehama contains five of these governents, and the Highland country twenty-four: the fmall governments are not all alike populous or remarkable. There are in the territory of the imam many fchiefs difperfed among the mountains, who acknowledge not his authority, and are but in a very flight degree dependent upon him. From the expulsion of the Turks in the year 1629, the reign of the imams began; their great ancestor Khalleem Abu Mahomed was the chief author of that revolution. The throne of Yemen is hereditary; if generally approved of by the fubjefts, the eldest legitimate fon of an imam is his rightful fuccifor. But in the depotic governments of the Eait, indeed, no order can be clofely observed, because there are no fundamental laws. The imam is an absolute prince, and the more fo by uniting in his own perfon supreme authority, both spiritual and temporal, over his fubjefts. His jurifdiction in ecclecafical matters, however, extends not over the dominions of other sovereigns of the fame feft: thefe fates have each a muflih, or cadi, for its spiritual life. Although the imam be absolute, he is checked in the exercife of his authority by the fupreme tribunal of Sana, of which he is only prefident: this tribunal, conflifting of a certain number of cadis, polaffes the fole power of life and death. The imam may not order any of his fubjefts for execution, but fuch as have been condemned in confequence of a criminal prosecution before this court.

The cadis are generally efteemed to be perfons of incorruptible integrity, of blameless lives, and devoted to the faithful discharge of their duties: they are not changed here fo often as in Turkey, but hold their offices usually for life. Every petty diftrift in the dominions of the imam has its governor: if not a prince, or one of the higher nobi- lity, this governor is called wali and dola, or fometimes emir, when he happens to be a perfon of low birth. In every little town, a lub-dola, with a small garrifon, confift- ing fometimes of five or fix foldiers, refides to maintain order. The chief of a large village is a fchieff: he of a small one a hakim. Every city in which a dola refides has alfo a cadi, dependent on the chief cadi of Sana; the cadis are fole judge in civil and ecclecafical affairs, nor may the dola interfere to contradift his fentences, or render them ineffectual. The cadis in the provinces, no lefs than in the capital, are in high reputation for wisdom and integrity. The revenue of the imam is fluctuating and precarious.

Niebuhr fhews 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 ufe 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 fubjefts are therefore generally un- skilled in navigation. The fishermen venture far to sea in small canoes fearely furnished with oars. The manufactu- res of a people fo little induftry cannot but be very trifling: no fabrics are manufacured in Yemen, nor any edged weapon, except a kind of crooked knives, called jemika. The making of match fire-locks has been attempted here within thefe few years: it succeeds but indifferently.

It is only of late that glafs works have been eftabli{hed at Mocha; some coarse cloth is manufactured here, but not fo much as is required for the ufe of the country: broad cloths are neither made nor worn here. The English brought fome goods of this fort to Mocha, but were obliged to carry them back to India unfold. A country which affords fo few articles for fare cannot have a great trade.

Coffee is almost the fole article exported from Yemen; a valuable commodity, in exchange for which many of thefe things which this country needs from abroad may well be obtained. All the commerce of Yemen is carried on by Mocha, except only the fmall quantities of coffee are exported by Lahore and Hodeids. Agriculture feems to be farther advanced in Yemen than in the other parts of the Eait.

Wheat, in the bel{ cultivated diftricts, is faid to yield an in- creafe of fifty-fold; durra, in the Highlands, 140; and in the Tehama from 200 to 400: and the inhabitants of Tehama reap three succifive crops from the fame field in the fame year. In many parts of Yemen, whole fields are cultivated like a garden, and watered in the rainy feafon by canals from the hills. The inhabitants of the plain are obliged to en- compafs their fields with dykes, that the water may remain for fome time upon the furface of the ground. In the upper parts of Yemen, the inhabitants collect the water neceffary for their fields in dams formed at the foot of the hills. In fome diftricts 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 deftructive animals, the peafants watch them by turns. In the Highlands, he who watches feats himself on a tree; in the Tehama, on a fort of scaffold, with a roof railed 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 Chantong; 45 miles E.S.E. of Tei-nan.

YENDON, a river of England, in the county of Stafford, which runs into the Churnet.

YENGHI IMAN, a town of Curdislan; 70 miles S.E. of Kerkuk.

YENGL, a town of Corea; 25 miles N.E. of Kang.

YENISSEI, or YENISSEI, or YENIFLEY, a river of Russia, which the Tartars and Mongoles, who inhabit the superior regions of it, above the Tunguika, call Kem, and the Olitaks, Gub or Kheles, figuring the Great river, and which is at first composed of two rivers, the Kambara and the Veikem, originating in the Chihefe Soongaria, or Bucharia, and forming a conjunction in N. lat. 51° 30', and E. long. 111°. About the mouth of the Bom-Kemthuyug it enters upon Russian ground, and henceforth takes the name of Yenifley. After various windings it turns northward, and in N. lat. 70', and E. long. 103° 30', forms a bay containing several islands; and at half, in 3° 30' of length, falls into the Frozen ocean. In autumn, when its water is at the lowest, its breadth, r. 570, at the town of Yenifeilfik, is about 570 fathom, whereas in the spring it is 795 fathom and upwards. The coasts of the Frozen ocean, between the mouths of the Yenifley and Oby, are called the Yuratskoï shore. The more considerable streams taken up by the Yenifley are the following: on the right, the UI, the Tuban, the Kan, and the three Tunguikis, i.e. the Upper, the Middle, or Polskomanna, and the Lower Tunguika; on the left, the Abakan, the Yelovi, and the Turukhan. In its superior regions, the Yenifley flows over a very sandy bed; and its shores, particularly the eastern, are most befet 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 Turukankel and elsewhere it forms some considerable islands; and between the cities of Yenifeilfik and Krafluyarik several cataracts are to be seen. The Yenifley 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 fleppes of Ruffia, are hone-tombs, which represent in rude sculpture human faces, camels, horfemen with lances, and other objects. Between this river and the Oby, or Ob, is a vail space extending from the north of Tomik to the Arctic ocean, which is regarded as a fleppe, being a prodigious level with no appearance of a mountain, and scarcely of a hill. The fame term is applied to the wider space between the Yenifie 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 Covima. Tooke's Ruff. vol. i.

YENISSEISK, or YENICEISK, a small town of Ruffia, in the government of Tobolfik, situated on the above described river, the forges of which yield a considerable tax to the Russian revenue. Its jurifdiction is extenfive, and it pays annually a tribute in skins to the crown of Ruffia; 400 miles E.N.E. of Kolivan. N. lat. 58° 16'. E. long. 91° 50'.

YENITE, in Mineralogy, Liverite, Werner, a mineral found in the island of Corfica, which from the great quantity of iron that it contains might properly be called with the ores of iron. It is arranged by Professor Jemfon with the chryfolite 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 refembles hornblende, or rather black epidote:

Vol. XXXIX.

YEN, it occurs both cryftallized and massive. The form of the cryftals is that of a rhomboidal prism, the alternate angles of which meare about 113 and 67 degrees; the prisms are terminated by low four-fided pyramids, the faces of which are on the lateral planes of the prism. It is also cryftallized in rectangular 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 thickness; they are frequently aggregated in diverging râdis, and sometimes imbedded. The prisms are fliated longitudinally. The structure is imperfectly lanear, with joints parallel to the fides, and to the short diagonal of the rhomboidal prism. The fracture of yenifte is uneven, and imperfectly conchoidal, with a furface between vitreous and refluent. The colour is black passing into brown; it does not change its colour in the ftreke. The hardness of yenite is about equal to that of common felfpar; it is easily.frangible. The specific gravity of yenite varies from 3.825 to 4.061.

It is fulible with cafe by the blow-pipe into a black glafs, which has a metallic aspect, and is attracted by the magnet, but does not posfsed polarifation; it disfolves with borax with a flight ebullition. It is acted upon by the mineral acids, but does not gelatinize with them. When expofed 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 confluent parts of yenite are,

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<td>Silex</td>
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Yenite decomposes gradually on exposure to the air, and is reduced to a yellowish-brown ochre. According to Bronniant, yenite occurs in differfed cryftals and groups, and in compact kidney-shaped fasses, in a thick bed of a greenish fubfifence nearly refembling yenite, but which has not been accurately examined. It is accompanied with epidote, quartz, and arfhenical pyrites. This bed at Rio la Marin, in Corfica, covers a rock of primitive marble mixed with tale. At the Cap de Calamite, it is accompanied with magnetic iron-oxide, garnets, and quartz.

YEN-KING, in Geography, a city of China, of the second rank, in Pe-techni; 52 miles N.N.W. of Peking. N. lat. 40° 30'. E. long. 125° 30'.

YENLADE, or STRAX, a channel between the Thames and Medway, which separates the island of Graine from the coaft of Kent. It was formerly the ufual passage for vessels to and from London.

YENNE, a town of France, in the department of Mont Blanc, near the Rhone, suppofed to be the ancient Epanna, 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 firft rank, in Chen-foo, on the river Yen; 390 miles S.W. of Peking. N. lat. 36° 44'. E. long. 108° 49'.

YEN-PING, a city of China, of the firft rank, in Fochien; 820 miles S. of Peking. N. lat. 26° 40'. E. long. 11° 74'.

YEN-TCHEOU, a city of China, of the firft 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 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. 20° 38'. E. long. 119° 14'.—Also, a city of China, of the first rank, in Chan-tong. The territory dependent upon this capital is inclosed 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° 30'.

YENTCHERU, a town of Hindoosstan, in the circuit of Cuddapa; 20 miles N.E. of Combam.

YEN-TCHING, a town of China, in Chan-tong, where a peculiar species of glafs is manufactured, of which a delicate nature, that it will not endure the inclemency of the air; 15 miles S.E. of Tei-san.

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 gemanes, or geman common.

The word yongman is used for yeoman in the statute 33 Hen. VIII., and in old deeds it is sometimes also written yeman, which, in the German, signifies any-body.

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 yeomanry 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 juris 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 yeomanry that occupy lands, than of tradesmen, artificers, &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 groomsman. Such are the yeoman of the buttery; yeoman of the cellery; yeoman of the wine-cellar, ewry, wood-yard, &c.

There are also the yeoman of the mouth, yeoman of the kitchen, yeomen-porters, &c.

YEOMAN, in Saxon Language, an officer under the boatswain or gunner of a ship of war, usually charged with the storehouse, 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 said by Chamberlain to have been disused ever since the reign of King William; the other half had partisans, and those of both claves 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 275l. 15s.

But their diet has been discontinued since that reign. Their duty was to wait upon the queen in her flanding-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 sovereign abroad by land or water.

At present there are but one hundred yeomen in conﬁnant duty, at 39l. 11s. 3d. per annum each; eight of whom are called uffers, who have 100l. per annum each more than the other yeomen; six are called yeomen hangers, and two, yeomen bed-goers, who have the same pay as the uffers; and seventy more not on duty; and of the hundred dies, his place is supplied out of the feventy.

The officers are, a captain, who has 100l. per annum; a lieutenant, at 50l. per annum; an ensign, at 30l.4; and four exons, at 15l. 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. ascend ing 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 inﬂuence of any eﬆablished or permanent military guard in England: its kings, till that time, except in times of war and insurrection, contented themselves with the guard of their proper domesticks and retinue. And Hist. Com. vol. i. p. 302.

Most of the writers, however, against standing armies commence that establishment with the ferjeants at arms, who were ﬁrst instituted by king Richard I. Their dress is that which was worn in the reign of king Henry VIII., and which on many occasions was put on by that king; it consisted 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 Acastery.

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-ﬁce. One ferjeant and a trumpeter per troop were to have conﬁnant pay, with the same allowances as ferjeants and trumpeters of regular cavalry. Some accoutrements were to be furnished by the ordinance, or an equivalent
equivalent in money to be given in lieu of them, and 14s. 2d. per man for holliers.

YEOWIL, in Geography, a large and populous market-town in the hundred of Stone, county of Somerset, England, is situated on the confines of the county, at the distance of 9 miles S.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 pails this place under a stone bridge of three arches, separating the counties of Somerset and Dorset. The town of Yeovil consists of upwards of twenty streets and lanes; many of the former are of considerable width: the houses in general arerespectable, and many of them are built of stone. Part of the town is called the Borough, and is governed by a portreave and eleven burgesses, out of whom the portreave 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 cross. 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 4188: the number of houses is 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 50. At the west end is a plain tower, ninety feet high, with a stone balustrade at the top. Differenters have several meeting-houses in the town. Here is an alms-house, founded in the year 1426, 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 pupils 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 Somersetshire, vol. iii. Beauties of England and Wales, vol. xiii. Somersetshire.

YEOUNGZNAIH, a town of Birmah, on the Irawaddy; 36 miles N.N.W. of Rangoon. N. lat. 19° 30’. YEOU-TUN-OUEL, a town of Chinefe Tartary. N. lat. 41° 8’. E. long. 121° 9’. YEOU-YU, one of the small islands in the Chinefe Archipelago; 62 miles S.W. of Macao.

YEOWAH, a town of Birmah; 15 miles S. of Pegongmew.

YEPES, a town of Spain, in New Castile; 17 miles E. of Toledo.

YERAPATT, a town of Hindooflan, in Myfore; 8 miles S. of Dalmacherry.

YERCO, a town of Thibet; 90 miles S.E. of Laffa.

YERE, a river of France, in the department of the Lower Seine, which runs into the English Channel, at Hui.

YERGHEN. See YARKAN.

YERK, in Horfer, a term signifying to strike out backwards. A horfe is said to yerk, or strike with the hind legs, when he flings and kicks with his whole hind quarters, flinging out the two hinder legs near together, and even to their full extent. Horfes of this fort are very dangerous, and fhould be parted with as soon as poifible, whether they are of the farm or the faddle kind.

YERKIE, in Geography, a town of Russia, on an ifland at the mouth of the Volga, where vessels take their departure for the Caffian fea. Here ships formerly entered and cleared, but the ifland is now almost overflowed, and the trade of the place much decayed since 1747; 60 miles S. of Afrachan.

YERMA. See JERMH.

YERMUK. See YARMUG.

YERTNAGOODAM, a town of Hindooflan, in the cirer of Rajamundry; 17 miles S.W. of Rajamundry.

YERVA-MORA, in Botany. See BOSEA.

YERVILLE, in Geography, a town of France, in the department of the Lower Seine; 12 miles N.N.E. of Cambdeby.

YESCOKING CREEK, a river of North Carolina, which runs into Pamlico sound, N. lat. 35° 29’. W. long. 76° 14’.

YESD. See YEZD.

YESTA, a town of Persia, in the province of Larifan; 40 miles N. of Lar.

YESDECAST. See JEDDECAST.

YESID, a town of Persia, in the province of Chuftian, or Kuristan; 18 miles N. of Toftar.

YEST. See YEAST.

YETCHERADAW, in Geography, a town of Hindoofflan, in Myfore; 9 miles E. of Rvdroog.

YETEOPAU, a town of Hindoofflan, in the cirer of Caccole; 15 miles S.W. of Coiffmecotta.

YETHIAN, 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 Kelfo, and shire of Roxburgh, Scotland, is situated nine miles S.E. from Kelfo, on the small river Bowmont, which divides it into two parts, respectively named Town Yetholm and Kirk Yetholm. A weekly market is held on Wednefdays; and two fairs annually. Many tinkers and gypsys reside in this town. The parish extends about four miles in length, and two in breadth; and is bounded on the eaf and fouth by the Englifh border. The surface is hilly, but the hills are covered with verdure, and pafured by a very confiderable number of sheepe. In the population return of the year 1811, this parish is flated to contain 213 houfes, and 1198 inhabitants. King Robert III. granted the barony of Yetholm in the fourteenth century to Archibald Mac Dougall, whose defcendant still enjoys it.—Carllif’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 some as a touch-fohe.

YEU, in Geography, a small and insignificent ifle, situated on the W. coaf of France.

YEVA CHARRE, 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 fayed to be made partly from lead and partly from zinc.

It is left heavy than our yellow litharge, and of a paler colour. It is ufed as a cauticus 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 Humprevill and the earl of Weftmoreland. Near it is a mountain called Yevering Bell, belonging to those called Cheviot; 6 miles W.N.W. of Wooler.

YEULA, a town of Hindoofflan, in Baglana; 5 miles E. of Bahbelong.

YERVRE LE CHATEAU, a town of France, in the department of the Loiret; 6 miles S.E. of Pithiviers.

YEW, or Elgu, in Botany. (See TAYUS.) De Theis traces thefe Engilh words, whose antiquty cannot be doubted,
doubted, to the Celtic If or Iew, green, alluding to the
evergreen foliage of this tree. The French have retained
If unaltered to the present day.

Iew, as some say, may be derived from the Greek Íëv, to hurt; and probably 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.

Iew is also a term used by the falt-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 cisterns,
and all its foulefs sinks 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 skim of
falt appears upon its surface; they then damp the fire, and
carefully skim off this film, and clear only the scratch or
calcareous earth, which separates to the bottom.

They do not collect this into scratch-pans, 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.

Iew-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 fort may be easily propagated, in moist cafes,
bysowing their berries when divested of the pulp in au-
tumn, as soon as they are ripe, upon a bed of fresh undun-
ged foil, either over the whole or in drills, covering them
over about half an inch thick with the fame earth: but
the latter is the better mode. In the spring, the bed must
be carefully cleared from weeds, and if the season prove
dry, it will be proper to refresh 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 feeds are preferred above ground till spring before
they are sown, the plants never come up till the year after,
so that by sowing the seeds as soon as they are ripe there
is often a whole year savéd.

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 spot of fresh undun-
ged 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 asunder, and fix 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 defiged,
—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,
obseving 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 obseving to remove them in autumn where
the ground is very dry; but on cold moift land it is better
in the spring.

These trees are very slow in growing, but there are many
very large trees upon some barren cold soils.

It is observed in the Gloucefhire Report on Agriculture,
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-
vive. In January 1825, in confquence 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.
Oftentimes 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 cafes be carefully kept
out of the hedge-rows and all other parts of fields, where
cattle are suffered to feed and pasture.

YEVEAPOUR, in Geography, a town of Hindooftan,
in Lahore; 16 miles S. of Nagorcote.

YEZD, or Yezd, a large and populous city of Perfia,
situated in a sandy defert, contiguous to a high range of
mountains running nearly E. and W. This is the grand
mart between Hindooftan, Bucharah, and Perfia; and is,
therefore, a place of considerable trade. The bazaar is
well supplied, and the city contains 20,000 houfes; besides
thefe of the Guebres, or worthippers of fire, which are eli-
minated at 4000. The Guebres were an induftrious people,
but are greatly oppressed, being taxed at twenty piâfres a-
head, in addition to the various other exactions of the Per-
ftian government. Many opulent Hindoes formerly refided
here; but the late governor, wishing to enrich himself by
plundering their property, they all fled in one night to-
wards Candaar, where they have since estaakihed them-
ftelves. The present khan has, in vain, endeavoured to re-
call them, and there are now only nine Hindoes in Yezd.

The city imports the greatest part of its corn from the
neighbourhood of Ifpahan. Cattle are all scarce, and an
afs will sometimes fall as high as fifty tomans. The ma-
ufacture of filk tilfs is inferior to any in Perfta; and the
numuds 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 defitute of a wall.

That
YEZEĐERDÍC Year, in Chronology. See Per-

That territory which lies between Yezd and Ipahan is the most arid part of Irak. The soil is poor, light, and sandy; and here is a general scarcity of water: the climate also is hot, though not unhealthy. The small towns of Arditián, Nair, Anjutah, and Sezabad are badly built, and contain from 100 to 200 houfes each. M'Kinneir's Persia.

YEZÉDIČAN, 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, pursuening a N.E. course, paffes under the walls of Yezdican and Kurs, and meets the Araxes a little to the N. of Nuch-

YEZÉDI, the name of a Perián 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 faid to worship, or rather deprecate, the devil, entertaining an idea that he poifles an unlimited power over mankind. They even diflike to hear the name of the evil spirit mentioned in their preference. They are the defendants of those Arabs who followed the banners of Yezid, and fought against Houfein, in the battle of Ker-

YEZNE, or Ynca, a city of Peru, in the province of Ayacucho, situated near the mouth of a fresh-water river of the fame name, which is dry from the beginning of Oc-

YEZNE, or Ynca, an appellation anciently given to the kings of Peru, and the princes of their blood; the word fingifying literally, lord, king, emperor, and royal blood.

The king himfelf was particularly called capas yncas, i.e. great lord; his wife, palas; and the princes feimply yncas. These yncas, before the arrival of the Spaniards, were exceeding powerful. Their people revered them to excels, as believing them to be fons of the fun, and never to have committed any fault. If any perfon offended the royal majesty in the fmallet 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 im-

YÉI ETI, in Geography, a town of South America, in the province of Paraguay; 120 miles S.E. of Assump-

YÉIN, a word used by some of the chemical writers to exprif verdigrif.

YÉSSER, in Geography, a river of Algiers, anciently called Servetis, which runs into the sea at Jinet-

YN-KIN, a town of Sweden, in the province of Finland; 45 miles N. of Boroschborg.

YN-LANE, a town of Sweden, in the government of Abo; 27 miles N. of Abo.

YN-LAY. See I.A.

YN-LIGAN, a town on the north coast of Mindanao.

YN-LIKANNU, a town of Sweden, in the government of Wafa; 24 miles E.N.E. of Gamla Karleby.

YN-LIN, a city of China, of the second rank, in Hou-

YNKEL, a town of Sweden, in the government of Wafa; 24 miles E.N.E. of Wafa.

YN-LÍESKA, a town of Sweden, in the government of Uela; 38 miles S. of Uela.

YN-LÓ, or Ilo, a fea-port town of Peru, in the diocese of Arequipa, situated near the mouth of a fresh-water river of the fame name, which is dry from the beginning of Oc-

YN-LISTARO, a town of Sweden, in the government of Wafa; 24 miles E.N.E. of Wafa.

YN-LIVIESKA, a town of Sweden, in the government of Uela; 38 miles S. of Uela.

YN-LÓ, or Ilo, a fea-port town of Peru, in the diocese of Arequipa, situated near the mouth of a fresh-water river of the fame name, which is dry from the beginning of Oc-

YN-LIST. See I.LST.

YN-LUM OB, a small filand of Denmark, in the Little Belt. N. lat. 55° 6'. E. long. 10° 1'.

YN-LWISKA, a town of Sweden, in East Bothnia; 28 miles S. of Brahefjald.

YN-NATILAN, a town on the west coaf of the filand of Sibu. N. lat. 10° 21'. E. long. 123° 22'.

YN-CAN, or Ynca, an appellation anciently given to the kings of Peru, and the princes of their blood; the word fingifying literally, lord, king, emperor, and royal blood.

The king himfelf was particularly called capas yncas, i.e. great lord; his wife, palas; and the princes feimply yncas. These yncas, before the arrival of the Spaniards, were exceeding powerful. Their people revered them to excels, as believing them to be fons of the fun, and never to have committed any fault. If any perfon offended the royal majesty in the fmallet matter, the city he belonged to was totally demolished.

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YN-NESTA, a town of Spain, in New Cañile; 20 miles S.E. of Alarcon.

YN-NING, a town of Corea; 20 miles S.W. of Koong-

YN-PING, a town of Corea; 38 miles S.W. of Koong-

YN-TCHENG, a town of Corea; 25 miles E. of Ou-

YN-YUEI,
YOG

YN-YUEI, a city of China, of the second rank, in Yun-nan; 1300 miles S.W. of Peking. N. lat. 25° 58'. E. long. 98° 24'.

YOAK, in Agriculture. See Yoke, and Yoking.

YOAK, Jugum, in Antiquity. The Romans made the enemies they subdued pass under the yoke, which they called sub jugum mittere; that is, they made them pass under a yoke in the fatigue of furca patibulares, or galloves, consisting of a pole, 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 same measure was sometimes dealt them by their enemies upon the same occasion. Thus Caesar (lib. ii.) observes, that the consul L. Cassius had been killed by the Swifs, and his army defeated, and made to pass under the yoke.

YOAK of Land, jugata terre, in our Ancient Custums, was the place 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-tcheou.

YOCKET. See Jockey.

YOCOM CREEK, in Geography, a river of Virginia, which runs into the Potomack, N. lat. 38° 6'. W. long. 76° 36'.

YOCOTE, a town of Hindooftan, in Dowlatabad; 27 miles S.S.W. of Mahr.

YOGESWARA, in Hindo Mythology, a name of the Hindo god Siva; which see. It means lord of ages, or of time; yog, or yog, being vale periods of time into which Hindoo chronologists 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, see Jougues. Some have derived the name of Yogeswara from lord of yogis, supposing the sect of fanniified beggars so designated as being more immediately under the protection of Siva; but this is in fact nearly the same thing, for yog signifies union or junction, and these periods of time unite all things in the Deity; and the Yogi by intense contemplation effects a similar union. But this metaphysical dogma cannot be explained here. See Kalpa, Yog, and YUG.

YOGI, a description of wandering faits, much repected by many of the natives of India, though by others they are strongly suspected to partake more of the impostor than the enthusiastic. There are many descriptions of these itinerants among the Hinduos; and we are not aware that the distinctions 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 many very significations, means primarily union or junction, and is applied in this sense to one who by intense meditation is united to the divine nature; a mystic in early understood by the initiated and enthusiastic Hindoos, though not recognizable by others. There is a difference, we believe, between the Yogi and Sannyfly, but we cannot exactly say in what it consists. In the latter part of the article SECTS OF HINDOOS, some particulars of these two will be found. Perhaps the Yogi may be the designation of the Vaihnava, and Sannyfly of the Saiva sect. (See Saiva, Vaihnava, and Yogeswara.) Both profess poverty, purity, and austerities. When the latter are carried to any extent, the zealot is honoured with the title of Tapävati, of whatever sect he be. Of such, and their austerities, fee under Tapas.

We sometimes read of female anchorets denominated Yogini; but they are, we believe, merely enthusiastic females, who become ascetics and not the wives of the sanctified males. Among the oriental manuscripts presented to the Royal Society by sir W. Jones, is one entitled "Hatha Pradipaka, or Instructions for the Performance of the religious Discipline called Yoga."

In the Gita, Krishna describes the Yogi as being "more exalted than the Tapävati, the zealot who hurstrily himself in performing penances: he is exalted above the learned in science, and superior to those attached to moral works." This passage is quoted in the latter part of our article SECTS OF HINDOOS, but being erroneously pointed is scarcely intelligible. This article being thence referred to, we take the opportunity of correcting another error or two in it:—In the second column, the name of the Mahrratta Brahman general, Purferam Bhov, is twice spelled Bhon; in the fifth column, the name of Vopadeva, the author of the Sri Bhagavata, is spelled 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 also:—In second column, line 11, for inflexions read inflections.

YOHOGANY, in Geography. See Youngogany.

YOIDES, in Anatomy, the bone of the tongue, commonly called hyoides. See Hyoides.

YOIGT, or joint, in Geography, a town of France, in the department of the Rhone and Loire; 7 miles E. of Roanne.

YOITSBACH, a river of Silesia, which runs into the Queis, near Friedberg.

YOKE, in Agriculture, a frame of wood hollowed out and lined for receiving the neck part of the ox or other cattle in working. Yokes are constructed 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 sheaves affixed to the inner end of the tiller. It is now applied to a small 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 stern-sheets of the boat, by which it is steered as with a tiller.

YOKED LEAF, in Botany, folium conjugatum, or binatum. 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 buffoon of yoking or harnessing oxen for the purpose of draught, different methods have been followed by different farmers. And the modes of harnessing and yoking oxen are even different in different counties, and districts of the same county. The most common practice in the southern parts of this kingdom, is that of working them in harness in the manner of horses; while in the northern counties, the yoke and bows are still much employed. On the continent, as in France, Portugal, &c. the head is the part to which the draught is chiefly attached.

In the first case, the shoulder is made the principal point of draught; but in the second method, the neck and shoulder conjointly have the weight of the draught; and in the last mode, the principle of draught is, in one case the head, and in the other the upper part of the neck and hafe of the horn, which lord Somerville has considered a purchase as great perhaps as can be given to the animal.

It is "effecte by a long leathern strap, wrapped round the
YOKING.

The base 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 fitted 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 flitchings and wreathings, which hold the bow fast in the yoke, and the yoke-ring and ox-chain," which is supposed "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 yoke is well fitted, he projects 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 press 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-fifteenth of the weight of the English yoke, across the forehead of his cow, having previously neatly hollowed out the extremities of it to fit the mould of the head, and lined those hollows with a piece of woolly sheep-skin, to answer the purpose of a soft pad or cushion. This light and easy yoke he braces 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 observed by Lord Somerville, in his Sytem 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 considerable length of time, it is probable that the practice may still prevail, in which case the Portugeuse mode of draught will apply with the utmost ease and success to our yoke and bow, so as gradually and imperceptibly to cheat oxen into its use. This in itself is an obvious advantage, because it gives two points of draught instead of one, and thereby relieving each animal of one part of the weight."

"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 cases of the greatest exertion, the beast ever puts his nose close to the ground."

In objection to the harnessing of oxen, it has been observed in the paper noticed above, that "the article of gear is an oppressive annual charge, from the perishable nature of the commodity employed." The tackle there recommended for twelve oxen would not amount to five-and-thirty shillings, whereas the leather harnes for the fame number of animals, according to the new method, would cost five-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 shoulder being bruised by the unyielding bow, no vigour is exerted, excepting what is imparted by the goad; and the shoulders of the neck are not brought into employment; hence the sublime and gigantic force with which he is endowed is not rendered subservient to 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 oppresses them, and they chew the cud cheerfully as they pace along the furrow. On the contrary, in this country the painful pressure obstructs the progress of the animals, they lean against each other, scarcely 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 success."

The methods of yoking cattle in ploughs are also different 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 most common way of yoking cattle in ploughs is in pairs. There are some 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 jollying 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 jolli the one another. In these respects, 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 necessary to give the plough more land than ordinary, either by the scon or the muzzle; for if this be not done, the head and scon being in the same direction with the beam, and the cattle yoked to the middle of it, the plough will directly 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 scon or muzzle; for when the scon 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 eafe, they are disposed to throw the burden upon their fellow. 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, each pulls 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 hindmost, it is obvious, that as the beam to which the draught is fixed is much lower than his shoulders, by which the red 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 hindmost, 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 unyoked draught of a plough with the cattle yoked a abreast is more horizontal than the direction of the draught in a plough with cattle yoked in a line, the same 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 firmest part of the land, and prevented from doing harm.

In wet lands and seafords, as long teams answer best, for the most 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 business of team labour. Much information on this subject may be seen in the Corrected Report on Agriculture for the County of Suffolks.

YOKULS, in Geography, the highest mountains in Iceland, perpetually clothed with snow. Of these, Snæfells, 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 petroflex, slate, and argillaceous schistus.

YOLK, or YELK, 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 itlikewise 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 reserved, as in a florihoue, is by the ductus internalis, as by a funnel, conveyed into the guts, and serves instead of milk. Willughby's Ornithol. lib. i. cap. 5.

This was even known to Pliny:—"Ipsum animal ex albo liquore ovi corporatur: cibus ejus in luto coctu." Lib. x. cap. 53.

Yolk, in Rural Economy, the peculiar munificent secretion which exudes through the flanks 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 sublimate in sheep is favourable to the valuable properties of the wool, and should be attended to by the sheep-farmer 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 decoloring the yolk of it, which is an animal foap that naturally defends it; that the finest wool, such as that of the Spanish and Saxo sheep, is most abundant in yolk; that M. Vauguelin has analyzed several different species of yolk, and has found the principal part of all of them a foam, with a basis of potassa, that is, a compound of oily matter and potassa, with a little oily sublimate 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 urine of potassa, and a peculiar odorofous animal matter.

The same 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 loss in his trials was thirty-five per cent.

It is fuggelled in the above work, that the yolk is the most useful to the wool on the back of the sheep in cold and wet seasons; and that probably the application of a little foap of potassa, with excels of grease, to the sheepl brought from warmer climates in our winter, that is, increasing their yolk artificially, might be useful in cafes where the fineness of the wool is of great importance. A mixture of this fort is more conformable to nature, it is thought, than that ingeniously adopted by the late Mr. Bakerwell; but that at the time his labours began, the chemical nature of the yolk of wool was not known. See Wool, Washing Sheep, &c.

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. 305, 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, nor the Portuguese minister at New York; so 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 Frangaise, 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 Intro. 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 Tracts, v. 9. 204.

Gærtner states the Vitellus, or Yolk of the Seed, to be "difficult from the Cotyledons, 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 lead the substance of the present article was
The presence or absence of a particular organ is so characteristic of the plant in question as to be regarded as a specific or diagnostic feature.

**Yolk.**

Gartner considers the part of which we are about to treat, as "of all the internal parts of a seed 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 botanist, are the following: 1st, "It is most closely connected with the Embryo, so as not to be separable therefrom, without injury to its own substance." 2dly, "Notwithstanding this intimate connection, it never rises out of the integuments of the seed, as the Cotyledons usually do, in germination, so as to become a feminal leaf; but, rather like the *Albumen*, its whole substance is destroyed by the feeding plant, and converted into its own nourishment. And 3dly, If the *Albumen* be likewise present, the *Vitellus* is always situated betwixt 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, Gartner 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 presume to dissent from this decision of the great writer, whose words have just been quoted, for the following reasons: 1st, The *Vitellus* is certainly not more closely connected with the Embryo than the greater number of Cotyledons, as, any person may find by examining seeds in the first stage of their germination, and as the faithful delineations of Gartner himself every where shew. 2dly, That the *Vitellus* never rises out of the ground, is a circumstance likewise common to many Cotyledons, allowed by Gartner to be such, as in various leguminous plants, as well as in *Resedus*, *Cyamus*, *Tropoolum*, 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 *Papilionaceae*, or Leguminose, contains decided instances of both; *Lupinus* and *Vicia* affording examples of the former mode of growth, *Lathyrus* 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, except that of the Cotyledons and Embryo, which is as strict as can possibly be. Hence we cannot consider the *Vitellus* of Gartner to differ from the subterraneous Cotyledons above-mentioned. We presume their offices must be exactly similar, to perform the necessary functions relative to air or oxygen, till the leaves come forth, and assume those functions in greater perfection, with the co-operation of light. This appears to us more satisfactory than the hypothesis of Gartner, 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 seeds, whole *Vitellus* is very inconsiderable, such as grapes; and it is recurring to two causes to explain what is evidently accounted for by one alone. If the vegetation of corn be observed, the *Vitellus* will be found to dwindle away, with scarcely any change in its very inconsiderable bulk, when the first leaves are unfolded, exactly as happens to the subterraneous Cotyledons of *Lathyrus odoratus*, &c. The same thing very often takes place as specifically in Cotyledons which rise out of the ground. Some which are more permanent, as in crucifom and umbelliferous plants, being only more of the nature of leaves. In grapes, the scale taken by Gartner for a *Vitellus* is mostly so thin and unsatisfactory, as not possibly to contain any material portion of nourishment; ample supplies of which are furnished by the plentiful *Albumen* of those plants. But its expanded figure is very well calculated, like that of these leaves, for honourable 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 real *Vitellus* appears not to be necessary to all plants furnished with this distinct kind of *Albumen*, as *Palmes* and *Orchideae* have it not; while, on the other hand, no influence presents itself of a supposed *Vitellus*, and a real Cotyledon, or Cotyledons, in the same plant. Gartner takes the *Plamula* for Cotyledons in *Rhizophora* (see his t. 45.), as well as in some of the *Scitamineae*; for we cannot conceive the tubular part, embracing the Embryo, in *Anomum*, (see Gart. 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 Gartner, 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 erroneous idea; in attributing to these seeds two distinct and separate sources of nourishment. That two such distinct parts exist in this natural order, and perhaps, as Mr. Brown observes, in *Nymphea* 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 *Anomum*, or any true scitamineous plant; but as far as we have been able to judge, it appears that the *Albumen* of every seed, when separate from the other parts, is always totally absorbed, 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 seed, in one form or other, be lodged in the substance of the Cotyledons, as in *Zuma*, the leguminous and cucurbitaceous tribes, and many others, such parts shrink the more, but do not lose any one 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 consequence of the term monocotyledonous as contrasted with dicotyledous. The first had an evident reference to the *Albumen*, in corn, palms, &c.; and when Gartner had emancipated himself from this error, he seems to have transferred the idea to the Embryo, which he calls monocotyledonas, 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 *Scitamineae*, he thought a new appellation requisite. Mr. Brown objected to the term COTYLEDON 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 Gartner as a Cotyledon, all ambiguity respecting the anatomy or component parts of any feed is removed. When the Cotyledons 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 a mere rerervoir of food or nourishment, immediately undergoing 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 foam-die, appearing,
appearing, for the evolution and fulfulness of the little Embryo, lodged in a cavity of its bafe; while the Cotyledon of the not very diﬁant genus Zania shrinks indeed considerably, from losing the albuminous part of its fulfulness, but does not disappear; because the remaining part deﬁned to perform the essential ofﬁce of a Cotyledon, repelling air, merely decays when its purpoee is anwered, and Foughs 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 fulfulness 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 fulfulness, 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 the last-mentioned parts, and in a very beautiful manner conﬁrms their analogy with leaves. The tap 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 effusions, 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 vessels, which the Cotyledons, in common with Leaves, poffefs, into the item of the Embryo; all these important parts having already begun to swell, from the absorption of moifure, and the stimulating effects of heat. Hence we fee why light proves hurtful to incipient germination, and why carbonic acid gas may be given out by feeds during that process. It is evident that the proper functions of Cotyledons are best performed under ground, and that when they rife into the air and light, it is not till after their primary deﬁnation is fulﬁled, and then only because, being fundamentally of the nature of leaves, they are mostly capable of assuming the functions 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 afﬁnity of light. It is worthy of notice that the Cotyledons are fo placed, in all feeds, that the oxygen gas must be imbibed by their under surface only, that very fame 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 fo analogous, the Leaves and Cotyledons, if the upper surface of the latter, while in the unexpended feed, had been preterted to receive the oxygen gas.”

By taking the Vitellus of Garner 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 undivided, so that the plants in which it occurs remain only the more steadily ﬁxed in their place of Monocotyledones, as opposed to the Dicotyledones; witnesses Gramina, Sattamine, &c. thus indeed acquiring a right to such an appellation, which they could otherwise barely claim, having, according to Gartner’s principle, no Cotyledon at all.

Yolotou, or Yulduz, or Cyalis, or Chialybl, in Geography, called by the Turks Kerathers, 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 Chinefe 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 Vendeé, which pails by La Roche fur Yon.

Yonghelahè, a river of the island of Madagascar, which runs into the sea on the west side of the island, S. lat. 23° 30'. E. long. 47° 4'.

Yong-Li, a town of Corea; 30 miles S.E. of Koang-teou.

Yong-Ngan, a city of China, of the second rank, in Quang-fu; 1027 miles S.S.W. of Peking. N. lat. 24°. E. long. 110°.

Yong-Ngao, a small island near the coast of China, in Quang-tong; 20 miles S.S.E. of Mascao.

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; 1005 miles S.W. of Peking. N. lat. 27° 50'. E. long. 100° 24'.—Alfo, a city of China, of the second rank, in Quang-fu; 977 miles S.S.W. of Peking. N. lat. 25° 6'. E. long. 109° 14'.

Yong-Ning, or Yung-ning, a city of China, of the second rank, in Koei-teou; 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 ﬁne trees: this makes the country less fertile, but the neighbouring bay supplies its want with great plenty of all the necessaries of life. Not far from this city ﬂands a fort named Chun-hai, 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 boggy marsh, from the bulwark in the sea; 113 miles E. of Peking. N. lat. 30° 55'. E. long. 118° 34'.

Yong-Sin, a town of Corea; 113 miles E. of Hanzhong.

Yong-Tchang, or Yong-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 Hou-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-Ain.

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 discussed 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 people, by the indecencies of impure rites, scarcely yet superseded, even in Europe, and existing in almost undiminished grossness in the still enlightened regions of Asia.

The reader is suppos'd to be more or less aware of the nature of the origo 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 exhibition of gratitude for the experienced bounties of nature. In the East, in India, a concourse of people, both sexes, warmed by exercise and beneficent feelings, at a genial season most likely of the year, found, as is ever the case, their unreserved devotion sublimed into enthusiasm; and hurried by such feelings beyond the scope of unsifted 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 oftener frivolous 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 perfonified, was more decently represented by certain symbols sublimated for the earlier types. The cunning priest no longer daring to exhibit their obscurities in flamboyant 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 denominated Bacchic, Eleusinian, Phallus, Linga, Yoni, Cone, &c. &c. Some notice of these things, and of the ordinary coarse and confusions, will be found under the appropriate articles of our work; also in MYSTERY, MYSTICS, and others thence 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. Those prone, like the Hindoos, to resolve almost every thing into sexual allegory, of course fancied the male and female pudenda omni-arachetypal. Those, 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 mummary and mystery, that became lew'd and lewd understood, and therefore, perhaps, the more revered.

We have said in most cafes; for in Egypt and Greece the grossness of Phallus is known only in the remains of antiquity; in India it doubtles exicts, but defivled of obstrue or confpicious indecility; and too true it is that among Christians was the primeval inflamy of the symbol and usages most tenacious 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 suppressed; 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 grossest and corrected emblems; the latter contained both the Linga and Yoni, nature active and passive; and similar, familiar, or recondite meanings and allusions were thus readily revived in the minds of the vulgar and the initiated, suitable to the ecstatic or poetic nature of their capacities and feelings. These follies, 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 suppos'dly derived from the full 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 fancy frames of the mind.

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 usages 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 Brahms; however much they may have been improved or embellished by the hands through which they reached us.

India then, or the country of the Brahms, 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 usages are not, perhaps, found in its earliest works on theology. But as no people have changed so little as the Brahms and their flocks by the innovations of strangers, or the lapse of time, (for frequent submissions by conquerors seem to affect them but little, and perfections ferve 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 to little their due. There we find the indulgent Brahms 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 prevailing over reproduction, or regeneration in the abrided; and the other of his consort 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
YONI.

...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 fact 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 Parulha, 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 Parvati, as Parulha is of Siva. Under these names we have taken some notice of their character; but it is not easy, in the short articles to which, in these matters, we must restrict 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 Hindoo 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 float 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 Colchis, Juno, Io, Ionia, Jonah, &c. are traceable upwards to Hindoo 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 through the geography and early biogrophy 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 Phalus, Mr. Wilford (Af. Ref. vol. iii.) supposes to be one and the same with the ship Argo, which, according to Orpheus (Argon. v. xvi.), was built by Juno and Pallas; or, according to Apollonius (b. ii.), by Pallas and Argus, at the instance of Juno. The word Yoni, as it is usually pronounced, nearly resembles the name of the principal Etruscan goddes; and the Sanerkrit phrase Arghanatha Iswara seems accurately rendered by Plutarch (on Isis and Osiris), when he afferts that Oisris was commander of the Argo. That the Sanerkrit words p'kala, meaning fruit, and p'hulla, a flower, had ever the sense of phalus, is not affirmed; but as these are the chief oblations in the Argha, and are confided 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 triunion of powers; for Vishnu, the principle of humidity and of conservation, is symbolized by a convexity or emblazon in the centre of the Argha, over which the image of Mahadeva, or the p'hala and p'hulla, as representing the Linga or Phallas, are placed. The idea that the Sanerkrit p'kala or p'hulla may in sense as well as found be cognate with and the source of the Greek phalx, derives strength from the fact that Mahadeva, in his character corresponding with that of Jupiter Marina, or Neptune, bears, like his Roman kinshun, a trident, called Tríphala, and sometimes Tripahla, denoting trisfacration and trisfacrecence. Jupiter Tripbylius is thus identified with the three-eyed Siva, who in this form is named Trilokan and Tríphala.

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 (says 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 suppose, to the destruction of mankind; man being represented in the abstract by Brahma. The Yoni becoming boat-shaped, the Linga was the mast, and protected by Vishnu rode upon the waters. This, though insufficiently grofs, is doubtless an ariste allegory. Every thing hollow or concave having the property of containing, remind mystics of their type the Yoni or Argha, as aspir- ing obiects do of the Linga. Enthusiasms see these two principles; that is, they fay, nature passive and active, dormant and revivified, everywhere and in every thing,—the earth, the sea, a boat, a well, a pond, the hollow of the hand, clefts in rocks, excavations, caves, commilures 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 typified by a boat; the Argha of the Hindoos, and the Cimbrum of the Egyptians. Ophis is represented in a boat carried by men: in India, Mahadeva erect in the Argha refers to the same allegorv. All over India, the Argha, and Linga of stone inflected in it, is found an obiect of worship. It is strewed with flowers, and water is poured on the Linga, and conveyed off by the rim or Yoni; the foila navicularis or mystical boat of Isis.

Caves, containing to the Ancients a representation of Argo, we have noticed as types of the Yoni, from their property of hollowness 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 Sanerkrit. Similar superflutions have prevailed farther westward. Perforations and clefts in stones and rocks were called Cuni Diaboli by early Christians, who usually bestowed 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 Guhya-than, in Nepal, answers fully and literally to the coarse appellation of its relative in Derbyshire, (Gゅya, or Podes,) and is devoutly worshipped by numerous pilgrims from all parts of India. Perforated rocks or stones, as well as the mouths of caves, are mystically contemplated in India. A regeneration is effected by passing through them; or, if the bow be too small, a hand or a foot thrust through, with a sufficient faith, will nearly answer the same purpule.
YONI.

It is difficult to discuss such subjects as thee without feeling a certain degree of contempt, pity, and wonder, at the fooleries of creatures called rational. But when we recollect that many millions, hundreds of millions probably, of our fellow mortals are, or have been, thus milled, and have been similarly milled in all parts of the world, the origin and spread of such ufages become a subject not unworthy the inquiry of the philosopher: as connected probably with the history of stupendous events in faered history, it claims also the attention of the theologian; and the total difufe of all such irrational superlition among ourselves is a matter of gratulation to us as reformed Christians. We are difpuffed, 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 Hindoos 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 superlitions almost all over Europe, as well as in other regions. And, indeed, although their origin and alhufion are now wholly forgotten, curious obervers may discern in still exifiting ufages occasional relics of this species of devotion even in England. It is inexpedient, however, to indulge in this extended view.

Adoration of ¿rones is found similarly spread through the superlitious 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 faered monolithic subjeat of the Kaiba at Mecca, or the obelisks of fgypt, to the trilithic temple at Stonehenge, with many intermediate, are no other than their Linga, under various forms and denominations. The Battlia of antiquity are nearly related to it. Under Bétylos, Cromleche, Kistvæn, Stonehenge, and other articles of this work thence referred to, the reader may, if defirous, fec the extent of speculation to which the superlition connected with Líthifin, 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 fuch 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 Efghish Malabar point. The promontory itself, thrusting its apex into the sea, which there forms a fandy, or junction, (see Junctions,) is Lingar. It proved to be more revered to, and its fpiritual 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 unequalled denfity of its present population, and the exfanding prevalence of foreign manners, have leffened the facrity of this spot, now the conftant report and abode of perfons who look on the local fuperlitions with an eye too rational or curious—or severe fhall we say?—to encourage their continuance. Like the Lithic Linga temple of its neighbouring island of Elephanta, as the Efghish call it, the Yoni of Malabar point will soon ceafe to be reorted to. Its fine temple is levelled to the rock whence it arose, and some of its fpolis adorn the Muufuem at the India Houfe. The neighbourhood of Bombay was in former times a grand affembly of Hindoo temples. The great beauty and fulcracity of the fation, the forms of the hills and islands, and other real and fanciond 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 flores a Yoni, the ocean an Argha. The demoralizing effect of this perverted philosophy on the mind of the fimple 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 frones, Arghas in running brooks,
Yonis in rocks, and gods in every thing."

Passing through such clefts as we have juft noticed with a placid or expatiatory view is, or rather has been, of extensive prevalence. We could fhow to have been exifled in many parts of Europe. Relics of it still exifit in England. And indeed fuch is the recent rage of theological innovation, and the amazing increafe of credulity, that a zealous fectarian need not deparf of feeing fuch, or ufages equally ridiculous, revived among us. But it would not ftuit the crafty Brahmans to allow rich delinquents to fay advantage as the paffeage through a cleft or Yoni of rock. In certain cafes 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 fhape, the perfon to be regenerated is enclosed, and is protruded through the ufual channel. As this evidently must be excessively expensive, it is of course rarely refforted to. An infance is given in the Hindoo Pantheon, p. 398. of a recent cafe where a Yoni of gold was the medium of regeneration to two Brahman, who had afferted pollution by coming to England. The defilement of a natural birth is done away by the protrusion of the perfon or head through a facred thread called Zurrar. (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 confidered as base and unclean. See Sects of Hindoo.

Enough has been faid under this article to fhow the mysterious bearing of its title. It is a fubjeat which, connected with the Linga, meets the observer or inquirer directly or allufively, though not oftener, or very often in an offensive form, at every step he takes in the infegulation of Hindoo literature or antiquities. Reflecting the non-offenfive nor of their appearances, we refer to our article LINGA; of which indeed this may be confidered as a continuation. The subject is inexhaustible, but to us not inviting, though it must have been fo to others. It might not be exaggration, if it appear fo, to fay, that more speculation exits hereon in the languages of India than would fill a volume equal to our whole Cyclopedia! Reference to earlier articles decriptive of the Yoni and its appellation, and allufions enables us to abridge this, which is, however, everywhere bound up with what is faid in thofe articles, and necessarily incomplete. See Kamalayoni, Lileswara, Lotos, Meru, Patra, Radha, Saiva, Sahe, Sani-devi, and Sects of Hindoo. From the article Sani 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 frition.

Individuals, chiefly of the sect called Saktá, meaning worshippers of the Sakti, or female energy of Mahadevas, the deity of reproduction, propitiate the goddes under the form of the Yoni, the mythical matrix of nature. Of this, see under SAKTA and SAKTI. Such individuals have the feetical appellation of Yonija. In what they differ from the Sakti, if they differ at all, we are not informed. They are not supposed to comperfe but few perfons; but this is a point on which information is obtained with difficulty. Reflectable individuals, if there be any fuch belonging to it, are ashamed to avow being Saktas; and from perfons of a different fpecies information is not to be relied on.

Writings,
Writings, too, on these subjects, are very obscure; their endles Scholia equally fo, and can be critically understood by very few Europeans, even with the affiance of a learned native, who, after all, probably of what he is desired to explain, will, with the utmost delicacy or deceit, gloss over the half-revealed obscenities 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 Linghas and Yonias have actually not only disputed and quarrelled respecting the comparative merits of their respective hieroglyphics, or, in other terms, the paramount potentiality of the archetype; 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, manifest as those causes unhappily have been. The Yonias infided, 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 Hindoo writers have, as usual, recited in extravaugant allegories, which we should call obscene, but which they consider as awfully sacred.

"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 Welt 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 Iswara (see Iswara) and the Yonias, or men produced, as they afferted, by Prithu, a form of Vishnu (see Prithu and Vishnu); for Nomus (Dionys. b. xxxiv. v. 241) expressibly 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 Nomus and the Hindoo 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 difguised in Egypt and India under a veil of the wildest allegories and emblems. On the banks of the Nile, Osiris was torn in pieces; and on those of the Ganges, the limbs of his comfort If, or Sati, (see Osiris, Isis, Sati, 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 ftry concerning the wanderings of Bacchus; for Iswara, having been mutilated through the imprudence of some offended Maniis, (see Muni and Sani-deva;) rambled over the whole earth, bewailing his misfortune; while If wandered also through the world singing mournful dignes in a state of distraction. There is a legend in another book, of which the figurative meaning is more obvious. When Sati, after the close of her exile as the daughter of Dakfi, sprang again to life in the character of Parvati, or mountain-born, (see Merä and Mea,) 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 those of their male deities were dull, their bodies feeble, and their complexions 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 conflict ensued between these Lingacistas and Yonias: the former fixed 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 destroy them by the fire of his eyes; but Parvati interposed; and to appease him, made use of the same artifice that Banbo did to put Ceres into good humour, and shewed him the prototype of the Lotos. Mahadeva smiled, and relented on condition that the Yonias should infantly leave the country.

"It is evident that this strange tale was invented to establish the opinion of the Yonjicistas, 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 Lingacistas maintain an opposite doctrine. There is also a fact of Hindoos, by far the most numerous of any, who, attempting to reconcile the two systems, 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 goddes, effect a reconciliation between them: hence the novel of Vishnu, by which they mean the as times, is worshipped as one and the same with the sacred Yoni." Wilford, in As. Ref. vol. iii.

YONIJA, the name of a fact of Hindoos, who worship the hieroglyphic of Parvati, called Yoni; which feem.

YONKERS, in Geography, a post-township of the state of New York, in Well Chester 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 mediobreadth of near three miles. The surface is broken, but the lands are cultivated and productive. In 1820 the whole population consisted of 1206 persons, with 39 electors, and 304 taxable inhabitants.

YONNE, a river of France, which rife about four miles S. from Chateau-Chinon, in the department of the Nyevre, passes by or near to Monceaux, Clamecy, Coulanges, Cravant, Auxerre, Joigny, Villeneuve, Sens, Pont fur Yonne, &c. and joins the Seine at Montereau.

Yonne, one of the nine departments of the central region of France, formerly Tonne, E. of Loiret, in N. lat. 47° 50', about 70 miles long, and from 30 to 40 broad, containing 7740 kilometres, or 573 square leagues, and 334,776 inhabitants; bounded on the N.E. by the department of the Anbe, and on the S.E. by the department of the Côte 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, crosses it 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, compris sting 57,285 inhabitants; Joigny, 81,933; Auxerre, 103,882; Tonnerre, 47,394; and Avalon, 42,784. According to Haffenfraz, 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 304,909 per sons. In the 11th year of the French era, the total of its contributions was 3,093,024 fr.; and its expenses, administration, judiciary, and for public instruction, 207,915 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:
pools: the cantons to the S. and E. are planted with vineyards; and the northern districts 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 Tattlea islands.

YOO-MIOU, a large town of the Birman empire, situated on a small river, which enters the Irawaddy at a place called Yoo-wa. 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 Yooos are subjects of the Birman sultan, and observe the same religious worship. They speak the language of Tavy, 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; 100 miles E.N.E. of Culiacan.

YOPAS, Los, or Tofez, a river of Mexico, which rises in Tlafaca, and runs into the Pacific ocean, N. lat. 17° 10'.

YO-PING, a town of Corea; 33 miles S.W. of King-ki-tao.—Allo, a town of Corea; 28 miles S.E. of Tum.

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 primate and metropolitan of England, and the second city in rank in the kingdom. It is of unquestionable antiquity, and eminently 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 states, and of their successful invaders from foreign lands. Eboracum was accordingly selected by Roman emperors and commanders as a principal residence during their protracted contests with the ungovernable inhabitants of the northern parts of Britain. The metropolis of a thirc 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 whole is subdivided. The cathedral is situated in N. lat. 53° 59', and in W. long. from Greenwich 1° 7'. The city is divided, by the principal roads, from London, N. by W. 195 miles; from Edinburgh, S.S.E. 201 miles; from Durham, S. by E. 67 miles; from Hull, W.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 50 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 staiton of Eboracum was confined between the river Ouse on the W. and the collateral stream, the Ouse, 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 marshes, 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 cladies 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 1860 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. Bootham-gate-ward, in the N.W., contains three parishes; Micklegate-ward, on the W. side of the Ouse, contains five 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 outskirts 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 Foss, long a piece of flaggated 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 gentry 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 2743.

CIVIL HISTORY.—York, under its romanized name, Ebro- racum, 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 revisited Eboracum, while his troops were employed in constructing across the Ithamus, 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 en- vied brother Geta than on the enlargement or the preservation of the Roman dominion in Britain, soon afterwards returned to the continent. During his residence in York, Severus issue money, on which he styled himself Britannicus; and also issued a decree respecting the recovery of slaves, which decree is still preferred in the Roman code, dated at Eboracum, on the 3d of the nones of May, in the consulship of Paulinus and Rufus, corresponding to the year A.D. 209.

During his arms against the Caledonians, and other Brit- tons, who struggled for freedom in the north, Constantius fixed his headquarters in York, and there ended his life in 306. York was also the scene of the inauguration of his
... 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 municipality, 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 sixth 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 liof; but although softened into Eboracum by the Romans, and by their colonies, who copied from them, traces of the original may still be perceived in the Kair-Ebrauc of Nennius and Henry of Huntingdon, and in the Cair-Effroc, or Erof, of the Welsh. In British compound appellations of places, the descriptio part precedes the proper name: in the language of the Saxons a contrary mode prevailed. Hence Cair-Effroc was by them converted into Erof-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 re-united those kingdoms, and acquired the principal ascendency over Saxon-England. To this prince are ascribed the establishment of the cathedral, and the foundation of the city of Edinburgh (Edwin'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. Offa, 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 disfactors from Danish invasion, and the internal disorders of the kingdom, York was exposed to utter destruction from the memorable expedition of Harold Hardrad, 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 1076, 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 1299, the courts of justice were removed from London to York by Edward I., during his expeditions against Scotland. In his reign this city was chiefly among the sea-ports of England, and required to furnish one ship for his use. In the languid county courts between the houses of York and Lancaster, the former city maintained that it held the castle of the white rose; and in 1483, Richard III. was a second time crowned in the cathedral. The year 1509 was distinguished by the establishment of a printing press in the minster-yard of York, near the place where the royal presses were afterwards erected in 1642, while king Charles refided 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 suppreffion of the northern monasteries. Adhering to the royal caufe, the city was, in 1544, besieged by the parliamentary forces under Sir Thomas Fairfax. But on the approach of prince Rupert, the siege was raised; and on the 2d 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 the most 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.

Civic 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, two 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 passed 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 Domeday-book it appears to be exempted from the payment of geld, except when the fame is paid by London and Winchester, and from paying reliefs. 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 1109, and another by Henry III., who died in 1222: 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 25th 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 Ainfley, in which writs are returned, but whose origin and import are now unknown. This tract was once a hundred or wgetnhate of the West Riding of Yorkshire; but in the 27th year...
some text is missing or not legibly visible
flone coffins were 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 preferred; 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 oldest 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 fortified 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 adorned work, with balist-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 feite 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 flood 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 enclosure 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 30 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 diforders 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 Vitus Ballium; and was feite of 90 ancient fortresses.

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 flone edifice for the service of the Christian religion in York is 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 glaze-makers were first introduced into England by Benedict Biscop, to glaze the windows of his new monastery at Bishop-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 seized the revenues of the fee: but these were soon restored, and his 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 acontious 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 pierre in 1260. In 1291, the fos of the preceding being advanced to the fee, commenced the nave, which, together with the two noble western towers, was completed by archbishop William le Melton. In 1561, the present beautiful choir was commenced by archbishop Thoresby, 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 treasuries; and at the end of the north transept is a fine chapter-house, with a corresponding vestibule. 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 screen at the entrance of the choir, is 250 feet; the length of the choir to the altar-screen 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 53. In the centre of the nave the height to the roof of the

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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 glass painted, &c. by John Thornton, of Coventry, glazier, who engaged to finish it in three years, and for which he was paid four shillings 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 in 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 part 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, pilasters, &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 reposing 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 handsome railing by the late Dr. Markham. But the most elegant of all is the monument of archbishop Bowet, appointed in 1423, of gree 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 sundry 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 poffession 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 I. in 1687. 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 1699. 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 clasics 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, confiding of upwards of 3000 volumes, of archbishop Matthew, was bestowed on it by his relics in the beginning of the 17th century. By various subsequent benefactions, 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 octagonal 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 preture 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 leased 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 side of the river Oue, 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 whole 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 parochial churches in York, that of St. Margaret in the south-east quarter of the city is remarkable for the porch attached to it, 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 semicircular, 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-de-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 1555. The church of All Saints, on the pavement, is distinguished by its open octagonal tower, 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 handsome 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 monastary 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 suppression 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, distinguished by the initial letter Y, 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 predece$$ors. 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 pensioners, who wear the dresses and conform to the regulations of nuns in Catholic countries, with twelve lay-filters, and a chaplain. From fifty to seventy boarders are usually accommodated in the institution. The Guild-hall and the Mansion-house are situated near the river Ouse, in the north-west quarter of the city. The hall, built in 1446, is a noble room, ninety-six feet long, forty-five broad, and twenty-nine feet six inches high. In it are held the law-courts and the courts of municipal justice. The Mansion-house 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 fortres$, 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 aldermen are held, and other county business is transacted. The centre building is the prison for debtors and criminals; the third building on the E. contains the record-office, and various apartments necessary for the transactio$ of the business 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 definitions. The arrangement and management of the prisons have been frequently the subject of commendation. The new city-gaol, an extensive 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 thefe, the county-hospital and the city-dilpensary 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 scientific retirement and study. A seminary or college for the education of ministers and lay-gentlemen among Protestant dissenters, 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 profe$$esor removed to York, where it is conducted with great reputation by the Rev. Messrs. 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 handstone stone bridge, which has lately been erected from the designs and under the direction of Peter Atkinson, eq$. 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 persons on the spot in a fray with the people of the town. In 1564 a flood following an intense frost swept away two arches of the bridge, with the houses built on them.

On the south-ea$t side of York, going out by Walmgate-bar, near the village of Hellington, is an establishment for the reception and relief of persons disordered in mind; which, as for some time, has been the subject of general approbation. This was called the Retreat, founded by the respectable Society of Friends, and originally intended for members of their clafs alone. The first idea of this admirable institution was suggested in 1751, by the unfortunate death of one of their society, at a common receptacle for the insane. 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 most perfect of their kind, in various parts of the kingdom and America. See an "Account of the Retreat," 5vo.—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, Culflon of. See Ratiouahili partes 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 3163 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 28,477 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 3046 inhabitants; 50 miles N.N.E. of Boston. N. lat. 43° 7'. W. long. 70° 40'.

York, a township of Ohio, in the county of Belmont, containing 1349 inhabitants.

York, the capital of Upper Canada, situated on the lake Ontario. It is likely to become a city of great importance, as it possesses 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 haven of water sufficiently large for containing a considerable fleet. Vessels may ride safely at its entrance during the winter. On the extremi$ty of the peninsula, which is called Gibraltar Point, are erected commodious block-houses and stores commanding the entrance into the harbour. On the main land opposite
York, New, one of the United States of America, situated, according to the statement of Meish, between 40° 33' and 45° N. lat., and 5° 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 46,000 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 46,082² square miles, equal to 29,493,720 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 persons 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

Topographical Table.

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<td>14</td>
<td>33,147</td>
</tr>
<tr>
<td>Schenectady</td>
<td>4</td>
<td>10,201</td>
</tr>
<tr>
<td>Schoharie</td>
<td>8</td>
<td>18,945</td>
</tr>
<tr>
<td>Seneca</td>
<td>7</td>
<td>16,629</td>
</tr>
<tr>
<td>Steuben</td>
<td>9</td>
<td>7,426</td>
</tr>
<tr>
<td>St. Lawrence</td>
<td>12</td>
<td>7,885</td>
</tr>
</tbody>
</table>

Carry up 372, 822,792

Suffolk
York.

Counties  Townships  Population  Chief Towns.
Brought up  372  823,972  Riverhead tp.  1,711
Suffolk  9  24,113  Thomaston tp.  1,300
Sullivan  7  6,108  Spencer tp.  3,128
Troya  13  7,892  Kingston  750
Ulster  13  6,570  Salem  280
Warren*  21  44,289  Bedford tp.  2,374
Washington  21  30,272  452 959,049

* Laid out since the census was taken.

Putnam county was erected in June 1812, from the S. end of Dutchess county, and is formed of the towns of Philip's or Philipstown, Carmel, Frederick, Patterson, and South-East. Courts are held in the Baptist meeting-house in the town of Carmel, and this county lends one member to the house of assembly. The towns are, Carmel the chief, including, in 1810, 2020 inhabitants, the electors being 153; Frederick, with 1811 inhabitants, and 98 electors; Patterson, with a population of 1446, and 110 electors; Philip's, with 1429 persons, and 165 electors; and South-East, in which the population is 1887, and the number of electors 161.

Warren county was erected from the N.W. extremity of Washington, March 12, 1813. It comprises the towns of Bolton, Caldwell, Chester, Hague, Johnstown, 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 21 electors; Johnstown 651, and 82 electors; Luzerne 1015, and 85 electors; Queenbury 1948, and 197 electors; and Warrenburgh 887, with 41 electors.

YORK.

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 towards the lakes; and hilly towards 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 Apalachian ridge, which at the Highlands occupy a tract of about 16 miles in width, lying obliquely across the Hudson, and penetrated by that river. These ridges preserving their general direction stretch across Dukes county, the eastern parts of Columbia and Renfrew counties, and exhibit some lofty summits. The Taconic hills are lofty and very rugged, and Hoosack 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 Apalachian 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 1301. About 60 miles N., the Round-top is elevated 365 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 astonishing 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 granitic and schistic mountains, an elevated plain of considerable and very uniform altitudes. Around Lake George, and to the W. of lake Champlain, we find the Peruvian mountains, which furnish the northern sources of the Hudson and form the height of land that separates the waters of the Hudson and St. Lawrence. The highest of these 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 country S. of the Highlands is underlaid by rocks of granite, with superstrata 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 incon siderable in extent as to furnish no objection against denom inating this the granitic 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 Allegheny mountains in Pennsylvania, intermixed with lime; the Helderberg, with some particles of sand-flone, occasionally interposed. N. and E. of the Highlands the rocks are chiefly schistic that form the shahratum, while calcareous ridges of great extent occupy the surface. The hills of the eastern border of Columbia and Renfrew counties are formed chiefly of fragile schistus, intermixed with quartz, and occasional superstrata of lime-flone. On the eastern declivities of these hills lime flone predominates, forming the marble quarries of Stock bridge, Laneborough, &c. in Massachussetts. The northwestern continuation of the Catskill or Catskill presents a kind of calcareous granite, in which the absence of the felspar is supplied by primitive lime-flone, the Peruvian mountains are principally granitic, 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 country of the small western lakes is calcareous. The Taconic hills that border the forth-eastern part of Columbia county are granitic.

The rivers of this state are numerous and extensive; and so are its lakes and creeks. The Hudson and the Mohawk are the most considerable rivers, to which we may add the Sacandaga, a branch of the Hudson and Saran river connected with Saron 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 Alleghaney, a principal branch of the Ohio, has its origin in this state, and its creeks, large and small, are too numerous for our recital. The Chatauqua lake discharges itself into Connewong creek. The Cataragus 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 Oneida, 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 state, and it is supplied by several streams. Each river also belongs to this state.

The climate and season 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 S. of the highlands, where the prevailing winds are southerly through the warm seasons, the weather is 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 lake. Here southerly and westly 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 pleasanl 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 15 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, Oswego, Delaware, Ohio, Susquehanna, Alleghany, Mississipi, 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 lock 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 Nassau, 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 serve to facilitate communication and intercourse between the various parts of this state.

The soil and agriculture of New York deserve our 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 with 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 rests on a subfratum, called "hard-pan" by the farmers, that is cold and flaky, it is incapable of being reforested 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 subfratum, 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 flanked to be a medium soil. But on the eastern border of the state, the rocks are principally chosie, and a schistous gravel forms most of the soil, which is warm and productive, though not deep. The alluvial flats 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 soil, 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 West Chester 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 wale 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 foil of the country of the Mohawk may be generally

YORK.
generally denominated a fliff loam, till we go wealt of the Cathedall hills at the Little Falls. Here it assumes a new character. The soil of the mountaneous tract of the western region is much diversified; the hills are rocky; the valleys deep and narrow, or spacious and rich. This tract furnishes considerable buck-meat 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 grats. No part of the state 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 first rate of medium for agriculture.

The rotation of crops lately introduced into this country marks a new era in its agriculture. We shall close 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, tulia or balsam, poplar, cherry, sycamore or button-wood, ash, elm, fattafras, hornbeam, sash, 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 essentially 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, affordability of the best quality, peaches, pears, plums, cherries, &c. The garden-fruits are 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 moofe, and the bison, now extinct in this state, are, the deer, bear, wolf, and fox; and more rarely, the otter, the wolverene, the wild-cat, raccoon, marten, the weasel, hare and rabbit, squirrel and mole, &c. The lakes and rivers supply abundance of fish, such as the salmon-trout, trout, furgeon, chad, herring, pike, and many others. The fayers are in high repute. The number of birds flightarian and migratory is very great. Serpents are found in small numbers, and the rattle-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, salt, gypsum, lime-stone, marble, slate, native brimstone, coal, ores of lead, copper, zinc, tin, albeftos, mill-stones, marle and peat, clays, alun, swine-stone, &c. Calcareous petrifactions are very common in the calcareous regions. Silicious sand for the manufacture of glafs, plumbago, a variety of ochres, mica, bitulins, magnetian stones, amiantus, black flints for muffets, molybdana, iron and copper pyrites, emery, magnetic ores of iron, ores of zinc, ores containing silver and anti-mony, and rock crystals, 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 acceded to in this state in 1788. The supreme executive power is vested in a governor and lieutenant-governor, elected every three years by free-holders paying fifty dollars, or both, or the state 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 clases, 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 is taken 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 list of officers annually appointed by this council is enormous, and consists 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 justices 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, commissioners 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 them into towns.

From the report of the comptroller to the legislature of this state in 1811, the productive funds of this state, in-
York.

...who planted the colony of New York, and who for many years afterwards settled in it, a large proportion of Dutch families, who migrated here 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 neatness, 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 Protestants. In 1710 it was augmented by about one hundred families of poor Palatines from Germany; fifty or seventy of which settled Germantown on the east bank of the Hudson, and some at Ephesus, 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 porter 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 singular conflicts, was not unfavourable to its general character. The prosperity that succeeded the peace widely diffused a spirit of enterprize 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 enterprize, their ingenuity 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 taste for literature and science is gradually increasing, and is promoted by a variety of publications; and by the progressive improvement of school education, for 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 sixty-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...
York.

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, seminaries, and schools. The University of New York is acquiring distinction, and the Columbia college claims high reputation.

In this state there are fifteen banking companies, with a very considerable sum of capital stock, which is paid to have amounted in 1811 to 12,385,000 dollars; and 11 incorporated affarance 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 paid to have amounted, in 1811, to 30,000,000 dollars, of which 12,000,000 were produced by household industry and enterprize. 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 9,928,573 dollars, and the foreign to 6,313,757, making a total of 17,242,330 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-seed, peas, beans, horser, cattle, lumber, flour and meal, bread and biscuit. The foreign imports are composed of important articles. Wheat, which is the national staple, is exported annually to a very great amount; and about 6,000,000 of 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 of 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, Kingston, 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 1766-7, 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 files 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 cata-

ncts or falls of Niagara, of the Mohawk, of the Hudson, of West Canada creek, of Black river, Seneca river, Genesee river, and some others of less 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 1535, the country about the lake Onondaga was considered as a favourite situation by the wandering tribes: but their condition was not much known till about the year 1655. At the same time, the Iroquois, or Six, 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 their principal settlement, and the seat of Indian power. Their combination confitited of Onondagas, 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 despise and abhor those for their hypocrisy and perversity whom they had first considered as beings of a superior order; and thus origin-ated the implacable enmities which not only continued but increased when the French and Britisli 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 destroy-ing it. From this time, colonies of each of these nations were planted there at different periods. But we forbear, to pursue their history, and to trace the continued conflicts that served mutually to irritate and increase Indians and pros- fessed Christians. At this time, the principal settlements of the Indians are at Oneida and Onondaga, on the Genesee and Alleghany rivers, Buffalo creek, and Tuscarora, besides other places which we have not room to enumerate in detail. But we must hâllen to finish this sketch of the New York state by a brief abstract of its history.

Soon after the discovery of America, towards the commence-ment of the 16th century, the present state of New York was possessed by the Iroquois, and Canada by the Algosquins, two rival nations of Indians. About the year 1608, the French planted colonies in Canada, which they had laid claim to from having first filled up the St. Lawrence as far as the present Montreal. In 1609 Champlain, the foun-der, discovered lakes Champlain and George, when he de-feated a small party of the Iroquois. In 1608 Hudson, an Englishman, discovered the Eait and North rivers, ascend-ing up the latter as far as the present Albany; and soon after he sold his right to the Dutch. In 1614 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 go-vernor, 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 1673-4. The duke's grant was confirmed, and the col-ony aligned to the English by treaty; and this right they held till the Revolution. From the surrender of the prov-ince in 1664 to 1683, the duke of York possessed full so-vereignty. 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. Tho' 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 participa-tion of the legislative power, are defaced or lost. No regard is now paid to any laws made here antecedently to 1691, when the first legislature was organized. In 1691, 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
trace the series of events that occurred in this state before the
year 1776, when, on July 4, the thirteen united colonies were
declared independent. This was followed in 1777 by the
formation and adoption of the state constitution by a
convention of delegates, which was revised in 1801. In
1788, New York was evacuated by the British, and general
Washington made his public entry Nov. 25. In 1787 the
precent constitution of the United States was proposed
by the convention, and acceded to by this state in 1788, by
a majority of 30 to 25 votes. General Washington was
elected president of the United States, and Congress met at
New York for the first time under the new federal constitu-
tion, March 4, 1789. In 1797 Albany was made the capi-
tal of the state. In 1801 the legislature divided the state
into thirty counties, and these into towns. An academy of
the fine arts was founded in New York. In 1807 a steam-
boat was established on the Hudson for passengers, between
New York and Albany, and in 1811 their number was 5. In
1809-10, the capitol was built at Albany, at an expense of
115,000 dollars, and was first used by the legislature in the
fall of 1809. New York, New, a county in the American state of the
same name, comprises the island of Manhattan, or York
island, on the E. side, and near the mouth of Hudson
river. It is about 14½ miles long from N. to S., and in
breadth varying from half a mile to two miles; its area is about
213 square miles, or 13,930 acres. It is situated between
40° 42' and 40° 52' N. lat., and 4° 8' E. long, from the
city of New York. It is bounded on the N. and E. by
Haarlem and East rivers, S. and W. by the Hudson, or by
York bay, and the state of New Jersey. The limits of the
county, town, and city of New York are the same; and the only legal subdivisions are the wards, ten in number.
The jurisdiction of the city and county of New York ex-
tends to low-water mark on the opposite shores of the
waters that surround this county. The agriculture of New York county is highly respectable, and its horticulture is in the first style of the country. The whole population of the
county probably exceeds 100,000; by the census of 1810, it amounted to 96,373. This county sends 11 members to
the house of assembly.

York, New, a city of America, the capital of a county of the
same name, is situated on the E. bank, at the confluence of
Hudson and East rivers, at the fourth end of New York
island. N. lat. 40° 42' 40'' W. long. from Greenwich
74° 5' 45''. The compact part of this city extends along the
Hudson about two miles, and along East river, from the
S.W. angle of the battery, near four miles; its circuit is
about 7½ miles. The streets of the ancient part are irregular;
but the northern part has been recently laid out to
greater advantage. Many of the streets are spacious, run-
ing in right lines, and intersected by others at right angles.
The surface has at present a gentle ascent from the Hudson
and East rivers, and commands a fine view on the right
and left of the town, the above-named rivers, and their crowds
of shipping. The principal streets are, Broadway, opening to the N.E., and extending through the whole length of the
city, Greenwich-street, Pearl-street, &c. &c. The usual
tides at New York are about fix feet, and the depth of
water is sufficient for the largest ships; and the harbour,
which is safe and good, is capacious enough for the largest
fleets, and very rarely obstructed by ice. The houses of
this city are well built of brick, and its public buildings
are numerous and elegant. The first of these that deferves
mention is the city-hall, in which are held the courts for the
city and county of New York. This building stands on
an elevated ground, and its structure is ornamental to the city.

The whole number of the churches, or houses for Christian
worship, is 37, besides a Jewis Synagogue. Of these, eight
are Presbyterian, eight Episcopal, four Dutch Reformed,
three Scotch 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 cuftom-house adjoins the battery at the S.W.
angle of the city; the gaol and bridewell are opposite to
the Park, and the alms-house is on the same square with the
gaal, bridewell, and city-hall. The college is about mid-
way 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, five market-houses, and many other
buildings that might, if space were allowable, be enum-
rated. 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 fo-
cieties, added to the number of edifices that adorn the metro-
polis. 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 expanse;
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 inhab-
ants, 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 aldermen, who constitute the common coun-
cil. Each ward chooses an alderman and alderman. The
mayor, deputy-mayor, recorder, and aldermen, are ex-officio
judges 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, literary institutions, &c. &c. of the
city of New York, we refer to the account already
given of the state of New York. Melville, More. Saff-
ford'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 Chester
county, in the state of New York; 45 miles N. of New
York, bounded N. by Duchess county; E. by Somers
and New-York, S. by New-York, W. by Cortland;
length N. and S. 10 miles, and nearly 4 miles wide. The
general surface is hilly, but producive, and well distribu-
ted into arable, pasture, and meadow lands. In 1810, here were
262 taxable inhabitants, 142 electors, and in all 1924
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 occa-
sion of a peace which followed soon after. A marble
column,
YORKSHIRE.

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 Williamburgh.

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 far the most productive in the kingdom. It is in general a country of 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 5,060 square miles, or above 3,814,000 statute acres. Yorkshire, taken at its extreme points, is situated between the parallels of 52° 18', and 54° 40' N., 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 eftuary of the Humber and the river Trent, it is separated from Lincolnshire on the S. The limits between Yorkshire, the counties of Nottingham, Derby, and Chelther 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 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, Jutland, or Jutland, and all 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 36 wapentakes and 563 parishes. The wapentake, a division adopted in certain northern counties of England, corresponds generally to the centred 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 these last in the North Riding are 5, viz. Malton, Northallerton, Richmond, Scarborough, and Thirsk; the East Riding contains three boroughs, Beverley, Heydon, and Hull: in the West Riding the five boroughs are, Aldborough, Boroughbridge, Knareborough, Pontefract, and Ripon. Yorkshire sends thirty 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 335,679 houses, and 152,445 inhabitants; in the East Riding (York city included), 334,220 houses, and 167,353 inhabitants; and in the West Riding, 129,575 houses, and 653,315 inhabitants. From this statement, Yorkshire, at that period, contained altogether 1,654,592 houses, and 973,113 inhabitants, or an average of 1,65 persons for each square itate 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 dilinition. 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 analyze 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 confines principally of two hilly regions, separated by a comparatively low tract, which opens on the S. into the fpacious plain or vale of York. The billy parts are commonly termed, from their position and their nature, the E. and the W. moorlands. Thole on the E. bounded by the river 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 coincide in general of bleak heath, interpered with loofe blocks of stone, or with peat-mofs and bog. The whole is delitute of wood, excepting in a few interflecting dales or valleys, where cultivation is practicable. Of these dales a few are of moderate extent, particularly Eskdale and Bielddale, in the eastern parts toward the sea. The western extremity of these moorlands, in the district of Hamilton, produces heat intermingled with large quantities of coarse grafts. 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 Wenleydale is the most considerable. Watered by the river Ure, the bottom of the valley furnishes rich grazing grounds, bordered on each side by floping inclosed fields, which reach up the hills for more than a mile from the sea. In the East 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 E.S. part of this Riding confines chiefly 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 easy rilings forms the eastern acent 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 East Riding, and extend wellward almost 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 these watered by the rivers Aire, Nid, and Wharf. Several of the smaller dales are well-
well-wooded and inclosed, and have numerous villages
interfereed.

The soil of Yorkshire is not at least variegated than the sur-
faced. 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-stone, and hardened sand. In that
part of the moors called Hamilton, the soil consists gene-

erally of fine loam on lime-stone rock. In the interferting
dales, black moor, earth, land, and grit-rock, more or less,
prevail; but the vale of Cleveland, along the river Tees, is
composed chiefly of strong tenacious clay. Lime-stone, or
a calcareous rock, is the general basis of the W. moorlands;
and the beneficial effects of this subsoil are evident in the
grazes and other useful productions with which the surface
is generally covered. In the extensive tract of plain styded
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 lopes of the high grounds on the E. and W. are in
some places cold, and abound in springs; but in the greatest
d 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, interfered 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, susceptible, where draining
may be practised, of material improvement. In the com-
stitution of those fens, situated on the W. of the Wolds,
called the Levels, the soil is either clay or sand, with
moorish tracts interfered; but on the banks of the Dar-
went and the Ouse ilrong clay and loam prevail. In the
extensive West Riding foils 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-stone base.
Similar soils extend through the W. parts, but are fre-

cquently 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 falsi-
brity, mult 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
difagreeable than unhealthy; for the high grounds are fre-

quently involved in fogs 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 moun-
tainous tracts consist. By their distance from the sea, com-
bined 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 con-
dened 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-swelling 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
paid 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 35 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 circum-
stances, the air is pure and healthy. The middle and less-

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 low marshy
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 considerable time on the ground. But the mildness of the
climate in the W. Levels is abundantly compensated, in
regard to falsibrity, 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 subsoil, 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 Rosebury Topping.
This singular hill, situated midway between Stokelsey
and Guisborough, towards the N.W. 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-
rock, interfered with iron-stone; 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
Yorkland, extend northward, with increasing elevation,
through Derbyshire, Lancashire, Welfmoreland, Cumber-
land, and Northumberland, into Scotland. In that portion
of this range which belongs to Yorkshire are several fum-
mits of very considerable elevation above the sea. Of these,
the most remarkable are, Penningant, which rises, according
to barometrical measurement, to the height of 3930 feet;
Ingleborough, 3987 feet; and Whernside, 4052 feet. The
lait mountain is the highest in England; for Crossfell on
the borders of Cumberland is in height only 3839 feet;
Skiddaw, 3530; and Snowden, the highest in Wales, 3568.
Bennies, a detached mountain in the N. of Scotland, and
the most elevated in Britain, rises to the height of 4387
feet. Penningant, situated about 7 miles N. from Settle, is
steep and towering. Ingleborough consists of a basis of
lime-stone, but towards the summit the grit-rock appears.
The E. and S. sides of this mountain are very steep, and of
difficult ascent, on account of a deep morais at the bottom;
but the W. and N. sides, particularly the former, may be
ascended
ancended 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 mottled elevated parts. In the vicinity appear Pennignant, distant 6 miles to the E., and Whernside 5 miles to the N. On the N.W. are the mountains of Wensmoreland, 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 deft. In the midst of a circle of hills rises 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 Wensmoreland and Cumberland, it pursues a very indirect course into 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. Commodious anchorage is, however, found at the entrance, in winds from the W. and S. A few incon siderable 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. On these rivers, the most northern is the Swale, which, rising in the W. moorlands, enlivens the romantic Swale dale, and, after visiting Richmond, bends S.E. until it reaches Boroughbridge, where it unites with the Ure. The latter river, proceeding from the same moors, passeth 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 Ouse, 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 Wharf 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 manufactory commerce of Leeds. Receiving on the W. side the current of the Calder, which performs the same service to Wakefield, the joint stream conveys an important accession to the Ouse. Still farther to the S. the Don pursues its course from 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 Ouse receives on the E. the Derwent, 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 preserve notice in Yorkshire, not so much for their length of course, as for the variety of water, as for their use utility in forming the principal parts of the county. In the E. moorlands of the North Riding rises the Eke, which after watering Eskdale opens into the German ocean through the

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 secure though not capacious harbour of Kingston, which, from the river, is generally also called Hull.

Canals of Yorkshire. See Canal.

Coasts and Harbours.—The sea-coast of Yorkshire, though very extensive, affords but very few harbours of any importance. 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 Robin-hood'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 westerly 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 protection than from its locality might be expected; for the shores on both sides of Yorkshire on the N.E. and of Lincolnshire 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 that much-frequented and important harbour of Kingston-upon-Hull. The natural accommodation of the river has proved very insufficient for the increased shipping belonging 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 manufacturing districts in the interior of the country are exported 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 100 and 150 yards. They are composed of a mouldering lime-stone rock, of uncommon 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 400 yards west from the extremity of the promontory. About south by east eleven leagues from Flamborough-head is another point of great consequence 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. 0° 17'.

Agriculture.—From what has been already noticed respecting the mountainous and the marshy tracts comprehended within the capacious limits of Yorkshire, agricultural 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 industry of the inhabitants, availing themselves of the natural means within their command, could apply, has been generally brought into action. The farms are of a very unequal extent and rental, conformably to the nature of the soil and to the situation of the farmer with respect to a market. It is remarkable, that in the North Riding leaves are unusual; but although the husbandman labours on fo precie-
rious a possession, changes of occupants of farms are by no means common. In the vale of York one-third of the land is computed to be 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 in tillage; but in those of the west, a much smaller quantity is usually ploughed: those parts although inclosed are therefore 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 commonly large, and vary in annual rent from two or three hundred pounds to a thousand; but in the marshy 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 range of the Wolds, barley and oats have in many places tied the fupply of 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 Rotheram, 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 horsetos 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 rears horses 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 uses 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 west 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 satisfaction 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 but 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 Carlile, C. S. Duncombe, &c. and some other land proprietors. But the oak-timber of this Riding, produced on hard rocky ground, if not of great size, is solid and durable; and hence the valuable qualities of the shipping 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 polishes above 1500 acres of woodland. According to a calculation made in 1799, the wafle lands for the Riding amounted to the value 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 those 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 parish 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 rated at 10,079,256, and of narrow cloth at 6,193,317. But in 1810 the broad cloth was only 9,826,048 yards, and the narrow cloth had increased to 6,951,762 yards. In 1811, however, the quantity of both sorts of cloth had comparatively diminished, for the yards of broad cloth were only 8,671,042, 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, saws, &c. is not confined to that town, but manufactured in all the neighbouring villages. The plated goods, consisting of tea-sets, coffee-pots, tankards, candle-flicks, 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, &c.—Excepting the alum on the borders of the east moorlands, and the lead of the vicinity of Richmond to-
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-ore of the cast moorlands has not hitherto been applied to any useful purpose. It appears, however, from ancient records, that it is early as the beginning of the thirteenth century, iron was wrought and forged in Rotherdale. Ayton, a few miles S.W. from Scarborough, is the only place where forges are now established, and those are but inconsiderable. The great alum works are principally situated on the sea-coast on both sides of Whitby, and in the vicinity of Guisborough. See Whiteby and Alum.

Various parts of the North Riding produce coal, particularly in the plain between Eastling and Thirsk; and in the west 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-iron 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 piers of that town. Lime-ore, 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 eait division of the Riding. The lime-ore 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 Graftington, 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 Harrogate.

Scarborough, on the sea-coast of the East Riding, has for a long time 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 British tribe, called in Roman history the Brigantes: they are not however mentioned by Caesar. It appears that they were first overpowered by Cæsar, in the reign of Vespasian, in the year 71 of the Christian era. In 78, the Roman arms were carried beyond the river Tyne 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 represented by Tacitus, his son-in-law and professed panegyrist, the Roman commander, retreated into the southern part of the country previously subdued. Having established a chain of posts across the narrow illusmus, 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 person to the remote 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 earth-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 scarcely 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 repulse 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 monter Commodus by the exertions of the natives, and the deficiency of part 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 rebellions spirit of the natives. After an expedition into the northern parts of the island, in which the loss 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 stone. 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 assaults, he died, and his sons and succecssors 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 in vain discovered and repressed. Under Caracalla, Britain enjoyed some semblance of independence: but his affliliation in the midle of his spirited projects enabled Constantius to主体 Britain again to the Roman arms. Dying in Eboracum in 307, Constantius was succeeded in the western portion of the empire by his son 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 island was harassed by the predatory depredations.
test of the Saxons. Tranquillity was at last restored by Theodorus, whose son of the same name obtained the pur-
ple, and after a short reign died in 393. Diffusion within
and assault from without were now felt 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 un-
questionable evidences are found in the capital, and in other
parts of the county. The roads established by that exten-
sive people may yet be traced, traversing the country 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 neighborhood of Sandwich, in
Kent, in various directions, all the way to the wall of Se-
verus. Entering Yorkshire near Bawtry, it has been traced
by Doncaster, (Danum, or the fation on the river Don,) over
Scarby and Pigburn Leas, to Barnsford, through Pontefract to Castleford, supposed to be the position of the
ancient Luselium, a little below the junction of the rivers
Aire and Calder. From this point, the road was conducted
by Castle, now Tadcaster, to Eboracum, or York. From
this city it probably followed the N.E. side of the river
Ouse, crossing it near to Iturium, now Aldborough, below
Boroughbridge, and thence by Leeming-lane to Catterick-
bridge, adjoining to which veltiges of Cataraetorum are to
be seen; there turning more to the northward, it passed over
the Tees at Pierce-bridge 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 Wake-
field, to join the former line between Doncaster and York.
North-eastwardly from York a road seems to have been
formed by or near Malton, terminating on the sea-coast at
Dunseby, the Dunus bay of Ptolemy. This road is still
called Wade’s caufeway, from the Saxon chief Wada, as
Caden thinks, who resided on the caflle in a caflle, 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 baths.
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 Gabrancicorum of the Romans; a branch has also
been observed tending towards Humby and Filey bay.
Another line may also be followed in a direction to
Patrington (Practorium) and the Spurn-point, which seems
to correspond with the Ocellum Promontorium of Ptolemy.
From Lincoln (Lindum colonia) a Roman road may be
traced running N. to the S. bank of the Humber near Win-
tringham, where are still seen veltiges of the flation, ad
Abum. On the N. bank, Drugh indicates the position of
another ancient flation, from which a branch of road proba-
bly communicated with York. This, however, is not the
courte 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 veltiges 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, Cataraetorum and Iturium. About five
miles below Richmond in Swaledale is the present village of
Catterick, so named from the Cataraetorum of the Romans,
of which the veltiges are visible on the S. bank of the river,

Yorkshire.

a little lower down the valley. Iturium 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 allu-
fion to the old town, to which it has succeeded, named by
the Romans Iturium.

Catterick.—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 pre-
ferrred. Of York caflle, the keep, or Clifford’s tower, is
almost all that is to be seen above the surface of the ground.
Scarborough caflle 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 caflle, which was erected
soon after the Norman Conquest by Alan, a kinsman of
William the Conqueror, on receiving the vaft possessions
of the Saxon, Edwin, earl of Chester. Crane or Creake caflle,
although belonging to the county of Durham, is situated only
twelve miles N. from York, is of great antiquity; for fo early
as in 685, it was bellowed on St. Cuthbert by Egfrid,
knight of Northumberland. Six miles W. from Doncaster,
are the caflle and village of Conibourgh, or more properly
Coningham. The caflle, one of the most interesting edifi-
ces 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 caflle is in
circuit about 700 feet, encompassed by a very deep ditch,
now filled with trees. Of Knaresibough caflle, once a
fortriff 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 Con-
quell. Pontefract caflle, 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 caflle, for-
merly 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 stlir in a
habitable state. It now belongs to the earl of Thane; but
was formerly the residence of the powerful family of Clifford,
of which Henry, the fourteenth lord, was, in 1295, created
earl of Cumberland. Near the E. bank of the Darwent,
S.E. from York, are the remains of the magnificent caflle of
Wresfle, 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 caflle formed a quadrangle,
having a tower at each corner, and a fifth over the entrance.
Wresfle was one of the places of residence of the great
earls of Northumberland, where they lived in a style of splen-
dour and magnificence, formed on the model and with the
rate of the royal housefhold. Notwithstanding the zeal evinced
by the earl of Northumberland in the caflle of the parlia-
mnt, the caflle was, in 1652, dismantled. Three sides of
the quadrangle were demolished, and an accidental fire in
1796 completed its destrution. The fite belongs to the
earl 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 no-
tice some of the moft eminent seats is all that can be at-
tempted. About 13 miles N.N.E. from York is situated
Caire-Howard, the princely mansion of the earl of Carlisle,
of the illustrious house of Howard. On the fite of the
ancient caflle of Handerkif the present building was erected,
about a century ago, by Sir John Vanbrugh, the celebrated

architect.
Arkitekt 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 artist. 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 valuable assemblage of paintings by masters of the greatest celebrity; and the collection of antique statues, busts, &c. is peculiarly interesting. The surrounding park and grounds are distributed and ornamented in a way suitable to the grandeur of the structure they enclose. Duncombe-park, the seat of Charles Slingby Duncombe, esq., 22 miles N. from York, also erected by Vanbrugh, is splendid in itself, and splendidly adorned with paintings of the most eminent artists. Hardwood-houfe, the residence of the earl of Hardwood, 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 house, the attention of the visitor is arrested by a noble mausoleum, 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 square Doric basement supports a similar structure of the Ionic order, with open arches on the sides exhibiting a facioplagus; the whole surmounted by a cupola. Within the basement storey is a chamber containing a statue of the marquis, by Nollekens. Around the walls are built of eight of his principal political friends, C. J. Fox, sir G. Saville, &c. Wentworth-houfe, erected by the earl of Strafford in 1730, but now the seat of Henry Vernon, esq., is a noble fabric. Towards the southern border of the county, midway between Doncaster and Workhop, is Sandbeck, the superb mansion of the earl of Scarborough, erected nearly fifty years ago.

Ecclesiastical State.—A very important change in the condition of the ecclesiastical 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, sat in the courts with the earls and sheriffs 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 ecclesiastical pleas in the hundred-court, nor suffer any cause of a spiritual nature to come under the cognizance of secular persons. 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 sheriffs, royal officers, or other lay persons, 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 artful separation of the ecclesiastical from the civil jurisprudence, the jealousies, contrarieties, contests, and open ruptures, by which the kingdom was, on various occasions, brought almost to its ruin, must be ascribed. In addition to these difficulties occasioned in this way, the dispute respecting the superiority of the see of Canterbury over that of York was conducted with peculiar animosity, between the Norman prelates of both. In 1070, Thomas, a canon of Bayeux in Normandy, appointed to York, repaired to Canterbury for consecration from the hands of archbishop Lanfranc, who had been previously installed; but refusing to swear obedience to the see of Canterbury, the consecration 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 disapproved 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 Thurstan, chaplain and secretary of Henry L. in 1115, the dispute was again revived; but in 1121, Thurstan, 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 reliance to the claims of Canterbury; or that a profession of obedience to that see was ever made by any of his successors. From this time, therefore, York maintained its independence, and, a few years afterwards, had certain suffragan bishoprics placed under its authority. Roger of York, in 1162, procured a bull from Rome, granting him the privilege of crowning the kings of England, poiffessed by some of his predecessors, and of having his crofs carried erect before him throughout the whole kingdom. But in 1165, 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 caufitical and oily dilution, still preferred, in the titles of the two metropolitans, by which the archbishop of York is styled 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, Chester, Durham, and the Isle of Man. The latter, styled bishop of Sodor (the southern isles of Scotland) and Man, prefiguring over a diocese not formerly pertaining to England, has no seat in the house of peers. Under the archbishop, ecclesiastical affairs are conducted by archdeacons; an office first introduced into the diocese, as it is said, by Thomas the Norman, appointed in 1070. Fertile and extensive as is the county of York, the number of religious houses erected within its bounds, in former times, was prodigious. There were in all, according to Burton, (Monasticon Eboracense,) "106 ; viz. 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 liberalty. 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 en-
titled to wear the mitre on the N. side of Trent. But for
an account of these abbeys, and that of Whitby, the reader is
referred to the description of the several towns in which they
are situated. Of some others, erected in detached situa-
tions, 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
1132; and so named, not from any abundance of springs
of water at the place, but from the village of Fontaines 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 371 feet, and that of the transept 186. The
great tower, singularly situated at the N. end of the tran-
sept, 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 Dun-
combe-park, from which they appear with peculiar advan-
tage. 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 Scarborough's seat of Sand-
beck, in a deep narrow vale, is now reduced to a few arches,
and a portion of the nave.

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Yorkshire Census, in Rural Economy, a term sometimes
applied to a large short-horned breed of these 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 moist situations, and which grows very gene-

eral} 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 considered injurious to horsey,
which, in some cafes, are supposed to become affected with
a profuse discharge of urine and general weakness in con-
sequence of the use of it. But should any hay, made from
this grass, be accidentally given to these animals, and pro-
duce 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
seed 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
Lanatus.

YO-SANPOO, in Geography. See Sanpo.

YO-TCHEOU, a city of China, of the first rank, in
the province of Hou-quang, situated on the Yang-tse river,
and on the Tong-ting lake. This lake, which reembles a
sea, is remarkable for the greatness of its circuit, which is
more than 210 miles; for the quantity of its water, espe-
cially in certain seasons, in which the two great rivers of the
provinces swelled with rains, discharge themselves into it,
pulling out on the other side feantily diminished; and for its
astonishing quantity of fine fish which are caught therein.
The great number of barks and merchandizes which are
brought thither render it one of the richest cities in the
empire; its districts contain 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 every where
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
Tremeccen.

VOUGH GlaDES, a post-town of Maryland; 173
miles N.W. of Washington.

YOUGHALA, 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 fre-
quented for bathing. There is a collegiate church, the
wardsenry of which is united to the fee of Cloyne.
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.

Yovis, 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'.

YOUNG, 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 Landown," one
of the twelve poems created at the same time in 1712; and
this was followed in the next year by his "Lafl Day,"
to which he prefixed a dedication to queen Anne, extolling
the peace of Utrecht. From this circumstance he was re-
garded 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."
YOUNG.

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 Addison, who was then secretary to the lords justices. In 1719 he became tutor to the eldest son of the earl of Exeter; but soon abandoning that connection by the solicitation of the duke of Wharton, he graduated doctor of civil laws in this year, and wrote his tragedy of "Buiris, King of Egypt," which was dedicated to the duke of Newcastle, and favourably received; and in the same year he dedicated it 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 patronage, entitled "The Love of Fame, or the Universal Flagon," 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 Infalliment," 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 stage his tragedy of "The Brothers," which was under rehearsal. His next productions were adapted to his new profession; and among these were his "True Estimate 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 inapt 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 Epistles 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, declared by him Narcissa, falling into a decline, went to the south of France, and died at Lyons in 1736. Her husband, Mr. Temple, supposed 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 twice, and thrice my peace was slain;  
And thrice, o'errathron moon 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 regardful 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 Centaur 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 disfavored; and though archbishop Secker 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 residence 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 struck 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 cloister to the prince's dowager of Wales.

In his retreat at Welwyn he maintained a respectable and dignified character; and though the evil of his mind seems to have been gloomy, he was an agreeable and lively companion. The close of his life, however, was rather disconsolate 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 farce. In 1761, he had the occasion of some poems, which 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 afforded some of his forgiveness, and made him his heir. Towards the end of his life, he pretended to suffer from the influence of a housekeeper, and from some mismanagement in his concerns, and a growing disposition to avarice, he became irritable in temper and deprecating in his spirits. His last production was a poem, entitled "Reformation," 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 fates, tragedies, and night thoughts. His fates are founded on the questionable principle, that the fame 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 jutly 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 gentleman and more condescending dictates of Christianity. They are sometimes tedious and prolix. They will never be neglected as long as taste and inceptibility 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.


Young, Patrick (Patricius Junius, Lat.), an eminent scholar, was born in 1584, at the feast 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. Andrews’s, and accompanying his father to the suite of king James, he was employed for some time as librarian and secretery, by Dr. Lloyd, bishop of Chelfter. In 1605 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 50l. a year, and was occasionally employed by the king and perfons 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 Rhed 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 refult of his labours, he communicated many various readings to Grotius, Uher, 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 1653, from this MS. the “Epitres 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 asylum with a son-in-law, at Bromfield in Essex, where he died in 1672.

Young is said to have indulged to excess a disposition to oblige, which led him to lend valuable MSS. belonging to the royal library to foreigners and others; and he has been charged with betraying their trust, by not returning MSS. which he removed to his own house in contemplation of the pillage of the library, and there were fold 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. Erudit. Viro. Gen. Biog.

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-cree church, near the Tower, father of three daughters, who were all public fngers: Cecilia, the eldest, was an elve of Gemmiani, spoke Italian well, sung in many of Handel’s later operas, and was afterwards married to Dr. Arne; the second Miss Young, Isabella, was married to the ingenious and excellent composer Mr. Lamp, who fct the Dragon of Wantley; and the third Miss Young, Elfer, afterwards Mrs. Johns, sung on the stage at Covent-Garden theatre to the time of their deaths. Charles, the father of these ladies, was, we believe, the son of Anthony Young, a musician and musie-feller in St. Paul’s church-yard, commonly called Tony Young, who has been said by some of the family to have let God fare great George our King.” But at the time of the rebellion of 1745, when this air was revived, which Dr. Arne’s mother allured us was written and fet for king James II., when the prince of Orange was hovering over the coat 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 durst 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 gle in the first portion of Purcell’s catch 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 ferapers 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 bold,
You must go to his son, who’ll be Young when he’s old.
There’s old Young and young Young, both men of renown,
Old fells, 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 tell 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, Chrilt’s hospital, on a Sunday evening, where there used to be a performance of sacred music.

Miss Young, afterwards the hon. Mrs. Scott, and her sister Mrs. Bartleman, both public fngers, seem to have been the last remains of the musical family of Young. See Generation, Conception, Gestation, Embryo, Fetus, Deliey, Child, &c.

In the army, that regiment, or officer, is said to be the younger, junior, which was latt 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 Inghram.

Young Nick’s Head, a cape on the east coast of New Zealand, so called from Nicholas Young, a boy on board
the Endeavour, who discovered it in 1760. It forms the south-west point of Poverty Bay.

Young Point, a cape on the east coast of St. Vincent. N. lat. 13° 12'. 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, Nicholas, in Musical History, an Italian merchant, the editor of "Musica Tranfalphina," 1588; Madrigales of four, five, and fixe parts, choven out of divers excellent Authors; with the first and second part of La Virgineua, made by Master Bird upon two Stanzas of Ariosto, and brought to Speak English with the ref. The editor having opporunities of obtaining from his correpodents the neweall and best compositions from the continent, had them frequently performed at his house, for the entertain-ment of his musical friends.

The second collection of the fame kind was published by the fame editor in 1597; in which, among others, there are three madrigals by Crou, three by Luca Marenzio, and fixe by the elder Ferrabocco. These two collections being selected from the works of Palestrina, Luca Marenzio, and other celebrated masters on the continent, leem 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. The allowance be made for the wretched state of lyric poetry in England at the time the madrigals published in Young's two collections were translated, which was long before the publication of the sonnets of Spenfer or Shakespear, 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 profody or phraseology of our own language. The translator of these madrigals, whoever he was, for the editor does not tell us, feems in general to have imitated the original Italian measure and structure of verfe, as well as ideas; and though they abound with concetti, to which not only Italian poets, but thofe of all the rest of Europe were then fo much addicted, the general tafe of the times was indulged in poetry as well as music, and metre and melody were at once furniished with new models.

However, the perpetual double rhymes in Italian madrigals and sonnets have so much diffireted our translator to supply them in English, that, as the prefervation of the original music obliged him to render his version totidem syllabis, his embellishments on this account are sometimes truly ridiculous. It feems as if the conflant double rhymes in Italian poetry, which throw the accent on the penultima, instead of the final syllable, of a line, gave a peculiar call 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 conflant and regular mixture of masculine and feminine rhymes in French poetry may like-wise have had a latent effect on the vocal melody of France, different from that of the other two neighbouring nations. But, after mentioning these indulgences, we shall leave the further investigation of fo futile a subjeqt to philofophers, not only profecied of the neceffary knowledge, but an equal zeal for the cultivation of philology, poetry, and music. No. 7, in Young's second publication of Italian madrigals Englihed, in which the old Saxon termination of the present}

tenfe of the indicative mood of our verbs is conveniently preferred, was doubtlefs not thought the world, as it is applied to feveral compositions in the collection.

"In vayne he feeks for beauty that excelleth,
That hath not fene hir eyes where love fejorneth,
How sweetely here and there the fame the turther.

He knows not how love heareth; and he quelleth,
That knows not how the fighes, and fweet beguileth,
And how the sweetly speaks, and sweetly filmmeth."

These madrigals were celebrated, nearly forty years after their publication, by Peacham, who has pointed out the peculiar excellence of several, particularly thofe of Luca Marenzio, which, he says, "are fongs the mufes themfelves might not have been afhamed to have composed;" and of thofe by Alfonso Ferrabocco, the father, he says, "they cannot be bettered for fweetnefs of ayre and depth of judg-ment." Upon the ditty (words) of one of thofe, "I faw my Ladie weeping," (he fays) Maker Byrd and Alfonfo, in a friendly emulation, exercifed their invention. The words of the Nightingale, and Fayre Sufanna, were fo much admired, that they feem to have been fet by all the belt 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 fongs.

The Nightingale.

"But my poor hart with farrowes over-fwellling,
Through bondage vyle, binding my freedom short,
No pleafure takes in thefe his fports excelling,
Nor of his fong receiveth no comfort."

Fayre Sufanna.

"To them the fayd, if I, by craft procur'd,
Do yeld to you my body to abuse it,
I lofe my foule; and if I shall refufe it,
You will me judge to death reproachfully.
But better it is in innocence to chufe it,
Then by my fault tend my God on hye."

Indeed, in more than twenty fets, published between the years 1588 and 1624, during a period of near forty years, including almost four hundred and fifty madrigals and fongs in parts, it would be difficult to find any one of which the words can be perufed with pleafure. The sonnets of Spenfer and Shakespear, many of which are worthy of their au-thors, were indeed not published till about the end of the sixteenth century; but afterwards, it is wonderful, that, except one by Shakespear, none of them were fet by our belt musical composers of their time.

YOUNGOULE, in Geography, a fea-port town, on the west coast of the island of Madagascar. S. lat. 23° 30'. E. long. 47° 4'.

YOUNGSTOWN, a township of the flate of Ohio, in the county of Trumbull, with 776 inhabitanits; 66 miles N. of Pittsburgh.

YOUNGSTOWN, an inconfiderable settlement called a village in Cambria, Niagara county, and flate of New York, 1 mile from Fort Niagara, and 6 from Lewiston, containing about fix or eight houfes.

YOUNKERS, among Sailors, are the younger sailors, otherwife called formeflfoemen; whofe buiness is to take in the top-fails, furl the fails, fling the yards, &c.

YOURS, in Geography. See URE.

YOURI, a town of Africa, in the kingdom of Cafina. 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 talks 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. i. p. 75.) But Mr. Boyle gives these wonderful stories on the credit of a French chemist, and not on his own.

Youth, Juventus, 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. Inscript. vol. i. p. 71. eqq.

This state of life was, by the ancients, compared to autumn. In which sense, Horace speaking of one approaching to puberty, says,

"... Jam tibi lividos
Distinguet autumnus racemos,
Purpureo variis coloris."

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'.

YPAWA, a river of Bohemia, which runs into the Elba, 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 Ypres, a city of France, in the department of the Lys, situated on the river Yperlee, from whence it takes its name. Before the year 800, it was only a château, which was sacked and ruined by the Normans. Baldwin III. comte of Flanders, repaired the château, 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 milt 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 inclosed the faubourgs, which had become so extremely populous, from weavers and other tradepeople, that in the year 1422, the number of perfous 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, afflicted 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 very 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'.

YPSILIOIDES, or lamboides, in Anatomy, the third genuine future of the cranium; thus called from its resembling a Greek γ, or upiron.

Some also call it ypsiloide, lamboides.

There is also a bone at the root of the tongue, called ypsilonides, and hyoides. 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 no other than the common water-betony, or scorpiularia 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 1802, this abbey was given among the indemnities to the elector of Bavaria; 3 miles N.W. of Kaufbeuren.

YRVILLAC, a town of France, in the department of the Finillerie; 3 miles S. of Landerneau.

YRUN, a town of Spain, in Guipuscoa; 2 miles S. of Pontevedra.

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 mutis and fatis by others. It is the carpificus of later writers. See GOAT-FISH.

YSAMBARA, a word used by some as a name for hellebore, and by others to express a species of poison prepared in Spain, of which hellebore is an ingredient.

YSARD, in Zoology, a name given to the chamois.

YSCHE, 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
YTT

the Blie; it was built near a town called Gafterneffe, swallowed up by an inundation of the sea some centuries ago, whose inhabitants came to ealhllift themselves at this place. The Dutch made themselves masters of it in the year 1664, and since that time it has been strongly fortified, which is much affihed by its situation, being surrounded by morasfles, which they can lay under water at pleasure; 8 miles E. of Stavanger. N. lat. 51° 21' E. long. 5° 28'.

YSIPTORM, in Ancient Geography, a place of Aifa, in Armenia, which had a Roman garrison.

YSNI, in Geography. See ISNY.

YSOPUS, a term used by some to express the chemical art of separation.

YSPAR, a name by which some of the chemical writers call iron.

YSSANDON, JEAN, in Musical Biography, born at Leffart, in the Compté de Foix, wrote "A Treatise on Practical Music, divided in Two Parts." This book is very scarce, and deferves to be reprinted. It was first printed by Ballard in 1582. Laborde.

YSSEL, in Geography. See Issel.

YSEN Geaux. See Issengaux.

YSTAD, or YSTAD, a sea-port town of Sweden, on the south coast of the province of Schonen, from whence a packet fails to Straflund. 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'.

YSTLA, a town of North America, in the province of Mexico.

YSTWITH. See ISTWITH.

Y-CHANG, a town of Corea; 35 miles W.N.W. of Kang-tcheou.

YUCHIU, a town of Corea; 15 miles S.S.W. of Ou-tcheou. —Also, a town of Corea; 55 miles N. of King-ki-tao.

YTHAN, a town of Scotland, a few miles N. of the Don, that joins the sea, about two miles from Aberdeen, which falls into the German ocean. The Ythan is a stream formerly celebrated for its pearl fisheries, of which some relics are now found.

YTHING, a river of Wales, which runs into the Wye, 3 miles N. of Builth.

YTERON, a small island in the gulf of Bothnia. N. lat. 65° 4'.

YyTRA BERGON, a small island on the W. side of the gulf of Bothnia. N. lat. 61° 48'. E. long. 17° 13'.

YyTRA, or Iyttra, in Chemistry, is a peculiar elementary substance usually considered as an earth.

Yttria has been hitherto met with in a peculiar mineral named Gadolinite, so named from professor Gadolin, who first analysed it, and in Yytrio-tantalite, both minerals found only in Sweden. See those articles.

Yttria has the appearance of a fine white powder, without taint or smell. It does not affect vegetable blues. Its specific gravity is considerably higher than that of the other earths, being not less, according to Ekeberg, than 4.842.

Yttria 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 plate of solution 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 fatis, which, as far as they are known, are described below.

Yttria 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 potalmum was passed through red hot yttria, it was converted into potash, 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 Yttria are but little known. The following only have been examined.

Nitrate of Yttria.—This salt was first formed by Ekeberg, and has been more lately examined by Vauquelin. It may be prepared by dissolving yttria in nitric acid. The solution has a sweet astringent taste, and can scarcely be made to crystallize. Exposed to the air, it deliquesces. When sulphuric acid is poured into the solution, crystallts of sulphate of yttria are instantly precipitated.

Carbonate of Yttria.—This salt may be formed by precipitating yttria from its solution in acids by means of an alkaline carbonate. It is white ta肥料e insoluble powder, composed, according to Klaproth, of

| Carbonic acid | 18 |
| Yttria | 55 |
| Water | 27 |

According to Vauquelin, however, it loses only 32 per cent. when calcined.

Phosphate of Yttria.—Vauquelin formed this salt by mixing a solution of the phosphate of soda with the sulphate, nitrate, or muriate of yttria. The phosphate of yttria precipitated in the form of gelatinous flakes.

Sulphate of Yttria.—Sulphuric acid dissolves yttria readily. As the solution proceeds, the sulphate crystallizes in small brilliant grains. Ekeberg states these crystals to be flat fix deposits, formed by the acid compressed. Dr. Thomson obtained these in the form of long slender rhombohedral prisms. Their colour is amethyst-red; their specific gravity 2.791. They are soluble in about 32 parts of water at 60°. A red heat partly decomposes them. Oxalic acid, prussiate of potash, and infusion of nutgalls, occasion a precipitate in the aqueous solution of this salt. It is decomposed by the phosphate of soda. The sulphate of Glucina is readily distinguished from this salt by its being colourless, lighter, and more soluble in water. According to Berzelius, the sulphate of yttria is composed of

| Sulphuric acid | 50.0 |
| Yttria | 50.0 |

Arseniate of Yttria.—When yttria is dissolved in arsenic acid, and the solution boiled, arseniate of yttria precipitates in the form of a white powder. Arseniate of potash also precipitates yttria from acids.

Chromate of Yttria.—Chromic acid dissolves yttria cold in considerable quantity, and with effervescence. The solution has an astringent and pungent taste, and, like most of the chromates, has an orange-red colour, passing into yellow. The solution is quite neutral. When evaporated, it forms minute prismatid and cubic crystals. It is very soluble in water.

Acetate of Yttria.—Yttria dissolves readily in acetic acid, and the solution on evaporation yields crystals of the acetate of yttria, the form of which is usually that of thick fix-sided 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 Vauquelin, this salt is composed of

| Oxalic acid | 57.5 |
| Yttria      | 42.5 |
| **Total**   | **100** |

**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 Vauquelin, that the combining weight or weight of the atom of yttria is 50, oxygen by 10, and consequently that it is composed of

| Yttrium    | 80  |
| Oxygen     | 20  |
| **Total**  | **100** |

and the weight of the atom of yttrium will be 40.

With respect to the facts 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 phosphat of soda, the carbonate of soda, the oxalate of ammonia, the tartrate of potash, and the profulate of potash; and lastly, that the solution of yttria may be distinguished from the solution of lime by its greater solubility, and by its sweet taste.

**YTTRIUM.** The metallic base of yttria. See *Ytria sapra.*

**YTTRO-TANTALITE,** in *Mineralogy,* Tantale yttri-fere, Brongniart, an ore of tantalum, combined with the newly-discovered earth called yttria, and found at Yttberby, near Roslagen, in Sweden. The colour of yttro-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 fine-fided and four-fided prisms. It occurs also in granular distinct concretions. Its fracture is compact or finely granular, and it has a shining metallic lustre. Yttro-tantalite scratches glass, but yields with difficulty to the knife. The specific gravity of this mineral is 5.13. It decrystallizes with the blow-pipe, but at length melts into a greenish-yellow flag. According to Vauquelin, the constituent parts are,

| Oxide of tantalum | 45  |
| Oxide of iron and yttria | 55  |
| **Total**         | **100** |

Yttro-tantalite is nearly allied to gadolinite, the other mineral in which yttria is found, and occurs with it at Yttberby, in a bed of green-red felspar in granite.

**Y'TZAIMPATLI,** in the *Materia Medica,* a name given by some to the cavanilla, or *bordeum caelestum,* the caustic Indian bark?

**YU,** in *Geography,* a city of China, of the second rank, in Pe-tche-li; 87 miles W. of Peking. N. lat. 39° 52'. E. long. 114° 14'.—Allo, a city of China, of the second rank, in Ho-nan; 442 miles S.S.W. of Peking. N. lat. 35° 22'. E. long. 113° 38'.—Allo, 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'.—Allo, 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. Allo, 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.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 Guatimala 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 tract, extending from Salamanca on the W., to the eastern boundary, and where the natives live to a great age. The southern 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 lowness of the country, and shallowness 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, ovoid, very large, equal, moderately spreading segments, connected by their claws. Pericarps none. Stam. Filaments fixed, inserted into the base of the corolla, very short, swelling upwards, reflexed; anthers minute, roundish. *Pfl.* P Germen
YUCCA.

Germen superior, oblong, bluntly triangular, with fix furrows, rather longer than the glumes; stipe none; stigma obtuse, with three furrows, its lobes cloven, the centre pellucid. Peric. Berry oblong, bluntly hexagonal, flexily, perforated at the summit, of fix 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-ovatate, flat, depressed, attached, by their pointed base, to the inner angle of the cell.


Obi. We have, like Schreber, adopted Gartner’s idea of the fruit, which Linnaeus does not appear to have seen in perfection, and which Dillenius confides himself to have judged of from the unenlarged germen only. Analogy might well lead these authors to presume it to be 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 Strasbourg, the ripe fruit of Yucca drogonis; and this being the only authentic instance of the feed-veil of any one of the genus pecting under the investigation of a critical botanist, we must rely on it as affording the only certain type of the genus in this particular. Jaffén 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 Bromelia. This is a handsome perennial genus, more or less caulecent, with numerous long, simple, rigid or coriaceous, pungent leaves; and copious, paniced, white, liliaceous, very elegant though generally inodorous flowers. Some of the species are tolerably hardy in our gardens, but they do not very readily or confiantly blossom.

1. Y. gloriosa. Common Adam’s-needle. Linn. Sp. Pl. 456. Wild. n. 1. Art. n. 1. Pursh n. 4. Curt. Mag. t. 1260. Andr. Repof. t. 473. (Y. five Jucca, peruana; Ger. Em. 1743. Yucca indica, folia aloes, flore albo; Barret. t. 100.)—Caulecent. Leaves lanceolate, straight, furrowed; their edges smooth and entire.—Native of Peru and North America. On the sea floor of Carolina, flowering in July and August; the whole plant about ten feet high. Flowers white. Pursh. The stem 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 spinous point; contracted in the lower part, but dilated at the very base, where they half clap the stem: their upper surface is of a fine green, smooth, furrowed longitudinally, especially towards the end; the under paler, and more even; the edges quite even and smooth. 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, deliquit of scent. Partial flacks about an inch long, round, smooth, with a pair of membranous bracts at the base. Stigma in three divisions, spreading, clove, lobes. We cannot but think, notwithstanding Mr. Ker’s opinion, that Andrews’s figure belongs to this species, and not to alofisols. 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. Salv. 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. Stem 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. Alton, into the Hortus Kewensis, or its Epitome. The flowers are said by Mr. Salisbury to have a strong smell, mixed with something like a citron flavour. The three inner segments of the corolla is a little the broadest. Stigma most like the leaf. The edges of the leaves split off in a few disjointed filaments, in the manner of T. filamentoa, 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 less to be trusted in any doubtful question.

3. Y. alofisola. Aloe-leaved Adam’s-needle. Linn. Sp. Pl. 457. Wild. n. 2. Art. n. 2. Pursh n. 5. Curt. Mag. t. 1700. (Y. arborescens, folis rigidioribus rectis ferratis; Dill. Eth. 435. t. 323.)—Caulecent. Leaves linear-lanceolate, even, straight; their edges bordered with fine cillous 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 stem 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 beset 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 flatter than in Y. gloriosa, and distinguished by their crenate edges, as well as even surface. The panicle also is more dense and cylindrical, from two to three feet high. Flowers white, externally tinged with purple. Stigma abrupt, 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. drogonis. Drooping-leaved Adam’s-needle. Linn. Sp. Pl. 437. Wild. n. 3. Art. n. 3. (Y. drogonis folio, ferrato reflexo; Dill. Eth. 437. t. 524. Tacori. Clus. Exot. 48.)—Caulecent. Leaves linear-lanceolate, even, reflexed, crenate. Segments of the corolla spreading, somewhat recurved.—Native of South Carolina, according to Mr. Alton, 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 Sprekelson of Hamburg, and published in the Hort. Eth. as above, the corolla is represented with more lanceolate, flat, spreading...

tos at the edges. On the thores of Virginia and Caro-

lina, and in the western parts of the same countries, flower-

ing in July and August. Pursh. A hardy perennial in our

gardens, flowering, though not very constantly, in autumn.
The leaves are numerous, a foot long, spreading in the form of a
rofe from the crown of the root; their points spinous,
but flint; their surfaces both frifated, a little glaucous,
rough to the touch with minute harsh prickers; their edges
beef with long recurved threads. Flower-stalk solitary,
creft, from four to five feet high, round, smooth, leafles,
bearing several flattered, oblong, membranous, reddish-
brown bractees, such as allo accompany the partial flarks.
Panicle compound, lax and spreading, of numerous large
and handifome, pendulous, cream-colored, bell-shaped
flowers, reprefented of much too yellow a hue in the Botani-

cal Magazine. Their fegments are taper-pointed. Fil-

eaments rough, or glandular, with very small anthers. Stigma

with spreading, somewhat recurved and cloven, lobes, like

*T. glorifera*.

Pursh n. 2.—Sterile none. Leaves linear, elongated, rigid,

sparingly flammenous at the edges. Fruit obovato-cylindri-
cal.—Gathered by Mr. Nuttall, on the banks of the Mif-
fouri, flowering in July and August. Perennial. Leaves

very narrow. Stalk from two to three feet high. Fruit

large. Pursh. This appears not yet to have been brought
to England.

The name of *Yucca* may be found applied, by the older
botanifts, to feveral plants which have no botanical affinity

to the present genus; fuch as Morifon’s fect. g. t. 23. f. 3,
where the leaves are digitate; and *Iatropha Manihot of Lin-

næus. (See *Jatropha.*) Such plants agree in the elec-

dent quality of their flefly roots, which when grated and

washed, yield a fanaeous fubftance, of which the natives

of America and the Weft Indies appear to have made a

kind of bread, long before our European corn was intro-

duced among them.

*Yucca*, in Gardening, contains plants of the fucculent,

evergreen; shrubby, hardy, and tender kinds, in which the

species cultivated are, the common Adam’s-needle (*Y. glo-

riofoa*), the thready Virginian *yucca* (*Y. filamentosus*),

the aloe-leaved *yucca* (*Y. aloifolia*), and the dragon-tree-leaved

*yucca* (*Y. draeonis*).

These are all fucculent evergreen shrubs, fome of

them having a flefly nature and great regularity of

growth.

Method of Culture.—These plants are all capable of being

raised by offsets or fuckers, from the roots and heads of

the old plants, as well as by seed.

The offsets and fuckers may be taken off any time in the

spring or summer feafons, being laid in some dry place for

a few days, till the fowied part caufed by the feparation

from the plant is dried and healed over; when they may be

planted out feparately in pots of light fandy compoft, and

be placed in a shady fituation till they have taken root in a

perfection manner. When affifted by a hot-bed, they often

fucced better.

The feed obtained from abroad should be fown in the

spring in pots of light earth, plunging them in a hot-bed,
in which the plants soon come up; and when they are two

or three inches high, they fhould be pricked out feparately

in small pots of light fandy mould, replanting them in the

hot-bed to forward their growth, affifting them with mod-

erate waterings and frefh air daily, and hardening them by

degrees to the full air, fo as to be let out in June to remain

till October, when they fhould be removed into the green-

houfe for the winter.

Some plants of all the forts fhould constantly be preferred

in pots.

They are all very ornamental; the two first after they

have been hardened, in the dry borders, where the foil is

light, and where the fituation is warm and feltered; and

the others in green-houfe collections, among other potted

plants.

*YUE*, in Geography, a city of China, of the fecond rank,
in Yun-nan; 1105 miles S.S.W. of Peking. N. lat. 25°

27'. E. long. 103° 22'.

*YUEN*, a river of China, which runs into the lake Tong-
ting, 17 miles E. of Tchang-te.—Allo, a city of China,
of the fecond rank, in Hou-quang; 850 miles S.S.W. of


*YUEN-KIANG*, a city of China, of the fift rank, in

Yun-nan, on the Ho-ti river; 1250 miles S.W. of Peking.

N. lat. 23° 37'. E. long. 101° 44'.

*YUEN-TCHEOU*, a city of China, of the firth rank,
in Kiang-6; 750 miles S. of Peking. N. lat. 24° 50'. E.

long. 114°.

*YUEN-YANG*, a city of China, of the firth rank, in

Hou-quang, on the river Han; 517 miles S.S.W. of

Peking. N. lat. 32° 50'. E. long. 116° 29'.

*YVERDUN*, or *Ifferten*, a town of Switzerland, in

the Vaudois, and capital of a bailiwick, in the canton

of Berne, fiftuated on the lake of Neufchâtel, otherwife called

the lake of Yverdun, at the mouth of the river Orb, which

divides into two branches, forming a good port, and an

ifland, on which the town is fiftuated. The two fauxbourgs

communicate with the town by bridges. It is ancient, and

in the Theodorean table called "Caflrum Ebredunenfis," and

"Ebredunenfis," by which it is understood to have been a

place of firength. The Romans maintained here a *prefetius

Barcariorum*, and there yet exifls a fociety of boatmen, of

ancient fanding, and numerous, who have a particular po-

lice, privileges, and laws of navigation. From the Romans

it paffed 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
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 Yverdun 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 banneret. 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 moraet, which has been drained, and is now become good and fertile land. Near the town is a fulphureous medicinal spring, and in the year 1735, 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 Yverdun 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 9th 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 succesor, 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 267 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. issued a bull in 1570, empowering the canons-regular of Latran to celebrate an anniversay for "the bleffed 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 Russia 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 Petersburg, are, Arfamos, Kof- troma, Yaroslav, P'cove, Kazan, Vologda, Nihney-Novgorod, 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 tan-pits 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 lea, thus prepared: In other vats, likewise dug in the ground, and under cover, they mix two parts of good ashes with one part of unflacked lime, in boiling water, and sink the wet hides in this lea on a grating, which being suspended by cords, can be raised 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 lea 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 lea, and the skin skunk in it. But if at length the hair be sufficiently loose, the hides are entirely taken out of the lea, and all the hair scraped off on a stretching-block, by means of blunt iron scrapers with two handles. The hair is washed clean, and sold 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 turning them to and fro, in order to purge them from the ashes and lea; 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 aforefaid 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 yufts-tanners, in the interior towns of the empire, who mollify practife it, call rakefa. This preparation is performed with the white excrement of dogs dried, which is diffused 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 corrupted in this slime, the object whereof seems to be the complete freeing of the skin from the salts that adhere to it from the lea. The hides are left to lie twice twenty-four hours. With this is sprinkled a four gruel of oatmeal with warm water, and to three offmies, or eightths of a cheverik, three or four vedros of dregs 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, for, thoroughly boiled from good bork. 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 ftrewd with good fine-pounded tan, and the grating conflantly 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; those 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 successively fresh tan, and are every time rined 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 those workmen whose busines is it, in particular workshops, to dry, drefs, and wax the yufts, and to deliver the goods finished. It is to be observed, that the Russian yufts-tanners seldom use oak-tan, and never willingly. The choicest and best tan is that of the tchernotal, as they call it, or the black willow; and also the young bark peeled off from other shrubby 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 willow-bark,
bark, as they are laid one upon another for sale, through all the towns. It must not, however, be imagined that the excellence of the Ruffian dyers depends on this; for in Siberia, where there are no oaks, and but few willows of any size, they tan yuts with only birch-bark, which are not much worse than the Ruffian. 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 pelles, almost like those in the tan-mills, by day-labourers.

The dyeing of the yuts is performed in two ways, and of two colours. The commonest and most natural custom of giving the colour to the hides is, by fewing them together in pairs, the hair side inwards, while they are yet moist, round the edges, with rubies or stripes of bark, thus forming them into a bag or pack; into this pack the colours is put, the pack well shook, and the superfusious dye let to run out, whereupon the skins are dried. From this method of dyeing them, it seems to proceed that the yuts are called and taken by pairs. The other process, whereby much trouble, time, and colour are saved, and the edges of the skin entirely preserved, is the following: Each skin is hung upon a horse over a long trough, so that the hair side, which must be flained, appears outwards, pouring the dye upon it out of the dye-kettle, till the whole skin is dyed. The two colours given to the yuts are red and black. The red dye is thus prepared: Pound brahill-wood (fandall) in the pounding-mill, or with hand-pelles, as fine as the tan, and boil it in kettles. Previous to the dyeing, steep the skins in alum-water. It is calculated, that to each small yut-skif a half, and to a large one a whole pound of logwood is put. But the latter are mostly coloured black. To a hundred yuts to be dyed red, four pounds of alum is sufficient. For dyeing black the brahill-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 yuts, 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 feal-blubber for smearing them; but by that the yuts are harsher, and have not that yut smell, which foreigners prize so much, unless the birch-tar, taggot, prepared in Ruffia, at least be mixed with it. At present this birch-tar alone is used for smearing. This done, the skins are cleaned from all impurities that may remain, and are sent to the dressing-house, where skilful workmen scrape them first with scraping-irons, having two handles, with the edge cross-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 yuts on large clean tables, sprinkle them on the flesh side with a gentle shower 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 yuts 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, those skins which are too harsh 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 author an account of the Ruffian method of preparing and dyeing their faflain, maroquin, or Morroco leather, which are dyed at Atrachan of three colours, red, yellow, and black. The treatment of the red faflains, which are the most famous, is usually 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 squeezed 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 grosser 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 floured in about half a buhel of unfalke lime in vats with river water, and the hides are laid in so that the lime may as much as possible be equally distributed over all of them. The Atrachan Tartars let the hides lie in this lime-pit frequently three weeks, but it is well known, that their faflains are far harsh and liable to crack, and even corroded by it, that they are fit for nothing, and can only impede 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 loosened by the first lime-ley, but that many tender fubboles and 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 comes 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 faflains, by this corrosion 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 indispensably necessary, is pounded, put into a narrow not very large vat, warm water poured upon it, the mafs thoroughly floured, and the cleansed hides are put with it into another vat, so as that the dissolved album grecum is spread and inminated over and between every skin. In these ingredients, the skins must lie only twenty-four hours, or if the quantity of album grecum prove not rich, somewhat longer. The proportion here to be observed cannot be accurately ascertained; for the faflain-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 foffter 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 likewit, 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 moisture is carefully and forcibly pressed out, and they are laid without loss of time in a vat, wherein wheat-bran is floured to a tolerably thick gresul with warm water; in this they lie again about thrice twenty-four hours, whereby all the former defects are completely remedied, and the substance of the skin
formally absorbed all the dyeing particles, and only some what of a pale moisture remains. The leathers being thus for the first time tained are quickly squeezed out, hung up flingly 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 preiffed out, but hung up entirely wet, to be venti lated, 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 Altrachan faffian-makers get from the Terek, are flurred 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 pre pare 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 forrel, (or lutor, or later, as they call it,) in the dye-kettle, but it is usually omitted in Altrachan, on account of its high price; for which reason the Altrachan faffians are excelled by the Turkifh in beauty of colour. Secondly, it is to be known, that instead of the leaves of the tan-tree, bruifed nut-galls are held to be still more service able for giving the faffians the tan. By this means, the colour is fo 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 Altrachan to be customarily used by the faffian-makers. The Kazan Tartars colour their faffians with red wood, and tan them with the shrub uva urfi, but it makes the worst faffians of all, as they presently fade.

When the faffians are lifted out of the tan, till the last work remains. They are first left some time in the air to dry, they are afterwards scraped on the stretch-bank with sharp scrapers on the fleece 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 password that has blunt points, those little pittings, which the faffians are generally seen to have, are impressed on the same side. And thus they are ready for sale, without being smeared with linseed oil, as is mentioned in Gmelin's travels, which would infal libly spoil them.

The yellow faffians are little made in Altrachan, as the demand for them is much less, and there are but few faffian-makers who know much of the matter. The dye which they make use of for this purpose is of the berries of a tart of rhamnus (perhaps lycoideis), which are brought from Persia under the name of ulofchar, and usually bought for fix to nine rubles the pound. The Kazan Tartars colour their ordinary yellow faffians with the flowers of the yellow camomile, which they gather under the name fare tfchetschiak, i.e. yellow-flower.

In preparing the yellow faffians, they observe in Altrach an the following difference of treatment: 1. They make no use whatever of honey in the preparation. 2. They never
never at all put the hides into the salt brine. 3. 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 kitzial tan-tree, leaving them in it eight days. 4. For preparing the dye, they have no need of the herb tchagan, but the berries alone are boiled in clear water, of which to four Russian vedros of water about ten pounds are requisite, and heighten the colour 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 saffians in the tan, as having before received it. Nothing more is necessary than to ferment them, to work them thoroughly, to polish and to ornament them. The yellow saffians usually are folded at one ruble twenty kopeeks; but the red at somewhat more, on account of the dearness of the feds, generally one ruble eighty kopeeks.

YUG, or YOG, the more correct mode of writing the word jogas, by which the Hindoos distinguish the poetical or mythological ages of the world. We have noticed these wild speculations under the more popular word jogas; to which, to GENTOOS, KAKI, KALPA, and YOGESWARA, we refer those deffours of further information hereafter.

YUGASIRI, in Hindoo Mythology, is the name of the wife of Va'ruves, an incarnation of Siva. See those articles.

YUHAGHIRS, in Geography, a Russian tribe, which occupies the northernmost part 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 impaffable deferts, could not be brought into entire subjeftion 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 deferts. The whole people, at the revision before the last, says Mr. Tooke, paid taxes only for about 1000 heads; but it was too 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.E. of Ponthieu.

YVICA. See YICA.

YUKANLOOT, a town of Candahar; 10 miles E.E. of Sufia.

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° 20'. W. long. 74° 50'.

YUMA, in Mythology. See Tscheremisses.

YUMAR, the name of the object of worship among the Votkais; similar probably to Yuma, Yummel, and Yummals, 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'. E. long. 121° 17'.

YUMMALA, in Mythology, an idol deity of the Finns, who had a rich temple in Permia, or Bierma, supposed to have extended from the White Sea to the mountains of Ural. This temple was decorated with a profusion of gold and jewels. See PERMANS.

YUMMEL, an appellation by which the Lieflanders and

Eathanians 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-po, a city of China, of the first rank, in Yun-nan; 1135 miles S.W. of Peking. N. lat. 26° 44'. E. long. 100° 34'.

YUNA, a river of Hispaniola, which runs into the So- mana bay.

YUNCHA, a town of South America, in the province of Tucuman; 60 miles S. of St. Jago del Eftero.

YUNG-KANG, a city of China, of the second rank, in Quang-fi; 1140 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 Chian-fi; 300 miles S.W. of Peking. N. lat. 37° 35'. E. long. 110° 30'.

YUNGUS, or Yungus Vitus, in Ancient Geography, a place of Gaul, on the route from Reims to Treves. Anton. Itin.

YUN-HING, in Geography, a city of China, of the first rank, in Ho-nan. The country, within its defert, 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° 52'.

YUN-LEAN-HO, a canal of China, formed of the river Pay-ho, or rather the river itself made navigable from Hiam-ho to Tien-tsin, in the province of Pe-tche-li, for the purpose of conveying corn towards Tong-tcheou and Peking. The name in the Chinese language is faid to mean corn bearing.

YUN-NAN, a province of China, bounded on the N. by Se-tchen and Thibet, on the E. by Quang-fi and Kei-tcheou, 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, robufl, affable, and fond of the sciences, which they cultivate with succefs; its rivers, gold, copper, and tin-mines; its amber, rubies, sapphires, agates, pearls, precious finones, marble, mufk, silk, elephants, horfes, gums, medicinal plants, and linen, have procured it a reputation which renders it respectable to the Chinefe. Its commerce is immenfe, as well as its riches, which are faid to be inexhaustible. This province contains 21 cities of the first clas, 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 squares; but the Tartars, in their different invasions, destroyed all these monuments; and the city at preient contains nothing remarkable; it is, however, the residence of the governor of the province. It comprehends in its district four towns of the second clas, and seven of the third; 1152 miles S.S.W. of Peking. N. lat. 25° 06'. E. long. 102° 28'.

YUNTAI, an island near the coast of China, in the Eastern
ZABERN, Conrad de, in Biography, born in Germany about 1450, was a very learned man, and much respected for his morals. He wrote two treatises on music; the first of which is entitled "De Monochordo," and the second "De Modo bene Cantandi." He was much beloved by the emperor Frederick III.

ZEBERN, in Geography. See Bergzabern.

ZABI, or ZABA, in Ancient Geography, a place of Africa, in Mauritania Stiftenis, on the route from Cartage to Caflarea, between Arz and Macri, Anton. Ita.

ZABII, or ZABIS. See ZABANS and ZABISM.

ZABIN, in Geography, a town of Lithuania; 30 miles N.E. of Minik.

ZABIRNA, in Ancient Geography, a river of Afa, in Melopotamia, which discharges itself into the Tigris.

ZABLOTOW, in Geography. See Sablotow.

ZABLOWICZE, a town of Lithuania; 86 miles E.S.E. of Pinfk.

ZABOLA, a town of Transylvania; 10 miles N. of Cronstadt.

ZABORE, a town of Russia, in the government of Irkutsk; 36 miles S.S.W. of Kirensk.

ZABREZEH. See Hohenstadt.

ZABULIAN, See Sabulest.

ZABULON. See Zebulen.

Zabulon, Tribe of, in Ancient Geography, was bounded on the N. by the tribes of Apher and Nahphali, on the S. by the torrent of Kifon, on the E. by the sea of Galilee, and on the W. by the ocean. Almost all the towns of this tribe were on the plain of Galilea.

Zabulon, a town of Judea, situated on the plain of Galilea, in the tribe of the same name, according to Joshua and the book of Judges. Josephus says, that Cestius, though he admired its beauty, took, pillaged, and burnt it. It was situated S.E. of Potemans.

ZABUR, a country of Afa, in Babylonia, in which was the town of Seclucia.

ZABUS, Zabatus, or Zerbis, (Great Zab or Zab) a river, which is the same with the Lycus, flowed from a source towards the 35th degree of latitude, and directed its course first to the N.W., then to the W., afterwards to the S.W., and finally to the S., discharging itself into the Tigris, about lat. 35° 45'. Xenophon says, that this river, at its entrance into the Tigris, appeared to the Greeks comparable to the Tigris itself. See Zab.

Zabus Minor, or Caprus, (Lesser Zab, or Altan-Sen) a river of Afa, which had its source E. of Arbelles, and ran towards the S.W., discharging itself into the Tigris, over against Cane, below or S.S.E. of the greater Zabus. See Zab.

ZACA, in Geography, a town of Egypt; 17 miles N.E. of El Arish.

ZACANTHA, in Ancient Geography, a town of Hifpania, in Iberia, said by Steph. Byz. to have been taken by Hannibal, and to have been called Zacythus or Saguntum.

ZACAPA, in Geography, a town of Mexico, in the province of Vera Paz; 42 miles S. of Vera Paz.

ZACAPULA, a town of Mexico, in the province of Chiapa; 130 miles S.E. of Chiapa de Izapa.

ZACATECAS, a province of Mexico, bounded on the north by New Biscay, on the east by Guadaluca, and by the south by the provinces of Mechoacan, Guadalajara, and Chiametlan, and on the west by Chiametlan and Culuaca. 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 fore-mentioned district, the importance of which has declined with the mine. It formerly contained about 12,000 families of Spaniards and mixed breeds, though confining chiefly of one street, in a deep passage between high rocks, crowned with cottages. Luis de Potosí on the S.E. is said by Alcedo to contain only 1600 families of Spaniards, Malatotoes, and Indians, though it has six 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 gutta-percha and tanned leather.

ZACATECAS. See St. Louis de Zacatecas.

ZACATLAN, a town of Mexico, in the province of Thatela; 30 miles N. of Puebla de los Angeles.

ZACATULA, or Zacatula, a town of Mexico, in the province of Mechoacan, on a river of the same name, near the Pacific ocean; 93 miles S. of Mechoacan. N. lat. 18° 35'. W. long. 105°.

Zacatula, 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.

ZACARRIA. 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 Medicis legales, in quibus omnes materiae medicae que ad legales facultates videntur pertinentes, proponitur, pertrafauntur, refutuntur," a work which has been often reprinted. He was also the author, in Italian, of two esteemed works, "Del Vitto Quadragesimale," 1637, the subject of which is the regimen of diet in Lent; and "De Mali Ipochondriachi," 1639, a diffuse treatise on hypochondriacal affections. He died in 1659, aged 75. Haller. Eloy. Gen. Biog.

ZACCONI, P. Lodovico, of Pefaro, 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 been too 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 fient instruction, every who could read, in Italy, might, during the times under consideration, have been a musician. But though no ingenuous 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
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 systems of the ancient Greeks, or the philosophy of sound, he has had the more leisure for analyzing the art, and facilitating the student's progress. This author regarded Okenheim, Joquin, Isac, Brumel, Mouton, and Senefelio, as古人 compared with Willaert, Morales, Cipriano, Zarlinio, 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 Joquin 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. xxiii.), 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 fill to think the same. Okenheim, the master of Joquin, and even in the days of Joquin, John Mouton, his scholar, had the fame ideas of their own improvements; yet, since their time, music has not frowd fill, 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 graceing and embellishing a melody, where he tells us, "Che file ti tenghi nel far di gioria; delli de i moderni passaggi, come si farfichino le cantilen•;" and speaks of acconciature, as the modern Italian do of rifiorament•, or graces. The divisions, however, into which he breaks passaggi, in order to embellish them, if adopted by an opera-singer of the present times, would not like a modern fine lady appearing at court in the furbelsow and flounces of queen Elizabeth, or a fine gentleman in the peruke of sir Cloudley Shovel.

ZACHARIAS, or SOCHAN, in Geography, a town of Hinder Pomerania; 14 miles E. of Stargard. N. lat. 52° 13'. E. long. 15° 28'.

ZACHAREVSKAIA, a fort of Russia, in the government of Ekaterinoslav, on the Konjika; 28 miles W. of Mariopol.

ZACHARIAS, Justus Frederick William, in Biography, was born at Frankenhausen 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 "Regomittedo," which Eichorn, in his History of Literature, says, was the commencement of heroic-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 Klaproth, 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 Intelligence. From 1768 to 1774, he was editor of the New Brunswick Gazette; in 1775 he was appointed to the Exarchate of St. Simeon, 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 talent, 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 heroic-comic. His burlesque poems were distinguished from every thing of the kind that had before appeared in Germany." A collection of Zachariah'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 2d year of Darius, the son of Hystaspes; and on account of the precision and clearness of his predictions, he has been intitled "the man 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.

ZACHARIAH, 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 return 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 fortress of Cefena to the exarch; and in the same year he held a council at Rimini, to settle some matters of discipline, particularly such as related to the clergy. During the pontificate of Zacharias in the year 746, Carlogan, 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 solemnly invested by the pope. Rachis, the succesor of Luitprand, who, upon his acccession 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 refolt of their interview was Rachis's resignation of his crown, the assumption of the monastic habit conferred upon him by the pope, and retirement to the monastery of Monte Cacone, where Carloman refided. In 752 Pepin applied to the pope for permission to seize the crown of France, and to set aside Childeric 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 rank among the greatest of the popes, and having esta-
lished an efficient 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. Greg-
ory from Latin into Greek, are extant. Bower.

"ZACHAROVA, in Geography, a fort of Ruffia, in the 
government of Irkutsk; 32 miles N.N.E. of Kirenik.

"ZACHAU, a town of Brandenburg, in the Middle 
Mark; 10 miles E. of Brandenburg.

"ZACHAW, Frederic Wilhelm, in Biography, an 
able musician and organist at Halie, 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 maister, who had established an admirable 
school of music at Halie, and as one who was deeply skilled 
in all the arcana of composition and performance.

"ZACHEO, or DESECHIO, in Geography, a small island 
in the West Indies, between Hifpaniola and Porto Rico; 
about 27 miles N.E. of Mona.

"ZACHTLEVEN, Cornelius, in Biography, was born 
at Rotterdam in 1666, and became an admirable painter of 
scenes of humour, imitating the style of Bourdeau; 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 fame description of persons 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 1690. 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 Meule. These he executed in a very neat 
manner, but with a mean and common-place style of depiction 
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 
proportioned, and the forms drawn with great care and minute-
ness. He never left Flanders, though it has been asserted 
that he went to Italy. His drawings are numerous, and 
are carefully preserved in the best collections. He died in 
1685, 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 Isle of Zante, or for what other rea-
on, does not appear.—Matth. Valgr. v. 1. 457. t. 466. Schreb. 
t. 269. Poiret in Lamarck s. 8. 851. Garin. s. 157. —

Gen. Ch. Common Calyx double; the outermost short, 
erect, of several lanceolate leaves, marginated at the edges; 
inrior 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, 
s abrupt, with five stamens. Stam. Filaments five, capillary, 
very short; anthers united into a cylindrical tube. 
"Pfl.

"ZACONDA, a town of Africa, in the country of Anel, 
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 
ever been thoroughly repaired.

"ZACUTO, or Zacutus Lusitanus, in Biography, a 
physician, was born at Lisbon in 1575, and educated at Sal-
amanca and Coimbra. In his 20th year he took the degree 
of doctor, and settling in his native city, practiced with 
reputation for thirty years. As he was a descendant of 
Jewish parents, his dread of the Inquisition, after the edict 
of Philip IV. against the Jews was issued in 1624, 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 
mental 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 Morborum," lib. v. and 
"Praxis Medica admiranda," lib. iii. In all his works he 
blends acuteness of observation with a certain degree of 
superficialities.
superstitious credulity; but they are nevertheless consulted and quoted. Haller. Eloy.

ZACYNTHUS, in Ancient Geography, an island of the Ionian sea, W. of that part of the Peloponnesus on which is the island Chelonis. 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 palled under the dominion of Philip, king of Macedon, who surrendered it to Amynander, king of the Thessalians, who sold its 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 Leuvinus; and Pauniani informs us that it was called Paphis. According to Scylax 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 Horneman's Journal as flowing callwards. 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 Hyphasis and Adris, according to Ptolemy.

ZADAN, in Geography, a town on the west coast of the island of Cother. S. lat. 21° 55'. E. long. 119° 9'.

ZADAOX, a river of Portugal, which runs into the Atlantic, near Setuval.

ZADELSDORF, a town of Saxony, in the circle of Neufkald; 3 miles S.E. of Auma.

ZADONZK, a town of Russia, in the government of Voronez, on the Don; 52 miles N. of Voronez. N. lat. 53° 4'. E. long. 39° 14'.

ZADRADARIA, in Ancient Geography, a very large town of Asia, the capital of Hyrcania, according to Arrian.

ZADRAMA, a town of Arabia Felix, the capital of the Cincadopolites. Steph. Byz.

ZADRUN, in Geography. See Hatyan.

ZADRIS, in Ancient Geography, a town of Asia, in the interior of the Colchide. Ptol.

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 greatly esteemed in pestilential cafes.


ZETIA, or Zetta, a town of Arcadia, N. of Megalopolis. It had two temples, one of Ceres, another of Diana.

Z.EZAR, in Geography, a town of Spain, in the province of Murcia; 22 miles N.W. of Murcia.

ZAF, in Geography, a town on the coast of Byzantium; 55 miles S.E. of Melilla.

ZAFARANBOLI, a town of Natolia; 28 miles S. of Amashch.

ZAFFABEN, a word used by some of the chemical writers to express putty.

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 oxyd of cobalt, mixed with a portion of felseous matter, of a grey or reddish colour; in which flake 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 zaffre 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 zaffre with a reducing flux, like any other roasted ore, by which means the regulus will be obtained. The fcoria in this fusion 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 fceafe of the blue colour produced by zaffre.

But as this is contained in cobalt in various quantities, some zaffres 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 lustre and beauty; and, therefore, those who manufacture zaffre 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 zaffre, 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 saline flux, a deep blue glass may be formed. See Cobalt.

The zaffre that is commonly sold, and which comes from Saxony, is a mixture of oxyd of cobalt with some vitrifiable earth; it is of a grey colour, and some zaffres are clearer than others, according to the intensity of the colour which they are capable of producing.

Zaffre is employed in the manufacture of pottery and porcelain, for painting the surface of the pieces of ware, upon which it is applied, together with some saline flux, previously to the baking or glazing, that the same fire may vitrify this colouring material.

The blue of zaffre 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 turquois, the sapphire, and others of this kind.

To prepare zaffre for use in the glasa-trade, put it in groats pieces into earthen pans, and let it stand 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 porphyry 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 A fixture Turkey, in the government of Marash; 15 miles S.W. of Tarfus.

—Allo, a town of Asiantic Turkey, in the government of Trebizond, on the Black sea; 50 miles N.W. of Trebifond.

—Allo, a town of Spain, in Extremadura; 22 miles E. of Xeres de los Caballeros.

ZAFRANIA, in Colours, a term used by the Greeks to express the yellow of saffron. The barbarous writers of the after-ages translated it into the Latin crocitas, or saffron colour.

The later Greek writers only use it, and they have taken it literally from the Arabians, Avicenna, and Serafio. This was a term used by them to express the colour of the fine hole-armenic of Galen, which they tell us flayed paper to a fine and beautiful gold colour.

ZAQA, in Botany, Poiret in Lamarck Dict. v. 8. 831. (Zaga, Pethon, or Corallaria latifolia, Rumph. Ambon. v. 9. 175. t. 110.)—This is one of those trees, whose hard red seeds 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 seeds of Abrus precatorius, of which there is a perfectly white variety, of rare occurrence. Such also are those much larger seeds, of the same combination of colours, produced by the Weit Indian genus Ornaria. (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, flaked, rather large leaflets, with an odd one. Flowers in panicked terminal clusters. Legume elliptic-oblong, pointed, hard and smooth, each containing one, rarely two, hard, thinning, 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 destitute of the defined circumscribed area, for which the seeds of the Adenanthera are remarkable.

ZAGALA, in Geography, a town of Spain, in Extremadura; 25 miles S. of Alcantara.

ZAGAN, a town of the principality of Georgia, in the province of Kasket; 3 miles N. of Tetis. —Allo, a town of Peris, in the province of Irak; 12 miles S.W. of Hamadan.

ZAGARA, a mountain of Greece, in Livadis, anciently called Helicon.

ZAGATHAI, a name given from the second son of Zingis to Great Bucharis; which fee.

ZAGATIS, in Ancient Geography, a river of Asia, in the Colchide, according to Arrian, who fixes its mouth between Atanx and Anchianke 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 let. N. lat. 19° 10’. E. long. 25° 50’.

ZAGGOS, a mountain of Africa, in which are some mines of salt; 100 miles S. of Algiers.

ZAGHARA, a town of Africa, in Bornou.

ZAGI. See ZEOI.

ZAGOLLONITIS, 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 Asia, in Paphlagonia, at a small distance from the sea. Ptol.

ZAGLIA, in Geography, a town of the island of Corfica; 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.

ZAGORA, in Ancient Geography, a town of Asia, in Paphlagonia, on the coast of the Euxine sea, between Caur and the mouth of the river Halys, according to the Peripus of Arrian.

ZAGOROLO, in Geography, a town of the Popedem, in the Campagna di Roma; 5 miles W. of Palestrina.

ZAGOROW, a town of the duchy of Warlaw; 20 miles S. of Kalich.

ZAGRA. See AGRAM.

ZAGROS, MOUNT, a mountain of Peria, in the province of Irak, along the brink of which extends the district of Kurrend, from the vicinity of Holwan to the village of Gour. It is covered with forests of oak, and inhabited by an extraordinary race of men, among whom fubful customs similar to those of the Kadmufa in Syria, described by Volney. It is said that in their nocturnal festivals, 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 re-lighted; and it is settled by the rules of the society, that the lady must patiently submit to the embrace of the perfon who has become possessed of her drefs, whether father, fon, husband, or brother. The lights are then once more extinguished, and all of this licentious tribe pays the remainder of the night in the indulgence of the most promiscuous lust.

ZAGRUS, or ZAGRUS MONS, in Ancient Geography, a mountain of Asia, in Media. It made a part of mount Taius, commencing in Armenia, and extending as far as the Chaloutide, between Media and Adiabene. Pliny. It is reckoned by Ptolemy one of the most confiderable 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 fructre priniforme.

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 retok the town, but not being able to reduce the citadel abandoned it. In 1481, it was surprised by the Moors, in a dark stormy night; most of the inhabitants were put to the sword, and the red feit 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 dyfentery, in which there was a very large
ZAIRA KAKONGO, an island in the Atlantic, at the mouth of the river Zaire.

ZAIRAGIA, or ZAIRAGIAN, 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 ansver to each other, by moving the circles according to certain rules.

This is also called zarib, because of the circles of this machine, which are called mutazariat, lafak, &c. are intended to correspond to the orbs of the planets, and the atmospheres of the several elements.

ZAIRED, 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. 3°, in the kingdom of Congo; after which it takes a south-westerly direction, and runs into the Atlantic, S. lat. 6°. E. long. 13° 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 seas, 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 North Africa, it is not easy to account for this total ignorance, and for their generally describing it as running to the Nile; and in fact, to a country with which they had not any acquaintance. A second consideration has been already suggested under the article ZAD. A third is deduced from the general supposition 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 diminished in size; and that its waters would become pure. On the contrary, the waters of the Congo are at all seasons thick and muddy. The breadth of the river, when at its lowest, is one mile, its depth is fifty fathoms, and its velocity 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 Bambara 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 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 con-
siderable 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 north-
ward, from the floods commencing long before any rains
took place S. of the equator; since it begins to swell per-
cently about the latter end of October, and no heavy rains
fell 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 com-
pared 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 sensible outlet, I have no
doubt of its proving the Congo, knowing all the rivers be-
tween Cape Palmas and Cape Lopas to be inadequate to the
purpose; nor need the immense course of such a river fur-
prise us, when we know that the river St. Lawrence, con-
templated in size compared with the Congo, encompasses the
whole of North America, flowing through a chain of lakes.
But instead of seven or eight lakes, the Congo may be sup-
posed to pass through seventeen or eighteen; which will
solve any difficulty as to the floods of the Niger not imme-
diately affecting the Congo." He adds, the river Niger,
compared with other rivers, must rank as the third or fourth
in magnitude. Considering the force of the current it pro-
duces in the sea, carrying out floating islands fifty or seventy
leagues from the coast, the Amazon or Plata only can cope
with it. At the distance of 600 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 Suenda 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 Molyneux's
island at Embomma, (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 fo upon trial, we may consider it is an opening de-
gned by Providence for exploring those vast regions, and
civilizing the rude inhabitants." The Congo appears from
other testimonies to be a river of the finest clays, 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 exaggera-
tions, it is a general opinion among navigators that this
river has a wonderful size and force. All accounts con-
cur 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 seasons, 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 season is rated 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 to a stranger of being
in full flood. It is this remarkable peculiarity which distin-
guishes the Congo from other great rivers of a similar de-
scription, and which leads to important conclusions with re-
gard to its origin and cause. "In support then of the hy-
pothesis which identifies the Congo with the Niger, the fol-
lowing arguments deduced from the preceding facts and ob-
servations 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 un-
known, 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 vast chain of the mountains (anciently Montes Lune),
the great central belt of Africa."—"It is difficult to un-
derstand how the Niger could penetrate this barrier, and
form a passage southward. 2. The course of the Niger,
emanated from its source in the mountains of Senegal, (fup-
poing it to be the same river with the Congo,) and to flow
by Wangara and Cadhna, 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 civiliza-
tion 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 informa-
tion 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. Reichard, a German geo-
grapher, and published in the "Ephemerides Geogra-
phiques," at Weimar, in August 1808. This opinion is,
that the Niger, after reaching Wangara, takes a direction
forth 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 Formoso,
or Benin river, the western branch. This hypothesis,
thought it diminishes the distance which the Niger has to
flow in its course to the Atlantic, does not remove the ob-
jection arising from the Niger's being conceived to penetrate
the Congo 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 Sharedse.

ZAKEPH GADHOL, Rex Pauperrimus, one of the Hebrew accents, sometimes denoting no kind of paucity, and marked over a letter thus (2).

ZAKEPH Katon Rex, one of the Hebrew accents, constituting either a comma or semicolon, and marked over a letter thus (2).

ZAKERZEVIN, in Geography, a town of Kurdtitan; 26 miles N.N.W. of Van.

ZAKIEH, a town of the Arabian Iraq, on the Tigris; 10 miles N. of Korna.

ZAKLIKOW, a town of Austrian Poland, in Galicia; 40 miles S. of Lublin.

ZAKROCYZ, or SAKROTSCHIM, a town of the duchy of Warsaw, on the Narow. In 1794 the confederate Poles were defeated here by the Russians; 40 miles N.W. of Warsaw.

ZAL ALEKSANDROVSKOY, a bay of the Caspian sea; 260 miles S.S.E. of Akdrachan. N. lat. 43°. E. long. 51° 14'.

ZAL, in Botany, so called by Loureiro, Cochinnh. 459; from ζαλή, a trembling, 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 Amapha, 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 Mauritian Caezearia. Ptol.

ZALACUS Mons, (Van-najaf-refo), mountains of Mauritian, at some distance from and to the S. of the river Chinalaph. Ptol.

ZALAKNA, in Geography, a town of Tranflyvania; 14 miles W. of Welfemburg.

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 Ilipa, and many vestiges remain of its former splendour; 27 miles N.E. of Llerena.

ZALANTZ, a town of Hungary; 10 miles S.E. of Calchau.


ZALESCHE, 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 Laconian state, 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 Locians, 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; Vol. XXXIX.

ZAM, in Geography, a town of Grand Bucharia; 85 miles N.W. of Balk.

ZAMA, a town of Peru, in the diocese 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 fortesis, 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 flourishing state, it was assigned to Numidia. Cornelius Nepos says, that it was 300 miles from Aduometum. Appian says 3000 stadia. It was situated on a plain, and owed its strength to its fortifications more than to its situation. Hirtius says, that it was the ordinary residence of king Juba, where he had his wives, children, and treasures. Pliny says, that it became a Roman colony.

ZAMA, a town of Cappadocia, in the prefecture of Chamane.—Alfo, a town of Afa, in Mesopotamia. Ptol.

ZAMAMIZON, a town of Africa Propria, between the town of Tabraca and the river Bagradas. Ptol.

ZAMBOSE, or CUMAN, in Geography, a river of Africa, which rises in the interior parts of Mocaranga, and runs to the Indian sea at several mouths; the principal of which takes the name of Luabo. S. lat. 19°. E. long. 37°.

ZAMBOZIN, a town of Congo; 24 miles S.S.W. of St. Salvador.

ZAMBRANO, JUAN Luis, in Biography, a Spanish painter,
ZAMBI, a name given by some writers to the lapis lazuli.

ZAMETUS, in Ancient Geography, a mountain of Arabia Felix. Ptol.

ZAMFARÁ, or ZANFARA, in Geography, a town of Africa, and capital of a kingdom of the same name; 170 miles E.N.E. of Waganga. N. lat. 18° 20'. E. long. 16° 15'.

ZAMIA, in Botany, from ἵππως, damage, or loss. This name, which first occurs, as the appellation of a genus, in the Gen. Pl. ed. 6. of Linnaeus, is taken from Pliny, 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 Pale the physiology of Pliny, 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 lofs, or sterility, like the male catkins of the fir.—Linn. Gen. 574. Suppl. 68. Schreb. Gen. 778. Willd. Sp. Pl. v. 4. 845. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 410. Brown Prodr. Nov. Holl. v. 1. 348. Pursh 648. Jaff. 16. Poiret in Lamarck Dict. v. 8. 831. Lamarck Illust. t. 892. Gartn. t. 3.—Clais and order, Dioecia Polyandria. Nat. Ord. Filicet, Linn. Juff. Cycadeae, Perloo, Brown.

Gen. Ch. Male. Cal. Catkin ovate, telfellated-scales horizontal, obtuse, thickened towards the end, permanent. Cor. none. Stam. Filaments none; anthers numerous, sessile, 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, telfellated: scales horizontal, obtuse, more or less peltate, permanent. Cor. none. Pfl. Germens two, ovate, sessile, horizontal, inflexed, on the under side of each scale, near the extremity; style very short, somewhat conical; stigma obtuse, undivided, pellucid. Peric. Drupa roundish, somewhat angular, of one cell. Nut hard, roundish or elliptical, of one cell.


Obf. Mr. Brown, to whom we are obliged for the remark of the filey being finally pervious, records an idea of the late Mr. Dryander, that the American Zamia, which confitute the original genus, having more perfectly peltate scales to the male catkin, and the anthers assembled in two diffiñct masles might possibly form a diffiñct genus from the Cape and New Holland species; more especially as in these American plants, the leaffets are each manifefly articulated 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 diffiñct genus, which cannot, without violence to nature, be divided. It is nearest akin to Cycas, but differs essentially in the female part of the fructification being a catkin, whose scales bear two germens underneath; instead of an assemblage of fronds, or leafy receptacles, bearing an indeterminate number upon their margins. The herbage is perennial, generally without a flem. Leaves abruptly pinnate, singularly hard, rigid, and often spinous; rarely lobed. Catkins radical, faltimore.

It being extremely difficult to obtain and to compare good specimens of the different species, as well as to detect and define their effential characters, authors have not very clearly described them. Jacquin has published magnificent figures of several; but their most satisfactory marks require to be sought at an earlier period of their growth, and in more minute parts, than he has generally exhibited.

1. Z. cycadifolia. Sago-palm-leaved Zamia. Jacq. Fragm. 27. t. 25, 26. Willd. n. 1.—Leaffets very numerous, two-ranked, linear, entire, with fimpie spinous points; common stalk femicifylindrical, channelled, downy. Catkin of the fruit elongated, fomewhat cylindrical.—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 fheal head of the root, near a foot in diameter, bears numerous fpreading pecife leaves, very much reembling, at first fight, those of Cycas revoluta. The flate 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 leaffets themselves. The full-grown leaffets are from 50 to 80, rigid, parallel, acute, pungent, each about three inches long; the lowermost gradually fhortef, and rather more dilant. The ripe fruits, brought from the Cape, is ovate-oblung, about fifteen inches in length, and five in diameter, brown, each fcale bearing two ovate, angular, orange-coloured drupas, about an inch long, their points direéted towards the base of the fcale. Nut not much smaller, ovate, angular.

2. Z. pungens. Needle Zamia. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 478. ed. 2. n. 1. Willd. n. 2. Poiret n. 3. (Palma fofofifera ægyptia, folis leviourbus, frutibus nigro; Till. Hist. 129. t. 45.) Commonly fpreadmg, ftraight, rigid, pointed, entire; their outer margin rounded at the base; common stalk nearly cylinderical, unarmef.—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 leaffets are very thick and coriaceous, much fewer than in the preceding species, mostly opposite, four orfive inches long, and one broad; their under surface somewhat frifated; the upper smooth and fhining; margin quite entire; point fimpie, spinous, fout and rigid.

3. Z. tridentata. Three-toothed Zamia. Willd. n. 3.—Leaffets linear, obfcurly furrowed, smooth, with three spinous teeth at the end; common stalk femicifylindrical, channelled.—Suppofted to be a native of the Cape of Good Hope. The leaffets are fourteen to fifteen pair, linear, tapering at each end, with two lanceolate, pointed, terminal teeth, and a third situated a little lower at the outer edge. Common stalk smooth. Willdenow. No other author appears to know this species. We have specimens in the herbarium of the younger Linnaeus, without name, indication of their native country, or any traces of fructification, which anfwerv
ZAMIA.

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 leafstalk is the common leafstalk 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 Zami a. Jacq. Coll. v. 3. 265. Lc. Tar. t. 636. Willd. n. 4. Poiret n. 6.—Leaves linear, elongated, entire, obtuse, with two terminal callous points; common stalk fleshy-cylindrical. Fruit ovate, pointed.—Native of the Bahama islands; cultivated at Schonbrunn, where it was raised from seed, and borne 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 enclosed in a few pointed, very broad, scales. Leaves about a yard high, with slender stalks and leaflets; the latter drooping, a span long, and two lines broad. Cattins three inches long, on stalks about the same length; the male ones most slender, and nearly cylindrical. Fruit three inches long, on a thick ovate, or elliptical figure, with a blunt point. Drujas concealed, red.

5. Z. tenuis. Slender Zami a. Willd. n. 5.—Leaflets linear, obtuse, somewhat revolute; tapering at the base, with one or two oblique teeth near the extremity; common stalk triangular, smooth.—Native of the Bahama islands. Willdenow fav 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 latt 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 serrated towards the point; but the stalks are similar.

6. Z. media. Intermediate Zami a. Jacq. Hort. Schoenbr. v. 3. 77, t. 397, 398. Willd. n. 6. Poiret n. 7.—Leaflets linear-lanceolate, obtuse, flat; obscurely serrated towards the point; common stalk triangular, smooth.—Native of the West Indies; cultivated at Schoenbrunn. The crown of the root is as big as the fist. Leaves two feet long, besides their 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 slender dull serrate teeth towards the extremity, which is bluntish, and without any spiny termination. Female cattins on short thick stalks, ovate, with a blunt point. Fruit oval, brown, rough, three inches long. Jacquin. That author confers the present species as alluded on the one hand, to his angustifolia (see n. 4.), and on the other to intergrifolia, n. 8. Still we cannot question it being specifically distinct from both.

7. Z. debilis. Lax-leaved Zami a. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 478. ed. 2. n. 2. Willd. n. 7. (Palma prunifera humidus non spina, infusa Hifpaniole, frutetui iujubino simili, officulo triangulo; Commel. Hort. v. 1. 111. t. 58.). Leaflets lanceolate, acute, pointlets, serrated 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 Mefiara. Kennedy and Lee. It flowers in the flower, in July and August. The leaflets are five or six pair, half an inch broad; though only two and a half or three inches long, and are distinguished from all the foregoing by their conspicuous serratures, all indeed near the end, the greater part of the leaflet being entire: the upper side is smooth and shining; under furrowed or frutet. Commelina originally raised this species from seed in the Amsterdam garden, and was informed that the fruit was reddish, growing partly underground.

8. Z. intergrifolia. Dwarf Zami a. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 478. ed. 2. n. 3. Willd. n. 8. Pursh n. 1. Poiret n. 5, excluding the reference to Commelina. Jacq. Coll. v. 3. 261. Ic. Tar. t. 635. Lamarck t. 892, copied from Jacquin. (Z. punila; Linn. Sp. Pl. 1659, excluding all the synonyms.)—Leaflets smooth, frutet, lanceolate; rounded, obtuse, and finely serrated at the end; tapering at the base. Common stalk smooth, somewhat quadrangular.—Native of East Florida, from whence it was introduced into the English gardens, by the celebrated John Ellis, efq. in 1768. Jacquin says it grows also in Hispaniola. 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 serrated on both sides, with many parallel ribs; the extremity rounded and pointlets, with a greater or less number of flight tooth-like serratures in proportion to its width. Cattins on short stalks, ovate, clothed with dark brown pubescence; the male ones about two inches long. Fruit three inches long, elliptical, pointed, downy; its scales finally widely separating, each of them peltate and angular, supported by a rather slender angular stalk, above an inch in length, and remaining long after the fruit is fallen. Each cattas 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 serrated in Lamarck's plate; and rather broader and more luxuriant than usual in Jacquin's, otherwise admirable, representation. The male cattins are very frequently produced; the female ones we know only from dried specimens, and the works of Jacquin.

9. Z. muricata. Prickly-stalked Zami a. Willd. n. 9.—Leaflets oblong, pointed, smooth, frutet; serrated from the middle to the extremity; common stalk spinous.—Gathered by Humboldt and Bonpland, in South America, near Porto Cabello. Leaflets about four pair, six inches long; tapering at the base; frutet and ribbed on both sides; sharply serrated in their upper half. Footstalk channelled, armed with very short, blunt, scattered spines. Willdenow.

10. Z. furfuracea. Broad Rusty-leaved Zami a. Linn. fil. MSS. Ait. Hort. Kew. ed. 1. v. 3. 477. ed. 2. n. 4. Willd. n. 10. Poiret n. 2. (Palma americana, folis polygonati brevioribus, leviter serratis, et nonnulli spinosis, trunco crasso; Pluck. Phyt. t. 103. f. 2. and t. 309. f. 5. P. americana, crassii rigidissimi folis; Herm. Parad. 210. t. 210. Palmifolia frutet clavato polypyrene; Trew Ehret, 5. t. 26.)—Leaflets elliptic-oblong, pointlets; coarsely serrated from the middle to the extremity; frutet and hairy beneath; common stalk spinous.—Native of the West Indies. Plunenat faw it in the royal gardens at Hampton-Court in king William's time. It is still preserved in our flowers, 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 coriaceus; shining, and roughish to the touch, on the upper side; more

R 2 furrowed,
furrowed, and clothed with flabby, chalky pubescence, which gives them a ruddy or tawny hue, underneath. Their ferratures, or teeth, are numerous, obtuse, very irregular. Catkins ovate, hoary and downy, about three inches long, on a stalk about the same length. Hermann says this plant produces a white infidel gum.

11. Z. spiralis. Spiral Zamia. Salisbury. Prod. 401. Willd. n. 11. Alt. n. 5. Brown n. 1.—Leaflets numerous, linear, very smooth, somewhat curved, with a few spinous 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 stove at Farnham castle. The plants soon grew to a considerable size, and according to Mr. Aiton, this species flowers in the stove, in July and August. The leaves are very smooth, of a fine green, a yard or more in length, spreading, each composed of from thirty to forty pair of long narrow leaflets, tipped with from three to five spinous teeth. Footstalks said to be somewhat spiral. The catkins are stalked, cylindrical, about five inches long, and two in diameter, lirrated, smooth, not downy nor hairy; scales of the male ones obvate-wedge-shaped, an inch long, with a short, broad, sharp, acute, rounded, pubescent point; their upper face smooth and naked; under nearly covered with an uninterrupted heart-shaped assemblage of crowded, oval athers, the size of poppy-seed; scales of the female catkins stalked, gibbous, two-edged and depressed, larger than the male ones, each tipped with an erect, sword-shaped, pungent, smooth point, an inch long, and, as the fruit ripens, extended to three inches, the gibusb flasky part of the scale being then also much enlarged. Germens two, ovate, sessile, close together, at the inner edge of this flasky part of the scale, and directed horizontally inward. Drupes roundish, gibbous, an inch or more in half an inch in diameter, orange-coloured, with a rather thin pulp, at leaf in the dried state, and a large, ovate, hard nut, not burling, whole kernel, after keeping twenty-five years, is horny, imbricated, and as hard as the shell. Mr. Brown supposes there may be two species confounded under Z. spiro-lata; one found in the neighbourhood of Port Jackson, to which our description and synonymy entirely belong, and which is from two to four feet high; the other, often ten feet in height, noticed by Mr. Brown on the southern coast of New Holland, and which we have never seen. Mr. Brown remarks, that in both, the catkins, usually solitary, sometimes grow two together.

12. Z. longifolia. Tall-leaved Zamia. Jacq. Fragm. 28. t. 29. Willd. n. 12. Poiret n. 10.—Leaflets numerous, elliptic-lanceolate, pointlets, entire, clothed with flabby down. Scales of the male catkins wedge-shaped, with abrupt quadrangular points. —Native of southern Africa, above a hundred miles from the Cape of Good Hope. Cultivated at Schoenbrunn. The crown of the root is scaly, a foot in diameter, smooth. Leaves slightly spreading, from five to seven feet high; their stalks quadrangular, without spines; leaflets from forty to fifty or sixty pair, two-ranked, three or four inches long and one broad, coriaceous; frizzled beneath; clothed on both sides, as well as the leafy part of their common stalk, with a cobweb-like down, easily rubbed off; the lower ones only somewhat pointed. This species has not flowered in Europe; but the male catkin, brought from Africa, and represented in Jacquin’s magnificent plate, is elliptic-oblong, near two feet in length, and five inches in diameter, brown, smooth, composed of innumerable wedge-shaped scales, covered underneath with anthers, and each tipped with a quadrangular, or pyramidal, abrupt, prominent point, without any of the spinous termination seen in the last.

13. Z. lanuginosa. Woolly-scaled Zamia. Jacq. Fragm. 28. t. 35, 31. Willd. n. 13. Poiret n. 9.—Leaflets lanceolate, smooth, spinous-pointed, with a few unilateral spinous teeth. Radical scales woolly. —Native of southern Africa, from whence a single plant was brought long ago to the Imperial stove at Schoenbrunn. After twelve years’ culture, it had made but slow progress, and shewed no signs of fructification. The root consists of numerous, very thick, tapering radicles; its crown being as large as a man’s head, and covered with imbricated, deltoid, pointed scales, two or three inches broad, all clothed with soft, dense, hoary wool. Leaves a yard high, or more, dark green, very smooth and shining, with armed quadrangular stalks, and from twenty-five to thirty pair of linear-lanceolate leaflets, each four inches long, with a short spinous point; their margins all entire, except being often furnished with one, two, or three broad, spinous, tooth-like lobes, always at the lower edge of each leaflet, by which this species is at first sight readily distinguished. Professore Willdenow fupposed it might not be distinct from Z. cycada (see our 17th species); but we see no reason to concur in that opinion.

14. Z. hovisii. Grey Thorny Zamia. Jacq. Fragm. 27. t. 27, 28. Willd. n. 14. Alt. n. 6. Poiret n. 8.—Leaflets lanceolate, glaucous, acute, spinous-pointed, with a few unilateral, lanceolate, spiny teeth. Radical scales smooth. —Native of southern Africa, a hundred miles above the Cape of Good Hope. Cultivated at Schoenbrunn, and introduced into the English green-houses, in 1800, by John Liptrap, esq., who propagated, for several years, a splendid collection of exotics at Mile-end; but it does not seem to have bloomed either here or in Germany. The feal crown of the root is as large as the preceding, but the scales are not woolly. The leaves and their stalks are all over finely glaucous, which distinguishes the plant from the rest of its genus. The leaflets, as well as their lateral parts, are long, and more pointed, than in Z. lanuginosa; the points and bases green, as the whole surface becomes when rubbed. A ripe female cone, brought from its native country, is fifteen inches long and eight thick, brown, tessellated, and warty, but not spinous. Drupes orange-coloured, oval, each with a thick, elongated, obtuse point, in the place of the style. Nut oval, somewhat triangular. This species is, as Willdenow observes, very nearly related in size and general habit, to the last, but differs in its smooth crown of the root, and glaucous colour of the herbace.
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 leaflets, each two or two and a half inches in length, and one-quarter or one-third of an inch in breadth; smooth and even above; flirated beneath; the younger ones, or rather those of young plants, tipped with a sharp tooth or two, besides the terminal spine. Common flax is smooth. Cut-

Llam was, indeed, though, and the town may be tender of houses in great, by the male a span long; its scale fomewhat triangular, very obtuse, rugged, smooth; flat on the upper side; keeled underneath, and covered with 

zamolxis, 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 subterranean 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 Herodetus, who relates this fabulous story, as a common tradition, gives it no credit, but expressly 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 Zamolysis 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 assured themselves they should associate in the invisible world. Herodetus relates, that at certain festivals, they chose several persons by lot, who were to be deputed as meilengers to Zamolysis; 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. Herodetus. Brucker. Ensfield, vol. i.

ZAMORA, in Geography, a town of Spain, in the province of Leon, on the Duero; the see of a bishop, suffragan of Compostella. 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 Mechoaca. N. lat. 20° 54'. W. long. 103° 40'.—Alfo, a town of South America, in the audience of Quito, on a river of the Amazonas. In the neighbourhood are some gold mines; 200 miles S. of Quito. S. lat. 4°. W. long. 78° 40'.

ZAMOSCIE, or SAMOSTK, a town and fortresses of Austrian Poland, in Galicia, built by the famous great chancellor, John Zamovsky. It has a flatly cathedral, and several other churches, a decayed university, a charitable foundation called Mons Pietatis, and several valuable privileges; but the fortifications are now in a bad condition. The proprietor of this town, &c. aided himself prince Zamofie. It now belongs to Austria; 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 Tlaxcala, and runs into the gulf of Mexico, N. lat. 19° 40'.

ZAMPALA, Chempala, or Zempala, a city of Mexico. When Cortez landed in the year 1519, the chief or lord of this place, who was tributary to Montezena, 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 Totonacapan, now the N.E. part of the province of Tlaxaca; 90 miles E. of Puebla de los Angelos. N. lat. 20° 10'. W. long. 97° 50'.

ZAMPERINI, ANNA, in Biography, of Venice, arrived in England in 1767, as a buffa linger, a parte eguale, with the
the Guadagni, sister to the great finger and actor Guadagni, who had been here in early youth.

The Zamperini was a very pretty woman, coquetish, and an affected finger. Her first appearance on our stage was in La buona figliaola Maritata 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 figliaola, for their own relief from a too serious attention.

The finger of Guadagni, an elegant finger, and graceful actress, the original performer of the part of Cocchina in Italy, being superfeeded in that part by the Zamperini, occasioned a great rupture between Guadagni just arrived here in 1789 for the second time, and the honourable patentee and imprimario 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 (Effai fur la Nef), 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 fung equally well in the serious. After performing with great applause in London, Liebhen, 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 affability than by brilliance 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, from subjects of the life of S. Jerome. His former master, A. Carracci, also employed him for some time to assist in his great work at the Farnefe library; and he painted from his own designs, in the loggia in the garden, the Death of Adonis, when Venus springs from her car to assist 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 Borghes 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 Farnefe also employed him to paint some frescoes in the chapel of the abbey at Grotto 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, Aftrobrandini, 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 Frascati, 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 Carita. This fine production ranks with the best of any age. It is said, with a great fancy on truth, that the arrangement of its composition was borrowed of Agostino Carracci, who painted the same subject for the Certosa 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 bitterest 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 flow and uncertain power of invention possibled by Domenichino. But upon this subject Lanzi justly 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 cause is not 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 seemed to verify the remark of the cardinal Agucchi, that his worth would not be duly appreciated until after his death. Impartial politeness does him justice, and there is now no gallery which is regarded as complete without some specimen of his talents."

The virulence of these perfections 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 Raffaia, both large works, and of sufficient merit to attract the infipidity 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 Valle, 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 amongst his best: the subjects are, Ester 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 two very high clas 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 Catenari, 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;
feldom can so much be paid of their compositions. They
are generally feckled in fenery, of a grave and dignified cha-
racter, and are executed with boldness and freedom, and en-
riched 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
Nicolo Poufbin is said to have preferred him before them:
but that favour, if we except the Communion of S. Jerome,
his works will scarcely be found to support. M. Fufeli
has remarked, that "expression which had languished after
the death of Raphael seemed to revive in Domenichino;
but his facility was not supported by equal compre-
henion, elevation of mind, or dignity of motive." His forms
are by no means fo pure or graceful, or his actions fo na-
rural and unconstrained, as those of that divine painter. His
invention does not appear to have been vivid, but his fluid
was unremitting, and with all his defects he well deferved
the title of a great painter, and certainly has not since been
equaled. He died in 1641, aged 60.

ZAMPOGNA, in the Italian Majuscue, 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.

ZAMZERVIRIZI, a town of the principality of Georgia,
in the province of Carduel; 15 miles S.W. of Gori.

ZANA, a river of Peru, which runs into the Pacific
ocean, S. lat. 7°.

ZANATHA, in Ancient Geography, a town in the in-
terior of Arabia Petraea. Ptol.

ZANCHI, Basiilio, in Biography, an elegant Latin
poet, was born at Bergamo in 1501, and pursued his studies
under Giovita Rapiolo with so much ardour, that at the age
of seventeen he made a collection of Latin poetical epistles,
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. Petreius; but afterwards, returning to Bergamo, and
entering, in 1524, among the canons-regular of Lateran, he
assumed that of Basili; 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 receiv'd, on account of his learning and
talents, by the principal scholars of the age. Under
the severe decree of pope Paul IV. inflicted in 1558, which
commanded, under the threatened penalty of the prison 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 Horta Sophis," and describes the most remarkable
facts and doctrines of the Catholic religion. Some of his
poems are inferred in the "Delicia," and the "Carmina
Poetarum Italorum." He also published a kind of Lexi-
con, entitled "Latinum Verborum ex variis auctoriis

ZANCHI, Girolamo, 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 conncction he remained for ten years. But Peter
Martyr having communicated to him, and others of his fra-
ternity, the opinions of the reformers, he departed with
him from Italy in 1550, and went to Geneva. From Ge-
neva he removed to Stralsburg upon an invitation to supply
a vacancy in the professorship of sacred literature, which
he accepted in 1555, 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 Stralsburg. Although his disposition was moderate and con-
ciliatory, 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 agnofco, etiam remipcio." The am-
biguity of this declaration was not satisfactory to his adver-
faries, 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 perswaded by the Lutherans were
predetermination, the perseverance of the saints, the eucharist,
ubiquity, 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 Caumir's college at Newstadt. Upon the restoration
of the expelled professors, Zanchi, on account of his age,
was declared "emeritus;" and having lost his fight, 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 caufe 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 S.W. which separates this island from Italy. According
to Herodotus, the Meffenians, driven from the Peloponne-
sus by the Lacedæmonians, transplanted themselves into Sicily,
took possession of Zancle, and gave it the name of Meliana,
whence Meffina.

ZANDENDORF, in Geography, a town of Germany, in
the margrave of Anfaph; 2 miles S.W. of Cadolzburg.

ZANDHOP, a town of Pruflia, in Ermeland; 16 miles
S.E. of Heilberg.

ZANE, a town of Virginia; 9 miles S.S.E. of Win-
chill.—Also, a township of Champaign county, in the
district of Ohio, with 645 inhabitants.

ZANES, in Ancient Geography, a town of Upper Media,
fortified by Julinius, so as to render it one of the strongeft
bastions of the empire.

ZANESVILLE, in Geography, a township of the state
of Ohio, in the county of Muhlington, on the Scioto, with
2154 inhabitants.

ZANETTI, Antonio, in Biography, of Venice, maefro
di capella to the duke of Modena, the latter end of the
17th and beginning of the 18th century, for whom, and for
the theatres in Venice, he produced fix or seven operas that
were much esteemed in those days.

ZANETTI, Francisco, was born in the year 1740,
maefro di capella in the cathedral at Perugia in 1770. He
had previously passed some time in London, where some
elegant and easy sonatas of his composition were published
by
by Brenner. He left 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 sung well, and indemnified him for the loss of his place.

Since his marriage he has composed several succesful operas, in which figura Zanetti has performed the principal female part, particularly one at Milan in 1789, in which he was much applauded, as well as her husband's music. He has composed much natural and pleasing music for instruments; as fix violin trios, fix quintets for three violins, and two violoncellos, &c.

ZANFARA, in Geography. See Zambara.

ZANGARISA, a town of Naples, in Calabria Ultra; 6 miles N.E. of St. Severina.

BAGNESAIR, or Sanguseer, a fea-port of Hindoostan, in Concan, with a good harbour, but not much frequented; 15 miles S. of Severndroog. N. lat. 17° 38'. E. long. 72° 54'.

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," 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, bushes, and thicket; all which fo vitiated the air, and corrupt the products of the earth, and render the inhabitants fo 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 Zanges, 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 destitute, the Divine Providence hath interposed, by the help of which they can purchase all the necessaries and conveniences of life from other parts: but this is the very circumstances 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 froward, ignorant and brutish, 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 lefs 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 pasturage 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 defcends a little below the knee; but those who live along the coasts are somewhat more civilized, affect a little more finery in their drefs, 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 coafers a great number of Mahometans, but a much greater number illib. among the islanders along the coast; they being for the most part defended from those Arabs who were banished out of their country. The countries are, Melinda, Mongala, Jubo, Mosfambique, and some others.

ZANHAGA, or ZANZAGA, or Zenbaga, a province of Africa, in the country of Sahara, bordering on the Atlantic.

ZANIA, in Ancient Geography, a town of Afa, in the interior of Media. Ptol.

ZANNA, the name of a medicinal earth, described by Oribauus: 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 powdery like lime.

It is called by the natives zarina, and the mountain from which it is taken is near the city Bagasuana. It is of a drying and altering nature.

ZANNICHIELLI, 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 designated 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 Pothumia," 1730, and "Italia della 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 Michelli, in compliment to John Jerome Zannichelli, 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 Michelli'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 horde-chefnut, as well as an account of his own and his father's musem. — 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. Græc. Sibth. v. 2. 225. Pursh 4. Joff. 19. Poiret in Lamarck Diet. v. 8. 836. Lamarck Illutr. t. 741. Gært. t. 19. (Graminifolia; Dill. Gen. 168.)—Clas and order, Monoclea Monandria. Nat. Ord. Inundate, Linn. Natâtes, Joff.

Female, close to the male. Cal. Perianth of one leaf, inferior, hollow, swelling, oblique, with two or three nerves. Cor. none. Pfl. Germs from four to eight, filaked, oblong; styles as many, simple, rather spreading; stigmata ovate, peltate, flat, spreading outwards. Peric. none. Seeds as many as the germs, naked, filaked, oblong, compressed, a little incurved, beaked with the permanent styles, tuberculated at the back, with a simple coriaceous coat.

Obf. 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 fearlessly any internal coat or integument, to the kernel, and the outer one is defective 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 indescribable.


1. Z. palustris. Marsh Horned-Pondweed. Linn. Sp. Pl. 1375. Willd. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 1844. Pursh n. 1. Mill. Illust. t. 77. Fl. Dan. t. 67. (Z. palustris major, folii graminei acuti, flore cum apice quadrilatari, embryonis syphoelis integris, et vaceulo non barbate, capulis feminis ad coliam dentatissi.) Mich. n. 1. t. 34. f. 1. Potamogeton filiformis, gramifoliosa, ramosa, ad genucula polyceratos; Pluk. Phty. t. 102. 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 Constantinople, 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, grasy, felifill, narrow, acute, and entire, two or three inches long. Bractea membranous, tubular, axillary, including a pair of green flowers, one male, the other female. Anther tawny. Seeds blackish when ripe, when rugged or toothed at the back.

2. Z. dentata. Toothed Horned-Pondweed. Willd. n. 2. Poiret n. 2. (Z. palustris minor, folii graminei acuti simillima, flore minimo cum apice bicaulipar, embryonis syphoelis circuncrescenti, et vaculo barbato, capulis feminis ad coliam dentatis; Mich. n. 2. t. 34. f. 2.) —Anther of two cells. Stigmas toothed. Found in the neighbourhood of two-Fleves, with the foregoing, as well as in mountain pools in the adjacent country. Rather smaller than the first species, with shorter leaves; but most essentially different in having only two cells to the anther, and remarkably toothed stigmata. The seeds also are tuberculated all over, not merely toothed at the back, or keel.

Loureiro has a Z. tuberosa, Fl. Cochinch. 543, to which he attributes an ovate-oblong single-seeded berries. It grows in the waters of Cochinchina, and has tuberous perennial roots, radical, sword-shaped leaves, spiked flowers, the calyx of the female in six 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. XXXIX.
and Malebranche. 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 it. Thus furnished, he obtained leave to give lectures in philosophy; in the course of which he instituted a comparison between the systems 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 it 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, and the London Institution, he had become a member. He also discovered a method of separating indeterminate quantities, detected several errors in philosophy, and prosecuted 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 Frisius, who availed 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 perspicuity and elegance. In these he adopted the opinion of Descartes 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 shewed, 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 Anfaldi, in his "Vindicatio Maupertuianae," 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 philologist, and wrote verses both in the Tuscan and Latin languages; aiming, in imitation of the most celebrated poets of Italy, to blend the suavity of Petrarch with the energy and vigour of Dante. Many of his Italian poems were published by Eufalio 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 latterly 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 modeLy was no lefs conspicuous than his talents and acquisitions, 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 "Pabroni Vita Italorum Doctrinae excellentium," and for an abstract of their titles, and time and place of publication, to Gen. Biog.

Zanotti, Giovanni Pietro, was born at Paris, though of Italian parentage, in 1757. 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 oscuro. 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 Refurrection, in S. Pietro; the Nativity, in La Purita; and a large picture in the palazzo publico, representing the ambassadours from Rome wearing fidelity to the Bolognese. He held a great part of his life at Cortona, where he also distinguished himself by several pictures painted for the churches, particularly Christ appearing to the Magdalen, Christ bearing his cross, and the Presentation of the Infant Jesus.

Zanotti was a laborious and intelligent writer on art. Of his numerous publications the most considerable is his "Storia dell' Academia Clementina di Bologna," published in two vols. 4to. in 1739. He died in 1765, aged 91, Bryant's Dict.

Zanotti, L'Abate Giancalisto, of Bologna, a disciple of Padre Martini, was born in 1770, 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 dicit, 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 diffcnnible in it not only light and shade, but even mezzo tints. He proceeded from one thing to another by such easy and inextricable gradations, that it seemed wholly the work of nature, though conducted with the greatest art. The accompaniments were judicious, the ritornels 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 fingers 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.

ZANOW, in Geography, a town of Pomerania; 6 miles E.N.E. of Coflan.

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 proveditor, and two counsellors. 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 see 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 Chirena in the Morea. N. lat. 37° 40'. E. long. 21° 8'.

ZANTHENES, in Natural History, a name given by the ancients to a feffile substance found in Media. Pliny quotes Democritus for saying, that if rubbed in palm wine and fermented, it became soft as wax, and yielded a very sweet smell.

ZANTHER, in Geography, a town of Pomerolia; 10 miles S. of Marienburg.


ZANTHOXylum, Linn. Gen. 519. See Xanthoxylum.

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 first is a plant of the tree kind, of which there is a variety; the ash-leaved tooth-ache-tree, with oval-oblong foliules, and prickly mid-ribs.

And the leaf 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 struck root be taken off and managed as the seedlings.

They also pucced by cuttings in spring or summer, planted in pots, affited by a hot-bed, in which they soon strike, when they should be inured to the full air; and the young plants will be fit for planting out in the autumn, or the spring following.

The first 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 Baradœus.

ZANZIBAR, or Zangibar, in Geography, an island of Africa, in the Indian sea, near the coast of Zanguebar, governed by a king, who is tributary to the Portuguese. S. lat. 6°. E. long. 41° 15'.

Zanzour, a town of Africa, in the country of Tripoli; 15 miles W.N.W. of Tripoli.

ZAOE, a town of Egypt, on the left bank of the Nile; 13 miles N. of Benifuil.

ZA-OSTROG, a town of Morlachia, near the coast; 15 miles S.E. of Macarika.

ZAOZERSKOI, a town of Russia, in the government of Novgorod, on the Sula; 28 miles W. of Tcherepovetz.

ZAPATA, or Sepata, a kind of seaf, or ceremony, held in Italy, in the courts of certain princes, on St. Nicholas's day, in which people hide presents in the shoes orippers of those they would do honour to; in such manner, as to put them on the morrow, when they come to drefs.

The word is originally Spanish, cateto; 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 purses of money in at the windows, for portions to poor virgins in their marriage. F. Meneville has described these zaptas, their origin, and different uses, in his Traité des Ballets Anciens et Moderns.

ZAPATERO, in Geography, a small island of Mexico, in lake Nicaragua, near the west coast; 32 miles S.E. of Grenada.

ZAPATILLA LAGOON, a bay on the east coast of Yucatan. N. lat. 18° 52'. W. long. 89° 32'.

ZAPETRA, 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 Zaffir; which fea.
Z A R

1499, by the Venetians, in whose hands it afterwards continued. Zara is surrounded on all sides by the sea, except that it has a communication eastward with the continent, by means of a draw-bridge, commanded by a fort. It is reckoned one of the best fortifications in 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 cisterns, to supply the want of fresh water. In the cistels resides the governor or provost of Dalmatia, whose office is only triennial. It now belongs to the kingdom of Italy; 28 miles N.W. of Scardona. N. lat. 44° 22′. E. long. 15° 39′.

Zara Vecchia, Old Zara, or Biograd, or Alba Maritima, 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 Maris, and more anciently Blandonia. According to some it was ruined by Attila; but we know with more certainty that it was destroyed in the war between the Venetians and the Hungarians, by the doge Ordelafo Falieri. Some banditti afterwards mixing with the inhabitants that remained, the republic, to check their excceses, 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 confit only of a few peasants; 18 miles S.E. of Zara.

Zara. See Schedesje.

Zara, in Ancient Geography, a town of the Moabites, taken by Alexander Jannaeus.—Allo, a town of Asia, towards Armenia, upon the route from Arabifum to Satala, between Eumene and Dagolaffum. Anton. Itin.

Zaraisk, in Geography, a town of Russia, in the government of Riazan, on the Ofer; 24 miles S.W. of Riazan. N. lat. 54° 30′. E. long. 38° 24′.

Zarama, in Ancient Geography, a town of Asia, in the interior of Media. Ptolemy.

Zaranda, a name anciently given to the Euphrates. Ptolemy.

Zarang, the Zorang of Ptolemy, in Geography, a populous city of Persia, in the province of Segesta or Segesta, situated pleasantly on the banks of the Hermand. This was the customary residence of Jacob Ben Lath, the conqueror of the caliph of Bagdad, and stood a long time against Timur, by whom it was at last taken. Zarang is supposed to be the same with the present Dofhak, 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 destination may, in a great measure, be attributed. For a further account of it, see Segesta.

Zaranis, in Ancient Geography, a town of Asia, in the interior of Media. Ptolemy.

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 exits during the annual inundations, that are on a far grander scale than those of the Ganges, and may be said to deluge whole provinces.

Zarca, a town of Egypt, on the east branch of the Nile; 10 miles S. of Damietta.

Zarchas, or Tcharkas, a town of Persia, in the province of Chorasan, or Khorasan; 150 miles N. of Herat.

Zarcoia, a town of Persia, in the province of Segesta; 12 miles W. of Zarang.

Zardam. See Sardam.

Zare, a town of Persia, in the province of Chorasan, or Khorasan, on the north side of a lake so called; 70 miles S. of Herat.—Allo, a lake of Persia, in the province of Segesta; 60 miles N. of Zarang. See Zarreh.

Zared, in Ancient Geography, a torrent beyond Jordan, on the frontier of the Moabites. 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 35 years before their departure from Kadesh-Barnea. Numb. xxxii. 12. Deut. ii. 12, 14.

Zarephath. See Sarepta.

Zareshe-Sheker, or Sarat-Arer, a city of Rebun, beyond Jordan. Jos. xiii. 19.

Zareth, or Zarath, a people comprised under the name of Scythians, on this side of the Imaus, south of mount Maffei and Alani. Pol.

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.

Zargarida, in Ancient Geography, a town situated on the bank of the river Heraufus, in the interior of Lower Mesia, a little above Tamassava.

Zarjaspa, or Zarjaspe, a town of Asia, in Bactriana, watered by a river of the same name, which discharged itself into the Oxus. Strabo. It was also called Bactra. Steph. Byz.

Zarif, a word by which some of the chemical writers have expressed tin.

Zarik, in Geography, a town of European Turkey, in the Moros; 22 miles E. of Misitra.

Zarima, a town of South America, in the province of Quito; 220 miles S. of Quito. S. lat. 3° 36′. W. long. 79° 36′.

Zarion, a town of South America, in the government of Buenos Ayres; 300 miles N.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 theorif and writer on music in the Italian language during the 16th century, was born in 1520, 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:—

1. "Institutioni Harmonica;" Venice, 1553, 1562, 1573, and 1589; 2. "Dimostrazioni Harmonie," Ven. 1571, and 1589; and 3. "Sopplimenti Musicali," Ven. 1588. We do not know of the dates that these works were written, nor if they were written as an author at the age of 18; and from that period till he had arrived at 49, he was continually revising and augmenting his works. The
The musical science of Zarlino, who died in 1590, may be traced in a right line from the Netherlands: 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 proxility, than enlightened by his science; the most trivial information is involved in such a crowd of words, and the fulpene which it occurs 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 panegyric 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 waste 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 system, he discovers much reading; and that which is 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 fectone: 3, 3, 3, for which division, commonly called the lydian, or intense of Ptolemy, he contidentally proceeds, we have the substance of his dispute with Vincenzio Gallei, 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 myself. This is said to have been invented either by Archytas of Tarentum, or Eratosthenes, for the purpose of measuring the 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 Ariftoxianists, 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 trufly guide than it could be in playing a single part. It feems, however, as if the ancient instruments, upon which all the tones are fixed, had more need of the assistence of calculation and mathematical exactness in regulating their intervals than those of the violin-tribe at present, which, except in the open string, which often lead the performer to erroneous intention, 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 shewn, 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 there 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 Tranchutus, 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 federal ecclesiastical modes: it is, indeed, a mere skeleton of allusions or conjectures without proof, more derived from traditional than written evidence. 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, figlio di contrapunto, 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 artifices were used by ancient masters to avoid such sounds as differed from the canto-fermo, and with what paraphory they admitted such accidents as canto-figurato requires, particularly in the third and fourth tones; where, instead of modulating into B mi, the 5th of the mode or key, as is constantly practised 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 it; whence, says he, its sounds may be called the nerves and ligaments of all the other parts, for which he has given the cantilena, or principal melody, as the subject, as by modern composers, to the sopranos, or highest part; that calibrati were not so common as at present, and that the tenor being the kind of voice most rarely found, and more generally, the voice of him than that of any other pitch, was judiciously honoured with the principal melody.

Zarlino says, that to great was the rage for multiplying parts in musical compositions, that some masters, not content with three or four, which sufficed to their predecessors, 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 masses a Due Cori, over a tre, or, as some call them, a Cori Spezzati, which had an admirable effect. We know not how Okenheim dispofed 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 solo 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.

ZARMISOGETUSIA 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 Ulpia Traiana," or that of "Angula Dacica."
ZEAA.

roundish, flat-tipped, longer than the glumes; angular and comprossed at the base.

Of. Two out of the four valves of the female corolla appear to belong to an abortive flower. Schreber.


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. (Fruentum indicum; Camer. Epit. 186. F. aflaticum, turicicum et indicum; Ger. Er. 81, 82. Morif. fect. 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, flat, 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 simple, cylindrical spike, covered by the large sheaths of the upper leaves. Styles fix or eight inches long, very numerous, of a thinning yellowish or reddish hue, hanging down like a long filken tassel. Seeds white, yellow, red, or purplish, forming a heavy, tesselated, cone-like, naked spike, from fix to ten inches long. There are innumerable varieties, in the size, 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 soil. Mr. Pursh mentions a variety, brought lately by governor Lewis from the Mandan nation, on the Missouri, 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 serrated. — Native of Chili. Annual. Smaller in all its parts than the foregoing. Molina. Of the qualities or history of this species, we have no further account.

Ze, in Gardening, contains a plant of the hardy herbaceous annual kind, of which the species cultivated is the maize, or Indian corn (Z. mays).

It has a large strong, herbaceous stalk, which sometimes rises to the height of ten or twelve feet; and there are varieties with yellowish-white seeds, with deep yellow seeds, and with purple-blue seeds. This plant is mostly cultivated in the garden and pleasure ground for the sake of its singular tall growth.

Method of Culture.—These plants may be raised by sowing seed in the spring, as March or April, in a dry warm situation, where the plants are intended to remain, in patches of two or three seeds 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 strongest. But to have the plants more forward, fo as to produce ripe seed-spikes more effectually, some should be sown in a hot-bed at the same time, and when the plants are three or four inches high, be forwarded by prickings them out upon another hot-bed, either under a deep frame, or an awning of hoop 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 sunny situations, being well watered; and when the summer proves warm and dry, they often produce perfect heads, and the seed ripens in a good manner.

As the plants mostly run up in tall stalks, it is proper to support each with a tall neat stake, 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 sort of grain in his garden, and it turned out superior to his expectations; and he is of opinion, that this crop may be raised to advantage in the field on some light soils, particularly the poor lands of Norfolk and Suffolk, or on any hot burning lands; as the countries where it grows naturally are light hot soils. And he adds, that he prefers the drill method of culture for it in this country; as the small hillocks in planting the seeds separately make the land unightly and improper for other crops. But to raise the greatest produce in corn, the hills are, he conceives, the best way; however if the crop is intended chiefly for fodder, then drills are best. The seed is to be put about an inch deep in the ground. And that when the corn first appears above the surface, the hillocks or drills must be examined, to see whether it all comes up properly; and if it has not, there must be fresh seeds put into the vacant places to prevent a loss in the crop. And as soon as the plants take root in the ground, the crop should be examined again to see whether any have died away, or the birds have taken the feed. The plants must also be thinned to two on a hill, and good plants substituted 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 same manner as garden peas.

He also further observes, that when the corn gets out of the milk, the blades below must 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 stalks of the corn; for at the same time that the blades are pulled, the tops must be cut off, and let up in round bunches to dry, and tied round the topmost part to keep them from falling: when these are dry, they must be harveted. The blades are generally ready in four or five days, but the tops take longer; when these blades and tops are properly harveted, they are excellent food. And it is fuggled, that as these proceeds will be finished about the end of August, the land might be ploughed and then fown with rye. If seeds were required, he is of opinion that it would be very proper to sow the seeds at that time on this poor hot land; as the warm seafon would be over, and the seeds would have sufficient time to take root before winter. If only rye was wanted, he would eat it with sheep in the spring or during the winter. But the stalks must, he fays, stand, for the corn to ripen after the rye is fown; and the corn ought to hang on the stalk 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 should be taken not to pull it too soon.

This sort of corn is, it is faid, given to horses, cattle, and hogs, without shelling, and only husked in the ear; but when given to fowls, or intended for fale, it is rubbed off by burning a cob in the fire till hard, and then rubbing the corn with
with it. It is a sort of grain which is sometimes given to pigs, but more frequently when ground to fowls. Count Rumford has slain 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.

**Zea**, in *Geography*. See ZIA.

**ZEAGONG**, a town in Birmah ; 12 miles N.N.W. of Raymangong.

**ZEAZ, ZEALUS, ZEALOT**, the exerxe of a warm animated affection, or passion, for any thing.

Some will have jealous zeal to be properly a mixed or compound fenfation, where one affection is railed 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 perfon defires for himself, or on whom he loves and favours. Others make it confit in an eager fludy, or defire, to keep any thing inviolate; or a fervour of mind, arising from an indignation againft those who abuse or do evil to a perfon beloved.

The Greek philosophers make three specie of zeal. The firft, of envy; the second, of emulation, or imitation; the third, of pity, or devotion; which last makes what the divines call religious zeal.

Jophesph speaks much of a party, or faction, called the Zealous, 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 ZEELAND**, (in Danish *Sieland,* in Geography, the largest island belonging to the kingdom of Denmark, bounded on the north by the Scag-gerac, on the eft by the Sound, on the fouth by the Baltic, and on the weft by the Great Belt; about 65 miles in length from north to fouth, and where wideft 60 from eft to weft, though in some parts fearely 30, and in no part above 20 miles from the fea; reckoned about 700 miles in circumference. The coaft is much interfeated with large bays; and within the country are feveral lakes, which, as well as the rivers, abound in fhad. The country is pleafant; the foil is generally fertile, and produces corn, chiefly barley and oats, more than fufficient for the inhabitants, with excellent paffures; and in moft parts is plenty of wood, except towards the centre of the island, where the inhabitants generally ufe turf for fuel. The fields are fpread by mud-walls; the cottages are of brick or white-wafhed: land-hills are fometimes destruive on the coaft; and the beet protection from their ravages, fays Catteau, is the elymus anemia. Copenhagen is the capital. N. lat. 55° 2' to 56° 6'. E. long. 10° 58' to 12° 45'. See DENMARK.

**ZEALAND, State of**, one of the former United Dutch States, and now part of the recently effablished kingdom. It contains of islands which are formed by thefe branches and outlets of the Scheldt, called Zeewuwfe Stromen, or Sea Streams; on the north it is bounded by Holland, eft-ward by Brabant, southward by Flanders, and weftward by the North Sea: its name sufficiently indicates its natural position and situation. The islands of Walcheren and Schouwen, on the western coaft, are defended againft the violence of the sea, by downs or sand-hills, and on the other fides, like the reft of the islands of Zeeland, by vaft dykes, which, at the bottom, have a breadth of 25 German ells, and at the top are fo wide, that two carriages may pafs abreaf: the height is alfo proportioned to their thicknefs; notwithstanding which, in high tides and fury weather, the waves in many places force a paffage, or even flow over them: the firft formation of these dykes muft have been attended with immense ex pense, the very repair and maintenance of them requiring large sums. Emanuel van Meteren, in the fixteenth book of his Commentaries, fays, and confirms it by the attentions 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 ex pense of one rod with another was a pound Flemifh, or fix Dutch gilders. Thus the charge of the outward dykes taken together amounts to 340,000l. Sterling. Through the inhabitants of the other provinces, and foreigners in general, complain of the air being heavy, difagreeable, and unhealthy, yet no people look better, or enjoy a more confined clmate of health, than the natives who are born and bred up in it. The foil too is very fruitful, and famed for its excellent wheat, as likewise for madder, the cultivation of which furnifhes out great employment for the inhabitants of Zeeland: it abounds also in good fruits, and its rich paffures are covered with flocks of fine fhEEP. The waters around the islands fupply them with plenty of fhi, particularly with oylters, lobifters, and muffes, of an uncommon fize and goodnefs. Zeeland en-joys Likewise an affine of all kinds of provisions, but fuel is very fcarce there, especially turf, which, being brought from other provinces, bears a high price; great quantities of English coals are ufed here. In the whole province are 121 towns and villages, some of which are very large. The inhabitants are reckoned the moft wealthy in all the Netherlands, which is, in a great meafure, owing to their traffic by fee, and for this, indeed, they have every conveniency that can be defired. (See HOLLAND.) The right bank of the Scheldt, called the East Scheldt, divides this province into two quarters, viz. into that on the eft and that on the weft of the faid river. The quarter on the Weft Scheldt is compofed of five islands, viz. Walcheren, South Beveland, North Beveland, Wolferidyk, and St. Joofland. The quarter of the Eaft Scheldt contains four islands, viz. Schouwen, Duveland, Tholen, and St. Philip's Land.

**ZEALAND, New,** two islands in the South Pacific ocean, firft discovered by Tafman, a Dutch navigator. In the year 1642, he traversed the eftern coaft from lat. 34° to 43°, and entered the ftrait called Cook's Strait; he was at-tracted by the natives foon after he came to 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 fates-general, and it is now generally diftinguished in our maps and charts by the name of New Zealand. As the whole of this country, except that part of the coaft which was feen by Tafman 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 fupposed to be part of a fouthern continent. It is, however, now known to confit of two large islands, divided from each other by a ftrait or paffage, which is about four or five leagues broad. The northernmost of these islands is called by the natives Euthemmewau; and the fouthernmost Tory, or Tavi Poommoo. 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 obervation, fays captain Cook, and from other information, it appears to me, that the New Zealanders muft live under perpetual apprehenfions of being destroyed by each other; there being few of their tribes that have not, as they think, sufianed wrongs from fome other tribe, which they are continually upon the watch to revenge; and perhaps the defire of a good meal may be no small incitem ent. They will even preferve their enmity from father to
and the son never loses sight of an injury done to his father. The method of executing their horrible design is by killing upon their enemies in the night; and if they find them unguarded, (which however 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 purpose, they generally retreat; 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 so circumstantial, that they are never off their guard, either by night or day. According to their system 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 rescued, 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 rescued. Their common method of disposing of the dead is by burying 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 morals, or other places of public worship; nor do they ever assemble together with this view. But they have priests, who alone address the gods in prayers for the prosperity of their temporal affairs. Whatever principles of their religion may be, they are strongly inclined from their infancy: of this I had a remarkable instance in the youth who was first destined to accompany Taweharaoa. 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 viands as he was known to like best. He said, that if he ate any thing that day, the Eatoa would kill him; however, towards evening the cravings of nature got the better of the precepts of religion, and he ate, though but sparingly. Notwithstanding the divided and hostile state in which the New Zealanders live, travelling foreigners 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 business 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 but in a forlorn state: the can with difficulty get a subsistence, and is in a great measure without a protector, though in continual want of a powerful one. The New Zealanders seem to be perfectly satisfied with the little knowledge they are masters of without attempting in the least to improve it; nor are they remarkably curious either in their observations or inquiries. Towy Poemamoo is for the most part a mountaneous, and to all appearances a barren country, and thinly peopled. Ealeimauheu 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 soil 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 fruits and whales on the coast, and a sea-lion was once seen. The birds are, hawks, owls, quails; and there are long-birds, whose note is wonderfully melodious. There are ducks and

flags of several forts, not unlike those of Europe; and the gauntlet, which is exactly the fame. The sea-coal is visited by abalrobises, shear-waters, pintados, and penguins. The flies are, flesh-flies, butterflies, beetle-flies, sand-flies, and mufquitoes; and the neighboring 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 fished with nets, every mesh in the ship, except those who were too indolent, fished 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 sorts they had never before seen, but the sailors readily gave names to all of them. The highest luxury which the sea afforded was the lobster, or sea cray-fish. Here were also several species of the skate, or hingray: soles, flounders, and shell-fish, were abundant. This country abounds with forests filled with very large, straight, and clean timber. There is one tree about the size of an oak, which was distinguished by a scarlet flower, that appeared to be composed of several fibres; the wood of which was hard and heavy, excellently adapted to the use of the mill-wright: and another which grows in swampy ground, very straight and tall, and bears small bunches of berries resembling that of a yew-tree; the wood of which is very tough, and thick enough to make masts of any size: about 420 species of plants were found; all of which are unknown in England, except garden night-shade, cow-thistle, two or three kinds of fern, and one or two sorts of graits. They found wild celery, and a kind of cresses, in great abundance on the sea shore, and of eatable plants raised by cultivation, only coconuts, yams, and sweet potatoes. There are plantations of many acres of these yams and potatoes. The inhabitants likewise cultivate the ground; and the Chinese 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 tinelefs; but they have a plant which answers all the uses 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 reemble the leaves of flags; of these leaves they make lines and cordage, and much stronger than any thing of the kind in Europe. These leaves they likewise split into breadth, and tying the slips together form their fishing-nets. Their common apparel by a simple process is made from leaves, and their finer by another preparation is made from the fibres. This plant is found both on high and low ground, in dry mould, and deep boggs; but as it grows largest in the latter, that seems to be its proper soil.

The men of this country are as large as the largest Europeans. Their complex is brown, but little more so than that of a Spaniard. They are full of flesh, but not lazy or luxurious, and are stout and well shaped. The women prefer not that delicacy which distinguishes the European ladies, but their voice is singularly soft, which, as the drefs of both sex is similar, chiefly distinguishes 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 sex are regular; they enjoy perfect health, and live to a very advanced age; they are of the gentlest dispositions, and treat each other with the utmost kindnefs, but they are perpetually at war, every little distress being at enmity with all the rest, and towards their enemies they are implacable, never giving quarter. They have neither black cattle, sheep, hogs, nor goats; so 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 future health depends upon their skill 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 modelled and revered in their behaviour and conversation. The women, indeed, were not dead to the loiter impressions; but their mode of content was, in their idea, as harmless as the content to marry with us, and equally binding for the stipulated time. If any of the English addressed one of their women, he was informed, that the content 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 combs, 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 Amoey; in general the women have 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 Amoey, 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 chafed ornaments, but no two faces or bodies are painted exactly after the same model. The Indians likewise paint their bodies, by rubbing them with red ochre, either dry, or mixed with oil. Their drefs is formed of the leaves of the flax, split into strips, 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 drees 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 dispise these stripes with great economy. They have a few drees 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 drees 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 pluck before and behind the hole, in a large bunch. They likewise hang to their ears by strings, chifsels, 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 tale, or whalebone, with the resemblance of a man carved on it, hanging to a string round the neck.

The houfes are from sixteen to twenty-four feet long, ten or twelve wide, and fix or eight in height. The frame is of eight ficks 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 houfe 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 floping. 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 fort 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 cocus, 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 loos of their hair and teeth, and a failure of their muscular strength, but enjoy an equal share of health and cheerfulness with the youngest.

The canoes of this country are not unlike the whale-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 consisted 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 ingeninity. 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 surprising: their fails are compoied 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 fleets. The vessels are loaded by two men, having each a paddle, and sitting in the stern; but they can only fall before the wind, in which direction they move with considerable swiftness.

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Thee Indians use axes, adzes, and chieles, with which left they likewise bore holes. The chieles are made of Jasper, or of the bone of a man's arm; and their axes and adzes of a hard black flone. 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 fish-hooks are of shell or bone; and they have baikets of wicker-work to hold the fish. Their warlike weapons are, spears, darts, battle-axes, and the patoo-patoo, in which they chiefly confide. This is fastened to their wrists by a strong frap, lest it should be wrested from them; and the principal people generally wear it sticking in their girdles, considering it as a military ornament and part of their dress, like the poinard of the Aitifac and the sword of the Europeans.

The spear, which is pointed at each end, is about twenty-six 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 hard to hand; their contents must be bloody. The war-dance confits 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 figh.

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, encompassed with stones, in the middle of which hung a basket 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 disposed 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 body 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 indefers conceal every thing respecting the dead with the utmost caution. A great finitude was observed between the drees, furniture, boats, and nets of the New Zealanders, and those of the inhabitants of the South sea islands, which furnish a strong proof that the ancestors of both were natives of the same country. The language of New Zealand and Otahihe is radically the same; and that of the northern and southern parts differs chiefly in the pronunciation. S. lat. 34° to 45°. W. long. 181° to 194°. Cook's Voyages by Hawksworth, vol. iii.

ZEAMAH, a river of Algiers, which runs into the Mediterranean, 6 miles S.S.E. of Cull.

ZEAN, a town of Hindoostan, in Doob; 20 miles S. of Canoge.

ZEB, or ZIN, a town of Syria, near the sea-coast, an-

ciently called Achaph, Achzib, and Ecchipa; 9 miles

from Acre.

ZEBBAIDE, a town of Persia, in the province of Far-

sián; 80 miles E. of Shiras.

ZEDAINNEH, a village of Syria, built on the spot

where it is said by some that Cain flew his brother Abél;

14 miles N.W. of Damascus.

ZEBE, or Zaan, in Ancient Geography, a town which

once formed a part of Mauritanian Sittanís; it was situated

at the foot of the chain of mount Atlas.

ZEBEE, in Geography, a river of Abyssinia, which runs

into the Indian sea.

ZEBEEER, a town of Arabian Irak; 12 miles W. of

Balforah.

ZEBEN. See ZEBEN.

ZEBET, a word used by some of the chemical writers to

express wood.

ZEBID, in Geography, a city of Arabia, in the province

of Yemen. Zebid was once the place of a sovereign's residence, and the most commercial city in all Tehama; but since the harbour of Ghalefa was choked up, its trade has been transferred to Beit el Fakhî 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 refused here during the short period while this part of Arabia was in the possession of the Ottoman Porte. Zebid had 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 sold 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 Sunnâis, as that of Damar is for the Seidés, in which the youth of Tehama, and a part of Yemen, study such sciences as are cultivated among the Mussulmen. This is besides the feat of a dola, a muniti, and three cadis; 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 MARBREUM in Natural History, a name given by several authors to a loft 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 OPHITES.

ZEBÖIM, in Ancient Geography. See SEBOIM.

ZEBRA, in Zoology. See Equus Zebra.

ZEBU, a name given by M. de Buffon to a variety of the bos taurus of Linneus, 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. In colour it differs like the common calf, 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. See BULL, in Geography. See SIRO.

ZEBULUN, or ZABULON, in Scripture Geography, one of the Jewish tribes in Lower Galilee, on the S. of the tribes of Asher and Naphthali, having the Mediterranean on the W., the sea of Galilee on the E.; separated on the N. from Asher by the river Japhethel, and on the S. from Ilia-
The Curcuma Zerumbet of Roxburgh, with small bulbs, and palmate tubers pale straw-colour; leaves green-petioled, broad-lanceolar, with a purple cloud down the middle; and flowers shorter than their bractea, is the Amomum Zerum-
beth of Retzius; which see. This is a native of various parts of India, and its flowering-time the hot season, before the leaves appear. The pale colour of the roots, crimson carmin and ferruginous maroon down to the centre of the leaves, which is a constant mark in this elegant species, readily point it out from every other. The dry root appears to be the zedoaria of the shops in England. See Astatic Researcher, vol. ii. p. 332—334.

The root is brought over in oblong pieces, about the thickness of the little finger, and two or three inches in length; or in roundish ones (the zerumbeth of the Paris Pharmacopoeia), about an inch in diameter; it is of an ash colour on the outside, and white within. The difference of these, in strength, if any, is very inconsiderable, and therefore the college allows both to be used indiscriminately.

This root has an agreeable campshoraceous smell, and a bitterish aromatic taste. It impregnates water with its smell, a flight bitternes, a considerable warmth and prun-gency, and a yellowish-brown colour. The reddish-yellow spirituous tincture is in talle stronger, and in smell weaker, than the watery. In dilution with water, it yields a thick, ponderous effential oil, smelling strongly of the zedo-ary, in talle very hot and pungent: the decoction, thus deprived of the aromatic matter, and concentrated by infip-itation, proves weakly and disagreeably bitter and sub-acrid. A part of its odorous matter rifes also in the inipification of the spirituous tincture; the remaining extract is a very warm, not fiery, moderately bitter aromatic, in flavour more grateful than the zedoary in subsitance.

Zedoary-root is a very useful warm fhotacitic: and has been commended in colics and hysterick affections, for promoting the menfes, &c. It has been employed by fome as a fuccedaneum to gentian root; but from the above analyfis it appears to be not entirely similar to that fimple bitter; its warm aromatic part being the prevailing principle, in virtue of which its spirituous extract (the most elegant preparation of it), has been made an ingredient in the cordial confection of the London Pharmacopoeia. Lewis's Mat. Med.

Carthenfer, who ascribes its virtues to a campshoraceous 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 to poiffes very little medicinal power, and might be safely expunged from the materia medica. Cullen.

Woodville.

The zedoary wath, which is a cooler yellow than faffron, 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 ftrain on paper, of a full yellow colour; and infining the liquor through a linen fifter. This wath may be dried in fhelves, and will again difolve and spread kindly with the addition of water.

Zeedlintz, in Geography, a town of Sifeia, in the principality of Neife; 3 miles N. of Ottmachau.

Zedere. See Sufferdam.

Zefr, a word by which fome of the chemical authors express pitch.

Zefrio, in Geography, a mountain of Naples, in Cala-
bria Ultra; 10 miles N.N.E. of Bova.

Zegedin, or Szeged, a town of Hungary, near the conflux of the rivers Maros and Thielle. 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 1686, the Imperialists dispossessed the Turks of it; 68 miles N. of Belgrade. N. lat. 46° 15'. E. long. 10° 55'.

**ZEGGO,** a town of Africa, in the country of Melli, in the road from Kongo to Casha; 100 miles N.W. of Malel. N. lat. 14°. E. long. 8°.

**ZEGHAMA,** a town of Dar-Fur; 60 miles N. of Coblé.

**ZEGHEN,** a town of Fezzan; 65 miles N. of Moursouk.

ZEGI, ZAGI, a word used by Avicenna and others to express all the several vitreous minerals. See Chalctitis, and Colchothar.

**ZEGMA,** in Geography, a town of Asiatic Turkey, in the province of Diarbekir, on the Euphrates, opposite to Romkala.

**ZEGUTI,** a town of Imirezia; 20 miles S.W. of Catisa.

ZEGZEG, a city of Africa, and capital of a country of the same name, situated to the east of Agades; 370 miles N.E. of Casha. N. lat. 20° 45'. E. long. 16°.

**ZEHDENICK,** a town of Brandenburg, in the Ucker Mark, on the Havel. In it is a convent for ladies of noble descent, consisting of a dominion and six fritters. It carries on a large trade in wood and corn: in the pastures, 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. 13° 22'.

**ZEHIN,** a town of Brandenburg, in the New Mark; 40 miles E. of Oderburg.

**ZEHERECH,** a word used by some of the chemical writers to express flowers of brafs.

**ZEHISTA,** in Geography, a town of Saxony, in the margrave of Meissen; 3 miles S. of Pirna.

**ZEHRENDORF,** a town of Brandenburg, in the Middle Mark; 3 miles S. of Zolten.

**ZEIDOURSE,** a district of Algiers, between Tremecen and Oran.

**ZELI,** a town of Bavaria, in the bishopric of Bamberg; 12 miles W.N.W. of Bamberg. N. lat. 50° 4'. E. long. 16° 45'.—Allo, a town and castle of Germany, which gives name to a county; 4 miles N. of Leuchtirch.

**ZELLA,** or ZELLA, or Syla, a sea-port town of Africa, in the kingdom of Adel, situated on the coast of the Arabian sea, at the mouth of the Hanazo, or Hawah, which forms a bay, called the Bay or Gulf of Zelita. It receives a governor from the dola of Mocha. N. lat. 10° 45'. E. long. 44° 20'.

**ZEILSHEIM,** a town of the duchy of Wurzburg; 4 miles N. of Volckach.—Allo, a town of the duchy of Wurzburg; 4 miles E.N.E. of Arnstein.

**ZEINDEROD,** or ZENDEROD, a river of Peria, in the province of Irak, which has its source in the Kohizard, 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 Zenderood passes through the city of Ifpanah, and is said to be absorbed in the irrigation of the neighbouring territory, or to lose itself in a lake, 15 miles S.W. of Larifian. On this river are three bridges, two of which are in good repair; particularly that of the Char Bagh (four gardens), so called from its connecting the upper and lower Chaur Bagh, the name given to a spacious avenue, which runs from the royal square to the foot of the mountains E. of Ifpanah.

**ZEISELMAN,** a town of Austria; 3 miles E. of Turnau.

**ZEISPERG,** a town of Austria; 3 miles E.N.E. of Crems.

**ZEITHAYN,** a town of Saxony, in the margrave of Meissen, famous for a pleasaunce-camp which King Augustus 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 exercising 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 Grumunden.

**ZEITON,** a town of European Turkey, in Thesfly, on a gulf to which it gives name. Here are about 400 Christian families, but the greater part of the inhabitants consists of Turks; 48 miles S.S.E. of Larifian. N. lat. 39° 6'. E. long. 22° 58'.

**ZEITON,** a gulf or bay of the Egean sea, on the E. coast of Thefaly, N.W. of the island of Negronepont.

**ZEITONQ,** a town of Persia, in the province of Fars or Farifian, containing about 2000 inhabitants, and situated in a pleasant valley, fertilised by both the branches of the river Tab, which here form a junction. Zeitoon is about fifteen miles distant from Behaban, the capital of the mountainous district of Khogilfa, which extends from the valley of Ram Hormuz to the vicinity of Kazerou.

**ZEITOUN,** a town of Asiatic Turkey, in the government of Divas, on the Kizilermak; 33 miles W. of Samioun.

**ZEITRABA,** a term used by some of the chemists to express any thing that is fluxile.

**ZETZ,** in Geography, a town of Saxony, in the bishopric of Naumburg, anciently the site of a bishop, founded by the emperor Otho I. afterwards transferred to Naumburg, after this town had been sacked and almost destroyed by the Vandals in the year 682; 15 miles E.S.E. of Naumburg. N. lat. 51° 3'. E. long. 12° 2'.

**ZEKELHEB,** a town of Hungary; 8 miles N.W. of St. Job.

**ZELA,** a town of Persia, in the province of Segeltan; 25 miles S.W. of Ferah.

**ZELA, ZELA,** or Zela, in Ancient Geography, a town of Thrace, afterwards called Flaviopolis.—Allo, a town of Afa, in Cappadocia Pontus, near the Lycus. It was celebrated by the defeat of Triarius, the Roman general, and afterwards by that of Pharnaces. Here was a famous temple, represented upon some medals, consecrated to the goddess Anaitis, a Persian divinity, whose pontiff was very powerful under ancient kings; but in process of time his authority and revenues were diminished. The town and the ministers of the temple were dependent on Pithodiris, who possessed a part of the territory; 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 retreatment of Semiramis; and in the first times it had only some huts near the temple; but Pompey made it a town.

**ZELAH,** or SELA, a city of Benjamin (Jos. xvii.38), where Saul was buried in the tomb of his father, Kish. 2 Sam. xvi. 14.

ZELAN,
ZELEN, 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. 6° 53'. E. long. 98° 14'.

ZELANICA, a cape on the N. 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.

ZELEBI. See Scheleby.

ZELEFFA, a town of Africa, in the country of Tunis; 10 miles S.E. of Cairo.

ZELEH, a town of Aegiatic Turkey, in the government of Sivas, anciently a town of Pontus, and called Zela. Near this place the Romans, under Trajanius, were defeated by Mithridates; and Pharmaces, son of Mithridates, was afterwards defeated by Julius Caesar; 21 miles W.S.W. of Tarsit. See Zela.

ZELEIA, in Ancient Geography, a town built, according to Homer, at the foot of mount Ida. It was watered by the Tarisus, and had to the S. the lake Aphlithmus. According to Strabo, it had also in ancient times an oracle, but in his time it was not consulted.

ZELEM, in the Materia Medica of the Ancients, a name given by Avicenna and others to a fruit common in Africa in their time, and much esteemed by the people of that country, and called there by some piper nigrorum, the black people's pepper, or negro-pepper. Avicenna tells us, that the zelem was a fattish seed, of the size 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 fulus alasteen, that is, piper nigrorum. This, he says, was a feed contained in pods like kidney-beans, and was black, and of a pungent and acrid tafe.

ZELLENIN, in Geography, a small island in the Frozen ocean, near the S.W. coast of Nova Zembla. N. lat. 70° 50'. E. long. 50° 24'.

ZILENOIKOLOK, a fort of Ruffia, in the government of Caucasus, on the Ural; 44 miles N. of Curiev.

ZELLES, in Ancient Geography, a town of Hispania, in Bocata, upon a ftrait which separated Hispania from Africa, according to Strabo. This author reports, that the Romans transported the inhabitants into Mauritania, together with others drawn away from Tingis, established the town of Julia Joga.

ZELETAWA, in Geography. See Scheletha.

ZELEZENSKAIA, a fort of Ruffia, in the government of Kolivan, on the E. side of the Irtisch. N. lat. 53° 25'. E. long. 75° 40'.

ZELITO, or Zilito, a fort of South America, in the harbour of Carathenga.

ZELL, a town of Austria; 14 miles N.N.W. of St. Wolfgang.—Alto, a town of Bavaria, in the bishopric of Bamberg; 10 miles W. of Bamberg.—Alfo, a town of Germany, in the principality of Culmbach; 12 miles S.S.W. of Hof.—Alfo, a town of the duchy of Wurzburg; 3 miles N. of Schweinfurt.

ZELL. See Liebenzell.

ZELL am Ham, a town of Germany, on the Mofelle; 25 miles N.E. of Treves. N. lat. 50° 4'. E. long. 7° 47'.

ZELL am Ingel, a town of the archbishopric of Salzburg, on the Zeller See; 30 miles S.S.W. of Salzburg.

ZELL am Zellerthal, 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 affeiled twenty-one florins till 1802, when it was given to the margrave of Baden; 9 miles W. of Freudenfalt. N. lat. 48° 34'. E. long. 8° 7'.

ZELLA, in Ancient Geography, a town of Africa, which was ruined 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° 41'.

ZELLE, or Altenzell, a town of Saxony, in the circle of Erzgebirg; 2 miles W. of Noffen.

ZELLE, a city of Westphalia, in the principality of Luneburg. This is a fortified and well-built town, situated on the Aler, which is here navigable, and behind the New Town is joined by the Pulfee. The town itself, in conjunction with the suburb of Fritzenweife, 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 Brunswik-Luneburg, together with the chancellery 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 superintendant, who is always first minister of the town church. The other public edifices in it are, the Guildhall, the riding-house, 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 Brunswik-Luneburg; which failed in 1705. It was built by duke Henry, in the year 1485, 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 Weftphalia, in the Harz Forest; fiver to the value of 20,000 imperial crowns is annually coined in this town; 6 miles S.S.W. of Giflar.

ZELLERNDORFF, a town of Austria; 3 miles S.E. of Schrattental.

ZELLOHENF, a town of Austria; 10 miles N.W. of Grein.

ZELLIA, in Ancient Geography, a country of Upper Panonia, inhabited by the Slav.

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 Stiria; 8 miles W. of Marburg.

ZELON, a town of Thibet; 27 miles S.W. of Laffa.

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 freresco, and that induced Paolo to court his alliance in many of the great works in which he was engaged. In consequence many of his works are given to Veronese, and thence in the hall of the Council of Ten, in the palazzo S. Marco, have been engraved by Le Febre 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 Converion 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 Veronese, 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 1592, aged 60.

ZELPHI. See Zenda.

ZELPITSCH, in Geography, a town of Iliria; 10 miles N.E. of Mitterburg.

ZELTURINSKOI, a fort of Ruffia, in the government of Irkutsk; 72 miles S.S.E. of Tunginskoi.

ZELUIA, a town of Lithuania, in the palatinate of Novogrodek; 25 miles N.W. of Smolni.

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 apazom.

ZEMARAIM, or SEMARAIM, in Ancient Geography, a city of Benjamin near Bethel. Joth. 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 cinnabar.

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 numerous islands in this ocean, Novaya Zemlia and Kalgeva are the most considerable; but both are uninhabited, and frequented only by fishermen and hunters. The former is indeed well supplied with water; but is rocky, unfertile, and destitute of wood, furnishing vegetation only for a few flustered bushes and polar plants. It abounds, however, with rein-deer, white bears, white and blue foxes; and the flores swarms with mores, walruses, and various kinds of fish. Its magnitude is estimated at 950 versts in length, 520 in breadth, and 3090 in circumference, without following the finnouts, and 425,509 German miles of superficies, according to Mr. Storch. On the northern side it is entirely encompassed with ice mountains; and to the south is the sea of Kara, Kara, or Karkoge, in which the tide flows about two feet nine inches. Among the animals of this island there is one of fresh water. From the middle of October till February the fun is not at all visible; but they have the advantage 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 arshin. For two months, viz. June and July, the fun never sets. Between this island and the main land is the famous passage known by the name of Vaggrat'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 Turkey, in Romania; 16 miles S.W. of Gallipoli.

ZEMIA, Zymeis, 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 Ruffia, in the government of Voronez; 44 miles N.N.W. of Voronez. N. lat. 52° 12'. E. long. 38° 42'.

ZELMIN, or SEMLIN, a fortress of Selavonia, at the union of the Save and the Danube, oppolite Belgrade. Here is a lazaretto, where travellers and merchandise from the Levant are detained to prevent infection. The number of inhabitants is about 1200 Rachiens, Greeks, Jews, Armenians, and Turks: during a fire at Zemlin, Joseph II. emperor of Austria, assisted in person to suppress it.

ZEMME, a town of Grand Bucharis, on the Gihon; 60 miles S. of Bucharia.

ZEMOKARTLI, a town of Turkish Armenia, in the government of Cars; 50 miles N. of Ardanoudi.

ZEMORGET, or ZEMOGITE, a small island in the Red sea, 30 miles from the coast of Egypt. This island was called by the ancients "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.

ZEMPHYRUS, in the Materia Medica of the Ancients, a name give to a precious stone, the fragments of which they use as a cordial and pudoric.

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 fapphir.

The word zemphyrus is no where used but in the writings of the later Greeks, and it is plainly formed, as most of their names of things are, on the Arabian word expressing the fame thing. This Arabian word is fephir; and this, in Avicenna and Serapio, is always used as the name of a fapphir, never as that of any other gem. We find also by their accounts, that this fapphir was not the fapphir of the ancient Greeks, but the fine blue polluid gem we now know by that name; for the fapphir of Theophrastus, and the other old writers, was only a kind of lapis lazuli.

ZEMPLIN, in Geography, a town of Hungary; 16 miles N.E. of Patak.

ZEMPOALA. See ZAMPALE.

ZEMZEM, the holy well of Mecca, which see.

ZENANICH. See Selenieh.

ZENATI, a river of Algiers, formed by the union of two streams, which soon after changes its name to Seboue.

ZENDA, a general term coined by Paracelsus, by which he and his followers express extraneous or equivocal generation, or the production of bodies without a feminal principle. The word zuranda is used to express this particular fort of generation of men, and zelpi in regard to other animals.

ZENDAVESTA, by contraction Zend, and, as it is vulgarly pronounced, Zundasfoow and Zund, in Antiquity, denotes the book ascribed to Zoroaster, (see his article,) and containing his pretended revelations; and which the ancient Magians and modern Persees, called allen Gours, observe and reverence in the same manner as the Christians do the Bible, and the Mahometans the Koran, making it the sole rule of both their faith and manners. See Magi, Persees, Gebres, &c. See also Gentoos.

The word, it is said, originally signifies any instrument 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 letters of the book, and Avekly, signifying the language in which it was written. See PERSIA, LANGUAGE OF.

M. Anquetil du Perron, to whom 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 Zoroaster lived under Hyfaspes, the father of Darius, in the sixth century before Christ.

The Zendavella, or Zend, contains the system of doctrine and duty, which is said to have been supernaturally communicated.
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-temple, 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, scribbled among other numerous writings to Zendavesta, or the Persian Zoroaster, and esteemed by his followers as of sacred authority, is said to have been written in the Persian 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 sacred 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 suggested as probable, that it was written about the time when many Jews and Christians resided among the Persians; that is, about the 4th or 5th century. In proof of its being later than the time of Zoroaster, but written since the days of Mahomet, it is alleged, that the word $f$hiatam occurs in it, which is peculiar to the Arabs; or in other oriental languages it is written $fatam$, or $fatan$.

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 Persian 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 Zendavesta's second thoughts subjoined, for more fully explaining his doctrine. Some writers suggest, that Zendavesta 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 adherences, and unforeseen circumstances that occurred. The character in which the Zend is written is that of the old Peric, called Pehlevi; 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 nos or nafs.

In process of time, when the old Peric language became antiquated, and little understood, one of their deputies or bishops (about A.D. 1300) 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 canons 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 superfluous 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 darknes, out of which he made all other things; that there 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 darknes with his followers shall be con-

Vol. XXXIX.

digned to a state of everlasting darknes and punishment, and the angel of light with his disciples introduced into a state of everlasting light and happiness; after which light and darknes shall no more interfere with each other. The Zend also enjoins the constant maintenance of sacred fires and fire-temples for religious worship, the distinction of clean and unclean beasts, the payment of tithes to priests, which are to be of one family or tribe, a multitude of washings and purifications, remembering those of the Jewish law, and a variety of rules and exhortations for the exercise of benevolence and charity.

Dr. Prideaux charges the Zend with allowing the worst kind of incense; and Dr. Hyde also intimates that it was allowed by Zoroaster, till it was at length abolished; but no authority has been cited to justify this charge.

The above-mentioned doctrines of the Zend are accommodated to the eastern taste by a great intermixture of fable.

In this book there are many passages evidently taken out of the Scriptures of the Old Testament, particularly out of the Psalms of David: the author represents Adam and Eve as the first parents of all mankind, gives in substance the same account of the Creation and Deluge with Mofes, differing indeed with regard to the former by converting the six days of the Mosaic account into fix years, comprehending in the whole three hundred and sixty-five days; and speaks also of Abraham, Joseph, Mofes, and Solomon. Moreover, Dr. Baumgarten (Univ. Hist. Suppl. vol. ii. p. 326, &c.) affirms, that this work contains doctrines, opinions, and facts, actually borrowed from the Jews, Chrisilians, and Mahometans; whence, and from other circumstances, he concludes, that both the history and writings of this prophet were probably invented in the later ages, when the fire-worshippers under the Mahometan government thought fit to vindicate their religion from the fupposition of idolatry.

The Zoroaster, says the abbe Foucher, (see Zoroaster,) who was the author of the Zend, is represented by him as an apostate Jew, a facile philosopher, and an obsequious angel-courtier, who ingulphed himself into the favour of Darius Hyftafpes; and he says that his great design was to reconcile the Hebrew with the Persian religion by a mixture of the leading and essential doctrines of each, to revive the credit of the Mosaic law, and to accommodate, by proper colouring, the Jewish religion to the weaknes and prejudices of the Medes and Persians, by taking from it that exclusive character that rendered it offensive to other nations, and mixing with it the reveries and visions of the ancient Zoroaster. See Hyde's Religio Veterum Perfaran. Prideaux's Conn. of the Old and New Testament, vol. i. p. 317, &c. edit. 9. Univ. Hist. vol. ii. p. 206, &c. fol.

The account more lately given both of the Persees and Zend, by M. Anquetil du Perron, differs in several particulars from that of Dr. Hyde. This gentleman made a voyage to India, and employed himself between the years 1755 and 1761 in studying the Peric and Sanskrit languages, and in collecting and translating manuscripts, many of which he brought with him, and deposited in the king of France's library. His account was read to the Royal Academy of Sciences at Paris, and a translation of it was published in the Gentleman's Magazine for 1762, and also in Dodgley's Annual Register for 1762, part ii. p. 101—127. Of the Persees or Parfes, the disciples of Zoroaster, he says, a very numerous body has been established more than nine hundred years in Guzerat, to which place they came fugitives from Kerman, A.D. 767, on account of the Mahometan
homenet perfections, where their genius for commerce and industry, which are their known charactearistics, procured for them very considerable settlements. Concerning the hierarchy of the Parfles, this writer observes, that their ministers of religion are divided into five classes, viz. erbeds, mobeds, deftours, deftour mobeds, and deftouran deftours, or deftours of deftours. An erbed is a person who has submitted to the purification directed by the law, who has read, during four days without interval, the Zendateh and the Venddad, and who is instructed in the ceremonies of the worship established by Zoroafer. 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 studying the law, the Zend, and the Pehlvi, or Pehlavi, without exercising the ministerial functions, he is called a deftour.

The deftour mobed is he who unites the qualifications of the mobed and deftour; and the deftouran deftour is the principal deftour of a city or province, who decides calef of conscience, and determines points of law, and to whom the Parfles pay a tithe of their revenues.

As for the Zend writings, which the Parfles 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 Zoroafer, whose reputation has been acquired by laws that have subsisted two thousand five hundred years.

The Zend, ascribed to Zoroafer, was divided, as we are told by modern authors, into twenty-one nofis, or parts; seven of treat of the creation and history of the world; seven of morality, and civil and religious duties; and seven of phytic and astronomy. Among the Parfles 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. Those which escaped are, the Venddad, the Zendateh, the Vishpered, the Jelchis, and the Nenechis, in Zend, and some other Pehlvi translations of Zend originals. The Parfles have also a great number of prayers, which they call nerengs, and which in general are written in modern Perfic, with Zend characters, which they affect to use in all writings that treat of religion, though composed in modern Perfic. The writings of Zoroafer, which still remain, speek of the creation of the universe, of the terrestrial paradise, and the dispersion of mankind; of the cause of the fpeect 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 resurrection, &c. &c. They also contain precepts with respect to the latter times, some excellent moral precepts, and a very extensive ceremonial code.

The Zend, according to Du Perron, is not the name of Zoroafer's writings, but merely of the characters, though generally used to signify the language itself, in which they were written: the language of the original text is called Avesta, and is a dead language, and was entirely unknown to the Parfles before the time of Zoroafer, who, he apprehends, brought it from the mountains; and is totally different from the Pehlvi or ancient Perfic, spoken in the time of Zoroafer. He farther supposes, that the works of Zoroafer, till extant in the Pehlvi, were translations made into that language during the life of this legislator, or soon after his death.

The Zend, 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 Avesta, and almost extinct, except that a few words of it are preserved in the Pehlvi translation. The characters of the Avesta and Pehlvi are different; the former, which are properly the Zend letters, being much the neatest; the Zend 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 eighteen MSS. of which he brought duplicate copies with him, and an abstract of their contents, we must refer to the Ann. Reg. &c. ubi supra.

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 fuggelts (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 Perfic, was convinced in his opinion, concerning the Chaldaic origin of the Pehlvi; and in preparing the Zend glossary, he was surprized to find, that fix or seven words in ten were pure Sanskrit. M. Anquetil, he says, most certainly, and the Persian 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 Pracrit, 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 Zoroafer; and in consequence of which he published in the same year, "Lettre à M. A — du P — dans laquelle il compris l'Examen de la Traduction des Livres attribués à Zoroafer." This letter is contained in the 10th 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 purposes of explaining the New Testament. This use of it has been suggested 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 Gnostics for the name of a perfon, and determines the proper translation of ζωὴν. (Michaelis von 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 Zoroafer.

Mr. Richardson, in his "Dissertation on the Language, Literature, and Manners of the Eastern Nations," originally prefixed to his Persian, Arabic, and English Dictionary, 1778 (chap. i. sect. 2.), is very severe, both on Dr. Hyde and M. du Perron. Those fragments of the supposed works of Zoroafer, which Dr. Hyde has given us under the title of Sadder, are, he says, the wretched rhymes of a modern Parfi deftour or priest, who lived about three centuries ago; whilst the publications of M. Anquetil du Perron carry palpable marks of the total or partial fabrication of modern times. The Zend language, he says, is not genuine; and M. du Perron has produced no discovery which can stamp his publication with authority.

He adds, the specimens of old Perfic in Hyde's ReligioVeterum
Veterum Perfarum are simply modern language in ancient characters.

In the "Memoirs of the Royal Society of Gottingen for 1799," i.e., "Commentationes Societatis Regia Scientiarum Gottingensis," &c., we have a memoir by M. Christopher 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 pious. He shews, that they contain a multitude of fables, totally unknown to the ancient Persians, and contrary to the spirit of their laws and religion; and also many opinions and ceremonies, which had their rise in 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 3rd 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 Nestorius, who were found very early on the coasts of Malabar. But this, Mr. Bryant thinks, is a groundless supposition; because the religious facts, among which these writings have been preferred, are widely separated, and most of them have no connection with Malabar or the Christians 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 ceremonies, which prevent their intercourse with other people. In their writings there occurs no trace of Christianity, or of its founder; and hence 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 presented 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.

ZENDERO, in Geography. See GINGIRO.

ZENDEROU. See ZEINEROOD.

ZENDGIN SERAI, a town of Grand Bushire; 30 miles S. of Samarcand.

ZENDOFF, a town of the duchy of Sturia; 12 miles E. of Landipperg.

ZEINECHDON, a term used by the Arabian physicians for a preparation of arfenic, for external use; seeb being their name for arfenic.

ZENEXTOR, one of the many names by which the chemists have called mercury.

ZEGAN, ZENIGAN, or ZINJAN, in Geography, a town of Perfia, in the province of Peria, said to have been fortified many years before the Christian era, and at one time to have contained 20,000 houses. It was entirely destroyed by Timur Bëc when he first passed through that part of Peria; 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 Kuch, which is 71 miles down an uneven country, full of deep ravines, from hence to the banks of the Rizilok.
ZENITH.

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 exzilting 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 transting the meridian be taken, for the purpose of ascertaining its place in the heavens, when the altitude 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 revere 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 fame 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 gullion of Galileo. The telescope, which Dr. Hooke, in the year 1669, made the essential part of his instrument, was thirty-six feet long, the principle of achromatism 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 Gresham 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 21st 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 suggested, 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-glasses of its telescope was only 244 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 minuscule is always interesting, that connect great refults 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 inferred in the Philosophical Transactions of London, No. 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 passed a little more southerly this day.
ZENITH.

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 the stars or the accompanying stars, or both, were not as we had supposed; 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 was more surprising than that, in 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, or 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, (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 motion of the earth's axis was one of the first things that occurred itself upon this occasion; but it was soon found insufficient; for though it might have accounted for the change of declination in γ 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 γ 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 motion of the earth's axis would have made it, yet in changing its declination but as much as γ Draconis in the same time, (as appeared upon comparing the observations of both made upon the same days, at different seasons of the year,) this plainly proved that the apparent motion of the stars was not occasioned by a real motion, 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 seasons 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 versed sine of the sun's distance from the equinoctial points. This was an induction 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 further 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, like-wise, 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 γ 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 so 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 6½ on each side my zenith. This indeed was sufficiently, 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 left than twelve that I could observe through all the seasons 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 motion we had before entertained of the stars being farthest north and south, when the sun was about the equinoaxes, was only true of those that were near the terrestrial 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 the zenith at fix 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 fix of the clock in the evening, and farthest south, when it came about fix 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 alterations of declination in different stars bore to each other, it being very evident that they did not all change their declination equally. I have before taken notice, that it appeared from Mr. Molyneux's observations, that Draconis altered its declination about twice as much as the fore-mentioned 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 sine 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 being able to the uncertainty and error of the observations, I deferred the farther examination into the truth of this hypothesis, till I should be furnished with a series of observations 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 precisely what they were.

"When one year was completed, I began to examine and compare my observations; and having pretty well satisfied 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 variation 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 rectified; 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 directions, the apparent place of the object would be different."

The author then proceeds to deduce from his observations the relative velocities of light, and of the earth in its annual orbit; shews what variation in the right ascension 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 927.5 of time. (See Aberration, Light, and Stars.) The discovery of the earth's motion 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-tractor in the hands of a skilful astronomer, they will be naturally disposed to become acquainted with its construction, which we will now proceed to describe.

Zenith-tractor by Graham.—The zenith-tractor that we have said Graham made for Mr. Bradley, afterwards Dr. Bradley, was removed to Greenwich, where the proprietor became astronomer royal, and is the same instrument which Dr. Maikelyne used with great success in adjudging, by comparison, the zero of the large quadrants. It still remains at Greenwich, and is yet capable of measuring zenith-distances to the accuracy of half a second, according to Bradley'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 suspended by two small metallic cylinders projecting at right angles from the inferior end, one of which is seen at a, and the other is hidden by the tube. These cylinders, which constitute the axis of motion, revolve in a pair of Ys, attached to the fold 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 reversed in position. The brass bar CD is fixed to the same 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 b; and the second screw e is made to relieve it. The ends of these screws press against fluids 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 telescope home. The graduated arc IK contains 125°, 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 divisions 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 adjusting screw e, to bring the point of suspension 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 suspended 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 on an average of several trials made in different parts of the arc, it was ascertained, that one revolution was not precisely 34°, but 33° 528', and one of its divisions on the head, therefore, only 9° 4892', instead of 10°, as was intended by the maker. The instrument had originally a single lens for its object-glass; but at the request of the late Dr. Maxkelyne, Mr. Dollond substituted
situated 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. As much as the fame distance would have been preferred between the axis of motion of the telescope, and the point acted upon by the micrometer-crew, without any refuling allowance. Besides, the instrument would have been less liable to accidents; and reversed observations might probably have been made on the fame evening. When Bird afterwards made a zenith-sector for the Oxford Observatory, he noticed these inconvieniences, 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 fame 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 serves the wires in the eye-piece, as in the transit-instrument, and may be thus effected: Let the graduated arc face the east, and view a star passing in or near the zenith, the proper time for doing which may be known from the star’s right ascension, by means of a fidereal clock, or by conversion of solar into fidereal time, and note the distance from zero when the plumb-line is quiet, which it will soon be if the plummet is immersed 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 eastern measure with N. or S. annexed, accordingly as the star passes to the north or south side of the zenith point; then reverse the position, and on a succeeding night, which will be 5°56' sooner on every successive night, measure the zenith-distance of the same star in like manner with the graduated scale facing the west; and call it the western measure; then if the two quantities thus measured be similar, the collimation for zenith-distance will be true; but if otherwise, 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 ascertained 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 observe, 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 true measure. How the altitude of any place may be very accurately determined from the measured zenith-distance of a star, of known declination, will be seen presently.

**Zenith-sector by Ramdjen.**—While the trigonometical survey of England was carrying on, it was found desirable to have a portable zenith-sector to assist in measuring an arc of the meridian, and as Ramdjen 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 purpose, which was nearly done in Ramdjen’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 Station, as described in the “Trigonometrical Survey,” by captain William Mudge, and published from time to time by Mr. Faden, of Charing-Crofts. 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 instrument. From an examination of which a better idea will be formed of its general construction than by any detailed account we can give of its parts without the additional plates.

Captain Mudge says, “that Mr. Ramdjen has here obviated the inconveniences attendant on the use of former sectors; and has also diminished, in a very considerable degree, the errors unavoidably resu[ling from their imperfect construction. 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 instrument vertically; and an easy way of placing the face of its arc in the plane of the meridian.” The frame exhibited 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 obtuse pyramid, having a base six feet square, and its vertex three. It unites strength with simpidity of construction. 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 reposing in a metallic concavity, on which it turns in azimuth; and it can be kept in any position 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-glass nearly eight feet long, with an aperture of four inches, near which is made fast the tranverse 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 construction. The arc is divided into 15°, which was the concluding work done by Berge, and each degree is subdivided 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 lower vertical telescope is turned round; so that 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 microscopical 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 application have been previously described, when we explained other instruments, such as Circles, Equatorials, Transit-Instruments, &c.; but because this instrument has furnished hints to others who have copied in part, or wholly, several
several of Ramsden's contrivances. It was moreover necessary 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 carefully 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 slides, 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 bisected, it will afford a proof of the internal stand being upright in one direction. But if the dot should not continue bisected by the plumb-line, it must be made to do so, and the revolutions, or parts of a revolution, counted; half of which is to be turned back on the micrometer-head. The same dot, zero, is then to be brought under the plumb-line (wire), by means of the other adjusting screws, beneath the azimuth circle. If the stand is pretty accurately set up, one operation 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 same 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 jutf under its point of suspension. If great care be used in going through these several adjustments, 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 causes, 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><strong>At</strong></td>
<td><strong>Rev. Div.</strong></td>
</tr>
<tr>
<td>0° 0'</td>
<td>8 55.43</td>
</tr>
<tr>
<td>0 5 9 32.55</td>
<td>5 4.55</td>
</tr>
<tr>
<td>0 10 14 37.10</td>
<td>5 4.34</td>
</tr>
<tr>
<td>0 10 9 40.03</td>
<td>5 4.45</td>
</tr>
<tr>
<td>0 15 14 44.37</td>
<td>5 4.40</td>
</tr>
<tr>
<td>0 15 9 19.13</td>
<td>5 4.30</td>
</tr>
<tr>
<td>0 20 14 23.58</td>
<td>5 4.41</td>
</tr>
<tr>
<td>0 20 9 54.07</td>
<td>5 4.44</td>
</tr>
<tr>
<td>0 25 14 58.47</td>
<td>5 4.54</td>
</tr>
<tr>
<td>0 25 9 39.23</td>
<td>5 4.54</td>
</tr>
<tr>
<td>0 30 14 43.64</td>
<td>5 4.55</td>
</tr>
<tr>
<td>0 30 9 25.77</td>
<td>5 4.47</td>
</tr>
<tr>
<td>0 35 14 30.21</td>
<td>5 4.44</td>
</tr>
<tr>
<td>0 35 9 58.35</td>
<td>5 4.54</td>
</tr>
<tr>
<td>0 40 14 40.75</td>
<td>5 4.55</td>
</tr>
<tr>
<td>0 40 15 4.07</td>
<td>5 4.54</td>
</tr>
<tr>
<td>0 45 14 5.07</td>
<td>5 4.55</td>
</tr>
<tr>
<td>0 45 15 12.47</td>
<td>5 4.55</td>
</tr>
<tr>
<td>0 50 14 17.02</td>
<td>5 4.43</td>
</tr>
<tr>
<td>0 50 9 43.07</td>
<td>5 4.50</td>
</tr>
<tr>
<td>0 55 14 47.50</td>
<td>5 4.50</td>
</tr>
<tr>
<td>0 55 8 41.27</td>
<td>5 4.50</td>
</tr>
<tr>
<td>1 0 13 45.77</td>
<td>5 4.50</td>
</tr>
</tbody>
</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.

| Div. | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| "   | 0.002 | 0.003 | 0.005 | 0.007 | 0.008 | 0.010 | 0.012 | 0.013 | 0.015 | 0.016 | 0.018 | 0.020 | 0.022 | 0.023 | 0.025 | 0.027 | 0.028 | 0.030 | 0.030 | 0.032 | 0.033 | 0.035 | 0.036 | 0.037 | 0.038 | 0.039 | 0.040 | 0.040 |
| Div. | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |

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° 0'</td>
<td>0.018</td>
</tr>
<tr>
<td>1° 0'</td>
<td>0.028</td>
</tr>
<tr>
<td>2° 0'</td>
<td>0.037</td>
</tr>
<tr>
<td>3° 0'</td>
<td>0.046</td>
</tr>
<tr>
<td>4° 0'</td>
<td>0.056</td>
</tr>
<tr>
<td>5° 0'</td>
<td>0.065</td>
</tr>
<tr>
<td>6° 0'</td>
<td>0.074</td>
</tr>
<tr>
<td>7° 0'</td>
<td>0.084</td>
</tr>
<tr>
<td>8° 0'</td>
<td>0.093</td>
</tr>
<tr>
<td>9° 0'</td>
<td>0.102</td>
</tr>
<tr>
<td>10° 0'</td>
<td>0.111</td>
</tr>
<tr>
<td>11° 0'</td>
<td>0.121</td>
</tr>
<tr>
<td>12° 0'</td>
<td>0.130</td>
</tr>
<tr>
<td>13° 0'</td>
<td>0.139</td>
</tr>
</tbody>
</table>

Observations made by Captain William Mudge on the Zenith-Distances of ? Draconis, with Ramsden's Zenith-Sector, at different places.

Table I.—Greenwich Observatory, 1802. Point on the limb o° o' N.

<table>
<thead>
<tr>
<th>Day of the Month</th>
<th>Phase</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>Apr. 16</td>
<td>W.</td>
<td>10 21.73</td>
<td>Rev. Div. 8 18.5</td>
<td>0 1 Rev. Div. 3 23</td>
<td>0 2 1 43</td>
<td>29.9</td>
<td>45.0</td>
</tr>
<tr>
<td>19</td>
<td>W.</td>
<td>9 9.40</td>
<td>7 4.1</td>
<td>5.30</td>
<td>3.50</td>
<td>51.1</td>
<td>53.0</td>
</tr>
<tr>
<td>22</td>
<td>E.</td>
<td>8 4.48</td>
<td>10 9.5</td>
<td>54.02</td>
<td>53.21</td>
<td>29.9</td>
<td>53.0</td>
</tr>
<tr>
<td>23</td>
<td>E.</td>
<td>9 21.79</td>
<td>10 18.5</td>
<td>55.71</td>
<td>54.90</td>
<td>30.1</td>
<td>38.0</td>
</tr>
<tr>
<td>25</td>
<td>W.</td>
<td>9 30.52</td>
<td>7 34.4</td>
<td>5.12</td>
<td>3.32</td>
<td>29.0</td>
<td>44.0</td>
</tr>
</tbody>
</table>

Vol. XXXIX.
### TABLE II.—Dunns, 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>10 15.52</td>
<td>Rev. 13 48.1</td>
<td>0 50 3 32.75</td>
<td>0 53 30.10</td>
<td>29.0</td>
<td>— 45.0</td>
</tr>
<tr>
<td>11</td>
<td>W.</td>
<td>9 38.66</td>
<td>13 56.4</td>
<td>41.26</td>
<td>38.62</td>
<td>28.85</td>
<td>43.9 43.5</td>
</tr>
<tr>
<td>13</td>
<td>E.</td>
<td>8 47.30</td>
<td>11 81.4</td>
<td>34.10</td>
<td>31.45</td>
<td>28.85</td>
<td>38.6 38.0</td>
</tr>
<tr>
<td>14</td>
<td>W.</td>
<td>7 32.38</td>
<td>3 49.2</td>
<td>42.18</td>
<td>39.54</td>
<td>28.92</td>
<td>34.5 34.5</td>
</tr>
<tr>
<td>16</td>
<td>E.</td>
<td>9 40.0</td>
<td>13 15.2</td>
<td>34.20</td>
<td>31.55</td>
<td>28.82</td>
<td>35.5 35.5</td>
</tr>
<tr>
<td>June 11</td>
<td>W.</td>
<td>7 20.70</td>
<td>3 29.5</td>
<td>50.20</td>
<td>47.58</td>
<td>28.34</td>
<td>52.5 52.5</td>
</tr>
<tr>
<td>13</td>
<td>E.</td>
<td>9 36.35</td>
<td>13 20.3</td>
<td>42.95</td>
<td>40.31</td>
<td>28.79</td>
<td>52.5 52.3</td>
</tr>
<tr>
<td>14</td>
<td>W.</td>
<td>8 25.26</td>
<td>4 33.4</td>
<td>50.86</td>
<td>48.24</td>
<td>28.26</td>
<td>54.3 54.0</td>
</tr>
<tr>
<td>16</td>
<td>E.</td>
<td>9 43.33</td>
<td>14 37.4</td>
<td>45.07</td>
<td>43.44</td>
<td>28.75</td>
<td>59.5 60.0</td>
</tr>
<tr>
<td>17</td>
<td>W.</td>
<td>8 32.66</td>
<td>4 39.4</td>
<td>52.26</td>
<td>49.64</td>
<td>28.82</td>
<td>56.0 58.0</td>
</tr>
<tr>
<td>18</td>
<td>E.</td>
<td>11 32.77</td>
<td>15 17.9</td>
<td>44.13</td>
<td>41.50</td>
<td>28.8</td>
<td>52.0 51.0</td>
</tr>
<tr>
<td>20</td>
<td>W.</td>
<td>8 9.48</td>
<td>4 17.0</td>
<td>51.48</td>
<td>48.86</td>
<td>29.97</td>
<td>58.6 57.0</td>
</tr>
<tr>
<td>21</td>
<td>E.</td>
<td>11 52.92</td>
<td>15 40.0</td>
<td>47.08</td>
<td>44.45</td>
<td>28.83</td>
<td>56.0 55.5</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>11 49.24</td>
<td>Rev. 13 12.8</td>
<td>1 55 1 22.56</td>
<td>1 56 21.69</td>
<td>28.9</td>
<td>56.5 55.0</td>
</tr>
<tr>
<td>21</td>
<td>E.</td>
<td>7 23.81</td>
<td>5 53.7</td>
<td>29.11</td>
<td>28.26</td>
<td>28.5</td>
<td>53.0 52.2</td>
</tr>
<tr>
<td>22</td>
<td>W.</td>
<td>7 54.31</td>
<td>9 17.1</td>
<td>21.79</td>
<td>20.92</td>
<td>28.7</td>
<td>54.5 54.5</td>
</tr>
<tr>
<td>23</td>
<td>E.</td>
<td>3 46.15</td>
<td>2 18.9</td>
<td>27.25</td>
<td>26.39</td>
<td>29.0</td>
<td>56.1 56.1</td>
</tr>
<tr>
<td>26</td>
<td>W.</td>
<td>9 8.47</td>
<td>10 29.5</td>
<td>21.03</td>
<td>20.16</td>
<td>28.8</td>
<td>64.0 64.0</td>
</tr>
<tr>
<td>28</td>
<td>E.</td>
<td>9 35.56</td>
<td>8 9.6</td>
<td>25.96</td>
<td>25.11</td>
<td>28.8</td>
<td>56.2 57.0</td>
</tr>
<tr>
<td>29</td>
<td>W.</td>
<td>8 44.41</td>
<td>10 4.5</td>
<td>19.09</td>
<td>19.03</td>
<td>29.0</td>
<td>56.5 56.5</td>
</tr>
<tr>
<td>Aug. 1</td>
<td>W.</td>
<td>8 41.22</td>
<td>10 3.0</td>
<td>20.78</td>
<td>19.91</td>
<td>29.2</td>
<td>59.5 57.0</td>
</tr>
<tr>
<td>3</td>
<td>E.</td>
<td>9 7.59</td>
<td>7 40.3</td>
<td>26.29</td>
<td>25.43</td>
<td>29.1</td>
<td>68.0 64.5</td>
</tr>
<tr>
<td>5</td>
<td>E.</td>
<td>7 50.50</td>
<td>6 25.0</td>
<td>25.50</td>
<td>24.64</td>
<td>29.0</td>
<td>73.0 71.0</td>
</tr>
<tr>
<td>7</td>
<td>W.</td>
<td>9 7.55</td>
<td>10 24.6</td>
<td>17.05</td>
<td>16.18</td>
<td>28.9</td>
<td>64.2 59.2</td>
</tr>
<tr>
<td>12</td>
<td>E.</td>
<td>11 7.56</td>
<td>9 42.7</td>
<td>23.85</td>
<td>23.0</td>
<td>29.1</td>
<td>57.5 57.5</td>
</tr>
<tr>
<td>13</td>
<td>W.</td>
<td>8 12.48</td>
<td>9 29.4</td>
<td>16.92</td>
<td>16.04</td>
<td>29.3</td>
<td>63.0 61.2</td>
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<tr>
<td>17</td>
<td>E.</td>
<td>8 10.32</td>
<td>5 46.0</td>
<td>23.32</td>
<td>22.46</td>
<td>29.0</td>
<td>69.5 70.5</td>
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<tr>
<td>18</td>
<td>W.</td>
<td>8 32.97</td>
<td>9 48.5</td>
<td>15.53</td>
<td>14.65</td>
<td>28.8</td>
<td>70.0 70.1</td>
</tr>
</tbody>
</table>
### ZENITH.

#### Table IV.—Arbury-Hill, near Daventry, 1802. Point on the Limb $0° 40' S$.

<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>Rev. Div.</td>
<td>Rev. Div.</td>
<td>$0° 40' 2$</td>
<td>$11° 55'$</td>
<td>28.2</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td>$0° 42' 9$</td>
<td>$76'$</td>
<td>28.53</td>
<td>48.2</td>
</tr>
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<td></td>
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</tr>
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<td>Rev. Div.</td>
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<td></td>
<td></td>
<td>72.3</td>
</tr>
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<td>Rev. Div.</td>
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<td></td>
<td>28.8</td>
<td>67.5</td>
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<td>Rev. Div.</td>
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<td>68.3</td>
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<td>Rev. Div.</td>
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<td></td>
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<td>79.8</td>
</tr>
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<td>Rev. Div.</td>
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<td>67.5</td>
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<td>Rev. Div.</td>
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<td>Rev. Div.</td>
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<td>Rev. Div.</td>
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<td></td>
<td>29.1</td>
<td>64.0</td>
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<td>29.9</td>
<td>64.0</td>
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<td>69.5</td>
</tr>
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<td></td>
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<td>Rev. Div.</td>
<td>Rev. Div.</td>
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<td></td>
<td>29.6</td>
<td>72.5</td>
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<td></td>
<td>71.9</td>
</tr>
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<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>28.8</td>
<td>71.0</td>
</tr>
<tr>
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<td>75.0</td>
</tr>
<tr>
<td>Oct. 1</td>
<td>E.</td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
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<td>74.0</td>
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<td>73.0</td>
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<td></td>
<td></td>
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<td>Rev. Div.</td>
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<td></td>
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<td>74.0</td>
</tr>
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<td></td>
<td>73.0</td>
</tr>
</tbody>
</table>

#### Table V.—Delamer Foret, 1806. Point on the Limb $1° 40' S$.

<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>Rev. Div.</td>
<td>Rev. Div.</td>
<td>$0° 40' 2$</td>
<td>$23° 38'$</td>
<td>29.37</td>
<td>49.5</td>
</tr>
<tr>
<td>June 2</td>
<td>E.</td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.67</td>
<td>51.0</td>
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<td>Rev. Div.</td>
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<td>Rev. Div.</td>
<td>Rev. Div.</td>
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<td></td>
<td>19.34</td>
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<td></td>
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</tr>
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<td>Rev. Div.</td>
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<td></td>
<td></td>
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<td></td>
<td>51.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.55</td>
<td>51.5</td>
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<td>54.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.07</td>
<td>62.0</td>
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<td></td>
<td></td>
<td></td>
<td>63.0</td>
</tr>
</tbody>
</table>

#### Table VI.—Burleigh-Moor, 1806. Point on the Limb $3° 5' S$.

<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>Rev. Div.</td>
<td>Rev. Div.</td>
<td>$0° 40' 2$</td>
<td>$3° 40'$</td>
<td>29.25</td>
<td>51.0</td>
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</tr>
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<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>28.95</td>
<td>54.5</td>
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<td>54.5</td>
</tr>
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<td></td>
<td>Rev. Div.</td>
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<td></td>
<td></td>
<td></td>
<td>62.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.29</td>
<td>56.5</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.29</td>
<td>59.0</td>
</tr>
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<td></td>
<td>56.0</td>
</tr>
<tr>
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<td></td>
<td>Rev. Div.</td>
<td>Rev. Div.</td>
<td></td>
<td></td>
<td>29.36</td>
<td>56.5</td>
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<td></td>
<td>55.0</td>
</tr>
</tbody>
</table>

\[ X = 2 \]
ZENITH.

Besides these observations, various others were taken of different stars in Draco, Cygnus, Ursula 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>Face of Limb West</th>
<th>Face of Limb East</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 16. - 28.37</td>
<td>April 22. - 20.54</td>
</tr>
<tr>
<td>19. - 29.02</td>
<td>Mean E. - 19.79</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>20. 48.73</td>
<td></td>
</tr>
</tbody>
</table>

Apparent Mean of both positions | - 24.36 |
And also, half the difference, or collimation | - 4.57 |
Then in Bode's Catalogue Dec. N. of γ Draconis, 1801 | - 51 31 5 |
Subtract for annual diminution .7 + .3 | - 51 31 4 |
True declination | 24.39 |
And 24.36 + 0.03" (sum of Equations) true zenith-distance | - 2 |

The true latitude of Greenwich Observatory, as deduced from γ Draconis | 59 25 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.

ZENITH.

<table>
<thead>
<tr>
<th>Latitude Above</th>
<th>Latitude Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>1° 50' 5.24&quot; N.</td>
<td>50° 37' 7.36</td>
</tr>
<tr>
<td>1° 56' 26.64 S.</td>
<td>51° 15 26.75</td>
</tr>
<tr>
<td>1° 42' 12.09 S.</td>
<td>53° 13 19.09</td>
</tr>
<tr>
<td>3° 3 19.09 S.</td>
<td>54 34 20.09</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 first 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 Delamare forell with the zenith-flector in 1806, combined with those at Dunmore, 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' 11.73"), making a difference of 1" between the calculated and observed amplitudes, which, fetting aside the consideration of the spherical figure of the earth, is at the rate of 1" in a second in one degree. Perhaps, under the consideration of each meridional 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. 332, &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-flector in this respect; that the measures taken with it are all taken within the tube of the telescope, whereas those taken by the zenith-flector 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 geodetic commissioners, 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. Maldeyne, 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 pruned by two springs; contrivances which produce free and steady azimuthal motion.

All the zenith instruments require for collimation two positions, which in the sectors 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 stops, without regarding any divisions.

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 sublimating the plummet in a water vessel 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 floated 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 of the micrometer towards the north, which may be done in three seconds, and then the other moveable wire is made to bisect the star. It is evident now, that the opening between the wires is double the zenith-difference 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 affuring 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-glasses, and the plumb-line should be exterior to the main tube, but included 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 portion of the plumb-line, which, being 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 contrived, and used with care, which they now are at our national establishments, seldom or never want re-adjustment. A better caue 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 the construction and use, that former instruments for the same purpose do not posses, 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 flat or support. It can be applied to either, as occasion may require. The component parts are the; viz. an achromatic refracting telescope A A, (fig. 5, 4,) of 42 inches focal length, with an aperture of 2½ inches; a micrometer B, with two screws, each moving a separate wire through the field of view, which is extended in two degrees. The transverse axis C is 18 inches long, and glazed for a telescope, with cross wires that adjust, so 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 the 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, by a mark that must be found to the east, 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 wire, it may be correctly replaced, the mean of the two observations being the correct zenith-difference. The instrument is also furnished with a plumb-line D, and with a dot in 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 mill 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 division is done away. The level (fig. 6.) is used for levelling the axis, and the circular piece (fig. 5.) with the Ys a a attached, in which the pivots of the transverse axis rest, may be applied to a mahogany-framed plumb, or on a stone pier, or bracket: it is represented as it was made for a mahogany stand (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 a pinion b; and it is made fast by the four screws e, e, e, e. The two adjusting screws G G, (fig. 3.) must also be attached to a bracket or framed piece in the stand; 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 transits-instrument. The value of the micrometer-screws is to be found in the usual manner, and reduced into seconds.

The foregoing are the distinguishing properties of this instrument,
infirment, and as the method of using it may be understood sufficiently from what we have said of the zenith-ßector, 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-ßectors 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 tranfit-circles of large dimensions, particularly those which move with their pivots supported by ﬂone piers, claim our principal notice. As the professed use of these circles is to ascerten 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 those instruments that measure altitudes accurately, atall elevations, will also measure zenith-distances, or their complements; and in fact, the divisions 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 Blackheat; but the large circle at Greenwich, not having a plum-line or level used, nor being capable of reversion, is not of the same clafs; 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 tranfit-circle with a 34 feet telescope, very lately made by Mr. Thomas Jones, of Charing-Crofts; the axis of which is supported by a califon 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, conﬁdently with our general plan of dividing our subjécts.

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.

ZENKOY, a town of Russia, in the government of Tchernigov; 140 miles S.E. of Tchernigov. N. lat. 50° 19'; E. long. 34° 14'.

ZEN, a river of Franconia, which runs into the Rednitz, near Vacha, in the margrave of Aspach.

ZEN. See LANGENZEN.

ZENNAR, the name of a mythical word worn by Brahman, 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 invetiture, with many particulars, have occupied the attention of lawgivers, and are attended to with great respect by their obedient followers.

Brahmans afert 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 Kshtetriya receives it at eleven, from a Brahman. A Vaiyeya 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-six hands, twined together, and folded into three; then twined again so as to consist of nine threads: these are again folded into three without twirling, 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 priestly, oracerodotal thread; but not, it would appear, in strict correctness; it not being confined to the priestly 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 Kshtetriya, and in the twelfth from that of a Vaiyeya, 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 clafses, 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 clafes, from being thus invested with this sacriﬁcial thread, are called twice born: a regeneration being effected by this mythical 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: such 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. 159, 170.

This cord is never taken off; even when sleeping and bathing, it is worn and disposed 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 insance, in the cavern temple at Elephant. (See MAHAKAL.) It has several other names; among them Janvi, or Jahnui, Maurvi, &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-strings are also made: the Brahman's cord is made of cotton. The name Jahnui given to this sacred, triple, mythical, regenerating thread, has been derived from Jahnui, an ascetic, who, in a very extravagant way, gave a second birth to the equally sacriﬁced, 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 divers modes of effecting the second birth, in cases where the purity derived from the ligation of the zone, or invetiture with the sacriﬁcial thread,
thread, hath been lost by the contaminations of unlawful sects, as from accidental deslements. Of this, see under our article YONI.

ZENO, in Biography, called the Elean, in order to distinguish 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 sake of maintaining his independence. He is represented as a zealous friend of civil liberty, and as having lost 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, routed by his fortitude, fell upon the tyrant and stoned 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 spheroidal, 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 deferves 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 unstable, and his method of arguing so fallacious, that it is not certain whether he allowed or denied a properly divine nature. Molheim, not improperly, applied to the doctrine of Zeno the words of Terence:—

"In certa hac, si tu postules
   Ratione certa facere, nihilio 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 refuted 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 11th 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 "Traflacillus." 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 by Zeno and Ariadne, and Zeno, by the influence of the dowager-empress Verina, was appointed his colleague, and when the young emperor died, Zeno policed the whole imperial power. But Verina, being incensed by his scandalous conduct, formed a conspiracy against him, so that Zeno was obliged to seek refuge, first at Chaledon, and afterwards in Ifauria, his native country. Baithicus, the emperor's brother, who had assumed the empire, became so unpopular, that Zeno was restored, and the degenerated emperor perished in prison. About this time the western empire terminated; and Zeno, accompanied by deputies from the Roman senate, which he recognized as the vestige of universal empire, and requested the title of patron to 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 feverus, was thus rendered more hasty and cruel towards those whom he considered as his enemies. The irritability 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 conciliation of faith, called the Henoticus, or Henoticus, (which see.) Gibbon's Hist. Rom. Emp. vol. 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 distinguished heroism and valour, as well as her modesty and chastity. "Her manly understanding," says Gibbon, after recording her personal beauties and excellencies, "was strengthened and adorned by study. She was not ignorant of the Latin tongue, but professed 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 skill 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, she 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 the 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 Emelia, the fate of Zenobia was submitted to the judgment of a tribunal, at which Aurelian predisposed; 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 renunciation on her ministers and councillors; Longinus was one of these, who, with several others, was put to death, in the year 273.

Zenobia was referred to grace the triumph of Aurelian; and on the appointed day the procession, 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 funked under the weight 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 favoring for Vhaballat withdrew into Armenia, and plethoraed 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, a place of Italy, near the palace of Adrian, assigned to queen Zenobia for her residence.

ZENOBII ISELIAE, the name of seven islands in the Indian ocean, upon the coast of Arabia Felix, at the entrance of the Sathale gulf. Ptolemy.

ZENODOTIUM, a town of Asia, in the Euphrates, upon 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, Juttinian re-established 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 soldiers. It was situated S.E. of Nicsephorium.

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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 luster, fibrous structure, and low degree of transparency and hardness, and also by its want of regular crystallization.

**Needle Zeolite, Mefotype, Háyý; and prismatic mefotype of some mineralogists.** Its colours are, greyish, yellowish, or reddish-white; it occurs both massive and crystallized. The crysRals 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, fett on obliquely. The rectangular prism is sometimes truncated on the edges, forming an octahedron, with four large and four small planes. The lateral planes of the crystals are longitudinally striated, but the acuminate planes are smooth. Sometimes the crystals are diverging, and sometimes promiscuously aggregated. The crystals are externally shining or splendent, internally glistening; the luster 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 crofs fracture is imperfectly conchoidal; the luster between vitreous and pearly. It is transluent or transparent, with double refraction. It yields to the knife, but feraches calcareous 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 gelatinizes with acids. It becomes electric by heat; the extremity of the crystal, terminated by a pyramid or bevelment, fleshes positive the bottom of the crystal negative electricity. According to Vaquelin, the constituent parts of mefotype are:

| Silex | 50.24 |
| Alumine | 29.50 |
| Lime | 9.46 |
| Water | 10 |
| **Total** | **99.2** |

Needle zeolite, or mefotype, is distinguished from radiated zeolite, or stilbite, by its vitreous luster, distinct prismatic concretions, and greater transparency and brittleness. The latter has also more of a nacre luster.

**Radiated Zeolite, Stilbite, Háyý,** is generally of a yellowish or greyish-white colour, and rarely pales into reddish-white or red. It occurs massive in angular pieces, and globular, and also crystallized 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 less deeply truncated. Sometimes the prism is so thin as to form a long hexagonal table, bevelled on the shorter terminal planes. The crystals are aggregated in diverging radii, and frequently so closely joined to each other, that the pyramidal terminations of each crystal are only visible. The broader lateral planes of the crystals are smooth, and the smaller longitudinally striated. The structure is lamellar, with joints in one direction, parallel to the axis of the prism. The surfaces of the broader lateral planes are splendent and pearly; internally the luster is more or less shining, and is nearly flat. The crystals are transluent, or semi-transparent. The diverging radii of the aggregated crystals are more or less broad, passing from fibrous to foliated. It is brittle, and the fragments are wedge-shaped and splintery. Stilbite feraches calcareous spar. The specific gravity of this mineral is from 2.13 to 2.46. 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:

| Silex | 49.98 |
| Alumine | 29.50 |
| Lime | 16.95 |
| Water | 16.50 |
| **Total** | **97.52** |

**Foliated Zeolite, Stilbite, Háyý.**—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 massive, disintegrated, globular, amygdaloidal, and crystallized. The form of the crystals 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 crystals are generally small; the lateral planes are transversely striated, and the terminal planes are smooth. It has a pearly luster, which is either shining or splendent. The pinchbeck-brown variety has a fémé-metallic luster. It has a foliated and slightly curved structure, with a single cleavage, parallel with the terminal planes of the prisms. Sometimes a conchoidal crofs fracture may be observed. It is brittle, and the fragments are angular and blunt-edged, and sometimes tabular. The massive varieties are strongly transluent; the crystals are transluent, semi-transparent, or transparent. It yields to the knife, but feraches 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:

| Silex | 58.3 |
| Alumine | 17.5 |
| Lime | 6.6 |
| Water | 17.6 |
| **Total** | **100** |

According to Vaquelin,

| Silex | 52.6 |
| Alumine | 17.5 |
| Lime | 9 |
| Water | 18.5 |
| **Total** | **97.6** |

All these zeolitic substances, classed as mefotype and stilbite by Háyý, pass by imperceptible gradations into each other, and occur, as we have before observed, in basaltic 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 compulsion in substances that would be disintegrated by heat under the common prelude of the atmosphere. It is probable, however, that many zeolitic substances which occur in bafsalt 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 claffed with the zeolite family have been described in our preceding volumes. See Aphy-lite, or Ichthyoptalmite.

Analcime, or Cubite, formerly called by 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 fides equal and similar. The structure presents slight indications of cleavage, parallel with the fides of a cube. The fracture is compact and flatly conchoidal, paffing into fine-grained, uneven. It is translucent, semi-transparent, or transparent, and has a fihing lufr, between vitreous and pearly. It is sufficiently hard to fcratch glafs, but is easily frangible. The specific gravity of cubicite is 2.44. It becomes electric by rubbing. Before the blow-pipe it melts into a transparent glafs. According to Vauquelin, the conffituent parts of this mineral are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>38</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>
</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 ichthite rocks, accompanied with various ores, and with calcaceous fpar and quartz. The name analcime was given to it by Haiy, figuring a body with little power, on account of the feeble electricity excited in it by friction.

Chabafite, Chabafite, Haiy, is nearly allied to cubite, but was formerly claffed with it. The crystallization is different; the form is not perfectly cubic, but slightly rhombohedral, the angles of the rhomboid being 94° and 86°, either perfect, or with the obtuse lateral angles truncated, and sometimes both the fix obtuse lateral angles and fix obtuse angles are truncated. The crystals are transparent or tranflucent. The lufr is vitreous, and externally fplen-dent, internally glifhing; the fracture is imperfectly conchoidal, or fine-grained, uneven. It fcratchs glafs little. The specific gravity of this mineral is 2.7. It is fusible into a white fpong enamel. According to Vauquelin, the conffituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</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>
</tbody>
</table>

The situation in which this mineral occurs is nearly the fame with that of analcime. The name was given it by Haiy, from chabazion, an unknown stone mentioned in the poems of Orpheus.

Launonite, Zeolite efflorescent, Haiy.—Its colours are, yellowish-white, snow-white, and greyish-white. It occurs massive and crystallized in octahedral prisms, with edges apparently rounded; the summit of the crystals are chri- dental. The crystals are small, lining drifty cavities. The structure is lamellar, and has a two-fold cleavage; it is transparent or tranflucent when fresh; but on exposure to the atmosphere soon becomes opaque, losing its hardnefs, and yielding to the prelude of the finger. When fresh it fcratchs glafs. The specific gravity is 2.23. Bournon. It forms a jelly with acids. Before the blow-pipe it inte-neces, and is changed into a white enamel. According to Vogel, the conffituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</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>Carbonic</td>
<td>2.5</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 Patitly, in Renfrewshire, in amyg- daloid, accompanying cubicite. Launomite difintegrates fo rapidly, that for its prefervation it requires to be kept in well-closed bottles.

Crofs-Stone, Hormotome, Haiy, occurs in small crystals: the form is generally a broad rectangular prism, terminated on each extremity by four rhombic faces, with their acute angles fet in the lateral edges of the prism. Sometimes the edges of the rhombic faces are bevelled in one direction. But the name crofs-stone is derived from the frequent occurrence of two prisms interfeting each other, having one common axis. The broader planes by this interfeting project, and form the figure of a crofs when the prism is viewed at the end, or in the direction of the axis. The colour of crofs-stone is generally a greyish-white, which passes into fmode-grey; it is sometimes a yellowish-white, paffing into cream-yellow, and red. It is tranflucent or tranflucent, with a lufr between vitreous and pearly. The fracture is uneven, or imperfectly conchoidal. It is suppored, by professor Jamefon, to have an imperfectly foliated structure. It fcratchs glafs feebly. The specific gravity is 2.53. Before the blow-pipe it emits a yellowish phosphoric light, and melts with intumeefence into a colour-les glafs. 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 Klaproth, its conffituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>49</td>
</tr>
<tr>
<td>Alumine</td>
<td>16</td>
</tr>
<tr>
<td>Barytes</td>
<td>18</td>
</tr>
<tr>
<td>Water</td>
<td>15</td>
</tr>
</tbody>
</table>

I Dipye, Haiy; Schmelzstein, Werner.—Its colours are, light pearl-grey, greyish-white, or reddish-white. It occurs massive and crystallized, in aggregated, flen-der, octahedral, acicular prisms. The structure is lamellar, with joints parallel to the fides, and to the diagonal of a rectangular prism. The lufr is intermediate, between vitreous and pearly: it is tranflucent. This mineral is sufficiently hard to fcratch glafs; but is very frangible. The specific gra-

vity
It is said by Brongniart to occur in felsite, along with iron pyrites, near Mauleon, in the Western Pyrenees.

The other members of the zeolite family are described in the preceding volumes. See NAITROLITE and WATELITE.

ZEOPHILOS, a word used by Quercetan as the name of an antimonal medicine.

ZEOPHYRUM, in the Materia Medica, the name of the *tritium fylvium, or hordeum nutum, as it is called by some authors, the naked barley.

ZEPHANIAH, a canonical book of the Old Testament, containing the predictions of Zephaniah, the son of Cushi, and grandfather of Gedaliah; being the ninth of the twelve latter prophets. He prophesied in the time of King Josiah, a little after the captivity of the ten tribes, and before that of Judah; so that he was contemporary with Jeremiah. He prophesies chiefly against Judah, who continued very corrupt, notwithstanding the king's pious zeal for reformation, and the good example he gave to his subjects.

ZEPHAT, in Ancient Geography. See SEPHTAT.

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 Samounium. Mela.

ZEPHIRON, or ZEPHIRONIA. See ZEPHIRON.

ZEPHYRI FETUS, a term used by Hartman, and some other writers, to express a mole, or false conception.

ZEPHYRINUS, *Popis, in Biography, succeded Victor in the Roman see in the year 201. A perfecution at the commencement of his papacy obliged him to conceal himself, 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.

ZEPHYRION, 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 extremity of this promontory.—Alfo, a promontory of the Ille of Cyprus, towards the S. W., at the extremity of a peninsula, which on the W. incloses the gulf, at the bottom of which was Paphos.—Alfo, a promontory of Italy, on the eastern coast of Bruttium, between the promontory of Hercules and the town of the Locri. Strabo.—Alfo, a promontory of Africa, in the Cyrenaica, upon the coast of the Pentapolis. Ptolemy. Strabo distinguishes two promontories of this name on the coast of Cyrenaica.—Alfo, a town of Asia, on the coast of Paphlagonia.—Alfo, a town of Asia, in the interior of Cappadocian Postus. Arrian gives it a port, and rates it to be 120 stadia from the town of Arrenthias, and 30 stadia from the town of Tripolis.—Alfo, a promontory on the coast of Egypt, between Campé and Alexandria, where was a chapel of Venus Arinnae, and hence the took the name of Zephyrida. Alfo, a promontory of Asia Minor, on the coast of the strong and the vicinity of the town of Myndus. Strabo.—Alfo, a town of the Tauric Choreneus; situated on the sea-coast, N. E. of the Nether. Pliny.—Alfo, a promontory on the eastern coast of the isle of Crete.

ZEPHYRION Jugum, a sacred mountain of Hilparia, upon which was a fortres. ZEPHYRUS, or ZEPHYR, Zepher, the west wind; a wind blowing from that cardinal point of the horizon opposite to the eith. 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 *ocidum; and, by many, has been confounded with the Africus. 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 Thrace. Steph. Byz.

ZERBITA, in Geography, a town of South America, in the government of New Grenada; 30 miles W.S.W. of Pamplona.

ZERBST, a town of Germany, in the principality of Anhalt Zerbst. It is the residence of the prince, and the largent and handsomest town in the whole principality of Anhalt. The residence-house here is remarkably grand. In the town are two Lutheran churches, one of which is used by the Calvinists, together with an university, common to all the princes of Anhalt, and founded in 1594, out of a school: it has a rector, with three Calvinist and one Lutheran professor. The principal trade is in beer, with manufactures of gold and silver; 8 miles N.N.W. of Deisau. N. lat. 52° 5'. E. long. 12° 10'.

ZERDA, in Zoology, a name given by the Moors to an animal which inhabits the desert of Sahara, extending beyond mount Atlas.

This is the canis coro of Linneus, with a straight tail, a palish or yellowish-white body, with long upright ears, internally rofe-coloured. It is the fennec of Bruce, and a beautiful African and Asiatic animal, and is principally found in Arabia.

Pennis attaches it under the genus of dog; and describes it as having a pointed vifage, long whifkers, large bright black eyes, very large ears of a bright rofe colour, internally lined with long hairs, and orifice fo small, as not to be visible, probably covered with a valve or membrane; legs and feet like thofe of a dog, and taper tail; its colour is between a straw 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 fo exceeffively 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 thriller found, and chiefly in the night; and is never observed to be sportive.  

M. Bulfin describes this animal, that it is found to the south of the Palus Tritonides, in Lybia; that it has something 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 *fennec, a palm-leaf. Bruce's Travels, vol. v.

ZERDUHST, in Biography. See ZOROASTER.
ZEREA, in Geography, a town and fortress of Perșia, in Farîlțan; this town was taken by the troops of Timur Beq, with great slaughter; 18 miles N.N.E. of Schiras.

ZEREB, a town of Perșia, in the province of Segellên; 130 miles N.W. of Zarang.

ZEREWICA, a town of Lithuania; 5 miles S.W. of Slonim.

ZERB, a town of Kudîštân; 25 miles W. of Gu-lamerik.

ZERICHUM, a name given by some of the chemical writers to arsentic.

ZERKI, in Geography, a town of Kudîštân; 30 miles S.W. of Beltsis.

ZERKWITZ, a town of Lusfatia; 2 miles W. of Lubbënaun.

ZERMA. See SURMA.

ZERMAGNA, a river of Dalmatia, which runs into the Adriatic, opposite Pagò.

ZERMONY, a town of Lithuania; 10 miles N.W. of Lida.

ZERNA, a mountain of Carinthia; 3 miles N.W. of Millatt.

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 foulneflles which they call the lepra metalorum, or leprofises of metals.

ZERNEMBIL, or TSCHERNEMBIL, 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° 45' 32''

ZERBIENSIUM COLONIA, in Ancient Geography, a colon 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 Autrians; 8 miles N. of Zulz.

ZERNITZ. See Czernetz.

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 thermometers of Fahrenheit has its zero at that point at which it stands when immerged 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 100° of Fahrenheit. Consequenty 180° Fahr. = 100° Celsius. = 80° Reaum. = 150° De Lille = 44° Wedgw. See THERMOMETER.

ZEROGERE, in Ancient Geography, a town of India, on this side of the Ganges, E. of the river Namadus. Ptolemy.

ZEROWITZ, in Geography, a town of Bohemia, in the circle of Bechin; 3 miles W.S.W. of Potchaken.

ZERREH, or ZERRAH, Lake of, a lake of Perșia, in the province of Seîlant or Segellên, into which the river Heermann, or Hindmûnd, (the ancient Etymander,) navigable for boats from Bolt to Zarang, flows through the centre of it, from the mountains of Huzzara, beyond Ca- buh. This lake is said to be 50 farfuns in length, and 6 in breadth, or about 100 miles long, and zo broad at the widest part. It is principally formed by the waters of the rivers Heermann and Ferrah, and in the dry season resembles more a marsh than a lake, being covered with rufhes 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 fish and wild fowl; and in its centre there is a fortified town, called "Kookhozerd," built on a high island, where the treasure of the principal families of Seîlant used 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 describ'd as being four days' journey for a loaded camel, W. of the city of Doolhak, the present capital of the province.

ZERTA, or SERTA, the Zerte, or Serte, 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 alike. 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 feaon 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 CYPRI-

NUS VIMBA.

This is the silvery-blueish carp, olivaceous above, with the dorso, caudal, and anal fin bluefish, the red reddish, and the nose protrubent. It is a native of Germany, Russia, Sweden, and other parts of Europe, inhabiting rivers, and migrating into the Baltic sea.

ZERVINKA, in Geography, a town of Servia, on the Danube; 10 miles N.W. of Belgrade.

ZERUS, in Ancient Geography, a town of Thrace, on the route from Dyrrachium to Bylace, between Dyme and Plotopoli. Anton. Itin.

ZERUMET', 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 Scitamina, the produce of the East Indies, but rather to a Kempteria, than to the species of Ginger to which Linnæus has applied it. (See ZINGIBER.) Dale has very judiciously observed on this subject, Pharmacologia, 275, that in the present instance, as well as innumerable others, the Arabian writers are too brief, as well as vague, in their descriptions, and so contradictory amongst themselves, that we can scarcely tell whether they were acquainted with any particular object or not.

Wendland, Jacquin, and Poiret, (Lamarck Diét. v. 8. 857,) have most unaccountably made a genus of Alpinia nutans, and called it Zerumbet; but this cannot on any principle be maintained.

ZERYTHUS, in Ancient Geography, a town of Thrace, which had a cavern of the same name, and which the ancients called Zerynthium Antrum. This cavern was consecrated to Hecate, to whom they sacrificed dogs. Suidas.

ZEREN, in Geography, a town of Arabia, in Yemen; 36 miles S.E. of Ghezlar.

ZESMETZ, a town of Bohemia, in the circle of Chrudim; 8 miles N. of Chrudim.

ZESSEL, a town of Silicia, 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 spufts out of that peel on squeezing it.

Hence, to zest an orange or lemon, among confectioners, is to cut the peel from top to bottom into small slips, as thin as possible; or, to zest, is to squeeze the peel over the surface of any thing.
ZET

ZESTOLUSIA, a term used by some medical authors to express bathing in warm water, by way of distinction from phlebolypha, or bathing in cold water.

ZETA, or Zetecula, 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 *ζευς, to be warm: or of *ζεῦς, vivens, to live, on account of the use made hereof for love and enjoyment.

ZET, or Zetta, (Mansil) in Ancient Geography, a town of Africa Propria, situated near the sea, E. of Vicus Augusti.

ZETETE, Zetetides, 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.

ZETETICZ, Zetetides, formed from *ζεῦς, to seek, or zetetic method, the method made use of to investigate or find the solution of a problem.

The ancient Pythagoreans were sometimes called Zetetici, q. d. sectares.

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 59th 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, coating chiefly of rocks and lands, are unfitted for human support. By different writers, they have been named Hetherland, Hialtan, 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 Scarna, one of which extends above 300 feet in depth. Almost all the large islands are deeply interfected 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 Mons Ronaldi, in the parish of Northmavine; 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, Noss-head, is above 600 feet in height.

According to the population reports of 1811, the following is the enumeration of houles and inhabitants, and the names and number of parishes. The total number of houles 8230, inhabited by 9238 families, 16 houles building, and 101 unoccupied. The whole population was 46,153, consisting of 20,151 males and 26,002 females. The parishes are, 1. Aithiing and Sandting; 2. Breffay, Burra, and Quarfi; 3. Delting; 4. Dunroinshies, Sandwick, Cunnibrough, and Faria filie; 5. Lerwick and Gulberwick.

ZEU


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. Svo. 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 pasture for sheep; and is inhabited by 26 or 27 families.

ZETTERITZ, 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 Cloester Seven.

ZEVENAER. See Sevenar.

ZEUF, or GAER, a town of the kingdom of Balt; 100 miles S.E. of Balt.

ZEUETIE, Zuyten, among the Athenians, the third class of the people, or those who had an estate of two hundred mediambi.

ZEUETIES, in Botany, an ancient name, adopted by Brown, but no other applicable to the present genus, than as far as concerns its reedy habit. The Zuytites of Pliny was a large Breton reed, so called from *ζεῦς, a yoke, because it was bound together, in portions of different lengths, to make the pastoral pipes; as wheaten straws are, by our shepherds' boys, to this day; but the West Indian grass, of which we are now to give an account, has not even this coincidence with the original.—Brown, Jam. 341.


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, harper and keeled. Male Florae two, smallish, on a common stalk the length of the solitary female floret, within the common calyx. Perianth none. Cor. Glume of two ovate-oblong, compressed, blintish, awnless, 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, fife. 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 avn terminal, capillary, straight, half as long again as the glume. Pjil. Germen oblong; style divided; stigmas long, flaggy. Peric. none. Seed solitary, oblong.

Obf. Schreber remarks, that this grafs differs so entirely, in every character, from Apfield, with which Linnaeus combines it, that they are totally irreconcileable. We should refer both, with all other true Gramina, as in Fl. Brit. to the clasf Triandria.

Eff. Ch. Common Calyx of two valves, with three flowers; the female one fife; the males flalked. Corolla
of the males of two heartless valves; of the female of one awned valve. Style divided. Seed oblong.

1. Z. americana. Jamaica Yoke-grass. Willd. n. 1. (Z. argenteus, ramosus, minor, rufescens; paniculā
sparsē terminalis; Browne Jam. 341. t. 4. f. 3. Apulda Zeuges; Linn. Sp. Pl. 1487. Amen. Acad. v. 5.
not 6). 412. Swartz. See. 383.—Native of Jamaica. Found by Dr. Browne at Cold-pring, in the mountains of New Lignanea, in a rich foil, and shady situation. His original speciments are in the Linnæan 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 leafless 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. Pedicels terminal, from the sheaths of the uppermost leaves, compound, spreading, with smooth slender branches. Glumes green, filiated, smooth. The habit is no less foreign to the genus Apulda than the generic characters.

ZEUGMA, Zeugma, literally denoting a joining together; from ζυγμα, 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 furcus, aut hec muta facta sit." So Virgil, "Hic illus arna, hic currus fuit." In which cases, the words facta sit agreeing primarily with hic muta, are also made to agree or extend to hic furcus: and the verb fuit is not only referred to hic currus, which it properly respects, but farther to hic illus arna.

Of this species of ellipsis, which differs from the ellipsis properly so called, in that the word which is to be understood, once or oftener, has been already mentioned, Melleur des Port Royal enumerate three sorts; viz. when we repeat the noun or verb in the same manner it has been already expressed; 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 verb. Latin Gram. vol. ii. p. 183.

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 tongue.

ZEUGMA, (Rowm-Kala,) in Ancient Geography, a town of Asia, or a place on the right bank of the Euphrates, S.E. of Samotlata, and over-again Apamea.

ZEVICO, in Geography, a town of Spain, in the province 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 Gurid; 25 miles S.E. of Puti.

ZEULEN, a town of Bavaria, in the bishropic of Bamberg, on the Rotach; 21 miles N.N.E. of Bamberg. N. lat. 60° 17'. E. long. 11° 16'.

ZEULENRODA, a town of Saxony, in the county of Reulin, containing two churches and 350 houses. Here is a manufacture of stuffs, and a considerable one of stockings; 10 miles W. of Greitz. N. lat. 50° 30'. E. long. 11° 11'.

ZEUS, in Ichthyology, a genus of fifth, of the order of the thoracids; 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 transversely; the dorsal fins, in most species, furnished with projecting filiform 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 rhomboidal, 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 and Indian seas, and sometimes seen in those of the north of Europe: edible, 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 those of the former; back tinged with a greenish hue, head large, mouth wide. Native of the American and Indian seas, efluent: when first taken grunting, like the gurnards. The abactatua of Marcgrave.

FABER. Gold-green, fuliginous dory, with a dufky 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. Linnæus. This is the common dory (see Dorek), 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 by a curved lateral line, which declining pretty suddenly from the gill-covers, pusses 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 introduction 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 scorpens, when first taken, by violently forcing out the air from its gill-covers.

APER. Reddish dory, with rough scales and even tail; a small species about three inches long, resembling the common dory in habit; snout protubering, and turning upwards; no perceptible teeth; eyes large, with white irides; two dorsal fins, the anterior having five 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 composed of twenty-three soft rays; the vent-fin having twenty-five rays, the pectoral fins about fourteen, and the ventral fin. This fish generally refines at the bottom, and is accidentally taken after great storms: it is not eatable, being small, coarse, and of an unpleasant colour. It is a native of the Mediterranean.

INSIDIATOR. Silvery dory, with sides speckled with black, and narrow extensile mouth; shape rhomboidal; smaller than Z. ciliaris; colour bright-flivory, blueish-green above, and speckled with black points; body without scales; lower lip retráctile, and mouth capable of forming a tubular snout, 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.

CILIARIS. Silvery dory, with some of the rays in the dorsal and anal fin excessively long; body rhomboidal, thin, without scales, and of a bright-flower colour, with a blueish or
or greenish cast on the back, and small and looping; lower jaw longer than the upper; teeth small and sharp; several of the last rays of the dorsal and anal fin extending farther than the tail itself, the long and flexible filaments of which count de Cepede imagines attract small fishes, which mistake them for worms, the dory himself concealing among sea-weeds, &c. and waiting for its prey: the count also conceives that these may serve to fatten the fish by coiling round the stems 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 lamunated tail; the body being generally either red, green, or purple, with oval white spots. This is a superb species, and found, probably 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 deftite 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 that 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; five fins; tail almost square; whole body clothed with grey or ashen-coloured scales, having three or four transverse black lines; with a very crooked line from head to tail.

**Zeus,** a species of scorpaena. See Scorpaena Porcus.

**Zeuxis,** in Biography, a celebrated ancient painter, who is said to have been a native of Heraclea, either in Greece or Magna Gracia, and to have commenced the practice of his art in the fourth year of the 95th 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 unfinished bulk to the heads and melodrēns to the limbs. Notwithstanding he allowed every perfection, he attained distinguished excellence; and in the prosecution 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 Crotolians, 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 handomest females of Crotola, and transferred to his picture, from their naked charms, an affenblage of all that were most perfect in their kind. This figure has been exhaled as the finest specimen of art existing; and under it the painter, not unconscious of his merit, inscribed the lines of Homer, in which Pham 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 recompence of the Crotolians, 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. Among his most famous performances are enumerated a Jupiter on his throne, with the other gods standing round;—a Hercules in his cradle, straining the serpents, Alcmena and Amphitryon witnessing the exploit with terror;—a Penelope, with an expression con forming to her character;—a Cupid crowned with roses, for the temple of Venus at Athens;—a Martyr's 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. Pliny Hist. Nat. Gen. Biog.

**Zeya,** in Geography, a river of Austria, which rises near Ernfrung, and runs into the March, 6 miles E. of Ziferdorf.

**Zeyl.** See Zeil.

**Zeyland,** a small island near the coast of Lapland. N. lat. 70° 10'.

**Zeyring,** a town of the duchy of Styria; 6 miles N.W. of Judenburg.

**Zezeare,** a river of Portugal, which rises in the coast part of Elremadura, and runs into the Tagus, at Tancos.

**Zezerine,** or Kiervanz, a small island in the Persian gulf, hardly half a mile in length. N. lat. 28° 8'.

**ZFoken,** a town of Saxony, in the circle of Erzgebirg; 8 miles N.W. of Grunhain.

**Zha,** a river of Africa, which forms the coast boundary of Fez, and runs into the Mulloaiah.

**Zhehol,** Zieho, or Gebo, a town of Chinese Tartary, in the country of the Mandhrs, 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 "Cos" and "Hydra," 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, flilk, 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 abundant in this island. Of four considerable towns or cities in this island, the only one at present remaining is Carthea, or Zeta, containing about 2500 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 faje by keeping it, according to the sea-phare, open; but when once within it, ships of whatever burden may ride where they please to an anchor; 10 miles E. of Cape Colonni. N. lat. 37° 30'. E. long. 24° 24'.

**Zia,** Ziba, or Siba, in Ancient Geography, a city beyond Jordan; 5 miles W. from Philadelphia.

**Ziatek,** in Geograph. See Saatz.

**Zib.** See Zeb.

**Zib,** a town of Arabia, in the province of Hedjjas; 20 miles S.S.W. of Madian.

**Zibatskoi,** a fort of Russia, in the government of Kolivan, on the Irtisch. N. lat. 54° 44'. E. long. 92° 20'.

**Zibel**
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 Cultrin. N. lat. 52° 30'. E. long. 15° 16'.

ZIENWALD, a town of Saxony, in the margrave of Meissen; 4 miles S.S.W. of Lauenstein.

ZIEREKOWITZ, a town of the duchy of Storia; 4 miles E.S.E. of Windisch Feilritz.

ZIERENBERG, a town of the principality of Heife Caffel; 11 miles N.W. of Caffel. N. lat. 50° 22'. E. long. 9° 20'.

ZIERA, 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 Polish 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 more ready to confirm by our own testimony. He was no lea 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 descriptions, 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 coriaceous, 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, rounded, with a minute point. Pfyl. German superior, roundish, four-lobed, blyle terminal, erect, columnar, the length of the flaments, deciduous; stigma capitulate, four-lobed. Peri. Capules four, connected at their inner edge, each comprized, abrupt, of two valves and one cell. Seeds solitary, oval, comprized, each enclosed in a hoary elatic tupe of two valves.


We are acquainted with four species of this genus, consisting of shrubs, natives of New South Wales, with opposite, fliine, and tente leaves, and white flowers. It is allied to Boronia, (see Rutaceae,) as well as to Crowea, Eriostemon, Correa, Phebalium, and Melicope, to which we refer the reader. Ziera is essentially characterized by the infection of each of its frutes into the outside of one of four large glands, standing on the receptacle, at the base of the germs; as well by the simplicity of those frutes, in the other part of their fructification. All the species abound with resiny dots on their leaves, flanks, and calyx, lodging an essential oil, whose qualities are more or less acidic and aromatic.

1. Z. lanceolata. Lanceolate Ziera. Brown MSS. (Z. Smithii; Andr. Repof. t. 606. Curt. Mag. t. 1395; Ait. Epit. 376.)—Clusters axillary, repeatedly three-forked. Leaflets lanceolate, flat, acute. Branches and flanks warted. —Sent from Port Jackson, New South Wales, by Dr. John White, in 1795. It is said by Mr. Aiton to have been introduced into the English gardens in 1803, where it proves a tolerably hardy green-variably shrub, flowering in the spring and early part of summer, and may be increased from cuttings. The stem is bulky, of humble growth, being scarcely three feet high, with round, purplish, leafy branches, rough with glandular warts, and when young, beprinkled with minute, flary, rigid pubescence. Footflarks warty, channelled, near an inch long, suffrute of flipples, each bearing three lanceolate, flat, entire, smooth, fingle-rubbed leaflets, contrasted at each end, the middle one rather the largest, being two inches, or two and a half, in length. Panicles opposite, axillary, often two together, somewhat leafy, repeatedly forked, many-flowered, various in length, spreading, slightly downy; their flanks quadrangular, purplish. Flowers white, each about the size of a Privet-blossom, with yellow anthers. Capules brown, dotted with glands. Tunic of the seeds white and fining.

We agree with Dr. Sims in expressing an expressive 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 have 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. lanceolata. Smooth Ziera. —Clusters axillary, three-forked, coriaceous. Leaflets linear, revolute. Branches and flanks 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 hue. Footflarks about half a quarter of an inch long. Leaflets scarcely an inch, acute, polished, 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 leaf compound, and situated chiefly towards the upper part of each branch. The flanks are acutely quadrangular, and very smooth. Calyx brown or reddish, taper-pointed, likewise quite smooth. Petals downy on both sides, like a piece of woollen cloth.

3. Z. pauciflora. Few-flowered Ziera. —Stalks axillary, with one or three flowers. Leaflets linear-obovate, somewhat revolute. Branches and flanks hairy. Segments of the calyx lanceolate, taper-pointed. —Sent from Port Jackson, with the former, by Dr. White, in 1795. A small shrub, with slender, round, scarcely quadrangular, branches, which are more or less copiously clothed with erect bristly hairs. Leaves about half the size 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 even in that part. Flowers very small, often quite solitary, on an axillary flalk, with a pair of small acute bracteas; sometimes there are three flowers on each flalk. 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. Capules tuberculated, sometimes hairy, curiously reticulated at the inside. Seeds black, rather opaque, with a fining, 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. cyrtoides. Downy Ziera. —Stalks axillary, three-forked, leafy. Leaflets obovate, entire, downy on both sides. Branches and flanks downy. —Native of New South Wales, from whence we obtained a specimen through the favour of Earl St. Vincent in 1805. Whether this be Mr. Brown’s arborosa, 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 dente soft pubescence, appearing filled and entangled under a high magnifier. Branches round. Footflarks half an inch long. Leaflets about an inch in length, entire, slightly revolute; their upper side peculiarly soft and velvet-like; the under moist hoary. When held against the light, they appear full of pellicid 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 ZIEESAR, in Geography, a town of the Middle Mark of Brandenburg; 18 miles S.W. of Brandenburg.

ZIETZ, 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.
The species are,


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 Veratrum album, each of whose petals is marked, near the base, with a double glandular, apparently nectariferous, depression. Stamen distinct from the petals. Seed tunicate. We know not whether they be fo in any other Helonia.

H. elegans. Elegant Helonia. (Zigadenus elegans; Pursh n. 2.)—Leaves linear, flat, erect. Stalk nearly naked. Bracteas linear. Petals acute.—On the waters of Cokahlaifkit river, near the Rocky Mountains, found by governor Lewis, flowering in July. Radical leaves erect, linear, very long, smooth, ribbed, flat. Stalk taller than the foliage, about two feet in height, round, fimple, bearing one or two short leaves. Clusters many-flowered, occasionally branched at the bottom. Bracteas as long as the partial falks, membranous, ribbed. Flowers white, the size of Melanthium virginicum. Petals ovate, acute, with something of a claw, marked at the base with two vermillion spots. Filaments shorter than the corolla. Stigma three, reflexed. Pursh.

ZIG, in Ancient Geography, a people of Asiatic Sarmatia, on the bank of the Tanais. Pliny.

ZIGALOVA, in Geography, a town of Ruffia, in the government of Irkutik; 16 miles N.W. of Tутура.

ZIGAN, a mountain of Algiers; 18 miles S. of Conflantina.

ZIGANS, a town of Ruffia, in the government of Irkutik, on the Lena; 1472 miles E. of Tobolsk. N. lat. 67°. E. long. 125° 22'.

ZIGERA, or ZIGHEA, in Ancient Geography, a town of Africa Propria, between the town of Thabrac and the river Bagradas. Ptolemy.

ZIGER, a word used by some of the old writers to express a very fine kind of caffa, 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 Mædia.

ZIGET, in Geography, a town of Hungary, situated between the streams of a small river, which unite below the town, and flow after run into the Drave. It is on every side surrounded by a moras, and defended by moats, walls, and battions; 44 miles S.E. of Czincsa. N. lat. 46° 8'. E. long. 17° 56'.—Alba, a river of Hungary, which runs into the Drave, 12 miles S. of Zigel.

ZIGIRA, in Ancient Geography, a town of Asia, in Assyria, 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 beautiful fish, common about Genoa, and in some degree approaching to the nature of the turdus or wraze.

It is a species of the labrus, according to Arcted, 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 Purpurascens.

ZIKLAB, or SICALAB, in Ancient Geography, a city which Achæ, 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. Josua had allotted it to the tribe of Simeon. (Josh. xix. 5.) Eufebius says, that it lay in the southern part of Canaan.

ZILA, in Geography, a river of Moldavia, which runs into the Pruth, 35 miles S.E. of Jassy.

ZILEH, a town of Turkis Armenia; 30 miles S.S.W. of Arzianog.

ZILGA, a river of Ruffia, which runs into the Oka, N. lat. 53° 4'. E. long. 101° 14'.

ZILIS, in Ancient Geography, a town of Africa, in Mauritania Tingitana, marked in Anton. Itin. 24 miles from Tingis, between Tabernæ and Ad Mercuri. This was a colony established by Augustus, exempt from the jurisdiction of the kings of Mauritania, and dependent upon Bactria in Hifpania.

ZILKEFEL, in Geography, a town of the Arabian Irak; 18 miles S.W. of Hellic. ZILLEBA, a town of Arabia, in the province of Yemen; 35 miles E. of Loheia.

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. Macrobius.

ZILTAN, in Geography, a town of Africa, in the defert of Barca; 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 ZIMBA, a town of Africa, in the kingdom of Sofala, and capital of Mocaranga. S. lat. 16° 42'. E. long. 33° 40'.

ZINBRA. 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 Newfor in Hungary, in the great copper-mine called by the Germans ferna 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 salted with this metal than in others, and will make the spumous change of iron into that metal much sooner. The most common species of iron used in the experiments are, hornhed, 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, infomuch that...
that the lips and tongue are blistered and scorched upon
tasting 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 sickness they are seized with, they first
attemp 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 im-
proper; so that upon the whole they do more harm than
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 small quantity of oil of tartar being added to a pound
of this water, the whole becomes turbid, and on filtration
leave a large residuum in the filter, which dried, weighs
about two scruples and a half; and when warm water is poured
upon this and filtered, six grains of yellowish earth will be
left in the filter; and the greenish solutiion being again
evaporated to a pellicle, and the operation being several
times repeated, somewhat more than two scruples of a blue-
green vitriol will be separated in small crystalls.

A small quantity of oil of tartar being added to a pound
of this water, the whole becomes turbid, and on filtration
leave 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
glafs, 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 soluion of that metal, by means of the
acid of the common pyrites and water: when this is known,
the effects are not difficulty accounted for, there being no
real change of one metal into another; but the true state of
the cafe being, that the particles of one metal are disdolved
and carried away, and those of another metal deposited in
their place. A water thus impregnated is a menstruum
capable of dissolving iron, and in the soluion of that metal
becomes so weakened as to let go the copper it before con-
tained in small parcells. This is seen to be the cafe, by
examining the changed metal while it lies in the water, the
copper then appearing not a soft malleable and even mafs,
but a congeries of granules closely placed together, and
resembling the small granules, or ovs, 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 dis-
solved 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,
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 censures of Count de Mirabeau. The severe criticisms to which these writings exposed him, and the part he took in the conversations 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 consequences of their arrival, he abounded in 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." Tiffiot's Life of Zimmerman. Gen. Biog.

ZIMOVE, in Geography, a village of Ruffia, in the government of Irkutsk, where is a column-house; 52 miles S.E. of Barguzinsk.

ZIMOVE Tchijko, a town of Ruffia, in the government of Irkutsk; 16 miles S.W. of Vitimkoi.

ZIMOVE Tafischnoo, a winter habitation of Ruffia, on the N. coast of Baikal lake, in the government of Irkutsk. The word Zimovoe, in Ruffian, 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 quafe. N. lat. 55° 20'. E. long. 109° 14'.

ZIMOVE Zaminskoi, a town of Ruffia, in the government of Irkutsk, near lake Baikal; 76 miles S.E. of Vercholenk.

ZIMOVSKAIa, a town of Ruffia, in the country of the Cofacks, on the Choper; 48 miles W. of Arkadanikia.

ZIN, Sin, or Senna, in Ancient Geography, a city S. of the land of promise. (Numb. xxxiv. 4.) See Sina.

ZINARI, in Geography, an island in the Grecian Archipelago. N. lat. 36° 59'. E. long. 26° 10'.

ZINARIA, a word used by the Arabsians for a kind of vitiated bile, called arcurious bile.

ZINC, in Chemistry, the name of a metal, in Latin zincum. The ancients do not appear to have been acquainted with this metal. Cadmia 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 braze 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 spelter.

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 1720, 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, it becomes so brittle that it may be reduced to powder in a mortar.

Zinc may be drawn into wire. According to Mufchenbroek its tenacity is such, that a wire of .7-inch in diameter is capable of supporting a weight of about 26 lbs.

Zinc melts at a temperature of about 680°, according to Dr. Black. If the heat be increased it evaporates, and may be easily distilled over in close 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 scarcely undergoes any other change. When kept under water, its surface becomes black, the water is decomposed, hydrogen is emitted, 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 pompolyxs, &c. Among the alchemists it was known by the names of nihil album, lana philtrophia, flowers of zinc, &c.

Zinc appears to combine with only one proportion of oxygen, which has been flated 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 dissolving 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 dissolving 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. Davy's analysis, it is composed of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>100</td>
</tr>
<tr>
<td>Zinc</td>
<td>100</td>
</tr>
</tbody>
</table>

But if we suppose it to be composed of an atom of zinc and
ZINC.

and an atom of chlorine, and the atom of zinc to weigh as
above, its constituents should be

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>100</td>
</tr>
<tr>
<td>Zinc</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 shown, that this
compound consists of one atom iodine, and one atom zinc, or by weight of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>100</td>
</tr>
<tr>
<td>Zinc</td>
<td>26.56</td>
</tr>
</tbody>
</table>

No compound of zinc with fluorine is as yet present
known. Zinc does not combine with azote nor hydrogen;
nor are we acquainted with any compound of this metal with boron and silicon.

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 metal
lic lustre, which more refracts than zinc. This 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 oxide of zinc, and to form a peculiar compound.

Sulphur cannot be combined artificially with zinc; but
if melted with the oxide of zinc a peculiar compound is
formed. A similar compound is formed when sulphurised 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
phosphuret 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 phosphuret of zinc, composed, according
to Dr. Thomson’s experiments, of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>100</td>
</tr>
<tr>
<td>Sulphur</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 alcalis are
specifically decomposed by exposure to the air or immi
ration 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. Jolin has shown, 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 brasses, 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 oxide of zinc are not
much liable to variation.

Nitrate of Zinc.—The nitric acid attacks zinc with such
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.—Caledine, 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 phosphat
is a tafelte white powder insoluble in water. The bi-
phosphate is soluble in water, if not exposed to too great a
heat. It does not crystallize, and it is strongly acid.

Sulphate of Zinc.—Concentrated sulphuric acid scarcely
acts upon zinc without the affiatence of heat; but when
diluted it acts upon the metal very strongly, and hydrogen
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,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atom of sulphuric acid</td>
<td>31.74</td>
</tr>
<tr>
<td>Atom of zinc</td>
<td>32.54</td>
</tr>
<tr>
<td>Atoms of water</td>
<td>35.72</td>
</tr>
</tbody>
</table>

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 Vauquelin describe a hypo-sulphite of zinc,
which affines 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 rhom-
bohial or hexagonal plates of a tafelte appearance, and is not
very soluble in water. Solutions of this salt form an excel-
ent external application to inflammations.

Oxalate of Zinc.—This salt is a white powder, little soluble
ZINC.

n water, and may be formed readily by double decom-
position.

Tartarate and Citrate of Zinc. — Both these salts exist usu-
ally in the form of powders, and are but little soluble in
water. They may be procured, like the oxide, by double de-
composition.

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 in general by their
forming colourless solutions in water, by their yielding
white precipitates with prussiate of potash, sulphuretted hy-
drogen, and the alkalies, and by the characteristic circum-
stance 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 brass, 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 ease 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 oxide of
zinc is used in medicine, both internally as a tonic, and
externally mixed with hog’s-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.

Zinc, Ores of, in Mineralogy. The ores of zinc are gen-
erally associated with lead-ores, and exist abundantly in va-
rious parts of England; particularly in veins in the moun-
tain lime-stone of Derbyshire, Durham, Cumberland, York-
shire, Somersethire, and North Wales. The ores of zinc
are either oxides, carbonates, or sulphures of zinc, and are
principally known as calamine or blonde. 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-
munes in Suffolk county, New Jersey.

Red Zinc Ore is of a blood-red or aurora-red colour: it
occurs massive and disseminated. The fresh fracture is lining,
but becomes dull after long exposure to the air, and is cov-
ered with a pearly crust; the principal fracture presents
a foliated fracture; the croz fracture is concentried. 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 insufible 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 rofe-red. This ore is sol-
uble in the mineral acids. Its constituent parts are,

\[
\begin{align*}
\text{Zinc} & \quad 76 \\
\text{Oxygen} & \quad 16 \\
\text{Oxys of manganese and iron} & \quad 8 \\
\end{align*}
\]

Bruce’s American Mineralogical Journal, p. 69.

According to Dr. Bruce, this ore possesses advantages in
the manufacture of brass over those generally used; for
without any previous preparation, it affords with copper
brazes of the very fineel quality, pollelning a high degree of
malleability, and suited for the most delicate workmanship.
Red zinc-ore is characterized and distinguished from red
silver-ore and red lead-ore by its insufibility; the latter
melting into a blackish flag before the blow-pipe. Red orpine,
with which it might be confounded, is distinguished from
red zinc-ore by its volatility, and the garlic smell which it
yields. This ore of zinc has greater specific gravity than
red copper-ore, and its solution in acids is colourless; but
those of red copper are green. Calamine is divided by some
mineralogists into four kinds, sparry calamine, compact
calamine, earthy calamine, and electric calamine.

Sparry Calamine: Zinc Carbonate, Haüy. — Its colours
are greyish and yellowish-white, and sometimes green and
reddish-brown. It occurs massive, botryoidal, cellular,
flaflake, and crystallized, in acute and obtuse rhomboids,
and in longish quadrilateral tables: the crystals are small.
The lustre of sparry calamine is between refrinous and vitre-
ous. The fracture is imperfectly lamellar, and sometimes
radiated. It is translucent, or more or less transparent; it
yields easily to the knife. The specific gravity is 4.3. It is
insufible before the blow-pipe, and loses about 34 per cent.
by ignition. With muriatic acid it effervesces, and is dis-
folved. According to Smithson, the constituent parts of
this ore from Derbyshire are,

\[
\begin{align*}
\text{Oxid of zinc} & \quad 65.2 \\
\text{Carbonic acid} & \quad 34.8 \\
\text{From Somerfethire,} & \\
\text{Oxid of zinc} & \quad 64.8 \\
\text{Carbonic acid} & \quad 35.2 \\
\end{align*}
\]

Compact Calamine: Zinc Carbonate, Haüy. — Its colours
are, greyish, greenish, or yellowish, and often brown, from
an intermixture with iron. It occurs massive, botryoidal,
diffuse, flaflake, reniform, and mamillated; it has a dull,
feebly glintening, refrinous lustre. The fracture is uneven
and coarse-grained, or splintery, and sometimes even a
flatty conchoideal. It sometimes occurs in concentric la-
mmellar concretions: it is opaque. Its chemical characters
and constituent parts are the same as of the sparry calamine,
these minerals being only varieties different in form from
each other.

Earthly 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-
brown. 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 3.58. Ac-

\[
\begin{align*}
\text{Oxid of zinc} & \quad 71.4 \\
\text{Carbonic acid} & \quad 13.5 \\
\text{Water} & \quad 15.1 \\
\end{align*}
\]

Electric Calamine: Zinc Oxide, Haüy. — Its prevailing
colours are, greyish, blueish, or yellowish-white; external-
ly it is sometimes brownish or blackish. It occurs crys-
\[\text{tals are six-sided prisms, with dehedral summits, or acute}
\text{octahed-}
ZINC.

octahedrons; sometimes truncated on the summits. The crystals are small, and either solitary, or radiating in groups, like zeolite. The luster is shining, glassy, 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 looses 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>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxid of zinc</td>
<td>66</td>
</tr>
<tr>
<td>Silex</td>
<td>33</td>
</tr>
</tbody>
</table>

According to Smithson,

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxid 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 processes 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 Venis, Metallic.

Calamine, commonly called lapis calaminaris, when cleaned and roasted, is used for the fabrication of brafs, forming a compound with copper. (See Brass.) Its uses in the making of brafs is of very high antiquity, being mentioned by Ariflotle.

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 1720 amounted to 1500 tons. Sixty years before that time the quantity got 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-flone, iron-flone, 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 carbonic acid. In great works, where calamine is prepared for the brafs-makers, after its calcination, it is carefully picked again, the accidental ingredients being rendered more durable by the action of fire. It is afterwards ground to a fine powder, and washed in a gentle stream of water, to free it from earthy particles with which it may be intermixed; the fine 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 practicable to use calamine without calcining it, for the carbonic acid would be expelled by the heat applied in making brafs; but then there would be seven or eight hundred weight put into the brafs 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 brafs are made. Watson's Chemical Ells, vol. iv.

Blende comprises various sulphurets of zinc, differing in the proportion of their constituent parts, and the admixture of other mineral substances.

Yellow Blende, or Phosphorescent Blende: Zinc Sulphure Jaunis, Brongniart. — The prevailing colours of this ore are yellow, passing into green, and sometimes blue, and opal. It occurs massive, disseminated, and crystallized. The crystals are generally small, middle-sized, and closely aggregated, and it is difficult to determine the precise figure, which appears either the rhomboidal, the dodecahedral, the octahedral, or the tetrahedral. Yellow blende is translucent, passing into transparent, and has a splendid adamantine lustre. 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 Kerton, it is 4.1.

It decrepitates 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.

Fosketed Brown Blende: Zinc Sulphure Brun, Brongniart. — It is of a reddish or yellowish-brown, passing into blackish-brown and dark red. It occurs massive, disseminated, and crystallized. The form of the crystals is a rhombohedral dodecahedral, either perfect or truncated on the alternate lateral angles and edges, or an octahedral, 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 luster is shining or splendent, and either reinosus, adamantine, or semi-metallic; it has a straight 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 fractureable. 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 silex, arfenc, and manganese, which may be regarded as accidental.

Blende from Satilberg, according to Bergman:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</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 Alburna, in Northumberland, according to Dr. Thomfon:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</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>

Fibrous
ZINCHI, or ZICHI, in Ancient Geography, a people of Asiatic Sarmatia, upon the coast of the Euxine sea, and separated from the Scythians by the river Acheus. Arrian.

ZINCKGRABEN, in Geography, a town of Bavaria, in the bishopric of Bamberg; 5 miles E. of Lichtenfels.

ZINDIKITES, a seat among the Mahometans; so designated from their leader Zindik, whom Grotius makes to be one of the magi, and a follower of Zoroaster.

The Zindikites believe no providence nor retribution: they allow no other God but the four elements; and, in this sense, they affect, that man, being a mixture of those simple bodies, returns to God when he dies.

ZINDINSKAIA, in Geography, a fort of Ruflia, on the confines of China, in the government of Irkutsk; 80 miles S. of Selenginsk.

ZINETUS, a word used by Paracelsus as a name for one of the brases-like marcasites.

ZINGANE-IS-KELESI, in Geography, a town of European Turkey, in Romania; 6 miles S. of Burgas.

ZINGAR, a word used by some of the chemical writers for verdigrise; and by others for the flores, or flowers of copper or brass.

ZINGHA, in Geography, a town of Africa, in Whidah; 20 miles N.W. of Sabi. ZINGI, in the Materia Medica, the name of a seed, sometimes also called the anilum Reullatum, or flarry-headed anise.

ZINGIBER, in Botany, of Dioscorees, a name which the Greeks seem to have taken, when they obtained the plant itself, from the Arabs. Gartner, dextrified with Linnaeus's application of the ancient name Anomum, to a genus of the Scitamineae, under which they both of them confounded very different things, still confounded Zingiber in its place, as undoubtedly belonging to one or other of the species. But since this tribe, and its generic distinctions, have been cleared up by Mr. Roffce, it becomes necessary to discriminate between Anomum and Zingiber, and consequently both names are employed.—Roffce Tr. of Linn. Soc. v. 8. 347. Dryand. in Alt. Hort. Kew. v. 1. 5. (Anomum; Lamarcch ill. t. 2. f. 3.)—Cliffs and order, Monandria Monogynia. Nat. Ord. Scitamines, Linn. Brown. Canis, Jull. Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, thrashing, membranous, splitting at one side. Cor. of one petal: tube twice the length of the calyx, a little swelling upwards; outer limb ringlet; the upper lip divided; lower in two deep, equal, deflexed segments; inner limb a large, spreading, three-lobed lip, of which the middle segment is the largest, all of them more or less wavy and crenate. Stem. Filament one, erect, oblong, extended beyond the anther in an awl-shaped incurved beak, involuted at the edges, embracing the style; anther attached by its back, below the beak of the filament, oblong, of two close, parallel, linear lobes, meeting round the style, curving in front. Pfl. German inferior, roundish, small, crowned with a pair of glands; style thread-shaped, embraced by the filament, and feebly extending beyond its beak; stigma small, concave, fringed, projecting a little beyond the point of the beak. Peric. Cape? —

Eff. Ch. Anther two-lobed. Filament elongated beyond the anther, with an awl-shaped, channelled beak, embracing the style. Outer limb of the corolla ringlet; inner a three-lobed lip.

Obf. Juffieu had already, after Adanson, remarked a difference between the inflorescence of the Ginger and the Cardamom tribes, though both have been comprehended by all botanists under Anomum. In the former, the flowers compose a dense spike, supported by a radical flalk; in the latter, they are panicked at the base of the stem. So important a difference in habit, between plants whose general structure is so uniform and simple, might lead us to look for some generic difference in the parts of fruitification. This Mr. Roffce has detected in the filament, according to the
the principle which runs through all his generic definitions of this tribe, and which is supported throughout by the in- 
fluence, as well as the parts of the flower in general. 
Nothing more perfect has ever been accomplished in fyle- 
matic botany. See Scitamineæ.

Ait. n. 1. (Z. majus; Rumph. Amboin. v. 5. 176. t. 66. 
Pl. v. 1. 6. Jacq. Hort. Vind. v. 3. 31. t. 75. " Infichi; 
Rheed 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 flower 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, tuberos, fibrous, with long 
flout fibres, well known for its hot, gratefully aromatic, 
flavour, and cordial qualities. The whole herb is smooth, 
and partakes of the flavour of the root. Barren flens 
several, erect, herbaceous, wand-like, leafy, about three feet high. 
Leaves alternate, linear-lanceolate, acute, entire, single- 
ribbed, spreading, with long, close, sheathing, abrupt foot- 
flanks. Flower-flasks radical, a foot high, clothed with tu- 
bular sheathing bracteas. Spike solitary, erect, club-rounded, 
enveloped in broader, shorter, less pointed, crowded bra- 
tease, 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 straw 
colour, revolute; the upper segment rather the broadest. 
Lip, as well as the incurved point 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 increase of the roots, not often 
perfeated, or if produced, it is most probably overlooked 
by the cultivators, who may find it expedient for the ad- 
vantage of their crop, to cut away the flanks before they 
run to feed.

Ait. n. 2. Sm. Exot. Bot. v. 2. 105. t. 112. (Z. ipu- 
rhium; Koenig in Ketz. Obf. falc. 3. 10. Z. latifolium 
fitylabre; Herm. Lugd.-Bat. 636. t. 637. Amomum Ze- 
Hort. Vind. v. 3. 30. t. 54. Lampium; Rumph. Ambo- 
in. v. 5. 143. t. 64. f. 1. " Katou-infichi-kua; Rheed 
Hort. Malab. v. 11. 27. t. 13." )—Bracteas ovate, obtuse. 
Segments of the outer limb of the corolla straight. Mid- 
dle lobe of the lip cloven, slightly wavy. Rib and teeths 
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 Amboyna as a pot-herb. This spe- 
cies is not uncommon in our floses, being eafy of culture, and 
flowering frequently at the end of autumn. Many persons 
who grow it think themselves posfefled of the real Ginger. 
The habits of the two plants are indeed very familiar, but the 
barren flens of the present species are rather the taller, 
being four or five feet high, with elliptic-lanceolate leaves; 
filky beneath when young. Flower-flasks 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 limb ovate, erect, concave: 
two lower ones lanceolate. Lip yellow, its large central 
lobe emarginate.

3. Z. Cafumunar. Cafumunar, or Haary Ginger. 
" As Xob. in Aftatic Referaches, v. 11. 347. t. 7." Sims in 
Curt. Mag. t. 1426. Ait. Epift. 376. (Cafumumarum; 
Dale Pharmac. 275. Cafumunar; Lewis Diff. ed. 4. 
Vol. XXXIX.)

112.—Bracteas ovate, rather acute. Segments of the 
outer limb of the corolla straight. Middle lobe of the lip 
cloven, dilated, crisped, and creenate. Rib and teeths of 
the leaves hairy.—Native of the East Indies, from whence 
it was feft by Dr. Roxburgh to this country, and flowered 
in August 1811, in the flove of James Vere, eqq. at Ken- 
fington Gore. The roots had long ago been introduced into 
the Materia Medica as a powerful stimulant and tonic, 
in hysterie, paralytic, and other nervous disorders, poffef- 
sing a warm bitterish flavour, with the smell of Ginger; 
but they have long gone out of use. Their shape is lefs 
elongated and compressed than that of Ginger, and more an- 
nulated, tuberos or knotty. Herbage molt like the last spe- 
cies, but disfigured by the hairy sheet and mid-rib of the 
leaves. Flower-flasks not above fix or eight inches high. 
Spike ovate, brownish. Corolla pale yellow, dilatigufed 
from Z. Zerumbet by the greatly dilated, inverely heart- 
shaped, crisped and creenate, middle lobe of its lip; the two 
side lobes being erect and entire, not larger than in Zerum- 
bet. The plant is said to be propagated by cuttings of the 
root.

v. 1. 7. Banks Ic. Kempf. t. 1. Dajooka, vulgar Mioga; 
Kempf. Am. Exot. 826.)—Bracteas ovate, acuate. Spike 
neary fesse. Segments of the outer limb of the corolla erec- 
tae, acuate. Middle lobe of the lip concave, entire.—Found 
near Nagasaki, and in other parts of Japan, flowering in 
September. Thunberg, Kempfer speaks of this as an eateable kind of Ginger, with a mild 
flavour. The leafy flesms are from one to two feet, or more, 
in height, and with the foliage resemble thofe of the three 
foregoing species. The flower-flask is radical, and remark- 
fably fhort, or scarcely any. Spike ovate, with numerous, 
large, white, pointed, fariated, concave bracteas; the outer 
one largef, concealing many within. The flowers smell 
faintly like Butter-bur, and have a yellow, very concave, 
undivided lip, and a white limb. Filament greenth-white, 
beaked, embracing the thread-shaped style, according to 
the generic character, as is faithfully defcribed by Thunberg, 
who fpeaks of the fruit as a nearly ovate, obtuse capule, 
with three cells and three valves, and numerous minute feeds, 
inferred into the central column.

(Amomum rofam; Roxb. Coromand. v. 2. 15. t. 126.) 
Bracteas lanceolate, coloured. Spike nearly fesse. 
Segments of the outer limb of the corolla revolute. 
Middle lobe of the lip flat, entire.—Native of moif valleys in 
Hindooftan, flowering in the rainy feafon. The Telingas 
call this plant Bumacatchey. Root creeping, cylindrical, 
branched, not knotty. No aromatic or other quality is re- 
corded concerning it, or any other part of the plant. 
Leafy flesms two or three feet high. Spike nearly fesse at 
the root, ovate, two or three inches long. Bracteas loofely 
imbricated, erect, lanceolate, acuate, of a fine rofe 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 fced-voefel.

Ait. n. 4.—" Bracteas ovate, coloured. Segments of the outer 
limb of the corolla ecrat. Middle lobe of the lip divided," 
Native of the East Indies. Introduced into the Englifh 
floses, by the right honouable Sir Joseph Banks, in 1796, 
and obferved by Mr. Roscoe in the Botanic garden at 
Liverpool. It flowers in September.

ZINGIBER, in the Materia Medica. See Ginger.

A a ZINGIS,
ZINGIS, otherwise JENGHIZ-KHAN, or Genghiz-khan, in Biography, the founder of the Mogul empire, was the son of Biiyuk, or Jefukai, a chief or over-seer between hordes of Moguls in the Tartarian range between China and the Caspian sea, and born about the year 1161 or 1165, 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, cymetars, 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 who 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 Kin emperor to purchase peace at the price of a Chinfe 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 depopulation of China, its five northern provinces submitted to the dominion of the Mogul conqueror. In the bloody conflicts between Zingis and Mohammed, sultan of Khairim or Charasim, all the rich and populous cities and countries of Transoxiana, Khairim, and Khorasan, were taken or laid waste by the Moguls. Mohammed died a fugitive in a desert island of the Caspian sea; but his son, Gelaleddin, boldly resisted the invader, and checked his progress, till overpowered 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, said to his sons, "Any son might with to spring from such a father." Nevertheless he ordered all the sultan's male children to be killed. After the defeat of Gelaleddin, Zingis, remaining for some time in Khorasan, pursued his customary operations of sacrificing lion's flesh to his horse before the country. Returning to Bokhara, or Bucharia, in 1223, he investigated the antiquities of Balk and the doctrines of Zoroaster, and held conferences with the Mahometan doctors; the result of which was his ascent 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 pitched through Tartary to the borders of northern China, and subjugated the kingdom of Hyia or Tangut. In the province of Shen-fi, on the mountain of Lu-pan, whither he went in order to pass 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 Octai, 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 65 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, "possessed 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 astonished 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 coast of Pomerania, and a little to the west of the island of Uedem. N. lat. 54° 29'. L. long. 12° 50'.

ZINIA, a name given by the old chemical writers for verdigris.

ZINJAT, 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.

ZINK. 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 renewability of different parts of the brain; he then proceeded to the examination of the eye, which produced his celebrated work, intitled "Description Anatomica Oculi Humani, Iconibus Illustrata," Gotting. 4to. 1755. Botany was also the subject of his assiduous 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 system 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 Institute 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 so named by Linnaeus, in honour of Dr. John Godfrey Zinn, professor of physic and botany at Gottingen, author of a Catalogus Plantarum Horti Academici et Agri Gottingensis, printed there in 1757. This work, making 3 volumes, is classed after Haller's method. Its author has, besides, published various botanical and physiological 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
whole disciple and succcssor 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 Swedish botanist is indeed very justly approved, that plants nearly related on the whole ought not 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 Geum, Comarum, Potentilla, Tormentilla, and Fragaria. Such it seems was the avowed opinion of Zinn, in his Preventto, 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.


Gen. Ch. Common Calyx cymato-cylindrical, smooth, imbricated, with numerous, oblong, erect, permanent scales. Cor. compound, radiated. Florets of the elevated disk several, all perfect, funnel-shaped, five-cleft, internally vio- lous; the ralse 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. Pífl. in the perfect florets, Germin oblong, with two very unequal awns; style thread-shaped, cloven half way down; figmas two, erect, obtuse; in the female florets, Germin oblong, triangular, without awns; style capillary, cloven half way down; figmas two, recurved. Peric. none, except the unchanged calyx. Seeds in the perfect florets, solitary, oblong, quadrangular, comprefled. Down of two points, one of them arowed. In the female florets solitary, pointless, crowned with the permanent pæcil. Recept. chaffy, with tongue-shaped, channelled, deciduous scales, the length of the calyx. Eff. Ch. Recenrelate chaffy. Sced-down of two erect unequal awns. Calyx imbricated, somewhat ovate. Florets of the radius from five to ten, permanent, undivided.

1. Z. pauciflora. Yellow Zinnia. Linn. Sp. Pl. 1569. Wildl. n. 1. Ait. n. 1. (Bidens calyce oblongo Ígmoano, fenumibus radiis caroliâ non decúidi coronatis; Mill. Ic. v. 1. t. 64. Rudbeckia flolia oppositís hibríus ovato-acutís, calyce imbricato círdínico, radií petálíis píllíatís; Zinn. Gott. 409. t. 1. Chrysofönem peruviam; Linn. Sp. Pl. ed. 1. 920, excluding the synonym, which is wrong, and a heap of confusion; see Feuillé 766.) —Flowers fesile. Leaves somewhat heart-shaped, fesile, clasping the Rem. —Native of Peru. Cultivated by Miller, but not commonly preferred 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, defexed, two or three inches long, acute, roughish, entire, rough-edged, with three principal ribs; their base broadish-heart-shaped. Flowers solitary at the ends of the branches, nearly or quite fesile, with the uppermost pair of leaves close to the base of the calyx; disk brownish; radius yellow. We perceive a difference between several species and figures of this plant, but cannot trace an absolute or conftant specific diftinction between them. In the Linnaean specimen, the small number of florets justifies the specific name, and the flower itself is quite fesile. 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 fame name of pauciflora, given us by

for Joseph Banks, from Jaccuin's herbarium, is what Zinn's figure exactly repreffents. The leaves are shorter, more rounded and heart-shaped, and the flower is large, with more or less of falk. 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 confide the Linnaean specimen, raised in the Upfal garden, is a farded one, the flowers perhaps being rendered diminutive by their latcncs. It is most probable that a portion of the fame seed was fent by Jüffieu to Lin- naeus and to Miller. The plant indeed flowered at Upfal before the year 1753, when Miller says he received his seeds, because it is defcribed, in the firft 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. 25. t. 12. Jacq. Obs. fac. 2. 19. t. 40. —Flowers falked. Leaves opposite, ovato-lanceolate. —Native of North America. Found on the banks of the Multiflóri, 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 best 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 pauciflora, much narrower and elongated leaves, with three ribs; their surface roughish to the touch. The flowers stand each on a hollow, deeply furrowed, terminal falk, 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 receptaél ; the radius consists of ten or more broad, elliptical, usually emarginet 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. Wildl. n. 3. Ait. n. 3. —Flowers falked. Leaves whorled, ovato-lanceolate. Radiant florets very numerous. —Native of Mexico. Raised by Meffrs. Lee and Kennedy at Hammerfsmith, about the year 1789. We cannot fuppofe this to be any thing more than a luxuriant variety of the last. Annual plants, pampfered 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 state of nature. Thefe is the buflines of the gardener to encourage, and of the botanist to beware of. Having seen no specimén of this plant, we can only judge by the figure, in which we cannot discover any specifc distinctions. These flowers indeed are rendered very splendid, by their multiplied radius of a deep scarlet, and their disk fesile broader, and less conical, or pointed, than in either of the foregoing species. This last charafter, if conf tant, is more material than any which has been mentioned.


fringed.
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 Bute; 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 flouter, the *leaves* broader, and much more hairy to the touch, like a file, than in any other of the genus. *Flowers*, in a cultivated state at least, as large as the half, with a conical, but rather obtuse, *disk*; the prominent orange-coloured feales of the *receptacle* have many finely-fringed *segments*; the upper surface of the yellow *tubular florets* is densely fraggy; the *radius* consists of numerous, spreading, *ovariform florets*, of a deep lilac, or light purple, colour, *leaves* harsh, or *scarios*, 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.)— *Flowers* flaked. Leaves opposite, ovato-lanceolate, pointed. Calyx cylin- drical. *Radiant florets* linear, revolute.—Native of Mexico. Rared here, 1799, by the late captain Woodward, at Vauxhall. This very distinct *species* requires the same treatment as the rest. They may all, perhaps, succeed, in favourite gardens, as hardy annuals, but are best raised with artificial heat in the spring. The present has much narrower leaves than the last, which moreover are nearly smooth. The *flowers* 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 fewflowered yellow *zinnia* (*Z. pauciflora*), and the manyflowered 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 flight 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 Hindooftan, in Guzerat, on the Nerbuddah; 30 miles N.E. of Baroach.

**ZINTEN**, a town of Prufia, in the province of Nanten, 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 viceroyalty of Buenos Ayres, and archbishopric of La Plata; 90 miles S. of La Plata.

**ZINU**, a province of South America, in the viceroyalty of New Grenada, situated to the north of Choco, and well of Carthagea.

**ZINU**, 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 Carthagea. N. lat. 8° 58'. 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 Drefden in May 1700, and was educated under the inspection 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 great admirer of Goeze and his compatriot. The world was such, that he indited them rather than he could write them. Such, however, was his proneness to dissipation, 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 1710 and the year 1716, when he left Halle. One of his companions in forming these institutions was Baron Frederick von Wattenwille, 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 1710 Zinzendorf removed to Wittenberg, where he was 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 endeavored to spread his doctrine among the Catholic nobility, by some of whom they were treated with respect, while others contemptuously denominated them Janenfits 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 Hersdorf, in Lusatia, 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 Drefden, and having received his property from those with whom it had been entrusted, he purchased the lordship of Bertholdsfeld, in Lusatia, and marrying a sister of the prince of Reuss, distinguished for her piety and virtue, he inclined to his her 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 Waldenfes and true followers of John Huf, had formed a peculiar religious community. The Christians of this description had undergone from the year 1458 to 1627 several 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 sect 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 Bertholdsfeld. Availing themselves of this permission, a small number of them, confiding of three men, two
women, and five children, came hither from Moravia, in Whitenside, 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 countefts lent them a cow to supply milk for their children. However, they gradually gained new converts; and when the count and his consort visited this new settlement of the Moravian brethren in the month of December, he gave them a 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 MORAVIANS.) 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 profession of the work he had undertaken, refined 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 Socrates," was suppressed by order of the council, probably because it censured 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 endeavours 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 accept the insignia of his flock with the infirmity 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 Watteville. From this commencement, in the year 1732, arose that missionary fyllem of the Moravians which has since been so widely and so wonderfully extended. Between 1732 and 1766 nearly 4,000 negroes in the Danish islands were baptized; and in 1768 the congregation of New Hernhut and Lichtenfels, in Greenland, amounted to 764 persons. When the congregation at Hernhut had increased in 1732 to 300 persons, the Saxon 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 prepare in the disposition of his friends. Accordingly he quitted Hernhut, and repaired to his friend count Reufs at Eberforh. He now thought seriously, as he had done twenty years before, of entering regularly into the church; but the countefts and his friends diffused him from adopting this measure. With a view of becoming tutor to the children of Richter, a merchant at Stralsund, 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 extirpating the Moravian brethren from the empire. In the same year he visited Switzerland, and in 1736 he and the countefts made a tour to Holland, where, at the desire of the princes dowager of Orange, he founded a new colony at Yffeldlein, called Heerendyck, which was afterwards removed to Zuylt. On his return he found at Cassel a copy of a Saxon reformatory, 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 Jablonfky, 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 missionaries 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 Germantown, 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 Thuifeken, which belonged to his family. The Quakers generally styled 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 districts of Doben, 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 Hernhut, after an illness of four days, and his funeral was attended by 2000 of his followers, and as many spectators; and his coffin was carried to the grave by thirty-two preachers and millionaires, 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- riousness 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 reserved. To money he was perfectly indifferent, and as he gave to every mendicant, he was often pennyless. His disposition was lively, but he was capable of long-continued and intense 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, so 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 stratery to carry on his own purposes, and to gain converts to his cause. Molbein, &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 Zingiber and Ginger.

ZINZIBER Rubrum, Red Ginger, a name by which some authors have called the officinal caffumara-root.

ZINZIBER Canum, Dog's Ginger, in Botany, a name given by some of the old writers to the *pericaria urens*, or biting arfart; a plant which is very hot, and pungent to the taste, and grows in watery places. It had the name of hydroper, water-pepper, among the Greeks, and was called *zinziber canum*, 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 Arabian name is *zinzibili alekel*.

ZINZIBER Canum is also a name given by some authors to the *capsicum*, or Guinea-pepper. Ger. Emac. Ind. 2.

ZINZIG, or ZINZIG, in Geography, a town of France, in the department of the Roer; 18 miles N.W. of Coblenz. N. lat. 50° 33'. E. long. 7° 12'.

ZINZILLA, a name by which some medical writers have called that species of the herbes, which we usually call the flings.

ZINZOAOCZA, in Geography, a town of Mexico, in the province of Mechoacan, anciently the residence of a cacique.

ZÖBERIS, in Ancient Geography, a river of Asia, in Hyrcania, which discharged itself into the Rhadge, according to Quintus Curtius. Diodorus Siculus calls it Stiboeas.

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. (Joh. xv. 24.) St. Jerom says, that in his time they fled the village of Zipf, 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 Zipf, near Maon and Carmel of Judah. Joh. xv. 55.

ZIPHRON, or ZEPHIRNA, a city N. of the land of promul, now unknown. Numb. xxxiv. 9.

ZIPOETIUM, a town of Asia Minor, in Bithynia, near mount Lyperus, and which had been founded by king Zipotus. Steph. Byz.

ZIPPORIS, a name which the ancients gave to the town of Sefera or Sauffori. 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 Leutsch.

ZIRBALIS HERRNIA, a term used by medical writers to express that kind of rupture which is caused by a defect of the omentum into the frcutom.

ZIRBUS, the name by which the Arabian physicians have called the omentum.

ZIRCON, in Mineralogy, Jargen de Ceylon, Romé de Lisle, Zircon, Haüy, a gem originally found in the island of Ceylon, in the sands of rivers, along with spinel, faphire, termaline, and iron-fand. Zircon, the gem called the hyacinth, and zirconite, are regarded by most mineralogists as varieties of the same species. They are essentially composed of the earth called zircon, (see Zirconia, in Chemurgy), with filex, and a minute portion of iron, which may be regarded merely as the colouring matter. The primitive form of the crysals of zircon, according to Haüy, is an octahedron, composed of two four-sided prisms, whose fides are isofaces triangles. The inclination of the planes of the fame pyramid to each is 124°,12; the inclination of the fide of one pyramid to thofe 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 prifm under equal angles. The above figure is often truncated in the lateral edges. The angles of the prifm, in junction with the pyramid, are often bevelled, and sometimes the prifms 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 prifm. The crysals are generally small, and occur loofe or imbedded. The surface of the crysals is sometimes rough, and sometimes smooth and fhining; that of the grains is uneven, and glitening internally. Zircon is splendid or fhining, with a luftre intermediate, between adamantine and refinous. The ftructure is imperfeftly foliated, with the folia parallel to the lateral edges of the prifm. 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 infufible without addition by the blow-pipe.

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According to Klaproth, the constituent parts are,

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96. 97

Zircon:

Zircon has been found in rolled masses of scienite by professor Jamefon 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 not exceeding 3.5. The hyacinth has often been confounded with other minerals. The oriental hyacinth of Romé de Lille is orange-coloured sapphire. The occidental hyacinth of Duteus is yellow-coloured topaz.

Cruciform hyacinth is cross-stone; brown volcanic hyacinth is vesuvian; white hyacinth of Somma is meionite.

The hyacinth of Deffentis, mentioned by Saulsure, 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 frequently found 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 sold 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 jargons. See the preceding article.

Zirconia exists in the form of a fine white powder, which feels rather hard when rubbed between the fingers. It has neither taste nor smell. It is infusible but the blow-pipe; but when heated violently in a charcoal crucible it undergoes a fort of imperfect fusion, and acquires a greyish colour and porcellaneous 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 simple 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 afflance 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 faults of this earth have been yet made. From some experiments of Klaproth and Vauquelin, Dr. Thomson fixes the weight of its atom at 46.25; 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 acetic.

Carbonate of Zirconia is a white infusible 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 infusible in water. It is easily decomposed by heat.


Acid 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, very little known, and apparently possessing 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 sulphuric acid, carbonate of ammonia, oxalate of ammonia, tartrate of potash, and infusion of nut-galls, are dropped into their solutions. These properties sufficiently distinguish this earth from *alumina* and *ytria*. For further particulars respecting this earth, see the articles above referred to.

**ZIRCONITE.** See ZIRCON.

**ZIRCONIUM,** the metallic basis of zirconia. See ZIRCONIA supra.

**ZIRIANKA,** in Geography, a small river of Ruffia, which runs into the Enifei, near its mouth.—**Alfo,** a town of Ruffia, on the Niznei Tungufka. N. lat. 16° 10'. E. long. 106° 54'.

**ZIRICZEE,** a town of Holland, one of the most ancient in Zeeland, 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 counts of Zeeland, and was at that time a place of much more consequence 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 "Munster," 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 Tortura.

**ZIRKNITZ.** See CIRKNITZ.

**ZIRKWITZ,** a town of Silefia, in the province of Oels; 14 miles N. of Breflaw.

**ZIRL,** or **GIRL,** a town of the county of Tyrol, on the Inn; 7 miles W. of Innsbruck.

**ZIRNOE,** a town of Ruffia, in the government of Saratow; 32 miles S.W. of Saratow.

**ZIRO,** Lo, a town of Naples, in Calabria Citra; 9 miles E. of Umbratian.

**ZIROVAIA,** a small river of Ruffia, which runs into the Penzinkatai gulf, 32 miles S.W. of Oklank.

**ZIRUA,** a small island in the Mediterranean, near the coast of Tunis. N. lat. 33° 39'. E. long. 11° 39'.

**ZIRWITZ,** a town of Silefia, in the principality of Oels; 3 miles E. of Trebnitz.

**ZIRZING,** a town of Austria; 6 miles E. of Steyregg.

**ZIS,** a river of Africa, which rives in the Atlas, passes by Sugulmefia, and lofts itself in the fands, in the country of Taflet.—**Alfo,** a mountain of Africa, between Sugulmeffia and Fez; 40 miles S.S.E. of Fez.

**ZISEL,** in Zoology, a name given by Buffon to the earlefs mammot, or *mus citellus* of Linnaeus. See CITELLUS.

**ZISKA, John,** in Biography, a distinguished leader among the Hussites, was the son of a Bohemian gentleman, named "De Trecznu," and celebrated for military valour in his youth. Ziska, denoting "one-eyed," was an appellation, which he bore in consequence of having lost one eye in a combat, on occasion of the perfidious execution of John Huls and Jerome of Prague, at the council of Conflance. 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 fortdres 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 Aufig on the Elbe he gained a complete victory over the Catholics, and left 9000 of them on the field, retaliating the severities which they inflicted on the Reformers, by demolishing their churches, committing their priests to the flames, massacring those who were prisoners, and laying waste their country, and thus rendering his name formidable. Having made himself master of the new town of Prague, 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 Wifhrafen. 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 story of his having ordered his flesh to be given to the birds and beasts, and his skin to cover a drum, for the purpose of founding 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 Carthagena.

**ZISTERSDORF,** 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 district, 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 SITHA, in Ancient Geography, a town of Asia, in Mesopotamia, on the bank of the Euphrates. Ptolemy.

**ZITTAU,** in Geography, a river of Germany, which runs into the Saal, 4 miles S.S.E. of Bernburg.—**Alfo,** a town of Lufatia, on the river Neffe. This town is considered as one of the belt in Lufatia, and fortified in the ancient manner; it contains two churches within the walls, and three without, with three hospitals and an orphan-house; 17 miles S. of Goritz. N. lat. 50° 43'. 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 ARCHACHER, a town of Hindooftan, in Cancon, on the Pirate coast; 30 miles S. of Severandroog.

**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 prominent note, which is only ziz, ziz.

It is of the size 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 dullgy-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, ζηανος of the Greeks, synonymous with the infelix lolium 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 supposed to degenerate. (See Lolium.) Our translators of the New Testament call it θηανος. Ano 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 Linneus, 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 Linneus often practised it. Gærtner has successfully opposed this principle, but did not always change things for the better.—Linn. Gen. 491. Schreb. 639. Willd. Sp. Pl. v. 4. 394. Mart. Mill. Dict. v. 4. Pursh 65. Alt. Hort. Kew. v. 5. 278. Juss. 33. Poiret in Lamarck Dict. v. 8. 863. Lamarck Illitr. t. 768. Gærtt. t. 82. (Elymus; Mitchell in Ephem. Nat. Cur. v. 8. append. 210.)—Clads and order, Monocotyledon Hexandria. Nat. Ord. Gramina, Linn. Juff.

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 ovulate oblong scales. Stam. Filaments 6 to 8, capillary, very short, equal; anthers pendulous, linear, notched at each end, shorter than the corolla.

Female in the same panicule, larger, Cal. none. Cor. Glume of two valves, cloaked, 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 prenent, though minute and imperfect, with small incomplete anthers. Pist. Germen superior, oblong; styles two, spreading, capillary, short; stigmas feathery, projecting between the valves of the corolla. Seed foliary, 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 cloaked valves; the outermost largest, revolute at the edges, with a terminal awn. Styles two, divaricated. Seed foliary, enclosed in the plaited corolla, but unconnected with it.


n. 1. Lambert Tr. of Linn. Soc. v. 7. 264. t. 14. (Z. clavulosa; Michaux Boreal. Amer. v. 7. 75. Wild. n. 3. Z. palustris; Linn. Mant. 295. Wild. n. 4. Schreb. Gram. v. 2. 54. t. 29.)—Panicle pyramidal, compound, with numerous male flowers, in the lower part; spiked and female above.—Common in all the waters, from Canada to Florida, flowering in July and August, and known by the name of Zizania, or Wild Rice. Pursh. Sir Joseph Banks introduced it into this country in 1765, and still cultivates it abundantly in the ponds of his delightful villa of Spring Grove. The seeds were obtained from Canada in jars of rice. Mr. Lamert is of opinion, that this grain might be cultivated in many shallow lakes of Ireland, and turn to considerable advantage. The root is certainly annual; not, as Mr. Pursh marks it, perennial; and consists of numerous, long, flout, hairy fibres. Stems several, or two or three feet high, round, jointed, hollow, leafy. Leaves grassy, long, narrow, smooth, with long, close, fribled, smooth sheaths. Stipula short, somewhat pointed, membranous, deciduous, entire. Panicle two feet, or more, in length, erect, and terminating in a compound, close, straight, spiked cluster, of numerous female flowers; the lower part consisting of still more numerous, drooping male ones, of a smaller size, with green or purplish glumes, and yellow anthers, composing an elegant spreading allelage, of compound breadth. We have from Mr. Prafer a mutilated specimen, of what Michaux and Willdenow call clavulosa, a name well expressing the appearance of the female flower-flakes, after the flowers are gone; being larger than in the common specimens. Other writers consider this is not even a variety of the plant in question, and we submit to their opinion. Linneus, who cultivated the Z. aquatica at Upfal, confounded with it originally a Jamaica species, which he afterwards distinguished. But he by inadvertence, in his Mannifia above quoted, applies the name of palustris to his original aquatica, and cites Browne's Jamaica, who has two Zizania, neither of which appears to be this North American grai. We shall attempt to fet this matter right under the next species.

2. Z. effusa. Jamaica Wild-Rice. (Z. aquatica; Linn. Syll. Veg. ed. 13. 714. ed. 14. 853. Wild. n. 1. Z. n. 1; Browne Jam. 349. A rundo graciol, folis e viridi ceruleis, loculis minoribus; Sloane Jam. v. 1. 110. t. 67.)—Panicle loose, much branched. Male and female flowers interposed.—Common in all the waters, or lagoons, of Jamaica. Sloane calls it the Trumpet reed. The stems are as thick as the little finger, and appear to be several feet high. Leaves longer and broader than in the foregoing, with a strong mid-rib. Panicle large, with numerous, whorled, repeatedly compound branches; whose ultimate divisions are quite capillary, and very smooth. We have seen but a few damaged flowers. This is unquestionably a very distinct species from the last, though it does not appear that Linneus ever described it as such. He did not, in fact, distinguish between the names of aquatica and palustris, but used one at one time, and another at a different period, for the same plant, to which he misapplied Browne's syno-

nym. This has caused great confusion, to remedy which we are obliged to choose a new name, which has some meaning attached to it.


B
ZIZIZ

is described as rather thick. *Panick* long and large, much branched. Permanent 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 glomer, with the familiar 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 Slowick, which we have referred to our *effusif*, any means reconcilable 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. Clumes bearded.*—On the banks of lakes Champlain and St. Lawrence; perennial, flowering in July. Of humble stature, with slender, branched, floating stems. Leaves floating, linear, flat. Spike brittle-shaped; the lower ones female. All the glumes are deftillate of awns. *Michaux, Pursh.*

5. *Z. terricrnis*. Land Wild-Rice. Linn. Sp. Pl. 1408. Willd. n. 5. (Katou-Tsjolam; Rheede Hort. Malab. v. 12. t. 60. R a i H i l l. Pl. v. 3. 617.)—Panicle nearly simple,—Native of South America, on the coast of Malabar. Stems round, leafy, jointed. Leaves long and narrow, green, rigid, sharply pointed. Flower-flaiks slender, from the sheaths of the leaves. *Glumes leafy, bearing round, blackish, glabrous buds*, (we presume *seeds*). They are fruited with the juice of Bette-lin and, applied to the tongue, are supposed to cure the thirst to which children are subject. *Ray.* We have seen no specimen. Linnaeus described this species from the *Hortus Malabaricus* alone, and we prefix its genus may, at least, be doubtful.

ZIZDRA, in Geography, a town of Ruffia, in the government of Kaluga; 60 miles S.W. of Kaluga. N. lat. 53° 43'. E. long. 34° 54'.

ZIZERIA, a word used by Apicius, and some other authors, to express the inauthentic name of the gallinaceous kind, often used in decoctions for gluts, &c.

ZIZERS, or ZITZERS, in Geography, a town of the Grifons, in the Cadce league; 6 miles N. of Coire.

ZIZEVON, a town of Perius, in the province of Far-sitan; 23 miles E.S.E. of Schiras.


Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, cylindric, very long, strongly, bristly, with five minute marginal teeth, and bearded in the orifice. Cor. 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. *Pil. German superior, four-cleft: style brittle-shaped, the length of the corolla: stigma cloven, pointed, inflamed. Peric. none, except the calyx remaining unchanged, a little gibbous at the base. Seeds 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 *Clinopodium*; but distinguished by their long and slender calyx, as well as much capillary tube of the corolla, even more than by having only two flowers. Their texture is hard and rigid, and they inhabit dry funny situations. The leaves are opposite and undivided. *Flowers* whorled or capitate, red or purplish. *Root* mostly annual; sometimes perennial, and rather woody.


A hardy annual, flowering in July and August, sometimes kept in botanic gardens. Miller seems to be the first perfon who raised this plant in England. The root is fibrous, branched and zigzag. Stem erect, three or four inches high, when cultivated much taller, square, leathly, usuful with two opposite spreading branches, besides 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-flaiks one-eighth as long as the leaves. *Bracteae* four at the top of each branch, nearly sessile, 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 tender, sharp, purple teeth. Corolla with a white, downy, zigzag tube, and pale purplish limb. Stumens prominent, about as long as the lower lip, with blueish anthers. We scarcely perceive any aromatic flavour in the dried plant. Plutekeet was much misinformed as to this Ziziphora being of West Indian origin.

2. *Z. hispanica*. Spanish Ziziphora. Linn. Syt. Nat. ed. 10. 853. Sp. Pl. 31. Amen. Acad. v. 4. 263. Willd. n. 2. Vahl n. 2. Ait. n. 2.—Flowers axillary. Leaves obovate, pointed, many-ribbed.—Gathered by Leaffing in Spain. Root annual. The *fem* is three or four inches high, crows-branched and bulby, downy with minute recurved hairs. *Branches leafy. Leaves* a quarter or one-third of an inch long, fringed; tapering at the base; marked on both sides with conpicious glandular dots: the lower ones smaller, and somewhat create. Flowers two or three together, sessile. *Calyx* tapering upwards, strongly furrowed, hispid, about the length of the leaves. Corolla externally downy. Linnaeus considered the branches as spikes and the leaves as bracteas, but we can see no reason for this than in any of the following species. The leaves in the original specime still retain a powerful smell of Pennyroyal.

3. *Z. spicata*. Spiked Ziziphora. "An Hift. Nat. Madr. v. 4. 254." Vahl n. 3.—"*Flowers* in racemo spike, imbricated. *Bracteae* 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 filfe. *Flowers* several, on short filaks, standing near together. *Bracteae* broad, entire, acute, fringed. Perhaps a mere variety of *Z. hispanica*. Yet it seems to differ in having the *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 in-
fluence of the present species really spiky rather than
whorled, though it does not alter our opinion as to the
left.

Vahl. n. 3. Vahl n. 4. Ait. n. 3. (Acinos fyracia, folio
mucronato, capulis hirtis; Moril. v. 3. t. 454. fect. 11. t. 19.
fr. 3; also A. syraca, tenuifole capulis, capulis hirtis; ibid.
fr. 4.)—Flowers axillary. Leaves ovato-lanceolate, taper-
pointed, acute, entire.—Native of Syria. Sent to Moriton
from Aleppo, by the Rev. Dr. Huntington. We presume,
from a remark of Moriton under a plant immediately
following, that the two varieties here indicated, as well as a
third, with a smoother calyx, his fl. 2, were all sent 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. Stem a span high, with many
square, downy, leafy branches. Leaves an inch long, nearly
serif, strongly ribbed, downy, dotted, entire, more or less
fringed with strong white hairs. Flowers flanked, mostly in
pairs, almost together. Calyx about half the length of
the leaves, hoary with fine recurved pubescence, more or
less intermixed with long, prominent, hoary hairs; its lower
part swelling much, as the seeds ripen. Corolla pale, hairy
externally, with a dilated throat.

Vahl. n. 4. Vahl n. 5. Ait. n. 4. (Clinopodium fupinum
incanum; Amm. Ruth. 51.)—Flowers axillary. Calyx
hoary. Leaves ovate, flapped, somewhat serrated.—Native
of Siberia. Introduced into England by the late Dr.
William Pitcairn, in 1786. Mr. Aiton marks it as a
perennial. The flims are diffuse, branched, bluntly quadra-
gerual, finely downy. Leaves scarcely aromatic, though dotted
with pellucid spots, many-ribbed, rough-edges, 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 foot-
stalks, half the length of the footstalks. Calyx cylin-
drical, strongly ribbed, not downy, but beset 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.

Caucas. v. 1. 18. —Flowers axillary. Leaves linear-lanceo-
late, liriate, obtuse, entire.—Native of mount Caucasus
and its neighbourhood, among lime-stone rocks, or about
the flory 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, more-or-less divided,
except at the bottom, ascending, near a span long, not
composed of opposite branches crowding each other, as in
Z. tenotior, to which the author of the Flora Taurico-Cau-
casic confederates this plant very nearly allied. Without
adverting to the greater size of the corolla, which is very likely
to vary, and to the pubescence of the calyx, which certainly
does, the leaves appear to be much narrower and more
obtuse; not acute or spinous-pointed. The whole herb
smells strongly, but pleasantly, of Penny-royal, and its leaves
are dotted as in the tenotior. One of our specimens has
broader leaves than the other, and rather shakes our opinion
of its being a distinct species.

Taur.-Caucas. v. 1. 18. (Serpyllum orientale, folio pulegii
vulgaris; Tourn. Cor. 13.)

8. Bieberl. ibid. (Serpyllum orientale, folio pulegii cer-
vini; Tourn. Cor. 13. Herb. Tourn.)

Clutters terminal, capititate, somewhat leafy. Leaves
lanceolate, naked, even, obtuse. Stems rather flabby,
ascending.—Native of the greyly hills of Caucasus, flower-
ing from June to August. Of open fields in Georgia,
about Tolbi; communicated by the Chevalier de Steven.
The flims are rather woody, their branches hoary, with fine,
recurved, downy hairs. Leaves smooth, with copious pel-
licid dots, and the flavour of Penny-royal. They have a
mid-rib, but no lateral ribs, veins, or furrows. Flowers
flanked, crowded at the summit of each branch into a close
tuft, some of the lowermost being axillary. Flower-flanks
round, clothed with fine and hoary pubescence, as are
also the strong ribs of the calyx, whole teeth are fringed
with long white hairs. Limb of the corolla rather large,
and flamen prominent. The variety K, which is all we have
seen, is laid 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. 906.
See the following species.

Taur.-Caucas. v. 1. 18. (Z. serpyllacea; Sims in Curt.
Mag. t. 906. Ait. n. 5. Z. Poulichkini; Sims in Curt.
Mag. t. 1093. Ait. n. 6.)—Clutters terminal, capititate,
athomely leafy. Calyx densely hairy. Leaves ovate, ob-
tuse, notched. Stems procumbent.—Native of mountainous
parts of Georgia, towards Caucasus, flowering from July
to September. Introduced into this country by Mr. Lod-
diges. The root is perennial, and rather woody, as is the
lower part of the spreading, nearly prostrate, hairy, purplish
flims. Leaves ovate, flapped, about a quarter of an inch long,
roundish-ovate, ribbed and veiny, dilantly serrated, dotted,
roughish with short hairs, especially the ribs beneath.
Flowers numerous, crowded into very dense oval heads.
Calyx in our specimens quite concealed by very long, dense,
spreading, hoary hairs, much more remarkable than in any
other known species. Limb of the corolla rather large.
Stamens more or less prominent, though variable in length,
with large anthers. The colour of the flowers may very
well vary between the two extremes represented in the Bot-
anical Magazine. The smell of the herb may also be variable.
We cannot but think the original opinion of our judicious
friend Dr. Sims far preferable to that which induced him to
separate the above two plants. Let us be wrong however,
it is proper to announce that our specimens of Z.
dasyantha, from the Chevalier de Steven, has little or no scent,
and agrees well with Z. Poulichkini. The Flora Taurico-
Caucasica speaks of a variety, found in the elevated fields
of Georgia, in which the leaves are rather narrower, and the
hairs of the calyx shorter, as well as fewer. The author
believes this to be closely related to Z. bifanus, see n. 2,
of which perhaps he had not examined an authentic specimen.
No two species of this genus, or any other, can be more
dilinct, than the Linnæan bifanus, and the plant of which
we are treating.
**ZIZIPHUS.**


Gen. Ch. Cal. Perianth 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 filaments, spreading horizontally. Stam. Filaments five, short, lying over the petals, and not half so long; anthers roundish, of two lobes. Pkt. Germin superior, orbicular, depressed; style one, very short; stigmas two or three, obtuse. Peric. Drupa oval, or roundish, pulpy, of one cell. Seed. Nut solitary, the shape of the drupa, of one or two cells, with solitary kernels.

Eff. Ch. Calyx flatish, in five deep segments. Petals five, opposite to the filaments. Drupa superior. Nut of one or two cells.

Obst. 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 edible, or medicinal. In a few instances, the petals are wanting.

Sect. 1. Thorns or prickles none.

1. Z. lineata. Veiny Jujube. Willd. n. 1. (Rhamnus lineatus; Linn. Sp. Pl. 281. Amen. Acad. v. 4. 308. Olsbeck t. 210. t. 7. Engl. ed. v. 1. 353. t. 7.)—Stem erect, unarmed. Leaves roundish-ovate, obtuse, wavy, Clusters terminal; their lower flowers axillary.—Gathered by Olsbeck, on the French island, in the river of Canton, flowering in September. A bushy shrub, often as tall as a man, with copious, alternate, round, leafy, finely downy branches. Leaves alternate, on short stalks, of a roundish, abrupt, often marginate, 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 clusters. 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, armed, on the orbicular permanent base of the calyx.

2. Z. volubilis. Twining Jujube. Willd. n. 2. Ait. n. 1. Pursh n. 1. (Rhamnus volubilis; Linn. Suppl. 152. Walt. Carol. 101. Jacq. Coll. v. 2. 236. 1c. Rar. t. 356.)—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, yellowish, half covered. It affords the highest trees of Cupressus difflacha, in the Dismal swamp, near Suffolk in Virginia, and is known there by the name of Supple-Jack. Purf. 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 last; 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 Jucquin, in the cultivated plant, found only one. Lamarrck, 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; thence are the concave calyx, and the want of a fleshy disk, or, in Linnaean language, "receptacle of the flower." Probably the same remarks would apply to the preceding species, which Lamarrck also excludes from Ziziphus. We are ready to allow that they both have more of the habit and foliage of Rhamnus, and their frutus are so small, it may be difficult to say whether they are drupa or fruticos. Not having had an opportunity of investigating this point ourselves, we must rely on those who have.

3. Z. peruviana. Peruvian Jujube. Lamarrck n. 12.—Stem unarmed. Leaves elliptic-ovate, sparingly and minutely toothed, somewhat angular, rather fleshy, smooth. Petals acute, longer than the calyx.—Native of Peru. Long cultivated in the public garden at Paris, from whence the younger Linneaus procured a specimen, and where Lamarrck saw it flowering for many successive 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 Desfontaines's Tableau de l'Ecole de Botanique au Jardin du Roi, ed. 2. printed in 1815. This is an evergreen, branching, loosely spreading frutus, about three feet high, smooth in every part. Branches a little zigzag, nearly round. Leaves scattered, flaked, from an inch to a half inch, generally ovate, blunt, or sometimes pointed, thick and somewhat fleshy, of a glaucous green, with a mid-rib, 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. Lamarrck says they are small, axillary, two or three together, or solitary, flaked, yellowish-white, widely expanded, flat or cleft. Petals oval, pointed, flat, larger than the calyx.

4. Z. marginata. Notched Jujube. Swartz Ind. Occ. 1954.—Stem erect, unarmed. Leaves roundish-ovate, marginate. Umbels axillary, flaked. Petals none.—Gathered by Mr. Fahlberg, in the west Indian island of St. Bartholomew. The frutus is fleshy, with round, erect, 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 marginate. Footstalk short. Umbels opposite. Stalks the length of the footstalls, thickened as the fruit advances. Partial ones from three to six, rather longer, fingle-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. Stigmas two, obtuse. Drupa roundish-ovate, smooth, the size of Alphice, crowned with the permanent style. Nut of two cells, with solitary kernels. Swartz.

Seet. 2. Branche prickly.

5. Z. Lotus. Lotus Jujube. Willd. n. 4. Lamarrck n. 2. Ait. n. 3. (Z. sylvestris; Tourne. Inf. 627. Shaw Afric.)
ZIZIPHUS.


—Prickles in pairs; one of them hooked. Leaves elliptic-oblong, slightly crenate, three-ribbed, smooth on both sides.—Native of Africa, especially of the kingdom of Tunis, in a tract called Cerret, which was formerly the centre of the Latothong. The Arabs know this plant by the name of Seedna. 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 Sloes, with a large flone. This fruit is borne on every part of the branches, like Gooseberries; whereas that of the Common Jujube grows only on the flender 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 smoother, staintiger, and paler, or whitish; 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 on the pairs, both of them very straight, slender, and sharp; but 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.


Lamarck n. 11. (Rhamnus Napaea; Linn. Sp. Pl. 282. Rh. n. 87; Linn. Fl. Zeyl. 36. Jujuba indica spinosa, folio et fructu longiori; Pluk. Almag. 190. Prunus zeylanica spinosa, &c.; Pluk. Phyt. t. 216. f. 6. Vidara litorea; Rumph. Amboin. v. 2. 119. t. 37.)—Prickles generally in pairs, hooked. Corymbs axillary, many-flowered. Leaves ovate, acute, finely serrated, smooth on both sides. Fruit elliptical.—Native of Ceylon, Amboyna, and other islands of the East Indies. We know this only by the specimens in the Linnaean herbarium, which does not quite agree with the description in the Flora Zeylanica, the leaves being neither oblique, unequal, nor bluntish, but exactly as represented by Plukener and Rumphiius. 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, flalks, and young leaves. Prickles stout, recurved, dark brown. Leaves an inch, or an inch and a half long, elliptic-obtuse, 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 down. Flowers very numerous, in dense, compound, downy or mealy, corrymbose clusters, on short axillary flalks. Drups like an olive, elliptical, or somewhast ovate; its flavour acid and astringent. Rumphiius 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 Spinosa-Chrifti 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. Manifaxis; Sonnerat Nouv. Guin. 134. t. 94. Malum indicum; Rumph. Amboin. v. 2. 117. t. 36. Perinoddi; Rhede Hort. Malab. v. 4. 85. t. 41.)—Prickles solitary, deflexed. Corymbs axillary, many-flowered. Leaves roundish-ovate, obtuse; downy and snow-white beneath.—Native of the East Indies. A flowe plant in England, flowering in April and May. When wild, it makes a tree of a moderate size. The branches, flower-buds, flalks, and backs of the leaves, are all white with fine, dense, entangled, rather hairy, pubescent. Form and size of the leaves much like the last, but rather rounder and more blunt; the margin crenate, or bluntly serrated; upper side very smooth, of a fine green. Infrutescence like the last. Flowers white; sometimes fix-cleft and hexandrous. Style divided. Drupa globular, or somewhat heart-shaped. Nut ruggied, 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 oliveshaped 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. Xylpyrus. Wooden-fruited Indian Jujube. Willd. n. 7.—"Prickles solitary, recurved. Leaves ovate, rather acute, somewhast heart-shaped; downy beneath. Flowers corrymhits."—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 few heart-shaped, not frequently oblique; unequally serrated; dark coloured above; clothed beneath with very fine white down. Prickles few, small, solitary under each footstalk. Flowers in axillary flalked corymbs. Calyx downy. Drupa dry, inipid, slightly astringent, larger than a cherry. Nut ruggied. Retains, Willd. Posibly this may be Z. rugosa; Lamarck n. 8, for which that author cites Frutex spinosus, &c.; Pluk. Phyt. t. 29. f. 7.


Lamarck, n. 5. Mill. Dict. ed. 8. n. 3. (Rhamnus Oenophila; Linn. Sp. Pl. 282. Rh. n. 88; Linn. Fl. Zeyl. 35. Jujuba aculeata, nervosi folis, infra sericeis, flavis; Burm. 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 unen or oblique at the base, the three ribs also being much nearer one margin than the other; the under 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. ignanco. Lizard Jujube. Lamarck n. 4. (Rhamnusignacuus; Linn. Sp. Pl. 282. Jacq. Amer. 74. Jujube americana spinosa, loti arbors foliis et facie, fructu rotundo parvo dulci; Commel. Hort. v. 1. 141. t. 73.)—Prickles in pairs, unequal, divericat. 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 flomy places, where the Lacerta ignana, reported to be fond of this fruit, is likewise frequently to be met with. This is an inegquent trailing shrub, with round, zigzag, scarcely downy, branches. Leaves thin, pliant, 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 flender, in pairs under each footstalk; one of them always straight; the shortest sometimes curved, but not remarkably. Flowers small, yellow, according to Jacquin delitute 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.
11. Z. scoparia. Chinee Jujube. Lamarrck n. 3. Def.- font. Tabl. 231.—"Young branches prickly, downy; old
ones unarmed. Leaves ovate-oblong, sharply serrated.
Petals reflexed under the calyx."—Cultivated in the public
garden at Paris, and said to be a native of China. As
this point is uncertain, how much better might the name of
cryptopetalas have been chosen! Lamarrck describes the pre-
frent species as a frub, only three or four feet high, losing
its tender, unequal, bitle-like prickles as the branches ad-
VANCE in age. Leaves of a very pale green, crowded, three-
ribbed, rather smaller than those of Z. vulgaris hereafter
defined; we presume they are quite smooth. Fruitflaks
short and downy. Flowers small, whitish, axillary, solitary
or in pairs, remarkable for having their petals so perfectly
reflexed, and concealed by the calyx, as not to be visible
when we regard the flower vertically. Lamarrck.

12. Z. rotundifolia. Round-leaved Jujube. Lamarrck
n. 9. (Jujuba, five Ziziphus, zeylanica rotundifolia crenata
minor, folis subus lananoginis; Pluk. Phyt. t. 197. f. 2.
Burme. Zeyl. 132.)—Prickles in pairs; one of them re-
curved. Leaves roundish-oval; downy beneath."—Native
of Ceylon. Leaves small, perhaps hardly an inch long,
rather more rounded than in Phukemts figure, slightly
toothed; smooth above; cottony beneath; on very short

n. 10.—Prickles in pairs, frright. Leaves roundish-oval,
somewhat toothed, smooth on both sides. Branches acutely
angular."—Described from the herbarium of Juffieu, with-
out fertilisation. The angular branches strikingly distin-
guish 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
footstalks. Lamarrck. Nothing is recorded of the native
country of this plant.

n. 1. Ait. n. 5. Sm. Fl. Greec. Sibth. t. 241. (Z.;
part 2. 24. t. 59. C. L. Willch Obf. 5. Jujube Arabum,
five Ziziphus Dodonaei; Ger. Em. 1501.)—Prickles in
pairs, unequal. Leaves ovate, abrupt, bluntly ferratted,
smooth. Flowers in axillary tufts. Fruit elliptical.—
Native of the fouth of Europe. Gathered by Dr. Sibthorp
about Megara, and on mount Parnassus. It has been cul-
vatated in England ever since Parkinson's days, but requires
the shelter of a green-house, and though it may sometimes
bloom, never bears fruit. Pliny says the Jujube-tree was
brought in, his time, from Syria into Italy. When wild it
attains the fize 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, recur-
cved, as Willich well observes. Leaves rather crowded,
deciduous, on short flarks, ovate, somewhat tapering into
a broad blunt point, frequently emarginate; their edges
copiously though bluntly ferratcd; 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 flarks, in little axillary tufts, not much longer than
the footstalks. Petals obtuse, half the length of the calyx.
Stigmas two or three. Drupa the size and shape of an olive,
blue-red, sweet, mucilaginous, esteemed good in forenes
or inflammation of the mouth and throat, but are out of use
in our present practice. Pallas's plant has been quoted be-
the true Z. vulgaris, of which we cannot help feeling some
doubt, a comparison of that plate with the old wooden cut
of Camerarius, may serve to shew how superior the artistis
of thofe earlier times were to some of our modern delineators
and colourers.

n. 10. (Z. africana; Mill. Dict. ed. 8. n. 4. Rhamnus
Spina Chiri]; Linn. Sp. Pl. 282. Oenoplia spinata; Gluf.
Hitt. v. 2. 313. Nabca, Palurus Athenezi credited; Alpin
Agypti. 16. t. 19. Jujbee five Zizyphus africana, macron-
ata folis; spinis gemellis; Pluk. Almag. 199. Phyt. t. 197.
fl. 3.—Prickles in pairs, frright. Corymbs axillary,
flaked, many-flowered. Leaves ovate, finely ferrated,
smooth on both fides. Fruit globofe.—Native of Ethiopia
and Paleflus. Seeds collected near Jerusalem, by Hassel-
feld, produced the plant described by Linnaeus, a wild
specimen of which, fent also by Hasselquift, is preferred in
the Linnaean herbarium. Miller also raised this species
from Syrmin seeds, fo that it is entitled to a place in Hort.
Kew. Respecting Phuknet's synonym, we feel no doubt.
The cut of Alpinus as much refembles Z. Napecu, n. 6, in
the foliage, but the globofe fruit agrees bet with the species
before us. The prickle are hardly visible on our fpecimen,
which is a young luxuriant leafy branch, in flower. They
perhaps acquire their full proportion on older branches, as
in Z. vulgaris, n. 14. The leaves are scattered, of a broad-
oveate, somewhat roundish, obtuse figure, two and a half
or three inches long, and two wide, strongly three-ribbed,
with tranverse veins, minutely and slightly serrate rather
than ferratted, very smooth and even on both fides; paller
beneath. Footstalks scarcely an inch long; downy on their upper fide.
Corymbs forked, downy, many-flowered, each on a folicary
axillary flalk, shorter than the footstalk. Bradteas wsh-
haped. In our only expanded flower, the segments of the
calyx, as well as the petals and fannus, are strongly reflved,
quite under the base of the calyx. The drupa is said to be
the fize and shape of a Sloe.
grotes, and each grotesch is divided into 18 pfenings. The florin also contains 24 floracks, 90 schilling, or 270 pfenings. A florack is worth 12 grofen, or 36 schilling; a grochen, 3 schilling; and a schilling, 3 pfennings.

ZMEINOGORSKAIA, in Geography, a fort of Russia, on the river Porobalik; 200 miles N. 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 bluish-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 sort 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 acicus beli, or bellocesto; 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 zmiliampis.

ZNAMENSKOI, in Geography, a town of Russia, in the government of Tobolk, on the Irtych; 28 miles N.N.W. of Tara.

ZNAYM, a town of Moravia, in the circle of the same name, near the river Teyai. This town was built about the year 1222, at a little distance from another town, laid waffle 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 Vitim, N. lat. 53°. E. long. 115° 14'.

ZNIN, a town of the duchy of Warsaw; 20 miles N. of Gnefna.

ZNONIRAD, a town of Croatia; 36 miles S. of Bihać.

ZOAGLI, a town of Genoa; 20 miles E. of Genoa.

ZOANA, in Ancient Geography, a town of Asia, in the Lesser Armenia, upon the route from Hatala to Arbusitis, between Tonofa and Gundufa. Anton. Inan.

ZOANNES, a name given by Strabo to a people half-favag, that inhabited the mountains of the Colchide.

ZOAR, ZOAR, SEGAR, 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 intercession 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 Shalitha. (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 Hedjaz, on the south coast of the Dead sea, at the mouth of the Safa; 30 miles N. of Karaz.

ZOAR. See TSOR.

ZOARA, a town of Africa, in the country of Tripoli; 62 miles W.N.W. of Tripoli.—Also, a town of Africa, in the country of Barca; 140 miles S.W. of Tolometa. N. lat. 25° 35'. E. long. 115° 56'.

ZOBAYA, a town of Mexico, in the province of Guatimal; 30 miles N. of Guatimala.

ZOBIR, a town of the Persian empire, in the pashalic of Bagdad, about 10 miles W. of the city of Baflora, situated on the dry canal of the Djuze Zade, supposed to be the former bed of the Euphrates. It is by some laid to be the ancient Bafra, and derives its present name from Zobrefan, 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 Oel unfitz.

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 Meiffen; 15 miles S. of Deffau.—Also, a town of Auffria; 3 miles N. of Crems.

ZOBLITZ, a town of Saxony, in the circle of Erzgebirg. This place consists of 110 houses, and the inhabitants furnish principally by working the ferpent-stone, which is found here, into pitchers, bowls, tea and coffee dishes, mortars, cups, &c. The ferpent-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 was also considered by the foreigner as his property, together with a yellow, green, grey, and black stone. In the electoral red quarry is also found abelhos of divers colours and granites; 17 miles S. of Freyberg. N. lat. 50° 36'. E. long. 13° 11'.

ZOBOWITZ, a town of Pomerelia; 14 miles S. of Dantzic.

ZOBTEN, a town of Sileia, in the principality of Schweidnitz; 9 miles E.N.E. of Schweidnitz. N. lat. 50° 48'. E. long. 16° 41'.

ZOBTENBERG, a mountain of Sileia, situated in a country otherwise level, 2,424 Paris feet above the level of the sea, near Zobten.

ZOCCO, ZOCOLO, ZOCHE, or SOCHE, in Architectura. See SOCLE.

ZOCCELAR, in Geography, a town of Croatia; 2 miles S.W. of Bihać.

ZOCHINACZTLIS, in Botany, a name by which some authors have called the flos auricula, a flower of New Spain, used in making of the Spanish chocolate.

ZODIAC, ZODIACUS, in Astronomy, a facia, or broad circle, whose middle is the ecliptic, and its extremes 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 ζώoς, animal, by reason of the constellations in it, which have the forms of animals given them; others derive it from ζωή, life, from
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 intersecting the equator obliquely makes an
angle with it of 23 degrees and a half; or, more pre-
cisely, 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 con-
fellations which anciently possessed each part. But the zodiac being immovable, and the stars having a motion
from west to east, those constellations now no longer cor-
respond 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 decadometer of it.

Cassini 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-
garus, 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 almanacs,
but every science, and almost every art, of which the Hindoos
have any knowledge, were surprized 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 Brahmas who at that time had access to Euro-
peans of science, supposed the fame of us, when they dis-
covered 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 desirous 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>
<thead>
<tr>
<th>Names of Planets, &amp;c.</th>
<th>Days over which they respectively reside.</th>
<th>Vehicles or Seats, according to the Plate of</th>
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<tbody>
<tr>
<td></td>
<td>English</td>
<td>Sanskrit</td>
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<tr>
<td>Sun</td>
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<td>Saturn</td>
<td>Sani</td>
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<tr>
<td>Dragon's Head</td>
<td>Ketu</td>
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<tr>
<td>Dragon's Tail</td>
<td>Rahu</td>
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</table>

Under the Sanskrit names of the planets we have given
short articles descriptive of their mythological and histori-
ical 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 per-
ceived in the heavens, at certain times of the year, after
sun-fet, or before its rise. Some have supposed, that this
phenomenon is the same with that which the ancients called
tails, a term by which they denoted a meteor, or impres-
sion in the air like a beam. Thus Pliny (lib. ii.) says, "emi-
cient trabea, 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 sun, and placed obliquely with respect to
the horizon. In the torrid zone, the zodiacal light is fre-
quently, or almost continually, seen. At or near our latitude
it may be seen about the time of the equinoxes. The best 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 Defcartes, and by Childrey about the year 1659. It
did not engage general attention till it was described and
named by M. Cassini the elder, in 1683. It was after-
wards observed by M. Fatio, in 1684, 1685, and 1686, and
by M. Kirch and Eimmart, in 1688, 1689, 1691, 1693,
and 1694. See Mairau, Suite des Mem. de l'Acad. Royale
des Sciences, 1731, p. 3.

In 1707, April 3, it was observed by Mr. Derham in
Eves. It appeared in the western part of the heavens,
about a quarter of an hour after sun-fet, in the form of a
pyramid, perpendicular to the horizon. The base of this
pyramid was judged to be the sun. Its vertex reached 15°
or 20° above the horizon. It was throughout of a dusky-
red colour, and at first appeared pretty vivid and strong,
but faintest at the top. It grew fainter by degrees, and
vanished about an hour after sun-fet. This solar atmo-
sphere has also been seen about the sun 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 encompasing the sun in the form of a lens, reflecting the light of the sun. M. Caffini supposed that it might arise from an infinite number of planets revolving about the sun; 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 supposed, that it is matter detached from the sun by its rotation about its axis. The velocity of the equatorial parts of the sun 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 sun something in the form of a lens, whose section perpendicular to its axis would coincide with the sun'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 sun'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 gross particles. If they be particles detached from the sun, 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 sun'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 nebulous fluid, 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 sun, 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 supposed to be a fiction of this atmosphere, which, being extremely flat at its poles, cannot be conceived to partake of the sun's monthly motion. Dr. T. Young (Lectures, vol. i. p. 502.) observes, that the only probable manner in which it can be supposed to retain its figure, is by means of a revolution much more rapid than that of the sun'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 sun; for it always accompanies the luminaries; and the equator of the sun is in the direction of this light; consequently he fays, that in all probability the zodiacal light is an atmosphere situated round the sun, in the direction of its equator, and flattened by its rotary motion. Astron. Paris, 1771. § 845 to 846.

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 sun 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 brightness is entirely hid from us by the twilight.

M. de Mairan fays, it may be proved from many observations, that the sun'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. Caffini 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 Lumière Celeste que paroit dans le Zodiaque, art. 41. Lettre à M. Caffini, 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 flattened sphereoïd. M. de Mairan gives us a draught of its appearance and projection.

The extent of the zodiacal light from the sun 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 sun itself.

M. Euler observes, that if the sun has an atmosphere, the force of the impulse of light issuing from that globe must drive particles of that atmosphere before it; but as gravity is very strong at the sun, this impulse would never drive those particles beyond the limits of their atmosphere, were it not for the centrifugal force arising from the sun's motion round its axis. This being opposite to the action of gravity, diminishing its effects, the impulse 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 sun'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 sun's atmosphere about its equator. He finds a cubic equation, the roots of which express the semi-axis, or greatest 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 sun'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 sun, 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 sun 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 dissimilar modifications. See Theory of Electricity.

ZODZISZKI, in Geography, a town of Lithuania, in the palatinate of Wilna; 52 miles E. of Wilna.

ZOEGEA, in Botany, was so named by Linnaeus, in honour of his pupil and correspondent Dr. John Zoega, who visited Iceland, and communicated 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 been

Vol. XXXIX.
been several times printed, with Olafsen's, and von Troll's, accounts of that country. In the latter book this _Flora_ is a mere catalogue, Linnæan names, the synonyny and descriptions being omitted. He wrote also a mineralogical work on Zeolites. The plant which bears his name was raised in the Copenhagen garden, from Siberian seeds, and communicated by himself to Linnæus.—Linn. Mant. 15. Schreb. Gen. 577. Willd. Sp. Pl. v. 3. 2276. Mart. Mill. Diét. v. 4. Ait. Hort. Kew. v. 5. 143. Jaff. 174. Poir in Lamarck. Diét. v. 8. 868. Gært. v. 2. 452.—Clafs and order, Syngenesia Polygama-syriframus. Nat. Ord. Compojiae capitée, Linn. Cinareaceph, Jull. Gen. Ch. Common Calyx ovate, imbricated, of numerous lanceolate, fringed scales; the inner ones linear-lanceolate, chaffy, longelt. 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, neater, 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. Pet. in the same florets, German short; style capillary, very long, erect; stigma short, clvned: 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 bristly. In the radius none. Recept. bristly. Eff. Ch. Receptacle bristly. Seed-down of simple bristles. Florets of the radius ligulate. Calyx imbricated. Obf. Linnæus justly observes that this genus is very intimately related to Centaurea (see that article). Indeed the only difference consists in the flat, or ligulate, not tubular, florets of the radius. How far that distinction is sufficient, some persons 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 Syngenesia family continues to be characterized at all by the different figure of the florets, _Zoega_ must remain separate from Centaurea.

1. Z. Leptaure. Yellow Zoega. Linn. Mant. 117. Suppl. 383. Willd. n. 1. Ait. n. 1. L'Herit. Stirp. Nov. 57. t. 29. (Z. aleppica; Jacq. Col. v. 1. 89. Lc. Rar. t. 177.)—Native of Siberia, according to a manuscript correction of Linnæus in his own Mantillia; other authors say, of the Levant. It appears to have been cultivated in Mr. Blackburne's celebrated garden at Oxford, 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 rest undivided, obtuse, 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 Linnæus himself, under the name of _Z. capensis_. This is _Rehbiana pedunculata_ of L'Heritier. See Willd. Sp. Pl. v. 3. 2136, and is the same thing as _Aphanasia pulita_. Linn. Suppl. 362.

2. _Zofala_, in Geography. See _Sofala_.

3. _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 thenceforward 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 Drucker, Sir John Brute, and lord Chalkstone, &c.; Foote, in major Sturgoen; and Jacob, as Jacob Gallop; Foote and Welton, as Dr. Laft and the President, in the Devil on Two Sticks; Parmors, Moody, Bransby, Aiken, 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 humoursift, 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 fame hot-bed of wealth and difeafe. 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 back ing the wine vaults at the Tuileries, in 1792; a disgusting 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.

4. _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.

5. _Zogno_, a town of Italy, in the department of the Serio; 5 miles N. of Bergamo.

6. _Zogocara_, in Ancient Geography, a town of Asia, in Greater Armenia. Ptol.

7. _Zogor_, in Geography, a town of Thibet; 16 miles W.S.W. of Zuenga.

8. _Zoahaub_, one of the districts of the province of the Lower Kurdfan, in the pachalic of Bagdad, which has a separate hakem or governor. See _Soltiman_.


10. _Zohra_, a town of Egypt, on the left bank of the Nile; 5 miles N.N.E. of Minet Ebn Kasr.

11. _Zoika_, a town of Ruflia, in the government of Archangel, near the mouth of the Petchora; 160 miles N.E. of Mezen.

12. _Zolius_, in Biography, a carping critic belonging to the clafs of grammarians, was a native of Amphipolis, and lived.
lived in the time of Ptolemy Philadelphus, 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 deno-
minted the rhetorical dog; rhetorical, as his style was ele-
gant, 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 “Homer-o-
maflx,” or the fcoeur of Homer. Suidas informs us
that he wrote nine books of grammatical remarks upon this
poet. Plato and Æocrates, as well as Homer, were objec-
tes of his critical severity. Zoilus was the author of several
works; particularly a history commencing from the theo-
gony, 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 testified that
he was actuated by the love of truth, and he ranks him with
Arilotté, and other eminent philologists. But his virtues
and talents, whatsoever they were, could neither secure him
from poverty whilst he lived, nor guard his memory from
reproach. Vitruvius reports, that when he visited Alex-
andria, he recited his writings against the Iliad and Odyssey
of Homer to king Ptolemy, which gave the king such en-
fence, that he would take no notice of him; and afterwards,
when urged by inducement, he solicited charitable afliance,
Ptolemy repulsed him with this contemptuous refutation;
that if Homer, who had been dead 1000 years, could by
his works give maintenance to many thousand people, a
writer fo much his superior might fairly 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 paricide; and that he was put to death, as some say, by
crucifixion, and as others by flaying; and according to
another account, he was burnt alive at Smyrna. Vitruvius
adds, “that whatsoever of these was his fate, he well de-
ferred the punishment.” The penalty, however, if this
statement be true, seems to have been much more than ade-
quate to the offence. Ælian Hist. Var. V. Æol. Hift.

ZOISTE, in Mineralogy, Epidote, Häüy, a mineral so
called by Werner after baron Von Zeis of Laybach.

Common ZeiSte.—Its colours are yellowish and blueish-
grey; it occurs massive and crystallized in very oblique
four-sided prisms. The crystals are middle-sized, and deeply
flaked longitudinally. The structure is lamellar, and the
joints parallel with the axis of the crystal. The internal
lumena is sphenoidal; the luflour of the crosf fracture is glist-
thening, and between pearly and resinosous; it is translu-
cent, hard, and easily fragrable. The specific gravity is 3.31
According to Klaproth, the constituent parts are,

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Friable Zoíste is of a reddish-white colour, spotted with
pale peach-blossom red; it occurs massive. The fracture
is intermediate, between earthy and splintery; the frag-
ments 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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Zoíste 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.

ZOTTIUM, in Ancient Geography, a town of the Pelo-
pomeus, in Arcadia; 15 stadia from Tricoluns. Steph.
Byz.

ZOK, Sokor, in Geography.— See Sokor Zok.

ZOKOL, a town of Servia; 16 miles S. of Sabatz.—
Alfo, a town of Bofnia; 45 miles E. of Boftoneri.

ZOL ENGERS. See Engers.

ZOLCA, in Ancient Geography, a town of Asia, in
Galatia, which belonged to the Paphlagonians, and was
situated on the coast of the Euxine sea. Ptol.

ZOLDO, in Geography, a town of Italy, in the Bellu-
nes; 18 miles N.W. of Belluno.

ZOLDORF, a town of Bohemia, in the circle of Bole-
law; 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-huys.

ZOLLERN, a castle of Germany, situated on a moun-
tain, in the principality of Hohenzollern, to which it gives
name; 10 miles S. of Tubingen.

ZOLLICKOFEN, a town of Switzerland, and prin-
cipal place of a district, in the canton of Berne; 2 miles
N.W. of Berne.

ZOLNOK, a town of Hungary, on the river Tysylv;
46 miles W.S.W. of Debrecin.

ZOLOGEV, a town of Russia, in the government of
Charcov; 24 miles N.N.W. of Charcov. N. lat. 50° 20'.
E. long. 35° 44'.

ZOLTITZKA, a town of Russia, in the government of
Archangel, on the east coast of the White sea; 60 miles
N. of Archangel.

ZOLONOSCHKA, a town of Russia, in the government
of Kiev; 72 miles S.S.E. of Kiev. N. lat. 49° 30'.
E. long. 31° 58'.—Alfo, 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 50 paras, the para being = 3 alpers.

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 Co-
bofla. N. lat. 45° 56'. E. long. 19° 12'.

ZOMERAW, a town of Prufia, in Oberland; 12 miles
N.E. of Bisfhofswerder.

ZOMUCHANA, in Ancient Geography, a town of Asia,
in Arma. Ptol.

ZONA, or Zona Usaros Regia, a very fertile country
of Peru. It was so called because its revenue was designated
for the accommodation of the queen. Plato.

ZONA, a word used by some authors for that species

Cc 2 of
of lizards, which others call the *zinsilla*, and we term the *finglet.

**ZONCHIO,** 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'.

**Zonchio,** a sea-port town of European Turkey, in the Morea: the harbour is large, but not commodious; 8 miles N. of Navarin.

**ZONCOLUCAN,** a mountain of Mexico, in the province of Guazacac.

**ZONDAGS,** a river of Africa, which runs into the Indian sea, N. lat. 31° 20'. E. long. 25°.

**ZONDORO,** a town of Hungary; 26 miles S.W. of Cefchau.

**ZONE,** *Zona*, q. v. *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 *torrid*, *frigid*, and *temperate*.

**Zone, Torrid,** 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 torrid zone uninhabitable.

**Zones, Temperate,** are two fasciae, or bands, environing the globe, and contained between the tropics and the polar circles. The breadth of each is 45° 4'.

**Zones, 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 46° 56'.

The difference of zones is attended with a great diversity of phenomena.

1. In the *torrid zone*, the sun passes through the zenith twice a year; and his recedes 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 temperate and *frigid* zones, the least 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 fun rises, at the same time, to a greater height, the height of the pole is the least, since the inclination of the circles of diurnal revolution to the horizon is least.

3. In the temperate and *torrid* 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 lefs distant from the frigid zone.

4. Where the temperate zones terminate on the *frigid*, the height of the pole is equal to the sun's distance from the pole, when in the neighbouring tropic; and consequently, once a year, the fun, in its diurnal motion, performs an entire revolution, without going down under the horizon.

5. Every where, in a *frigid* zone, the height of the pole is greater than the least 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 fun recedes from it, exceeds the height of the pole, or latitude of the place, the fun rises or sets every natural day.

**Zone, Circulus* or girdle, part of the ecclesiastical dres of the Roman Catholic minister. The use of it being derived from the church of Rome, it was called *Zona Romana*.

**Zone, Ciliary,* in *Anatomy*, the black impression of the ciliary processes on the vitreous humour. See *Eye*.

**Zones, Greater and Smaller, of the Iris,* arterial circles produced by the Anastomoses of the arteries. See *Eye*.

**ZONGHAN,** in *Geography*, a town of Cochimachina, near the sea. N. lat. 14° 30'. E. long. 108° 48'.

**ZONGO,** or *Morena,* a river of Africa, which runs into the Atlantic, near Old Benguela.

**ZONITES,** in the *Materia Medica of the Ancients*, a name given to a kind of totty, called *allo placitis*. It had the latter name from the Greek *zónitikos a curr*, it being formed by way of crust on the sides of the furnaces. The latter name *zonites* was given from its being formed of several coals, which, when broken transversely, had the appearance of belts or zones. See *Taphani,* and *Tomo*.

**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.

**Zonitis,** in *Entomology*, a genus of the *coleoptera* order of insects, the characters of which are, that the antennæ are fetaeous; the palpi four and filiform, and shorter than the whole jaw; and the lip emarginated. There are two species; *viz.*

**Chrysomelana.** Yellow, with wing-sheaths having a point in the middle, and the apex black: found in Egypt and the East.

**Flava.** Reddish, with wing-sheaths yellow, and black at the apex.

**ZONNAR,** a kind of belt, or girdle, of black leather, which the Christians and Jews of the Levant, particularly those of Asia, and the territories of the grand signior, are obliged to wear, to distinguish themselves from the Mahometans.

The word is corrupted from the vulgar Greek; a contraction of *zónaros or zóna girdle*.

It was Motavakkil X. kaliph, of the family of the Abbasides, that first enjoined the Christians, &c. to wear the zonnar.

The ordinance to this effect was published in the year of the Hegira 235.

Hence, as most of the Christians of Syria, Mesopotamia, &c. are either Nestorians or Jacobites, those sectaries are often called *Orihians of the girdle*.

**ZONOSBIO,** in *Geography*, an Indian town, belonging to the Seneca tribe; 2 miles N. of lake Seneca.

**ZONS,** a town of France, in the department of the Roer, situated on the Rhine, with a castle: at this place a river-toll is paid; 13 miles N.N.W. of Cologne. N. lat. 51° 4'. E. long. 6° 43'.

**ZOOGRAPHY,** formed of *ζωος animal,* and *γραφεi* describe, denotes a description of animals.

**ZOOLATRIA,** *ζωολατρις* composed of *ζωος* an animal, and *λατρις* worship, a species of idolatry, in which divine worship is offered to animals.

**ZOOLOGIA,** *ζωολογια,* composed of *ζωος* life, or *ζωος animal,* and *λογος* speech, discourse, a discourse or treatise upon animals, or living creatures.

Zoology 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 the rest under the name of ornithology; that of quadrupeds, under the name of tetrapodology; and we have for the rest, the words entomology, amphibiology, 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 there are no better divisions than those of the families of these things, and that the authors may as well set up separate studies under the names of entomology, amphibiology, and the like, as those.

A natural division of the subjects of zoology, on this principle, will afford fixed 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 order of animated beings, the zoophytes. Arเตd's Ichthyol. See Quadruped, Bird, Fish, &c.

ZOOMBO, in Geography, a town on the west coast of Celebes. S. lat. 3°. E. long. 110° 10'.

ZOUMINERALIA, 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 Zophonius, 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 ζοων, animal, and ζωος, I bear.

The Greeks sometimes also call the zodiac zoophorus, because of the signs and constellations in it.

ZOOPTHALMUS, in Botany, a name given by the ancient Greeks to the sedum majus, or common great house-leek.

It had this name from the Greek ζοων, an animal, and ζωοςια, an eye, as expressing a resemblance to the eyes of large animals, in the round and radiated growth of its clusters of leaves. They also called it ambrosia.

ZOOPHYTON, Zoophyte, Zoopotes, compounded of ζοων, animal, and ζώος, plant, q. d. plant-animal, in Natural History, a kind of intermediate body, supposed to partake both of 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, MADREPOura, MILLIPORA, Cellepora, IAS, ANTIPATERIA, GORGONIA, ALCYONIA, SPONGIA, FLEURA, 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 EMERGO.

Concerning the zoophyte called borama, see AEGUS SCYTICUS.

ZOOHYTAE-Marygold. See MARYGOLD.

ZOOPTERAE, Chemical Composition of. See SHELLS and VERMES.

ZOOTOMY, Zoos, compounded of ζοων, animal, and τομη, 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 Meltene, on this side of the Euphrates. Ptol.

ZOPH, in Geography, a town of Syria; 25 miles S. E. of Jerusalem.

ZORN, a district in the N. part of the government of Diarbekir.

ZOPHA, a town of Friul, in Pomerelia; 10 miles S. W. of Marienburg.

ZOPHOCIDELUS, in Botany, a word used sometimes as an epithet with the word chamleon, and sometimes figuratively as the name of a plant, in both cases expressing the black chameleon-thistle, which the ancients carefully distinguished in their writings from the white kind; the former being a poisonous plant, the other not.

ZOPHORIC. See ZOOHYTAE.

ZOPHORUS. See ZOOHYTAE.

ZOPISSA, Zopiss, 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 ζωος, bull, I boil, and νέφος, pitch; q. d. concordant pitch.

This matter, by being gradually penetrated by the salt of the sea, becomes impregnated with its qualities; and, being applied to the body externally, is found resolutive and digestive.

ZOPPO, in the Italian MYCO, is applied to all those counterpoints described under the article OBLIGATO, &c. Thus they say, contra-punto alla zoppa, a lame or hopping counterpoint; because, in these, 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 skips, like those of a lame person. See the example here annexed.

There are contra punto alla zoppa sopra il soggetto, as well as fatto il soggetto, i. e. above and below the subject. See SOGGETTO.

ZOPPOLA, in Geography, a town of Italy, in Friul; 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,
ZORA, in Geography, a town of Africa, on the coast of Barca. N. lat. 30° 45'. E. long. 18° 30'.
ZARAMBUS, in Ancient Geography, a river of Asia, in Carmania. Ptol.
ZORBI, or Little Zerbst, in Geography, a town of Saxony, in the circle of Leipzig, with a citadel; 15 miles S. of Deltau. N. lat. 51° 40'. E. long. 12° 18'.
ZORECZA, a town of Lithuania; 80 miles E.S.E. of Pinkf.
ZORGE, a town of Saxony, belonging to the abbey of Walkenried; 6 miles N.E. of Walkenried.
ZORGE, 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.
ZORILIS, in Zoology, a species of weasel, 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 pelliferial vapour overcomes even the panther of America, and stupefies that formidable engine. Pennant. See Viverra.
ZORITA, in Geography, a town of Spain, in New Castile; 12 miles N.W. of Huesca.
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, passes by Brumath, and enters a canal which communicates with the Rhine, 8 miles N. of Strafburg.
ZORNOD, a town of the New Mark of Brandenburg, where the king of Prussia defeated the Russians in the year 1758, near Cuftrin.
ZORNIA, in Botany, received that name from the late Prof. Gmelin of Gottingen, the compiler of a very faulty edition, at least as to the botanical department, of the Systema Naturae of Linneaus. 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 1730, 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. Thesefigures are coloured in the Nuremberg file; 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 portatil of Thomas Pancerius, and according to Dandridr. Bibl. Banks, v. 5. 406, died in 1717, at the age of 78.—Gmel. Syöf. Nat. v. 2. 1996. Michaux Borcel-Amer. v. 2. 76. Pursh 484. Poiret in Lamarck Dict. v. 8. 872. (Anonymo n. 279.) Walt. Carol. 181.—Claus and order, Diadephia Desandria. Nat. Ord. Papilionacei, Linn. Leguminose. Juli.
Obfl. The habit of this genus is so peculiar, and so unlike Hedyasarum, much more resembling Stylomasynes, (see the above 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 spikes, with large leafy bracts. The species have not yet been well discriminated. We shall endeavour to explain them, with the help of original specimens.
Raii Hift. v. 3. 404.—Leaflets two, lanceolate, uniform. Branches 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 sandy soil. Root annual, tapering, warty. Stems several, diffuse, from four or five inches to a foot long, round, fider, zigzag, smooth, leafy, with short alternate branches. Leaflets simply conjunct, alternate; leaflets from half an inch to an inch long, elliptic-lanceolate, entire, blinfith, tipped with a small point, unequal at the base, smooth on both sides, not quite seifile at the extremity of the common footstalk, which is about the length of the leaflets, cylindrical, smooth, with a longitudinal furrow above. Stipules half-arrowshaped, ribbed, entire, pointed at each end. Flowers yellow, in axillary, solitary, falked, lax, bracted; spikes longer than the leaves, each spike of from three to eight alternate flowers. Branches one pair to every flower, twice or three-, two-ranked, converging, flat, ovate, acute, entire, strongly fringed, three or five-ribbed, bespined with reflexed dots, elongated at the base into a short oblique spur, permanent, their surface smooth. Legume near an inch in length, longer than the branch, of about four semi-ribicular joints, finely reticulated, and beset with spreading brown, barbed prickles, which are rough with minute reivered hairs, but we cannot perceive that the surface of the legume itself is downy, at least not invariably. The reflexed dots scattered over the branch seem peculiar to this species. Those parts are full as much fringed in this as in the H. conjunctum of Willdenow, though his definitions indicate otherwise.
2. Z. reticulata. Reticulated Zornia. (Hedyarum diphyllum z; Willd. Sp. Pl. v. 3. 1178. A; Lamarck Dict. v. 6. 424. H. diphyllum; Swartz Offl. 285. H. n. 10; Browne Jam. 301, excluding the synonyma. H. minus diphyllum, florue luteae; Sloane Jam. v. 1. 185.)—Leaflets two, lanceolate; the lower ones elliptical. Branches ovate, as long as the legume, strongly reticulated and fringed, without 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, and most unquestionably specifically distinct. The leaves are straight, a foot long, scarcely 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 reticulations, and the total width of reflex or glandular dots, though their whole surface is minutely granulated, as it was, like those of the foregoing species. *Legumes* have three or four joints, and their surface, as well as their prickles, is downy. They are almost entirely covered by the *bracteas*.

3. *Z. conjugata*. Ovate Zornia. (Hedyfarum conjugatum; Willd. Sp. Pl. v. 3. 1178. H. diphyllum; Linn. Sp. Pl. 1053. H. n. 291; Linn. Zeyl. 135. H. bifolium; H. foliolis ovatis, filiculhis apferis, geminis, inarticulis; Burm. Zeyl. 114. t. 90. f. 1.) *Onobrychis maderafpatana diphyllus*, filiculhis apferis; Pluk. Phyt. t. 102. f. 1.) —Leaflets two, ovate, uniform. *Bracteae* 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 lath in size, but differs in many essential points. The *leaflets* are ovate, not so long as their common *footstalk*. *Bracteae* more pointed and elongated at the base, ribbed, but not strongly reticulated; their substance quite delile 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 consists 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 diphyllum; 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, whom we have specimens, which abundantly show his plant to be different from any of the foregoing, and justify him in saying that, with respect to it at least, Plukener'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*, in which the lower leaves are about half an inch in length, nearly orbicular, obtuse; in the upper gradually more elongated, ovate, or ovato-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 inception, below which is a blunt elongation downwards, most like that of *Z. reticulata*; they are somewhat hairy, as well as slightly fringed. *Corolla* yellow. *Legumes* 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 supposed variety of *Hedyfarum diphyllum* from Porto rico, which is larger than the common kind, and whose *leaves* are "fligetis beneath;" by which expression is probably meant briliy, or hairy. This, if not our *Zornia latifolia*, must be a hitherto non-descript species, of which we have not materials to give a definition.

5. *Z. heterophylla*. Various-leaved Zornia. (Hedyfarum tetraphyllum; Thunb. Aét. Nov. Uspal. v. 6. 44. t. 3. Prodr. 132. Willd. Sp. Pl. v. 3. 1203. Lamarck Dict. v. 6. 405, variety 2.) —Leaflets three or four, lanceolate. *Stipulas* half-arrowshaped. Base of the *bracteas* elongated and acute.—Gathered by Thunberg in the interior part of the country, above the Cape of Good Hope, near Galgebergh, flowering in November and December. The *flowers* are 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, entirely an inch long. *Stipula* 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 oval 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. tetrphylla*. Four-leaved Zornia. Michaux Borealis. Amer. v. 2. 76. t. 41. Pursh n. 1. (Z. braBeas; Gmel. n. 1. Anonymus braBeas; Walt. Carol. 181. Hedyfarum tetraphyllum; Lamarck Dict. v. 6. 405, n.) —Leaflets four, lanceolate. *Stipulas* ovate. Base of the *bracteas* somewhat elongated, oblong.—Native of sandy fields in Lower Carolina. Perennial, flowering in July and August. About a foot high, much branched. *Flowers* yellow. *Purp. We have here ventured to distinguish this from the last-difcribed species, by the characters afforded in the plates cited, without our having even seen a specimen of either. We are fully aware of the hazard of such a 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 confused, we propose the above character. If the figure of Michaux be exact, as to the *stipulas* and *bracteas*, there can be no doubt on the subject, and it was drawn by no less an artist than Redouté. The *stipulas* are there represented perfectly ovate, without any spur, or elongation, at the base, and not half the usual size in this genus. Thone of Thunberg’s plate are like the rest of the species. This is the most important difference, though the short and blunt spur 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 a close resemblance between all the species of *Zornia*, 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. Houtlouin is recorded as having sent to Miller, before the year 1733, something which has always passed for *Hedyfarum diphyllum*. This must have come from South America, or the West Indies, and was therefore not *Nelam-mari* of Rheedie, our *Zornia angulifolia*; 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, HAZOUR, in Ancient Geography, a place of
of Asia, on a part of mount Taurus, called Nicephates, where the Tigris opened a subterraneous passage, N.W. of Amida.

ZORASTER, Zerdust, or Zardush, 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, Motes, Obris, Mithras, and others, both gods and men, have by different writers been ascribed to have been the fame with Zoroaster. Many different opinions have been also advanced concerning the time in which he flourished. Aristotle and Pliny fix his date at 6000 years before the death of Plato; Hermippus says, that he lived 5000 years before the Trojan war; but these are idle tales, which should, without doubt, be classed 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 500 years. 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 Zorosaster, a Perfo-Median, who flourished about the time of Darius Hytapas, and that besides him there was another Zoroaster, who lived in a much more remote period among the Babylonians, and taught them astronomy. The Greeks and Arabians are agreed concerning the existence of the Perian 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 Hytapas; so that it seems necessary to suppose a Chaldean Zoroaster distinct from the Persian. Concerning this Zoroaster, however, nothing more is known, than that he flourished towards the beginning of the Babylonish empire, and was the father of the Chaldean astrologists and magi. (See Chaldean Philosophy and Magi.) All the writings which have been ascribed to the Chaldean Zoroaster are unquestionably forgeries. The Persian Zoroaster was probably of Persian extraction, and born in Media. Although much of what has been related concerning this Zoroaster or Zerdusht, the instruction which he received from the Jews, is fabulous; nevertheless it is not improbable that he might have learned some things from the inhabitants of the region in which he lived, of what nature we can here make no certain report, but which might enable him to correct the doctrine of the Perian 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 Chaldean wisdom; but they have so many evidences in their style and language of their origin in that school, as to render it probable that they were written by some Plato-like, about the beginning of the second century; a period in which copious writings were produced in order to support the linking credit of Gentile philosophy.

The learned Dr. Hyde, and after him Dr. Prideaux and several others, are of opinion, that Zoroaster was the same with the Zerdusht of the Persians, who was a great prophet of the Magi, and that he lived between the beginning of the reign of Cyrus, and the latter end of that of Darius Hytapas.

Dr. Warburton (Legation, vol. ii. part i. p. 8.) confuses Hyde and Prideaux for making an early Bactrian law-giver, to be a late Persian false prophet, and says this whole story of him is mere fable, contradicting all learned antiquity, and supported only by the romantic relations of later Persian writers under the caliphs.

Dr. Baumgarten likewise (Anc. Un. Hist. Suppl. vol. ii. p. 305, &c.) represents it as doubtful, whether the Persian Zoroaster ever existed, calls in question the credibility of the oriental writers who give his history, and makes the whole to be a forgery in later times by the fire-worshippers of Persia.

The learned Mr. Bryant (Anal. Anc. Mythol. vol. ii. p. 107.) observes, that there are more perions than one spoken of under the character of Zoroaster; though there was one principal to whom it more truly related. Of men, styled Zoroaster, he says, the first was a deluded personage, revered by some of his posterity, whose worship was called Magia, and the professors of it Magi. This worship was transmitted from the ancient Babylonians and Chaldeans to the Persians, who, succeeding to the sovereignty of Asia, renewed under their princes, and particularly under Darius, the fire of Hytapas, those rites which had been in a great degree effaced and forgotten. The Persians, says this learned writer, originally derived their name from the deity Peres, or Perez, the son; whom they also worshipped under the title of Zor-After. On occasion of the diptrels to which they were reduced upon the death of their last king Yefdegard, they retired into Gedrofia and India, where people of the same family had for ages refted, and carried with them those shattered memorials of their religion in writing, whence the Saddar, Shafler, Vedan, and Zendavesta, were compiled; and upon these the religion of the Brahmins and Perfees is founded. The person who is supposed to have first formed a code of institutions for this people is said to have been one of the Magi, named Zerdusht; the same, as Hyde and others suppose, both in character and name, with Zoroaster; but Mr. Bryant discovers no resemblance between them. There were, indeed, many persons of this name in different parts of the world, who were magi or priests, and denominated from the rites of Zoroaster, which they followed. We read of an Assyrian, Medo-Persian, Proconnesian, Bactrian, Pamphylian, Chinefe, &c. Zorosaster, supposed by Dr. Hyde to have been one and the same. But Mr. Bryant thinks that their respective histories furnish evidence sufficient of their being different persons; and besides, there seems to have been one person more ancient and celebrated than the rest. As for the Zoroaster or Zerdusht of Hyde, he lived in the reign of Darius, the father of Xerxes, about the time of the battle of Marathon, and consequently not a century before the birth of Eudosus, Xenophon, and Plato. This Zer-
many thousand years before Moses. Upon the whole it appears, that no memorial upon record is placed to high as the ancient writers have carried this personage; and though their accounts are for the most part exaggerated, yet they fully afferm 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 Chus, for Mizraim, and for Nimrod, and Hucetus 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 defiled mortal, and the prototype in the Magian worship. This writer supposes, that, as the object of the Peric and Chaldac worship was the sun, and most of their titles were derived there, Zoroaster denoted Sol Allerius; Zor being the fun, and Aller signifying sun.

The abbe Toucher, in a long series of memoirs, inferred in the 25th, 26th, 27th, 28th, 30th, and 31st vols. of the Histoire de l'Academie 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 Pliny, that the most celebrated Zoroaster was an ancient sage, who lived under Cuxaeres, king of the Medes, restored the worship of fire, was revered by the Persians as a celestial prophet, and whose euctacies, prodigies, and revelations, made a great noise in the world. See Zendavesta.

ZOROPASSUS, in Ancient Geography, a town of Asia, in Lesser Armenia, dependent on the precurse of Murianne. PIto.

ZORVI, in Geography, a town of Asia, in the province of Diarbekir; 22 miles E. of Anfa.

ZOSAWA, a river of Moravia, which runs into the Friawala, 6 miles W. of Hohenfeld.

ZOSIMA, in Botany, an umbelliferous genus, thus called by professor Hoffmann, in compliment to three brothers, Anathautios, Nicholas, and Zoa Zosima, distinguished for their editions of numerous works of the Greek classics. This botanical commemoration seems chiefly owing to the great propen- sity, (" magnus propeptus!") 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 could possibly be.— Hoffm. Ubbell. v. i. 145; t. 1. B. f. 9.—Claes and order, Paeandria Digyna. Nat. Ord. Umbelliferae.

Gen. Ch. General and partial Umb of many unequil rays. General and partial involucrem of many, linear-lanceolate, acute, unequil, villous, permanent leaves. Perianth of five unequal, very short, permanent teeth. Cor. Universal nearly regular and uniform; flowers partly perfect and fertile; the central and lateral ones, in each umbel, male; partial of five, nearly equal, spreading, inverely heart-shaped, deflexed petals; rather concave, on each side, at the keel; tapering at the base; obliquely inrolled 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; others very tabile, roundish, two-lobed. Pifh. in the perfect flowers, Gemen inferior, ovate, comprefled, villous; flowers two, thread-shaped, channelled; their timid base wav and crenate at the margin; at length reflexed and permanent; fibr nas simple, obtuse. Peric. Fruit roundish-obovate, comprefled, finely downy, bordered; the border externally tumid, and somewhat corrugated, internally flabriped; emarginate at the summit, crowned with the stigmas.

Vol. XXXIX.

on their short, nearly sessile, crisprefed bafe; thickened at the bottom; the disk elevated and flabriped. Stam. of a similar shape, convex in the middle, with three elevated, narrow, central ribs, and two marginal ones; their interflaces, in the upper half, occupied by four coloured stripes.


1. Z. orientalis. Oriental Zosima. Hoffm. n. 1. (Heracleum absinthifolium; Venten. Choix de Pl. 7. t. 7. March. a Biberf. Taur. Caucaul v. i. 224. Sphondylum orientale hulium, folis absinthii; Tourn. Cor. 22.)—Native of Persia, Georgia, and other countries about Caucasus, flowering in the early part of summer. The root is biennial, tap-shaped, milky. The whole herb when bruised smells like Smallage, Apium graveolens. Stem erect, near two feet high, cylindrical, furrowed, somewhat branched, and slightly leafy, about as thick as a man'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 one of from twelve to fifteen flowers, which, according to Ventenat, are milk-white, but Hoffmann describes the petals of a yellowish-green. German down. If the flowers are really white, we should suspect this plant to be nearly related to Heracleum tomentosum, Sm. Prodri. Fl. Græc. Sibth. v. i. 192, which will be exhibited in t. 281, of the Fl. Græca; 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 leaf indeed is itself fo unlike Hoffmann's t. 1. B. f. 9. (be 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 fo natural a family, the skill of a botanist is shown 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 case; because the generic distinctions of Umbellate plants are still judicious.

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 sixth of which furnishes a slight view of the emperors, from Augustus to Diocletian; and the others detail the public events that occurred to the second half of Rome by Alaric, and the pontificate and deposition of A Dd.
him to his communion. That of Pelagius was likewise approved. The African bishops, however, who were hostile to the Pelagian doctrine, interred the emperor Honorius in their favour; and obtained from the pope an anathema of the doctrine of Pelagius and Cælestius, 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 instances 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 hasty, tenacious, and imperious. His thirteen epistles, that are extant, are written with spirit and elegance. He was canonized, as Bower says, by a mistake of cardinal Baroni, who supposed him to be a St. Zosimus in the martyrology 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. 13° 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 cincture, the inhabitants pretended that the borough bore this name, because Latona, finding herself in this place, and feeling that her time was approaching, unloosed her cincture. Faust. in Attic. c. 31.

Zoster, a word used by fome to express that kind of herbes, called by others nona and singilla, and by us usually known under the name of the single.


Gen. Ch. Cal. Spadix linear, flat, sheathed by the base of a leaf, bearing an indeterminate number of flowers on one side. Perianth none. Cer. none. Stam. Filament none; another fellese, erect, closely pressed to the spadix, simple, cylindrical, a little wavy, tapering at each end. Pist. Germen solitary, parallel to the anther, and of nearly a similar shape; style one, obliquely curved, shorter than the germen; stigmas two, linear, acute, spreading. Peric. Capsule pendulous, elliptical, membranous, of one cell, not furled. Seed solitary, oblong, frisated.


Obf. The above is the view of the genus in question, first given by Garttner, and confirmed from actual observation in the English Botany and Fl. Brit. Vahl adopts the same idea as ours of the place of this genus in the artificial system. The seed has a large, oval, half divided cotyledon, as we would call it; Garttner terms it a vitellus. (See the article York of the Seed.) From this genus is to be separated Z. oceanica of Linnaeus, which belongs to Cailinia Of De Candolle and Gervais; Paffodio of König in Ann. of Bot. v. 2. 95 t. 61. Kennera of Willd. Sp. Pl. v. 4. 947; but which is different from Cailinia of Willdenow; see that article.


b. Fucus marinus, feu Alga marina graminea mine; Rai Syn. 52. (Algoidez; Mich. I. Ind. t. 60. f. 2.)

g. Fucus, five Alga marina graminea angulifolia femini-

fera ramifier; Rai Syn. 52. (Algoidez; Mich. I. Ind. t. 59.)

3. Potamogiton marinus in urticulis epiphylluspermon minus; Rai Syn. 53.

1. Alga angulifolia vitrariorum; Rai Syn. 53.

Leaves entire, obscurely three-ruffled. Stem slightly compressed. Native of the sea-shore, or salt muddy ditches and creeks throughout Europe, possibly of New Holland and North America also, flowering towards autumn. The root is perennial, fibrous. 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, simple, a little compressed. Leaves alternate, tapering at the base into a kind of sheathing footstalk, linear, a foot, or much more, in length, flat, smooth, blunting, quite entire, splitting longitudinally a little above the base, on the upper side, and putting forth from that a linear, obtuse, flat receptacle or flabell, two inches long, covered in front with a series of naked flowers. Each of these flowers consists of a green anther, and a pilus of the same hue, par-

allel to it; but in such an alternate order, that the anther of each flower is contrary to that of its neighbour, and stands above the pilla of the latter. The whole herb is flaccid and tender; yet Linnaeus says it is used in some parts of Sweden to make a thatch, which is very durable, and likewise to float up chinks in wooden buildings. It serves also for ma-

rure, as well as the various kinds of sea-weed.

Whether the varieties above indicated may or of them prove distinct species, must be left for future inquiry. The B is a small slender plant, differing in nothing but its leffer dimensions from the common kind. It is well represented in one of Micheli's unpublished plates. 7 is larger, more compact, and branched; we can scarcely doubt its being Micheli's t. 59. Of the others we know no more than can be gathered from Ray's Synopsi.

Z. oceanica of Linnaeus is quite different from any of these suppos'd varieties, constituting a distinct genus, called Paff-fo-dio Calvini, 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 Cailinia, but it is not Willdenow's. In Micheli's unpublished figures 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. Horner, in a paper published by the Geological Society, in their Transactins, v. 4, mentions the submarine remains of a forest, on the Suffolk coast, in the brown vegetable earth, accompanying which are found fragments of a plant, whose leaves were thought by Mr. De Candolle to resemble Z. serri marina, except that, being much broader than usual, he supposed them to 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 leaves in
in this whole tribe, 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 specimens, are but one-third or one-fourth of an inch wide, and from three inches to eight inches long. Z. marina differs with us from one-eighth to one-fourth of an inch in width, and if the above synonyms be all right, its variations are still greater.


ZOLOXISIA, in Botany, was so named by the late professor Wildenow, in honour of the late Charles de Zois, a dig- 

nified ecclesiastic, reared in Carniola, who has long nur- 

sed with ardour the investigation of the botanical trea- 

tures of that country, and who is celebrated by Hoff, Wulffen, 

Jacquin, and other eminent writers, for the assistance which 

he has at various times afforded them.—“Wild. in Nov. 


Holl. v. i. 208. (“Matrella; Perf. Syn. v. i. 73.”)— 

Chafs and order, Triandria Diggynia. Nat. Ord. Gramina, 

Linn. Juff.

Gen. Ch. Cal. Glume of one valve, single-flowered, 

ovate-oblong, comprefled, cartilaginous, smooth, rigid, 

keeled, incurved, gaping at the apex of one edge; convex 

on one side; flattish on the other. Cor. Glume of two 

thin, membranous valves, enclosed within the calyx, awn- 

less. Nectary none. Stam. Filaments three, capillary, 

the others hafted. Pijf. German superior, linear, 

minute; 23, 45, 57 miles, the length of the calyx; $\text{fligmas}$ promi- 

nent, feathery. Peric. none, except the permanent glumes. 

Seed solitary, linear, inwetted with the calyx and corolla.

Eff. Ch. Calyx of one valve, single-flowered, comprefled, 

cartilaginous. Corolla of two membranous valves, within 

the calyx. Stigmas feathery. Seed linear, inwetted with 

the glumes.

1. Z. pungens. Sharp-pointed Zosna. Wild. as above. 

Brown n. i. (Agralis Matrella; Linn. Mant. 185. Wild. 


73.”)—Gathered in sandy ground, on the coast of Malab- 

bar, by Koenig; and near Port Jackson, New South 

Wales, by Mr. Brown. This is a small perennial grafs, 

with a creeping root, enveloped in theeathing furrowed scales. 

Stems alternate, ascending, flender, thread-shaped, flinte, 

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, clofe $\text{fociata}$, concealing 

the joints of the $\text{fem}$. $\text{Sipulf}$ of several spreading 

hairs. Clyfers terminal, solitary, quite flinte, of ten or 

twelve nearly fefile, alternate, erect flowers, remarkable for 

their smooth ivory-like glumes, about two lines in length, 

out of which, at the tip, project the feathery $\text{fligmas}$.

Linnaeus was inclined to make this a diffinct genus by the 

name of Matrella; derived from matrius, and alluding to an 

anatomical resemblance, too obfure to be very inftuctive, 

if it were liable to no other objection. Such allusions were 

allowable enough while botany remained the abftrufe study 
of philosophers and physicians; but in proportion as it be- 

comes general and popular, they are either ufelefs or cenfurable.

This grafs might be forced into Agralis as the definition of 

that genus fixed in Linnaeus, but has certainly no natural 

habit, nor any preclude character, in common therewith. 

Mr. Brown remarks, that the corolla, (his perianthibum,) is 

inverted, or contrary to the single-valved calyx; on which 

account, added to the nearly spiked infloréence, he ranges 

Zosna near Rotisalla. We cannot but think it rather more 

related to Panicum Dayilton of Linnaeus, Haller’s Digiaria; 

though in fact so diffinct in its nature, as not to associate 

well with any thing.

ZOZONISIUS, in Natural History, a name of one of 

the gems 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.
ZRATSCHÉ, in Geography, a town of Bohemia, in the circle of Czsalou; 16 miles S.W. of Czsalou.
ZRIN, a town of Croatia, near the river Una; 40 miles E.S.E. of Carlistadt. N. lat. 45° 16'. E. long. 16° 53'.
ZSCHOPA. See Tschora.
ZSCHORLAU, a town of Saxony, in the circle of Erzgebirg; 10 miles S.S.E. of Zwickau.
ZSOKEN, a town of Saxony, in the circle of Erzgebirg; 8 miles N.W. of Grimnaya.
ZUQUIL, a town of New Mexico, in the province of Sonora; 8 miles S.S.E. of Pitquin.
ZUATA, a town of New Grenada; 45 miles N.N.E. of Tunja.
ZUBETH, a town of Peru, in the province of Chuñafan; 105 miles N.W. of Sufter.
ZUBIA, a town of Spain, in the province of Grenada; 4 miles S.E. of Grenada.
ZUBTZOY, a town of Russia, in the government of Tver, on the Volga; 68 miles S.W. of Tver. N. lat. 55° 46'. E. long. 54° 58'.
ZUCARELLO, a town of Genoa; 7 miles N.W. of Albenga.
ZUCCAGNIA, in Batany, fo named by the late abbé Cavanilles, in honour of Dr. Attilius Zuccagni, superintendent of the garden at Florence. —Cavan. l.c. v. 5. 2. Poor in Lamark Dict. v. 8. 875.—Clafs and order, Decandria Monogynia. Nat. Ord. Lomentaceæ, Linn. Leguminosæ, Juss.
Gen. Ch. Cal. Perianth inferior, of one leaf, colourèd; tube turbinate; limb in five deep, oblong, obtuse, permanent segments, the lower one a little the longest. Cor. Petals five, obovate, inserted into the calyx; the uppermost broadest, vaulted. Stam. Filaments ten, awl-shaped, ascending, hairy in their lower part, about as long as the corolla; anther roundish, of two lobes, divided by a furrow. Pillé. Germen superior, roundish, compressed; style capillary, of the length and portion of the filaments, smooth; stigma 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. Cavanillæ.
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.

i. Z. puntata. Dotted Zuccagnia. Cavan. as above, t. 403. Poor in n. 1.—Native of hills in Chili, between Portillo and the springs commonly called Manantiales, bearing flowers, as well as feed, in January. It was communi-
cated to the author by Louis Néé, to whom differences in South America and New Holland his Bowes are so much indebted. The stem is shrubby, four or five feet high, with numerous, twilled, glutinous branches. Leaves alternate, abruptly pinnate, of numerous, alternate, false, elliptical, entire, glutinous leaves, each one-third of an inch long, marked on both sides with blackish retinuous dots. Clafiers terminal, solitary, simple, of several rather small flowers. Partial flæk one-third of an inch long, each with a little acute štírka at its base. Calyx smooth, reddish-brown, rather shorter than the corolla. Petals a line and a half long, færon-coloured, with darker veins. Anthers deep orange. Legume about three lines in length, clothed with long rusty hairs. Seed of a shining brown. This pretty shrub does not appear to have been raised in the gardens of Europe.

ZUCCARIO, 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 Ot-
taviano Zuccaro 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 all store 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 Franceco d’Agnolo 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 employ-
ment. He divided his time between this labour and copying from the works of Raphael, in the Palazzo Ghigi particularly, and was often compelled to sleep under the loggie of the palace, being unable to procure better accom-
modation. Weary at length of so much misery, he returned to his father, but soon left him to revist the great emporium 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 Franceco d’Agnolo noticed him, and for a time they worked together. Afterwards he was engaged by Daniele da Parme, a scholar of Correggio 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 Zu-
caro, according to Vafari, painted a large portion of the subjects required. When this was done, he returned to Rome, and was employed by G. Mattie to paint a façade of the Palazzo Mattei in fresco, where he executed, in chiaro oscuro, nine historical pieces relative to the history of Turco Camillo. He was then only 18, and the execution of them was a matter of surprise 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 canes, and he returned to Rome in the time of Julius III., who em-
ployed him, under Vafari, in the Vatican, to paint in a frieze the labours of Hercules, which were afterwards de-
stroyed by pope Paul IV. to make room for other works. Hitherto he had been principally employed upon ornamental subjects, but now a more 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 Farnefe, in the Palazzo Caprarola. This is his greatest work, and is that wherein his reputation most de-
pends. He was liberally paid by the cardinal. The whole ornamental part of the building was entrusted to his care, and he laboured with great earneftness to make it honour-
able to himself and pleasing to his employer. It has been engraved by Premer in a set of 45 plates. Tadeo Zuccaro died at Rome in 1566.

ZUCCARO, Federigo, was a younger brother of Tadeo just mentioned, and born in 1543. He received his instruc-
tion 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 labour for himself. Pope Pius IV. employed him, in conjunction with F. Bar-
ner, 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 Farnese. He was invited to Florence by the grand duke to finish the cupola, left imperfect by Vafani, 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 some time 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 fat 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 Battilina 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 sufficiently 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 Zucchiros were more splendid than great. They designed and executed with facility; but aiming at grandeur, fell into manner; and the vice of mannerism touched also the colour and chiaro ocearo 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 afford the spectator.

ZUCCHABARI, CHADARA, in Ancient Geography, a town of Mauritania Caffariensis, situated on the left bank of the river Chinalah, and towards the north-east of mount Zalacus. This is very probably the Succabar and Colonia Augnita of Pliny.

ZUCCHARA, ZUANGGAR, an ancient town of Africa, and the most northerly of those which lay between Zingithania and Bisaarum. Its magnificent ruins and its temple are the coverts of Arabs.

ZUCCHERElli, FRANCESCO, in Biography, a very pleasing landscape painter, was born at Psiigliano in Tuscany, in 1702. He for some time attempted history, but abandoned it, and adhered solely to landscapes, which he adorned with very agreeably composèd 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 liberal act 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 suppfession of a monastery where he had lodged the money he had acquired. He again resumed the pencil to support himself, and died at Florence in 1738, aged 86.

ZUCCO, in Geography, a town of Italy, in the county of Friuli; 5 miles N.W. of Friuli.

ZUCCORA, a river of European Turkey, which runs into the Morava, near Nikia.

ZUCHABARUS, in Ancient Geography, a mountain of Africa Propria, in which the river Cyniphs and the fountain Acaba have their source. Herodotus called it "Chalitimons."

ZUCHIS, a lake of Africa Propria, which is, according to Strabo, 400 fadia 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 Silezia, in the principality of Neiffa, the see of a bishop; 17 miles N.N.W. of Jagendorf. N. lat. 50° 8'. E. long. 17° 16'.

ZUCKTOK, a town of Mexico, in the province of Yucatán; 80 miles S. of Campeachy.

ZUDA, a town of Arabia, in the province of Yemen; 12 miles W. of Chamir.

ZUDISHTIRA, in Hindu Mythology, is one of the heroic sons of Pandu, whose wars and adventures occupy a considerable portion of the Mahabarata, an epic poem of great celebrity in the Sanscrit language. See Mahabarat and Shanscrit.

ZUEELA, ZULI, or Zaulia, a considerable 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 cîlers, 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 Laffa. N. lat. 28° 32'. E. long. 88° 10'.

ZYVENIGOROD, a town of Rußia, in the government of Moscov, on the Moskva; 28 miles W. of Moscov. N. lat. 53° 40'. E. long. 35° 34'.

ZUENZIGA, a desert district of Africa, in the country of Sahara, situated to the south of Taritèl.

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 Kotol and the Angara; 60 miles N.N.W. of Irkutsk.

ZUEF, a town of the country of Candahar; 50 miles N.W. of Candahar.

ZUFFERABAD, a town of Hindoostan, in the sublah of Moultan, near the Rauvee; 25 miles N.E. of Moultan.

ZUFFIRWAL, a town of Hindoostan, in Lahore; 16 miles N.N.E. of Selcot.

ZUFFOLLO, in the Italian Music, a little flute or flageolet, having a very shrill sound, like the whistling of small birds.

ZUFOONE, or Mers el Falon, in Geography, a seaport of Algiers; 36 miles W.N.W. of Boujiah.

ZUG, a canton of Switzerland, bounded on the north and
and east by Zuric, on the south by Schweitz, and on the well by Lucerne; only about ten miles long, and nearly as much in breadth. The pastures here are excellent, and it produces also a famous kind of wine, with plenty of fruit, and some vines. On one side of the Zug lake, the country is covered with chestnut-trees, which form a very profitable branch of trade, by the sale of the nuts to the neighbouring countries. This district, on the extinction of the counts of Lenzburg, devolved to those of Kyburg, which latter also failing, it came to the counts of Habenburg, and in them to the house of Austria, towards which it always manifested an inviolable attachment; but in the year 1551, the town of Zug being besieged by the Helvetic confederacy, and not only neglected by the archduke, but even recommended by him to surrender, it followed his advice, and was admitted into the confederacy, to which its territory had previously acceded. The generosity of the conquerors rivalled the courage of the vanquished; for, in consequence of their subjection, the canton of Zug was rescued from the yoke of a foreign master, obtained liberty and independence, and was admitted into the Helvetic confederacy upon equal terms. This canton is the seventh in rank, and among the lesser ones the fifth; besides which, it is in a particular manner connected with Lucerne, Uri, Schweitz, and Unterwalden, commonly called the five territorial confederates. The government of this little canton is exceedingly complicated; and the inhabitants of the town have somewhat more influence, and enjoy a greater share in the administration of affairs, than those of the capital burghs in the five other democratical cantons. The supreme power resides in the inhabitants of Zug, Bar, Egger, and Meutzingen, who assemble yearly to enact laws, and elect their magistrates. The landman, reciprocally elected from each of the four districts, continues three years in office when taken from Zug, and but two years when chosen from each of the three other districts. The general administration of affairs is entrusted to the council of regency, composed of forty members, of whom thirteen are supplied by the district of Zug, and twenty-seven elected equally from the three remaining communities. This council, as well as the landman, resides always in the capital. Zug was the only one of the small cantons which did not send its contingent to the army, but made a show of resistance to the imposition of the new constitution. On the 29th of April, Zug was invaded by French troops, surrendered on the 30th, and on the 1st of May accepted the new constitution. The people of this canton are reckoned the most refined of Switzerland; their general assemblies are often tempestuous, though seldom attended with bloodshed.

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, pastures, and wood. It contains two churches, a convent, a town-house, arsenal, corn-magazine, a college, hospital, &c. The titular saint of this place is Oswald, king of Northumberland in the seventh century, who was defeated and slain in 624 by Penda, king of the Mercians. In the church is his statue, with the inscription: "Sanctus Oswaldus Rex Anglorum. Hujus Ecclesiae." This king was much renowned for his chivalry, piety, and power of working miracles; 15 miles S. of Zurich. N. lat. 47° 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.
with persons of learning, and of contributing to the education of candidates for the ministry. Whist he was at Glarus he expost several superfitions of the church of Rome; and at Einsidlen 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 lefions in the New Testament, instead of reciting their hours. He was also intolerant 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 shew 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, Glaireanus, Hedio, Rheinanus, and other learned persons, he established a reputation which enabled him to encourage liberal studies. In 1518 he was invited to occupy the vacant poft 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 expiated 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, inomuch 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 the reformation, 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 extirpation 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 in preaching openly against indulgences, then against the intercession of the saints, then against the mass, the hierarchy, the vows and celibacy of the clergy, abstention 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 refult 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 "fast 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 proceeded 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 heresy, nor refuted, should continue to preach the gospel as he had already done; that the pastors of Zurich and its territory should rest their discontents 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 instigated a mob to pull down a crucifix that 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 whilst 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 refult was, that all the culprits, except Hottinger their ring-leader, and the person who had actually
but 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 Zwingli 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 Zwingli. They began with causing 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 Mass. The latter event took place by the activity of Zwingli 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 symbolic service. Our reformer displayed in another instance a disinterred 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 poor 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 benefits 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 mendicant, 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. Zwingli was afterwards commissioned to organize a system of public instruction, in which he displayed a cultivated and liberal mind.

The reputation which Zwingli 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 intertemperate 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 maliciously proposed a conference at Baden, in Argovia. His friends, however, were not unapprelied of his danger, and well knowing that the cantons were actuated by inveterate 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 awed 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 mafs, and the introduction of the form of worship established at Zurich. The reformers at Berne summoned a convocation, to which the clergy of the other Helvetic states, and the neighbouring bishops, were invited. Zwingli'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 connection with Zwingli and other coadjutors the canons 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 Zwingli 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 allied Catholic cantons refused to concur with the others in expelling the Spaniards from the Valétine, and peremptorily the reformed in their jurisdiction with the greatest severity. The sufferers sought the protection of Zurich, and the eloquence of Zwingli was employed in recommending their cause to the senate. The breach widened, and a majority of the Protestants agreed in flocking the transit of provisions to the five cantons, which depended upon foreign supplies. Zwingli 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. Zwingli was appointed to accompany them. A battle ensued; and though the Zurichers, animated by their 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 Zwingli 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 luminous 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 a sign of refusal, the soldiers exhorted him to recommend his soul to the holy virgin. On a second refusal, one of them furiously exclaimed, "Die then, obstinate 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 these, who had been his colleague at Zurich, after intently gazing on his face, thus expressed his feelings: "Whatever may have been thy thy, I am sure thou wast always sincere, and that thou lovedst thy country. May God take thy soul to his mercy!" Among the savage herd some voices exclaimed, "Let us burn his accursed 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 occasioning triumph to the partisans of the Romish church.

"In the character of Zuingle," says one of his biographers, "there appears to have been united all that makes a man amiable in private society, with the firmness, ardour, and intrepidity that are indispensable in executing the great task of reformation. By nature mild, his earnestness was the result of his sense of the importance of the cause he engaged in to the benefit of mankind, not of a dogmatic or dictatorial spirit. His views were large and generous, and his opinions rose above the narrow scale of sect or party. It was no small proof of liberality in that age that he ventured to affect his labor of the final happiness of virtuous beholders, and of all good men who act up to the laws engraved on their consciences. His temper was cheerful and loquacious, somewhat busy, but incapable of harbouring resentment, or indulging envy and jealousy. As a reformer he was original; for he had proceeded far in emancipating himself from the superstitions of Rome by the strength of his own judgment, and had begun to communicate the light to others, whilst Luther still retained almost the whole of the Romish system, and long before Calvin was known in the world. He was more learned and more moderate than the first of the 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 subsists unchanged among a people distinguished by their morals and mental cultivation." Life of Zuingle, by J. G. Hefs. Mosheim's Eccle. Hist. Cox's Travels in Switzerland, vol. i. See Zuinglean.

ZUNGLIANS, in Ecclesiastical History, a branch of ancient Reformers or Protestants; denominated from their author Ulric or Huldric Zuingleus. See Zuingle.

As to the eucharist 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 eucharist; and that the bread and wine were no more than external signs or symbols, designed 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 considerable number of their votaries in Germany. On the other hand, Luther held his doctrine, which was consubstantialism, with the utmost obstinacy; and hence arose, in 1524, a tedious and vehement controversy, which terminated, at length, in a fatal division between those who had embarked together in the sacred cause of religion and liberty. From this time, Zuingle propagated his doctrine concerning the eucharist in a public manner by his writings, after having entertained and taught it privately before that period. His "Commentary on true and false Religion," containing his sentiments on this subject, was published in 1525, and followed by a learned treatise of Eccolampadius on the same subject.

With a view of bringing this controversy, which reflected much discredit on the Protestant cause, to an amiable issue, Philip, landgrave of Hesse, invited, in 1529, to a conference at Marpurg, Luther and Zuingle, together with the other principal leaders of their respective parties; who disputed, during four days, in presence of the landgrave. Luther attacked Eccolampadius, and Melancthon disputed against Zuingle. Before they parted, the Swifs and German theologians signed their mutual assurance to 14 articles, containing the essential doctrines of Christianity, and expressed a hope that their difference with respect to the real presence would not interrupt their harmony. The landgrave required from the two leaders a declaration that they would regard one another as brothers. Zuingle readily confessed; but Luther would engage no farther than that, speaking of the Swifs, he would for the future moderate his expressions. In this conference Zuingle was accused of hereby, not only on account of his explication of the nature and design of the Lord's Supper, but also in consequence of the false notions he was supposed to have adopted relating to the divinity of Christ, the efficacy of the divine word, original sin, and some other parts of the Christian doctrine. But though he cleared himself to the satisfaction even of Luther from the greatest part of these accusations, their disaffections concerning the manner of Christ's presence in the eucharist still remained. Nor did it terminate with the death of Zuingle in 1531, nor with that of Luther in 1546. Melancthon and Calvin made several attempts towards promoting a reconciliation between the contending parties. With this view Calvin proposed a system, with respect to the eucharist, more conformable to the doctrine of the Lutheran church than that of Zuingle. He acknowledged a spiritual presence of Christ in this sacrament, and supposed that a certain divine virtue or efficacy was communicated by Christ with the bread and wine to those who approached this holy sacrament with a lively faith, and with upright hearts; and to render this notion still more satisfactory, he expressed it in almost the same terms which the Lutherans employed in inculcating their doctrine of Christ's real presence in the eucharist. But whilst the followers of Zuingle asserted, that all Christians, without distinction, 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 sentiments of the Zuingleans, with regard to the divine decrees, differed very little from that of the Pelagians; nor did they hesitate in declaring, after the example of Zuingle himself, 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 determination 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 ecclesiastical government. The former ascribed an absolute and unbounded power, in religious matters, to the civil magistrate; allowing at the same time a certain subordination among the ministers of the church, and placing at their head a perpetual president, called the superintendent, with a certain degree of inspection and authority over the whole body; but Calvin, on the contrary, reduced the power of the magistrate, in religious matters, within narrow bounds; declaring the church a separate and independent body, endowed with the power of legislation.
legislation for itself, and maintaining that it was to be governed, like the primitive church, only by prebyters and synods, i.e. by assemblies of elders, composed both of the clergy and laity, and leaving to the civil magistrate little else than the privilege of protecting and defending the church, and providing for what related to its external exigencies and concerns. These and other circumstances prevented the union of the Lutheran and reformed churches; though in process of time almost all the latter churches adopted the theological system of Calvin. Mofh. Eccl. Hist. Eng. ed. 8vo. vol. iii. and vol. iv.

ZULAUF, in Geography. See Sulau.

ZULE, a town of South America, in the new kingdom of Grenada; 5 miles S. of Pampelona.

ZULIANA, a town of the republic of Ragusa; 30 miles W.N.W. of Ragusa.

ZULICHAU, a town of the New Mark of Brandenburg, formerly in the duchy of Holstein. This town is the capital of a district, or circle, and the seat of an ecclesiastical inspeétion, situated in a low plain, half a German mile distant from the Oder, and about the same distance from the Ober. The town itself consists only of 250 houses, one parish-church, and a grammar-school; but it has four large suburbs: without the walls is a feast belonging to the king of Prussia, fortified with walls and moats, which serves for the residence of the king's receiver of the prefécture; in this part also stands the Calvinist church. Zulichau contains a good woollen manufacture; 39 miles S.E. of Frankfort-on the Oder. N. lat. 52° 8'. E. long. 15° 45'.

ZULPHA, or JUFFA, a town of Peria, in the province of Irak, on the S. side of the Zenderoud, about a mile and a half from Ipahan, to which it is considered as a kind of suburb; it was built by Abbas I. after he had destroyed Zulpha, in Armenia. In the year 1522 this town was taken by the Afghans, under Maghmad, who demanded of the inhabitants the sum of 70,000 tomans. This suburb has been reduced from 12,000 to 600 families, which is the café with respect to most of the others; and a perfon may ride for miles amidst the ruins of the immense capital, Ipahan, which nevertheless still boasts of 200,000 souls. In the suburb of Zuffa, there still remain nine churches, in which weekly service is performed.

ZULPHA, or JUFFA, a town of Persia, Armenia, on the Aras or Araxes, supposed to be the ancient Arriamene. This town was taken and destroyed by Abbas I., who removed the inhabitants to Ipahan, where they built a faubourg, called Zulpha, containing 4000 houses; some families, nevertheless, returned back to their native place, and took up their residence among the ruins; 60 miles N. of Tauris.

ZULPICH, or ZUHEL, a town of France. This town contains three churches, and several cloisters. In the year 406, Klodwig, king of the Franks, overcame the Alemanni near this place; 18 miles S.W. of Cologne. N. lat. 50° 43'. E. long. 6° 34'.

ZULTZ, or BIALA, a town of Silesia, in the principality of Oppeln, and capital of a circle; 20 miles S.S.W. of Oppeln.

ZULUCK, a small river of Russia, in the country of the Coflacks, which runs into the Kardis, near Baberezovskia.

ZUZ, a town of the Grifions, in Upper Engadine, on the Inn; 31 miles N.N.E. of Chiavenna.

ZUM BÖRS, a town of Germany, in the county of Bregentz, on the river Bregentz; 18 miles S.S.E. of Bregentz.

ZUM CLERELIS, a town of Germany, in the county of Plundonz, on the river Alvens; 9 miles E. of Plundonz.

ZUM HOFS, a town of Germany, in the county of Bregentz, on the river Bregentz; 15 miles S.S.E. of Bregentz.

ZUM STEIN, a town of the district of Berg; 3 miles N.E. of Blankenberg.

ZUM VEGELSANG, a town of France, in the department of the Roor; 3 miles S.E. of Juliers.

ZUM ZONTAGE, a town of Germany, in the county of Bregentz; 24 miles S.S.E. of Bregentz.

ZUMAIJA, or ZUMAIJA, a town of Spain, in the province of Guipuzcoa, near the coast of the bay of Bilcz; 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 Elero.

ZUMELLA, a town of Italy, in the Trevisan; 10 miles N.W. of Venice.

ZUMIC ACID, in Chemistry, a name given by Dr. Thom- fon to a peculiar acid principle lately obtained by M. Bracconot from rice, and which that gentleman had abfurdly called Nancec acid, from Nancy, the name of the city where he refided.

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 four tafle. This was digested in alcohol, which on evaporation let fall crystals composed 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 fæt.

Zumic acid is colourles, has a very acid taste, and does not crystalfylize. It precipitates none of the metals from their solutions, except zinc from very concentrated solutions of its fæt.

With potaf and foda it forms incrystallizable deliquescent fæt, soluble in alcohol. With ammonia it forms a crystalizable fæt.

The neutral zurnate of lime crystalizes confudely in a form somewhat refeembling a cauliflower. It is opaque, very white, has little tafle, and has the appearance of having efforced.

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 fame with the laftic acid, the latter being probably difguifed as usually obtained, by the presence of some animal matter.

ZUMPANGO, in Geography, a town of Mexico; 90 miles S. of Mexico.

ZUMPANO, a town of Mexico; 20 miles N. of Mexico.

ZUNAC, a town of South America, in the audience of Quito; 35 miles N.W. of Macas.

ZUNAPA, a small iſland in the Adriatic. N. lat. 43° 7'. E. long. 17° 7'.

ZUNCOLLO, a town of Naples, in Principato Ultra; 17 miles S. of Conza.

ZUNDEL, a town of Silesia, in the principality of Neife; 5 miles S.S.E. of Grodkau.

ZUNGER, a town of Prussia, in Pomeralia, 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 Carthage; 48 miles S.W. of Tunis.

ZVORNICK.
ZU RO N I C K. See Zornado.
ZU PU, a town of Cirella; 106 miles E. of Theodofa.
ZUR GUGEL, a town of Prussian Pomerelia; 20 miles S.S.E. of Marienburg.
Zur Osa, a town of the duchy of Bremen; 3 miles S.S.W. of Bremerhorde.
ZURA, a town of European Turkey, in Moldavia, on the Dneiler; 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 1595. He was a disciple of Pablo Rocala, 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 Casa de Campo, and other royal palaces, as well as in private collections. Zurbaran died in 1662, aged 63.

ZUREITA, in Geography. See Zuweita.
ZURIC, or ZURICH, a canton of Switzerland, and the first in rank, bounded on the N. by Swabia and the canton of Schaffhausen, on the E. by the Thurgau and the county of Toggenburg, on the S. by the cantons of Schwyz 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 sunny 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 casks, become smooth, pleasant, and wholesome. Fruits also are everywhere found in great plenty, and very good. The most remarkable minerals and fossilis 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 36,000 square feet each, laid out in grain, 14,466 in vines, 94,553 in meadows, 42,549 in pasturage, and 103,772 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 expense of government, for grain at the common price; but in seasons 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 exported 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 Zuric; 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 foreign power refutes exclusively in the burgesses of the town, confining of about 10,000; but a contracted disposition prevails in most of the states of Switzerland, so that they seldom confer the burgership. In Zuric, if it is false, 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 Zuric are divided into thirteen tribes; one of which is called Contrafell, 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 fix to the Senate, whereas each of the other tribes only supply twelve to the former, and fix to the latter.

The legislative authority is vested by the burghers in the Sovereign Council of two hundred; confining, however, of two hundred and twelve members drawn from the thirteen tribes, and comprizing 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 often of course followed; but on account of its obsolete usages and extreme severity, the sentence is ultimately left to the discretion of the magistrates.

The power of the Senate, confederated 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.

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 infinities 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 to 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 Zuric is divided into districts or bailiages, which are governed by bailiffs nominated by the Sovereign Council, exercising an authority subject to certain restrictions. The reform was begun by Zuinglius, in the year 1517, in the town of Zuric; and in 1524, gained footing in the whole canton.

The militia of the canton amounted, in 1781, to 25,718 infantry, 1025 artillery, 886 dragons, and 406 chasseurs; in all 28,235 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 Saragossa.

In ecclesiastical affairs the Senate is supreme: the canton is divided into fourteen districts, each governed by a dean, who, like the fynod, from three candidates, proposed by the clergy of the dioceese. The fynod, composed of the whole clergy, and several allegros on the part of the Little Council, meets twice a year. The principal ministers and professors...
ZURIC.

In the town constitutes, in conjunction with several magistrates and other affiurers, 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, and determine border affairs, and refers cases of importance to the Senate.

During the French revolution, the canton of Zürich, after a feeble assistance, surrendered to the arms of the invaders; and the national assembly, which had been convoked, acceded to the new organization of the Helvetian constitution.

Zürich, 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 Tigurum, 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 Uetliberg, a bold and gloomy ridge stretching towards the Alps, 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 Sihl, an impetuous and turbulent torrent, which descends from the mountains of Emfildin: 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, Zürich 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 exceeds 10,000 inhabitants, contain within so small a compass so many souls. The streets are mostly narrow; the houses and public buildings accord more with plainness and convenience, than with the elegance and splendour of a capital. In 1780 the town contained 10,550 souls; but the population had decreased from the difficulty of obtaining the burgership; 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 these, 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.

Zürich 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 Zürich, after having ineffectually applied for alliance to the emperor Charles IV., formed an alliance with Lucerne, Uri, Schwitz, and Unterwalden, and was admitted a member of their confederacy. This event happened in the year 1331. The four cantons yielded the pre-eminence to Zürich: 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, Zürich was afflicted by the four cantons against Albert, duke of Austria, who besieged the town, and was repulsed with great loss.

Zürich was the first town in Switzerland that separated from the church of Rome, being converted by the arguments of Zwingli.

The charitable estabishments at Zürich are, the orphanhouses, which are regulated with extreme attention and care; an alms-house 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 Allmone-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 chirurgical seminary, formed by voluntary subscriptions, to the support of which, Dr. Rhan, an eminent physician, was a liberal contributor.

At Zürich public education is a concern of the state, and under the immediate protection of government. The office of a professor gives rank and estimation, 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 Caroline 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, Zürich has produced many persons, who have distinguished themselves in all departments of literature: amongst whom we may reckon Zwingli and Bullinger, Conrad Gellen, Hottinger, Simler, Spon, Scheutzer, Heidegger, Breitinger, Bodmer, Hirtzel, Solomon Gellen, and Lavater. For each of these distinguished persons, see our biographical articles.

Dr. Hirtzel was a learned physician, and deferentially styled the Swiss Plutarch: he distinguished himself, among various publications, by the Socratic Rapiune, and by the lives of Sulfitzer and Heidegger. Leonhard Meiler, 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 style, 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 pernicious, 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 Psalms in the Greek tongue, written on parchment dyed of a violet colour, the letters being silver and golden, and the marginal reference red, somewhat similar to the "Codex Argenteus" of Upfal, and supposed to have once formed a part of the "Codex Vaticanus," and several MSS. of Zuingle. Zuric is a district 41 miles S.E. of Bâle, and 36 S.W. from Conflant. N. lat. 47° 18'. E. long. 8° 25'. Coxe's Travels in Switzerland, vol. i.

ZURICH, a town of Austrian Poland; 22 miles S. of Luckow.

ZURITA, a town of Spain, in New Catalonia, on the left bank of the Tagus; 48 miles N.E. of Toledo.

ZURITO, a town of Peru, in the diocese of Cufco; 12 miles N.W. of Cufco.

ZURLINDEN, a town of Prussia, in the palatinate of Culm; 18 miles E.N.E. of Thorn.


ZURNAPA, in Zoology. See Camelopardal.

ZURUPALCA, in Geography, a town of Peru; 44 miles S. of Pototo.

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, oppoite Donauwert.

ZUSCHEN, a town of Germany, in the county of Waldeck; 4 miles N.W. of Fritzlar.

ZUSEL, a river of France, which runs into the Roer, at Sulseren.

ZUSMERSHAUS, a town of Bavaria, in the territory of Augsburg; 13 miles N.W. of Augsburg.

ZUSNIN, a town of Lithuania; 11 miles N.E. of Posen.

ZUTFHEEN, a city of Holland, and capital of a county to which it gives name, situated on the river Berkel, which passes through the middle of it, fills its ditches, and immediately joins the Ijssel. It takes its name from the two Flemish words "Zuut Vunen," which signify Southern Meadows. The principal buildings are, the church of St. Walburge, the town-house, the college of the deputies of the comit, and an ancient building, which they call "eGraven-Hof," or Palace of the Comité. Otto I. of Nassau, acquired this country in the 11th century, by his marriage with the heiress of Gerlach, count of Zutfhen, since which it has ever been annexed to Guelderland; 7 miles S. of Deventer. N. lat. 52° 10'. E. long. 6° 51'.

ZUTFHEEN ISLANDS, a group of small islands, in the straits of Sunda. S. lat. 5° 50'. E. long. 105° 42'.

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 conflicts with the landman of Sotto, one of the two communities of Upper Engadine, who is president, and sixteen jurymen, called Troudars, 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 there produces some rye and barley, and the mountains are clothed with verdure to their very summits.

ZUURRE-VELDT, a division of Graaf Reynet, which is an extensive plain country, stretching from the Sunday river, in Zwartkop's bay to the great Fifth river, and is the same kind of good arable or pasture land as the plains of the Autinequias division in Zwellemud; but it is now exclusively in the possession of the Kiffers, from whom it was originally taken by the Boors. The great plains towards the sea-coast, that are filled with thicketts, abound in elephants and buffaloes; and in the great Fifth river are, occasionally at least, found a few of the hippopotamus, or river-horse.

ZUWEITA, or ZURITA, a town of the Arabian Iрак; 35 miles S.E. of Helleh.

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, Overfiefl, 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 swelled up from that united North Holland with Friesland.

ZUZAN, a town of Persia, in that part of Khorassan which extends from N. lat. 52° 10' to 34° 40', and from 6° to 62° of E. long. It is the ancient "Susa," now an inconsiderable place, situated at the same distance from Pashing as the latter is from Herat.

ZUZON, a town of Spain, in Old Catalonia; 22 miles N.E. of Siguenza.

ZYGNYUM, in Botany. See Syzygium and Calyptranthes, to which latter genus belongs the original Syzygium of Browne.

ZWAMMERDAM, or ZWANENBURGERSHAM, 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.

ZWÄRTZ-BERG, as well as Cango and Truda, are divisions of Zwelflanden, 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 dolrchie, and herds of quachas, zebras, and hartebeests. Behind the first chain of mountains, in these divisions, are two hot springs of chalybeate water.

ZWÄRTZ-BERG is also a division of Graaf Reynet, which
is a portion of the mountain of the same name, in the district of Zwelendam, to which it ought properly to belong. Sheep and horned cattle are the chief produce of the farmers.

Zwarte-kop's River is a fertile and extensive division of Graaf Reynet, lying to the southward of Zwarte-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 furnished by this division as articles of commerce.

Zwarte-Ruggens, a division of Graaf Reynet, which is a flomy 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 Picquet 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 success 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 productive of very fine rice. Wheat, barley, and pulse, 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.

Zwellendam, a tract of country in southern Africa, which lies upon the sea-coast between Breede river on the W., and Camtsoos river on the E., and extends northerly to the second chain of mountains, called the Zwarteburg or Black Mountains. The length is about 380 and breadth 60 miles, comprehending 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 Zwellendam, ascertained on oath in the year 1798, consisted of 3967 Chilians, and 2666 slaves and Hotentots, making a total of 6663. The flock and produce comprised 9049 horses, 52,375 horned cattle, 154,992 sheep, 2203 leggers of wine made, 16,720 muids of wheat reaped in 1797, and 10,554 muids of barley and rye.

Zwellendam, Drotsy, or village of, a division of Zwellendam, 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 houses, 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 flocked 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 Zwellendam are, the country between the drotsy and Gaaritz river, named according to the rivers that cross it, Cango, Zwarte-Berg, Trada, Mossel bay, Autinequas land, Pettenberg's bay, Olifants's river, Kamnaal, Lange-Kloof, and Sitkamma. Barrow's Southern Africa. vol. ii.

Zwenkau, a town of Saxony, in the principality of Merseburg, on the Eltzer. In the year 1429, this town was burned by the Hussites; 5 miles S. of Leipzig. N. lat. 51° 14'. E. long. 12° 18'.

Zwentedorf, a town of Austria; 6 miles W. of Puhln.

Zwenzechbachlein, a river of Wurtemberg, which runs into the Nagold, near the town of Nagold.

Zweritz, a town of the principality of Calmbach; 10 miles S.W. of Calmbach.

Zwerntltdorf, a town of Austria; 6 miles E. of Weikendorf.

Zwethan, a town of Saxony; 20 miles S.E. of Wittenberg.

Zwetl, a town of Austria, at the conflux of the Zwetl and the Kamp; 26 miles W.N.W. of Crems. N. lat. 48° 33'. E. long. 15° 7'.

Zwett, a river of Austria, which rises about four miles well from Weitra, and runs into the Kamp, at Zwetl.

Zwetzen, a town of Thuringia; 3 miles N. of Jennew.

Zwetzey, a town of Croatia, on the river Mreñtzia; 12 miles S. of Slun.

Zweybruck. See Deux-Ponts.

Zweydrittelstuck, or Piece of Two-thirds, in Commerce, a silver coin in Germany, worth two-thirds of a rix-dollar of account.

Zwiahel, in Geography, a town of Russian Poland; 90 miles E. of Luckow.

Zwickau, a town of Saxony, in Erzgebirge, 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 wool-combers; with a considerable inland trade; 38 miles S.S.E. of Leipic. N. lat. 50° 39'. E. long. 12° 25'.—Alfo, a town of Bohemia, in the circle of Bolelia; 4 miles W. of Gabel.

Zwielauka, a town of Moravia, in the circle of Olmutz; 26 miles W. of Olmutz.

Zwifaltten, 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 Heife Darmstadt, situated on the Bergsitrafe. In 1653, 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 Laab.

Zwingera, in Botany, a genus taken from Anblet, dedicated under this name to the memory of several Swiss botanists of the family of Zwingier, who for three generations have cultivated this science at Basel, chiefly, indeed, with a reference to the medical qualities of plants. Theodore Zwingier, professor of anatomy and botany in that university, who died in 1724, aged 57, published in 1696 a folio German Herbal, of 995 pages, with wooden cuts, borrowed from Gefer and Cameriarius, which is little known out of his own country. Some botanical differtations also appeared under his presidency. His son Frederick gave an enlarged edition of the above Herbal in 1744; and has published in the Acta Helvetica, v. 1. 50, a plate and description of a very remarkable fungus, apparently belonging to Periplo


**ZWO**


Obi. The flowers are said to be occasionally only four-cleft and ochandrous. This genus is not much known, as Willdenow thought, to *Quassia*, but rather to *Chest.* (fee these articles;) differing from the latter in having one *fly* instead of five. How far their *fruits* correspond, we know not enough of the feed-veil of *Zwingeria* to determine.

1. *Zw. amara*. Bitter *Zwingeria*. Willd. n. 1. (Simaba guianensis; Aubl. Guian. 440. t. 153.) —Native of the woods of Orapu 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, flaked, either ternate, or pinnate, of two or three pair, with an odd one, of elliptic-lanceolate, pointed, emarginate, 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 together, in little axillary clutters. *Petals* whitish, surrounding the green *disk*. Fruit yellow; the inner rind green and bitter. Nothing is recorded concerning the qualities or uses of this shrub.

**ZWISSEL,** in *Geography*, a town of Bavaria, on the Regen; 42 miles E. of Ratibdon.

**ZWITTAU,** or *Zwittawa*, a town of Moravia, in the circle of Olmutz; 30 miles N.W. of Olmutz. N. lat. 49° 43’. E. long. 16° 16’. *Zwittau*, a river of Moravia, which rises in the south-east part of Bohemia, and joins the Swarta, near Brunn.

**ZWOL,** or *Swol*, a town of Holland, in the department of Overiöffel, situated on the river Aa, between the Ijël and the Vecht, in the country of Zallant. It is a florid 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 pas sage from Holland to the provinces of Friesland, Groningen, and Overiöffel. It was formerly a free and imperial city, and ranked among the Hanse towns. The magistracy 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 Angulfines in this place, and died here in 1471, aged 91; 28 miles S.W. of Covorden. N. lat. 52° 32’. E. long. 6° 2’.

**ZWOLFAING,** a town of Austria; 8 miles S.E. of Vienna.

**ZWONIGRAD,** a town of Dalmatia, and capital of a district; 60 miles S.E. of Segna.

**ZWONITZ,** a town of Saxony, in the circle of Erzgebirge; 8 miles N.N.W. of Grubenhagen.

**ZWORNICK,** a town of Bohemia; 68 miles S.W. of Bdegrade. N. lat. 44° 37’. E. long. 18° 50’. *ZWOTA*, or *Zwoda*, a river of Bohemia, which runs into the Egra, near Falkenheim.

**ZYDACZOW,** a town of Austrian Poland, in Galicia; 30 miles W.N.W. of Halicz.

**ZYG.**, in *Ancient Geography*, an island in the northern part of the Arabic gulf. *Ptolemy.* *Zyg.* in *Ichthyology*, a species of *jupinus*, which fee; called by *Willughby* *balance-fish*. See also *Shark.*

**ZYGASTICUM,** *Zyg. exeplicum*, formed of *zyga*, a balance, among the *Ancents*, 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 Libya, towards the coast of the Mediterranean sea, W. of the Mareotide Name. *Ptolemy.*

**ZYG.,** a people of Africa, of the number of those who inhabited the Cimmerian Bosphorus, between the Athisi and Heniochi. *Strabo.*

**ZYGIA,** in *Botany*, *zyga* of *Theophrastus*, the second kind of his *77. *76. 16007*, or *Maple*, remarkable for its yellow and veiny wood, is spoken of as a mountain-tree, but botanists have not ascertained the specific 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 feems to have been acquainted with a beautiful wood, of the Maple kind, which he says was compared to a peacock’s tail, and grew chiefly in Illria and Rhetaia. Can this have been the *Acer Opulus* of modern authors? (See Willd. Sp. Pl. v. 4. 550.) Anguillara has long ago suspected that tree, which Linneaus and many other botanists have strangled overlooked, to have been the *zyga* of *Theophrastus*. Its native country, and veined yellow wood, sometimes very beautiful, are in favour of this opinion. De Thes, following Bodzau a Stapel, and other commentators on *Theophrastus*, who are led by the obvious derivation of the name from *zyga*, *a yoke*, take the tree in question for our *Carpinus*, whose 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*, yoke; 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 *zyga* had some other origin, or allusion.

Robert Cuffantaine, cited by Bodzau a Stapel, seems to confound the *Acer Opulus* with *Viburnum Opulus*, which he terms *54. Opulus* of *Columella*, a French shrub, used for bowers.” This last has nothing in common with the history of the *zyga*.

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 *Aimina*; see Browne *J. 179*. t. 22. f. 3. Nor is this application fo unsuitable as 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 Linneaus, except in manuscript, or any other author, has adopted this as a *Mimosa*. Jullien, in his *Gen. Pl. 506*, ranges Browne’s *Zygia*, with a few other genera, at the end of his *Leguminosa*, adding a reference to *Mimosa*; *Bourgain*, 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. 980, speaks of Browne's figure of the flower of *Zygia*, as exactly like his own *Mimosa comosa*, Prodr. 85; but he adds that the plants are nearly 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 Jamaicaplants, in Dr. Browne's own hand, given to the writer of this article by A. B. Lambert, *Mimosa Ozygia* stands between *fagi-\*\*\*\*\* *fussia* and *Unguis Catu*, with this remark, which is not in the author's History of Jamaica, "solia bijuga, fove fissucenta-\*\*\*\*\* *bipartitis, frugula daphyllus." This plant is there called Yoke-wood.

In the printed work it is denominated Horse-wood, 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 rifes 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 air 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 antennae are moniliform, the palpi unequal and filiform, the lip elongated and membranaceous, and the jaw undivided. There is one species, *vis*. OZOLONGA. Found in the East, oblong, red, with head and wing-feathers cyanous.

*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 *zygi* of Dioscorides. De Theis, who writes this word *zygi*, without any authority that we can find, derives it from *zygys*, *the bun of bees*, which is confirmed, apparently without his knowledge, by the modern Greek name of the same plant, *zygi*, *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.

*Zygitae*, in the Roman Gardens, a term used to express those rows in the trieres, or three-rowed galleries, who sat on the second row, that is, above the thalamite, and below the thranite.

*Zygoma*, *zygoma*, in Anatomy, a bone of the head, otherwise called os jugale; or, it is the bony arch under which the temporal muscle passes.

The word is formed from *zygyni", I join; so that zygo-

ma, properly speaking, is the juncture of two bones. See CRANIUM.

*Zygomatic Process* of the temporal bone and os melae: 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 DECOL-

TION.

*Zygomaticus* is also an epithet given to the future that binds the two processes of the zygoma together.

*Zygophylllum*, in Botany, so named by Linnaeus, from *zygi", a yoke, and *phyllos", a leaf, each leaf, of most of the species, being composed of a pair of leaflets, yoked, as it were, together, and somewhat resembling the foliage of the garden bean, *Vicia Fabae*; whence this genus ob-

tained, from *Dodonaeus* and Tournefort, the name of *Faba-

geo*. Hence also arose its English appellation of Bean-

Caper, given by Gerard. *Fabago* was properly deemed inadmissible, being compounded of another name, though of one no longer in use as generic. We may observe over-


Gen. Ch. Cal. Perianth inferior, of five ovate, obtuse, concave, erect leaves. Cor. Petals five, dilated upwards, obtuse, emarginate, rather longer than the calyx. Nectary of ten converging, pointed leaves, or scales, sometimes divi-

ded, embracing the germen, each of them attached to one of the filaments near its base. Stvma. Filaments ten, awl-shaped, attached to the outside of the nectary, shorter than the corolla; anthers oblong, incumbent. *Pil*. Genn superior, oblong, tapering at the base; *style* awl-

shaped, the length of the filaments; 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. *Seeds* several, roundish kidney-shaped, inferted alternately, in two rows, into the middle of the valves.

Obf. Linnaeus remarks, that the seed-vesel differs in shape in the different species, and that in some the flowers are, pointed leaves, or scales, sometimes divided, giving 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 neigh-

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the edges of whole infixed valves seem to constitute the partitions; yet the cells do burst at the outer margin, as well as at the inner. Willdenow defines fourteen species, which we shall find a necessity of extending to sixteen.

1. **Z. simpliceflora.** Cylindrical-leaved Bean-Caper. Linn. Mant. 68. Willd. n. 1. (Z. portulacoides; Forlk. *Aegypt.-Arab.* 88. t. 12. f. B.)—Leaves simple, sessile, cylindrical.—The most common of all plants in the driest parts of the deserts of Arabia, where it is known by the name of *Garmal,* 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 Forkal, who sent seeds to Linnaeus. Theie vegetated at Upsal, but the plants did not live to produce flowers. The root is simple, tapering, apparently annual. Stem proturate, repeatedly forked, round, smooth. *Leaves* simple at each joint, spreading, an inch long, obtuse, somewhat dotted. *Flowers* yellow, quarter of an inch in diameter, almost felate. *Fruits* round, with long claws.

2. **Z. cordifolium.** Heart-leaved Bean-Caper. Linn. Suppl. 232. Willd. n. 2. Thunb. Prod. 80. Ait. n. 1.—Leaves simple, sessile, 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. Willd. n. 3. Ait. n. 2. (Capparis Fabago; Dod. Pemp. 747). Ger. *Ern. 897. Bell. *Eyl. xafr. ord. 10. t. 1. f. 1. C. leguminosae; Lob. *C. v. 2. 58. Fabago Belgian.; Dalch. Hist. 456. *Telephium Diocordiae; Column. *Ecpl. 132. t. 131. Morgani; Rauw. *I. t. 113.)—Leaves conjuge, stalked; leaflets obovate. 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 Gerarde, in 1596, and since a few years afterwards, in the garden of cardinal Aldobrandini, at Rome, by Fabius Collana, who took this plant for the *Telephium Diocordiae,* and has left us a most faithful representation of it, too much neglected by Linnaeus and recent authors, who only refer to Dendobus. Whether Collana erred or not with respect to the name, the reader will judge by consulting the article *Telephium.* The root is tapering, flathy, producing from its crown several spreading, alternately branched, leafy, round, herbaceous, smooth *flora,* 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. *Follicles* rather shorter than the leaflets, swelling upwards, smooth, channelled, crowned with a small, intermediate, awl-shaped point, like an abortive leaflet. *Stipulas* between the foliages, in pairs, membranous, ovate, pointed, obtuse. *Flowers* yellow, on a pubescent, axillary, opposite, distinctly upright stalks, hardly so long as the foliages. *Calyx-leaves* conic, base of an inch long, green, even, with a membranous edge. *Petals* rather longer, obtuse. *Seeds* transverse, alate, pellucide. Five of the *flora* deflexed, five ascending. *Capsule* above an inch in length. *Seeds* numerous.

4. **Z. fatidium.** Cecid Bean-Caper. Schrad. Ser. Han- nov. 17. t. 9. Willd. n. 4. Ait. n. 5. (Z. infrutescens; Curt. Man. 172.)—Leaves conjuge, stalked; leaflets oblong; *Calyx* downy. Petals jagged. *Capsule* rounded. Stem shrubby. —Native of the Cape of Good Hope, from whence it was introduced in 1750, by Mr. Maffon. This is a hardy green-house shrub, flowering all summer long, but rendered *VOL. XXXIX.*

5. **Z. masculum.** Spotted-flowered Bean-Caper. Ait. ed. 1. v. 2. 60. ed. 2. n. 4. Willd. n. 5.—"Leaves conjuge, stalked; leaflets linear-lanceolate."—Native of the Cape of Good Hope, from whence it was introduced, in 1782, by George Wynch, esq. 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. *Alton.*

6. **Z. coccineum.** Scarlet-flowered Bean-Caper. Linn. Sp. Pl. 551. Willd. n. 6. (Z. defertorum; Forlk. *Aegypt.-Arab.* 87. t. 12. 11. Fabago arabica terefifila, flore coccineo; Shaw Afric. n. 231. f. 231.)—Leaves conjuge, on a flathy flalk; leaflets cylindric, smooth. *Capsule* oblong.—Plentiful in the arid valleys of the desert, between Cairo and Szuez. The Arabs call this plant *Rottejel.* All kinds of cattle, even the camel, refuse to eat it. *Foukall.* The *flora* is shrubby, ascending, much branched, often a foot and a half high. *Leaflets* half or three-quarters of an inch long, obtuse, thick and succulent, quite smooth, supported in pairs on a club-shaped *follicle,* somewhat more in length. *Petals* red, pointed. *Capsule* near an inch long. The flake of the *capsule* and *leaflets,* not to mention the colour of the *flowers,* distinguishes this species from the following.

7. **Z. allum.** White Bean-Caper. Linn. Sp. Pl. 551. Mant. 379. Willd. n. 7. Ait. n. 5. Linn. fil. Dec. 1. t. 11. f. 6. Sm. Fl. Græc. Sitib. t. 371, unpublished. (Z. proliferum; Forlk. *Aegypt.-Arab.* 87. t. 12. f. A.)—Leaves conjuge, on a flathy flalk; leaflets obvate, downy and hoary. *Capsule* roundish, five-lobed. —Native of Egypt, Cyprus, Barbary, &c. *Foukall* found it very abundantly about Alexandria; and Desfontaines nearTripoli, 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 flake, but not yet to have flowered. The *flora* is woody, diffuse, much branched, and very hoary. *Leaflets* opposite, or aggregate, being accompanied by axillary tufts of smaller ones. The *leaflets,* as well as their *follicles,* are thick, round, and juicy, both hoary, like the young branches, with fine, short, dense pubescence: the former are obovate, or almost globular, seldom a quarter of an inch long; the *follicle* twice as much, and club-shaped. *Flowers* a third of an inch broad. *Calyx* reddish. *Petals* white, obtuse, crenate. *Germes* roundish, depressed, downy, with five rounded lobes. *Capsule* of the same flake; its coat, according to *Foukall,* pulpy, and there are only two *seeds* in each cell. The *flam* is represented, in Mr. Ferdinand Bauer’s drawing, rather slightly notched, not simple, as described by the younger Linnaeus; but still lefs can we discern the five acute *flama,* mentioned in the *Manilla.*


fruitceens,
frutecens, portulacæ folio, Morgani lyorum, ex brevi pediculo binis; Pluk. Amathl. 173. t. 429. f. 4.)—Leaves conjugate, nearly sessile; leaflets obovate, flat, smooth. Stem shrubby. Capsule roundish, twined, five-lobed.—Native of the Cape of Good Hope. A green-house shrub in England, flowering most part of the summer.

The branches are somewhat quadrangular, very smooth. Leaflets an inch long, succulent, but not twined; their common fructifera 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 obovate, entire, broken with purple at the base. Nettaries jagged or fringed, as in n. 3, 4, and perhaps some other species. Capsule, as represented by Burmann, an inch in diameter, globose, with five large, rounded, prominent lobes. We find the petals uniformly five, and entire; Linnaeus 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.


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 differentiated by the fruit. The capsula is either exactly globular, or, as Dillenius says, deprest like a Dutch cheese, its diameter not half an inch, nor is it furrowed, nor parted into large tubar lobes, like Z. Morganiana. The leaves too are smaller, and more perfectly sessile. Linnaeus 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 nettaries are smaller, and much less conspicuously jagged than in the preceding.


—Native of the Cape of Good Hope. Linnaeus 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. Morganiana, and at another to coccineum, on which, having no affinity to the latter, we are led to suppose he wrote coccineum by accident for fulvum. In this the leaves have something of a common footstalk, though very short. The nettaries are long and jagged, as in Morganiana. There is unluckily no fruit. Burmann’s figure of the capsula is so precise, that, considering the analogy of other species, so well distinguished by this plant, we can have no hesitation in re-establishing Z. fulvum, as essentially differing from Z. frutecens, whether our specimen be what Linnaeus intended or not. The capsula 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 Z. frutecens on one hand, and Z. Morganiana on the other.

11. Z. sphenium. Spinous Bean-Caper. Linn. Sp. Pl. 552. Willd. n. 11. (Fabago tenuifolia sphenium, fructu rotundo; Burm. Afr. 5. t. 2. f. 2.)—Leaves conjugate, sessile; leaflets linear, flitchy, smooth, flat above. Stem shrubby. Permanent stipulas hooked, spinous.—Native of the Cape of Good Hope. The stem is bushy, shrubby, about a foot high, branched from top to bottom; the branches acutely quadrangular. Leaves numerous, flitchy like those of a Sedum; the leaflets acute, scarcely an inch long, blunt, with a small point; their underside 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, solitary, lateral stalks. Calyx reddish. Petals yellow, fading to white, nearly or quite entire. Nettaries entire, not fringed. Capsule, 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. 80.—Leaves conjugate, somewhat stalked; leaflets inerwise heart-shaped, smooth. Stem shaggy, with ascending branches. Capsule roundish, abrupt, of five compressed lobes. Style permanent.—Gathered by Thuillberg, at the Cape of Good Hope. This is one of those hard, rigid, small-leaved, much branched shrubs, so characteristic of the botany of its native country. The branches are round, knotty, spreading, slightly hairy, or glaucous. Leaflets from one to three lines long, thick, oblique, sometimes obovate, but more frequently ovo-e Kampfer, so as to become inerwise heart-shaped; they are supported on a stalk, though short, thick, footstalk. Stipulas minute. Flower-flats thread-shaped, solitary, longer than the leaves, from the same buds. Flowers drooping, rather small, yellow. Calyx reflexed. Capsule the diameter of a pea, consisting of five rounded, vertical, compressed lobes, crowned with the fimbrius style, their surface rather reticulated; each of them bursts at the inner, as well as outer, edge into two elastic, or carunculose, valves, coated with a thin skin.

13. Z. retrostratum. Recurved Bean-Caper. Thunb. Prodr. 80.—Leaves conjugate, stalked; leaflets obovate, smooth. Stem shrubby, with spreading recurved branches. Flower-flats shorter than the leaves.—Gathered at the Cape of Good Hope, by professor Thuillberg, from whom we have a specimen. His short specific character was Willdenow’s only guide, when the latter reduced this plant to Z. fuditum, 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 obovate, not cordate. Flowers very small, their little thick flanks hardly so long as the calyx. Nettaries lanceolate, entire. Germen, 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-oriabicular shape, like the latic, as may very probably be the case.

14. Z. squamosa. Surinam Bean-Caper. Linn. Sp. Pl. 552. Willd. n. 12.—Leaves conjugate, sessile; leaflets obovate, abrupt. Stem herbaeeus, diffuse. Stipulas five at each joint.—Gathered in Surinam by Rolander, who sent seeds to Linnaeus; but the plants raised from them died.
died without flowering. The fl\em{}s are a foot long, smooth, roundish, except a flatness on the upper side. Leaves opposite, without veins. *Stipula\* reflexed; two between each pair of leaves, at the uppermost side of the fl\em{}; one between the same pair, on the lower side; one between the leaflets of each leaf. *Linnaeus.* This last seems to answer to the little point, or rudiment of a leaflet, which occurs in several others of the broad-leaved species.

15. Z. ? lanatum. Woolly-jointed Bean-Caper. Willd. n. 13.—"Leaves ternate; leaflets papillary beneath. Styles five. Stem zigzag, woolly at the joints."—Native of Sierra Leone. A plant of a doubtful genus, seen by the above author in a dried state only. The fl\em{}m appears herbaceous, round and smooth, except the joints, which are remarkably woolly. Leaves opposite, small, on footstalks. Leaflets three, on very short partial footstalks, roundish, tapering at the base, pointed at the end; smooth on the upper side; befet underneath with prominent points. Flower-stalks axillary, solitary, single-flowered, erect; drooping after flowering. Calyx of five linear, obtuse leaves; downy on the inside, and at the edges. Corolla not pre"m; perhaps fallen. Filaments but little dilated at the base. German club-shaped. Styles five, long, and thread-shaped. Stigmas obtuse. Capsule ovate, with five angles, five cells, and five valves with keel-like edges, bursting at the base. Seeds solitary. Wildenow. The ternate leaves afford a strong presumption against this being a *Zygophyllum*, and the want, as it seems, of *nolariet*, with the five *fiyes", decide the question, in our judgment. Not having seen the plant, we leave it here for further inquiry.

16. Z. orbiculare. Tree Bean-Caper. Jacq. Amer. t. 82. Linn. Sp. Pl. 1673. Willd. n. 14.—Leaves abruptly pinnate. Stem arborescent.—Native of South America. Found by Jacquin, in uncultivated valleys about Carthagena, as well as in woods on the sandy sea-shore, flowering in July. A very handsome tree, forty feet high; the trunk being about six feet; the head dense, widely spreading, and extremely ornamental; the branches opposite, or forked. Leaves very numerous, opposite, four inches long, of about seven pair, without a terminal one, of alternate, sessile, elliptic-oblong, obtuse, entire, smooth, shining leaflets, an inch or more in length. Clusters axillary and terminal, shorter than the leaves, compound, lax, generally forked. Flowers large and handsome, without scent. Calyx yellowish-green, smooth. Petals orange-coloured, roundish, emarginate; their claws as long as the calyx. Nectary fringed; its scales gradually larger towards the upper side of the flower. Stamens erect, convinging. German tapering at the base, into a long, thick, five-"urrowed stalk. Capsule with five large membranous lobes. When this blossoms this tree affords a most magnificent spectacle, from the innumerable flowers, covering the bright green leafy head. Before the inflorescence appears, the leaves might incautiously be supposed doubly pinnate. The inhabitants give the name of *Gwy-"acon* to this tree, which is a general appellation for all kinds of hard wood that is useful for cabinet or other work. The trunk is reported to become changed into stone by lying in the earth, being inexcusable of consumption. Jacquin.

*Zygophyllum* in *Gardening*, comprises plants of the herbaceous and woody succulent exotic kind, among which the species are, the common bean-caper (*Z. Fabago*), the African bean-caper (*Z. fel"liolatum*), the purplish-leaved Ethiopian bean-caper (*Z. Morgana*), the thorny bean-caper (*Z. *pinolatum*), and the white Egyptian bean-caper (*Z. album*).

The first has a deep fl\em{}thy, and soft herbaceous stalks, which decay in the winter.

The second is of a shrubby 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 shrubby fl\em{}m, and there is a variety with flame-yellow-coloured flowers.

And the fourth has an under shrubby 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 places, where the situation is warm, and the foil dry and rubbishy, as they are of a succulent nature.

The other forts 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 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-case in the beginning of autumn.

The seed 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 pricked out in separate small pots, being watered and re-plunged into the hot-bed till well-rooted, when they should be gradually hardened to the full air, and in June let 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-house 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.

*Zygiris*, in *Ancient Geography*, a town on the coast of the name of Libya; and *Zygiria* are the people who inhabit this name.

*Zymar*, a name given by some of the chemical writers to verdigris.

*Zyme*, a word used by many authors to express fermentation or leaven.
trine of fermentation, established on this basis. Symphon's
Zymol. Chym.
ZYMOSIMETER, formed from ζυμοσίμη, fermentation,
and μέτρον, measure, an instrument proposed by Swammer-
dam, in his book "De Respiratione," whereby 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 tem-
perament, 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 ζύμος, a ferment,
a name which, De Theis says, is given to a plant of the
Mauritius, by Noröna, 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 Isles d'Afrique, t. 4.
ZYORY, in Geography. See SOMRAU.
ZYPE, a kind of island of North Holland, formed by
canals cut from the Zuyder Zee to the German ocean. It
was formerly a moorish, but is now converted into rich
meadow land. On this spot the duke of York was poished,
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 Dionysopolis. Pliny.
ZYRMA, a town of Thrace, near which ran the river
Hebrus. Ptolemy.
ZYTHOGALA, formed of ζύθος, cerevisia, and μάκα, 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
ZYTHUM, or Zythos, a fort of malt liquor, in use
among the ancient Germans.
Matthiolus represents the ancient zythum, and curmi, as
the same with our beer and ale.
ZYTOPIERS, in Geography, a town and fortrefs of
Russian Poland; 65 miles W. of Kiev. N. lat. 50° 16'.
E. long. 28° 54'.

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ADDENDA & CORRIGENDA.

A B C

VOL. I.

AM. To that article subjoin, see Stekan and VAT.
AARON, or Harun. See Bagdad. Add, and Almansor.
AARON Aarifbon. Insert in the third line, after probably, as some say, but according to others, not, &c.
ABACUS, in Architecture, l. 23, dele Corinthian and Composite.
ABADIOTS. See Candia.
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. Abdias for Aabhkas.
ABASSI. For Gomeroon r. Gamberon.
ABBEVILLE, l. 4 and 5, r. containing, in 1811, 21,156 inhabitants, of whom 6672 are slaves.
ABBEBYBOYLE. After abbey, insert fee 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 Verbena Aemella of Linnaeus, see Spilanthes, 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 Betle-nut, in order that they may more easily pronounce some of the difficult Arabic letters, such as Tseba and Zs, both which they commonly confound with S. The Malay name, Daun murit, School-boy's herb, given to this Spilanthes, as well as to Bidens pilosa of Linnaeus, has the same allusion. Such plants agree with Pollitory of Spain, Anthemis Pyrethrum, in a peculiar property of stimulating the mouth, accompanied by a fene of coolness, and a slight saline taste, all which together cause a great flow of saliva. Hence they are beneficial in tooth-ache arising from cold rhum, but the slight numbness and tingling of the nerves, which attend their use, should seem rather unfavourable to precise enunciation. The recent flowers of Spilanthes 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 Perian 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 perpecution. Having destroyed a pagan temple belonging to the worshippers of fire, the king of Persia, intitated by the Magi, ordered him to rebuild it at his own charge; but as he refused to comply with this order, a dreadful perpecution was commenced against the Chriftians, which lasted 30 years; and in this perpecution Abdas loft his life. Bayle.

ABDOMINAL RING. For Obliqui, &c. r. Obliquis.

ABELICEA, in Botany, 'Aslanis in modern Greek, fee our ninth species of Ulmus.

ABERARON, 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.

ABERMOA, in Botany, altered by Aublet from the Caribbean appellation of the same plant, Aubl. Guian. 610. t. 245; see QUATTERIA, under that. ABERPORTF, in Geography, a little fishing-town of Cardiganshire, pleasantly situated at the entrance of the river which flows by Blenport. The craft belonging to this port are chiefly employed in bringing lime-flour from Pembroke-shire 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 Christoffer Abildgaard, a native of Denmark, formerly professor of the veterinary art, who contributed much information to Professor Retzolli on the subject of Gracilis. Mr. Brown retains this genus, not without a hint of its too near affinity to Fimbriulx; see that article. We trust the barbarism of the double a may be dispensed with, and we have ventured to make that alteration.—Vahl Enum. v. 195. Brown Prod. Nov. Holl. v. 1. 229.—Clafs and order, Triandra Monogynia. Nat. Ord. Calamaries, Linn. Cyperoideae, Juss. Cyperaceas, 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, inserted beneath the germin, gradually elongated by age, anthers linear, longer than the filaments. Pijl. Germin superior, acutely triangular, rather contracted at the summit; style 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 style. Peric. none. Seed one, snow-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 sides, and rough, with minute dots, without any surrounding bristles. Rest. thread-shaped, gradually elongated, minutely cellular, dotted with brown, the edges of the cells membranous, from the permanent bases of the scales.


The flims of this genus are angular, slender, without joints; leafy at the bottom. Leaves narrow, channelled, sheathing. Spikes ovate-oblong, acute, compressed, often twisted; 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; circumstancies which bring the present genus very near to Fimbriulx. The following are the only described species.

1. A. moniliflora. Single-spiked Abildgardia. Vahl n. 1. Br. n. 1. (Cyperus moniliflorus; Linn. Mant. 180. Wildl. Sp. Pl. v. 1. 271. Swartz Obs. 29. Retz. Bot. Gram. 18. t. 13. f. 3.) Gramen cyperoides minimum, epica simplici compaBata, radice tuberfus odorata; Sloane Jam. v. 1. 120. t. 79. f. 2.—Spike solitary. Scales uniform, nearly all fertile.—Gathered, by Konig, in shady situations in the East Indies; in the pastures, and sea marhes, of Jamaica and Hiphania, 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 foot or shorn, below the middle of each. Stem simple, slender, angular, and striated, taller than the leaves. Spike half an inch long, two-ranked, subtended by a linear-rounded leaf, sometimes, in the Linnaean specimen, exceeding its own length. The glumes, or scales, have a green keel, accompanied by two white ribs, next to which is an affablage of purple dots, the rest being cream-coloured. Two or three of the lower glumes are small, and apparently barren. There is said to be but one flower to each flower. Sloane's synonym seems to us, doubtful.

2. A. fesuoides. Ruby Abildgardia. Br. n. 2. — "Spike solitary, naked. Outer scales shorter and barren; terminal ones narrower, with spreading points."—Gathered by Mr. Brown, in the tropical part of New Holland. We have seen no specimen of this or the next.

3. A. vaginata. Sheathing Abildgardia. Br. n. 3. — "Spikes about three together; the middle one sessile. Scales pointed. Stem bristle-shaped, angular, hairy; sheathed at the base."—Found by Mr. Brown, in the tropical part of New Holland.

4. A. trifidus. Three-spiked leafy Abildgardia. Vahl n. 2. (Cyperus triflorus; Linn. Mant. 180. Wildl. Sp. Pl. v. 1. 272. Schoenus cyperoides; Retz. Obs. f. 4.) —Spikes about three together; the middle one sessile. Stem semi-cylindrical; round, bulbous, and leafy, at the base. Native of the East Indies, in hard dry ground. König. The flims are from one to two feet high, rough and rigid, erect; according to Vahl, bulbous at the bottom, and wrapped with dry brown sheaths among the foliage. The leaves are smooth, channelled, not so tall as the stem. Spikes two, three, or four, twice the size of the first species, tumid, ovate, acute, twisted, of a dirty but polished white; three of them generally springing from one short leafy sheath, the two lateral ones elevated on long, flattened, striated, smooth stalks. Stamin three; Vahl. Stigmas long and downy.

ABINGTON, in Geography, a town of Massachusettts, in Plymouth county, containing 1704 inhabitants.—Also, a township of Pennsylvania, in Montgomery county, having 1256 inhabitants.—Also, a township of Pennsylvania, in Luzerne county, having 511 inhabitants.


ABOU HAN \S. Dele See Plate I. Birds.

ABOU Hanleb. See Hanifah.

ABOU-Rihan, in Biography, 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 Mehakahed, the very famous philosopher. He wrote a "Treatise on Geography," a "Theory of the Fixed Stars," a "Treatise on the Sphere," and an "Introduction to Judicial Astrology." D'Herbelot Bib. Orient.


ABRONIA, in Botany, Juss. Gen. 448. See TRICYTUS.

ABSCESS under the Cranium, infect and.

ABUCCO. Subjoin, See Weight.
ABUSCHÆHR. See BUSHEER.

ABUTA, in Botany, a Brazilian name, first published by Darrere, adopted by Aublet, and recently by De Candolle, as well as Jussieu. 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. Hist. Nat. de la France Equinoxiale, t. Aubl. Guian. 618. Joff. 286. De Cand. Syll. v. t. 542.—Clas and order. Dioscia Dodecatandra? (Polyandria Polynychia, Aubl.) Nat. Ord. Menispernum, Joff.

Eff. Ch. Male, unknown.

Female, P.l. unknown. Berries two or three, ovate, somewhat compressed, dry, single-seeded.

Diamarck and Willdenow 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 be armed, because of the brittle shell of their seed, as affording a sufficient character, even without the flowers. He is more inclined to refer Abuta to his own genus of Coeculus, separated by him from Menispernum; but their habits are somewhat different. Two species of Abuta are defined by this writer, but A. amara of Aublet, Guian. 620. t. 251, is referred, on the authority of Richard, to Arjiblochia. These are large twining thorns, with ovate leaves, whose pinnate ribs spring nearly from one point at the base.

1. A. rupestris. Reddish Abuta, or Falce Pareira-brava. Aubl. Guian. 618. t. 252. De Cand. n. 1. (A. bancans, amplissimo folio cordiformi, futbas tomento.) Barr. Fr. Equin. 1. Menispernum Abuta ; Lamark Dict. v. 4. 100. Willd. Sp. Pl. v. 4. 828..—Leaves ovate, acute, entire; downy beneath.—Native of woods in Brazil, Cayenne, and Guiana. Aublet found it in almost every forest of the last-mentioned country, which he examined, bearing fruit in January. The Portuguese confound this plant with the true Cissampelos Pareira, and considers its root of equal efficacy in jaundice, disorders of the kidneys and bladder; as well as internal abscences, and menstrual suppurations.

The climbing stems, and downy branches, reach to the tops of trees, and bear large, alternate, thalched, coriaceous, veiny, entire leaves, from four inches to a foot long; smooth above; covered beneath with prominent, reticulated, downy veins, springing copiously from five principal ribs, which radiate from near the base of the leaf. The pods or capsules are about half the length of the leaves, round, finely and dexterously downy. Berries elliptical, downy, an inch long, three upon each receptacle, and forming large axillary branches. There is said to be a variety whose wood is hard, as well as the pabuescence 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 M. Richard, who unfortunately did not meet with the flowers. The branches are round and smooth. Pods 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 dries, quite smooth; the ribs pinnate, the two lower lateral ones close together. The inhabitants of Cayenne call this plant Liene amera, Bitter Vine. De Candolle.

ABYSSINIAN MUSIC. See MUSIC.

ACACIA, in Botany, an ancient Greek name, derived from αεκς, to point or sharpen, in reference to its thorny habit. De Thesius deduces all words of this etymology from the Celtic, et, a point. The name of Dioscorides, book i. chap. 135, was a fort of Egyptian thorn, "of a diffuse and 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. Willdenow, who established this genus, first separated it from the Linnean Mimosa (see that article), which has become inconveniently numerous in species, and unprofitably is capable of division by the characters of the fruit, of which Willdenow has very well taken advantage. He leaves in Mimosa such species as have a longatus, or legume separating into single-seeded joints. Of these he defines 32, having a five-toothed corolla, and only eight flaments; and to many of them, being sensitive, the name Mimosa is properly appropriated. For his other genera taken from hence, see Desmanthus, Inga, and Schrankia. We must observe however that the Acacia of Tournfort is not analogous to what is now before us.—Willd. Sp. Pl. v. 4. 1049. Ait. Hort. Kew. v. 5. 459. Pursh 305.


Obv. 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. Willdenow 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.

Seft. 1. Leaves simple. Sixteen species in Willdenow, 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 state, compound pinnate leaves, soon replaced by leafy or spiny single-footed thistles, which latter confute the only foliage of the adult plant. There are no proper thorns or prickles in these. Their leaf is thorny, or arborescent, as well as throughout the whole genus. We have slightly adverted to this section at the end of our article Mimosa.

A. verticillata. Whorl-leaved Acacia. Willd. n. 1. Ait. n. 1. (Mimosa verticillata; L'Herit. Sert. Angl. 30. Curt. Mag. t. 110. Venten. Malmaif. t. 63.)—Leaves whorled, linear-awl-shaped, rigid, spiny-pointed. Spikes solitary, cylindrical.—Gathered in Van Diemen's island, by the late Mr. David Nelso, 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 seed. The first two or three leaves of feeding plants are compound and pinnate, with elliptical obtuse entire leaflets: the leaf is 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 simple, slender, axillary thistles, but there are sometimes two or more of these thistles together. Legume linear, compressed, corrugated, of one cell with several kidney-shaped seeds.

A. juniperina. Juniper-leaved Acacia. Willd. n. 2. Ait. n. 2. (Mimosa juniperina; Venten. Malmaif. 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 Mr Joseph Banks is said to have received seeds about the year 1790. We have specimens from Dr. White. This differs from the foregoing in having its spinous leaves more crowded, and less distinctly whorled, more hairy branches, and globular heads of flowers, each flower, according to Ventenat, accompanied by a little ovate, pointed, flaked bractea.

A. acicularis. Needle-leaved Acacia. Brown in Ait. n. 3.—"Leaves scattered, roundish-awl-shaped, pointed, rigid. Stipules deciduous. Young branches smooth. Spikes solitary, globose."—Said to have been found in New South Wales, by colonel William Paterson, from whence it was sent to Kew in 1796. It flowers at the same season 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. flava. Furrowed Needle Acacia. Brown in Ait. n. 4.—"Leaves thread-shaped, furrowed on all sides, with a hairless point. Heads of flowers usually in pairs. Bracteas ovate, concave, permanent, at the base of the flower-fallk. Legumes ovate.—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-hoe shrub, flowering from May to August.


—Native of New South Wales. Cultivated, before 1790, by Mr. Thomas Hoy, in Sion gardens. A green-hoe shrub, flowering in the spring. The acute edges of the branches are bright red. The first leaves are conjugate, pinnate, with thick elliptical leaves, 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 for 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 capitate 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 reasons for retaining the genus Mimosa entire for the present, which principally refer to our ignorance of their fruit in a number of instances. Our learned friend, however, has since conceived 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-rribbed, slightly falcate. Spikes globose, in short clusters. Flower-stalks and young branches angular, powdery. "Umbilical cord and pollen, plant, 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, eqq. 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 rusty mealinefs. Leaves flaked, three inches long, and one broad, slightly glaucous, usually five-rribbed. Flowers pale-yellow, their globular spikes disposed in short axillary clusters, about twice the length of each footstalk. We have no account of the legume.

A. Sophore. Sophore-podded Acacia. Br. in Ait. n. 13. (Mimosa Sophore; Labill. Nov. Holl. v. 2. 87. t. 237.)—Leaves oblong-ovate, equilatorial, many-rribbed. Spikes cylindrical, axillary, in pairs. Petals four. Legumes linear, curved, pointed. Umbilical cord plain.—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 1805, but the plants have not yet bloomed. The young leaves are represented by Labillardiere as pinnate and trijugate; the rote oblate, two or three inches long. Spikes nearly sessile, hardly an inch long, and very slender. Flowers small. Legumes five or six inches in length, tupid, 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, fingle-rribbed; their anterior edge somewhat narrowed, with a solitary gland. Heads about four-flowered, difposed 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-hoe shrub, flowering from April to June. Aiton.

A. myrtifolia. Myrt-leaved Acacia. Wild. n. 15. Ait. n. 15. (Mimosa myrtilfolia; Sm. Tr. of Linn. Soc. v. 1. 253. Bot. of New Holl. 51. t. 15. Curt. Mag. t. 502.)—Leaves elliptic-lanceolate, oblique, thick-edged, fingle-rribbed, with a solitary 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-hoe 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, tupid, with very thick edges.

A. hirispicula. Little harfh Acacia. Wild. n. 16. Ait. n. 16. (Mimosa hirispicula; Sm. Bot. of New Holl. 53. t. 16.)—Leaves elliptical, acute, oblique, minutely toothed, rough on each fide and at the margin. Young branches harfh. Flowers four-cleft, in solitary axillary heads.—Native of New South Wales, from whence specimens were sent to us, with coloured drawings, in 1794, and seeds about the same time to Mr Joseph Banks. The roughness of the foliage and branches is very remarkable, caused by short, rigid, prominent hairs, or points. The leaves are sessile, an inch broad, acuminate, or obtuse, sometimes toothed, deep-green. Heads flaked, globose, many-flowered. Legume thick-edged, elliptic-oblong, sometimes with one or two contractions. Seeds few.

A. laflulata.
ACACIA.

A. hysalata. Little Halberd-leaved Acacia.—Leaves deltoid, spinous-pointed, roughish; their upper angle glandular. Stipulas bristle-shaped, permanent. Branches rough. Flowers in solitary axillary heads.—Gathered near King George's fort, 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 flow bears numerous, erect, round, rough, wand-like branches, beft with innumerable, spreading, vertical leaves, about a quarter of an inch long, fingle-ribbed, unequally deltoid, with an elongated spinous point, thick-edged, rough with minute points; their lower angle either rounded or somewhat toothed; the upper more prominent, and tipped with a gland. Stipular fender, erect, in pairs at the base of each leaf. Flowers three or four in each of the little ftalked heads, which are very numerous all along the branches.

A. decipiens. Paradadoxical Acacia. Br. in Ait. n. 17. Curt. Mag. t. 1745. (Mimosa decipiens; König in Ann. of Bot. v. t. 366. t. 8. Adiantum truncaturn; Burm. Ind. 235. t. 66. f. 4. Linn. Syt. Veg. ed. 13. 790.)—Leaves triangular-wedge-shaped, spinous-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. Alton as a green-house shrub, flowering from March to June. Its history is certainly curious; for specimens without flowers having been taken by Prof. Burmann, who miled Linn. mature, for an Adiantum, which error was detected by the late Mr. Dryander, on perusing Mr. Menzies's specimens. Those 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 shaped, their inner, or upper, glandular angle being greatly extended, while the lower or rounded angle, seen in A. hysalata, is wanting. The flowers are more numerous, from feven to ten, in each round head.

A. biflora. Two-flowered Acacia. Br. in Ait. n. 18.—Leaves triangular; the outer angle spinous; inner glandular. Stipulas bristle-shaped and spinous, permanent. Young branches downy. Heads two-flowered.—Observed by Mr. Brown, on the fourt-coast of New Holland, from whence it was sent to Kew by Mr. Good, in 1803. A green-house shrub, flowering from March to June. We have seen no specimen.


A. alata. Wing-ftalked Acacia. Br. in Ait. n. 20.—Leaves oblong, winged. The winged parts are folded in a manner so as to cover the surface of the leaf, which is of a yellowish green color. Flowers yellow, numerous.

Sect. 2. Leaves conjugate, pinnate. Seven species in Willdenow, to which one of Mr. Brown's is to be added from Hort. Kew. The Prodromus of this able author, when completed, will probably furnish more New Holland species to this section.

A. xylocarpa. Wooden-fruited Acacia. Wild. n. 17. (Mimosa xylocarpa; Roxb. Corom. v. t. 68. t. 100.)—Leaves conjugate, pinnate; leaflets four pair, ovate-oblong, acute. Heads globose, many-flowered, lateral, ftalked, in pairs.—Native of the mountainous parts of the Circuns of Hindooflan, calling its leaves during the cold feafon, 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 hardness, toughness, and durability, are requifite, as in ploughs, the natives seldom using iron in that implement. The leaves are large, smooth, paller beneath, confiding of two divisions, or wings, and thole of four pair of leaflets each, except that the innermost leaflet on each fide, at the bottom, is wanting; the lower leaflets are about two inches long; the upper four or five. Heads of flowers whithit, the fize of a cherry, on fimple ftalks, two or three inches in length. Corolla bell-shaped, five-fleft. Stamina ten. Legume only one from each head, ovate, com- preffed, very large and woody, three or four inches long, the ftalk becoming neccessarily greatly thickened. Seeds about ten, oval, ranged near the lower edge, as large as kidney-beans.

A. paludella. Zigzag Spiny Acacia. Br. in Ait. n. 22.—Leaves conjugate, pinnate, with a ftalked gland between the wings, each of which has from five to seven pair of leaflets. Stipulas spinous, nearly equal to the leaves. Heads foliary. Branches zigzag.—Observed by Mr. Brown, on the fourt-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. Spikes oblong. Eleven species in Willdenow, the laft of which, A. Houfionii, we shall remove to the following fcction.

A. muricata. Warty Acacia. Wild. n. 25. (A. lati- folia alopecuroides, flure albo; Plum. Ic. 6. t. 11. Mimosa muricata; Linn. Sp. Pl. 1504.)—Thorns none. Leaves doubly pinnate; firt division of five pair; fcon of many pair; leaflets abrupt. Spikes axillary, aggregate, nearly cylindrical. Branches warty.—Gathered in South America, or the West Indies, by Plumer, whole figure is the only authority for this fcpecies. The branches are round, and warty, as well as the lower part of the flower-flets, which leaf are evidently axillary, not, as Willdenow fays, terminal. They are longer than the large compound leaves, and bear four or five alternate dense fikes, on partial flets. Leaf- fets numerous, crowded, elliptical, veiny, emarginate, about a half or three-quarters of an inch long. Flowers numerous, very small. Legumes ferveral, spreading, four or five inches in length, linear, flat, veiny, wavy at the edges, with many oval flat feds.

A. pallida. Pale South-American Acacia. Wild. n. 26.—Thorns none. Leaves doubly pinnate; firt division of two pair; fcon of twelve pair; leaflets linear, obtufe, downy. Spikes thread-shaped, much longer than the leaves.—Gathered by Humboldt and Bonpland, in South America. Branches round, warty, divaricated. Leaflets obtuse at each end, sometimes but ten pair; clothed sparingly on the upper fide, more denser on the under, with line pubefcence; the edges fringed. There is a cup-shaped fefile gland between the fepart divisions of each leaf (indications of which appear likewife in Plumer'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. *Wildenow.*

This seems much allied to the last, but the shape and downiness of the leaflets, and the solitary spikes, indicate a sufficient difference.

A. angustifolia. Sand Acacia. *Wildl.* 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 Cannebas, among the sandy banks of rivers. A shrub 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. Spike axillary, measuring three or four inches, generally rather longer than the leaves. Flowers opposite, white, fragrant. Calyxes with four or five teeth. Corolla in four or five deep segments. Stomens twice as many, and thrice as long. *Wildenow.*

A. guianensis. Guiana Acacia. *Wildl.* n. 32. *Ait.* n. 25. (Mimofa guianensis; *Aubl.* Guiana 128. 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. Spike axillary, from two to five together, on square fimple stalks, the flowers small and densely crowded. Calyx with five teeth. Corolla of one petal, in five sharp lobes. Stamens ten, inserted in the calyx below the corolla, long, slender, with heart-shaped anthers, each of which bears a little leafy flaked appendage. Legumes linear-oblong, flattish, brown, smooth, three or four inches in length, with several seeds.

A. lophanta more properly belongs to this fection, though placed in the next.

Sect. 4. Leaves doubly pinnate. Stem without thorns. Spikes globose. Thirty-one species in Willdenow, to which we have three to add, besides *A. Houftoni.*

A. citrata. 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 fetaeous, deciduous. Heads solitary." —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 from March to June, of which we have not seen either specimen or figure.

A. nigricans. Unequally-winged Acacia. *Br.* in *Ait.* n. 24. (Mimofa 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-awl-shaped. Heads solitary. —Native of the south-west coast of New Holland, from whence Mr. Good sent seeds to Kew, in 1803. A green-house shrub, flowering from May to July, said to be about six feet high in a wild state. The leaflets are uniform, elliptical, obtuse, one-third of an inch long. Heads axillary, flaked, 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. *Labillardiere.*


A. arborea. Rough Tree Acacia. *Wildl.* n. 38. *Ait.* n. 28. (A. non spinos a jamacifenis, foliis latà bâi in mete formam faltigtatis; *Pluk.* Almag. 6. t. 251. f. 2. A. arborea maxima non spinosa, pinnis majoribus, flore albo, foliis contractis cumere ventricosa elegantiissima; *Sloane* Jam. v. 2. 54. t. 182. f. 1, 2. Mimofa arborea; *Lim.* Sp. Pl. 1503. *Watt* Obz. 590. Browne Jam. 252. n. 3.)—Thorns none. Leaves doubly pinnate; first division of seven pair; second of seventeen pair; leaflets halved, acute. Heads axillary, flaked. Legume contorted, tumid. Seeds spherical. —Native of fields and islands 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 fott and white. Leaves of numerous, small, dark-green, smooth leaflets. Heads globular, of numerous sweet-scented flowers, whose corolla is reddish, the flamen 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; Forkall and Thunberg having given the name of *Mimofa arborea* to two plants very different from this, as well as from each other.

A. Julibrissin. Smooth Tree Acacia. *Wildl.* n. 39. *Ait.* n. 29. (Mimofa Julibrissin; *Scop.* Infubr. v. 1. 18. t. 8. *Ait.* ed. 2. v. 3. 440. M. arborea; *Forb.* *Egypt.-Arab.* 177. *Gmel.* It. 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. Forkall saw it cultivated at Constantinople, where it was called *Djal ibraz,* by the Turks; which name, denoting a flaky flower, in allusion to the flamines, 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-house 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 lilac, with long monadelphous flamines, forming most beautiful tassels like white fik. Legume half a foot long, thin, pale brown, corrugated, unequal in breadth, with many small flattith seeds.

A. villosa. Downy Jamaica Acacia. *Wildl.* n. 46. (Mimofa villosa; *Swartz* Prod. 85. 1st. Occ. 592.)—Thorns none. Leaves doubly pinnate; first division of five or six pair; second of many pair; leaflets elliptical, oblique, down. Stalks and branches hairy. Heads rather oblong,
ACACIA.

oblance, panicked, 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. arbores, just described. The present is much smaller, being merely a shrub, six feet high, with hairy twirled branches. Leaflets downy on both sides, smaller and more obtuse than in the arbores; glaucous underneath; from ten to twelve pair in each subdivision. Clusters terminal, composed of many oblong and obtuse, rather than globular spikes, on very hairy stalks. Flowers small, white, with numerous capillary flamen, of a tawny hue, inserted into the lower part of the receptacle. Legume short, very different from that of arbores.

A. disfolor. Two-coloured-leaved Acacia. Willd. n. 47. Ait. n. 32. Curt. Mag. t. 1750. (Mimosa disfolor; Andr. Repof. t. 255. M. botrycephala; Venten. Hort. Cel. t. 1.)—Thorns none. Leaves doubly pinnate; first division of five 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 first 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. pubescens. Hairy-stem'd Acacia. Br. in Ait. n. 33. (Mimosa pubescens; Venten. Malmaif. t. 21. Curt. Mag. t. 1263.)—Thorns none. Branches hairy. Leaves doubly pinnate; first 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 arborecent stem, with drooping branches, and its copious fern-like foliage exhibits a most elegant appearance. Both sides of the leaflets are of a similar bright green. The whole compound leaf measures usually two inches; the numerous clusters of yellow capitate flowers, which smell like new bay, being about twice that length.

A. longiflora. Two-spiked New Holland Acacia. Willd. n. 53. Ait. n. 34. (Mimosa longiflora; Venten. Hort. Cel. t. 20. M. elegans; Andr. Repof. t. 563.)—Thorns none. Leaves doubly pinnate; first division of ten or twelve pair; second of about twenty pair; leaflets lanceolate; top and bottom of the common footstalk glabrous. Spike oblong, axillary, in pairs.—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 tall shrub, or perhaps a tree, with drooped warty branches. Leaves large, drooping, dark green, with innumerable narrow smooth leaflets. Spikes stalked, ovate or oblong, not globose, of numerous, crowded, sulphur-coloured flowers, having each about 200 monadelphous flamen. Legume oblong, flat, thick-edged, somewhat constricted here and there occasionally, where the seeds happen to be abortive.

A. brachyloba. Illinois Acacia. Willd. n. 54. Ait. n. 35. Pursh n. 1. (Mimosa illinoensis; Michaux Boreal-Amer. v. 2. 254.)—Herbaceous, without thorns. Leaves doubly pinnate; first division of five to eight pair; second of many pair, with a gland between the lowermost. Heads globose, axillary, solitary. Legumes lanceolate, flat.—In the extensive natural meadows of Illinois and Kentucky, flowering in June and July. Perennial. Flowers white, with only five flamen. Pursh. Stem smooth, furrowed. Leaflets from sixteen to twenty-four pair, linear, acute, slightly fringed at the base. Footstalks nearly smooth. Heads of flowers the size of a pea, stalked. Legume the length of the nail. Wildenson.

A. glandulosa. Glandalous Acacia. Willd. n. 55. Ait. n. 36. Pursh n. 2. (Mimosa glandulosa; Michaux Boreal-Amer. v. 2. 254. Venten. Choix. t. 27.)—Herbaceous, without thorns. Leaves doubly pinnate; first division of about twelve pair; second of many pair, with a gland between each. Heads globose, axillary, solitary. Legumes oblong, curved.—On the banks of the rivers Tennefée and Missipipii, 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 fucces. They require the shelter of a green-house.

A. decurrens. Decurrent Acacia. Willd. n. 56. Ait. n. 37. (Mimosa decurrens; Venten. Malmaif. t. 61.)—Thorns none. Leaves doubly pinnate; first division of about eleven pair; partial of innumerable linear leaflets, on a winged stalk, with a gland near the base, on the common stalk. Heads globose, in axillary clusters.—Native of New South Wales. Sir Joseph Banks is said to have introduced this plant at Kew, in 1790. It flowers in the early part of summer, and is a green-houf shrub, of an elegant fern-like aspect, with strongly angular zigzag branches. The leaves, though their common stalk 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. 29. (Mimosa grandiflora; L'Herit. Sert. 30. Thornton Illufr. t. 4. Andr. Repof. t. 594.)—Thorns none. Leaves doubly pinnate; first division of about fifteen pair; second of very numerous, elliptic-lanceolate, flat leaflets. Heads about five-flowered, in a terminal cluster.—Native of the East Indies, from whence it is said to have been introduced into the English stoves, by Mrs. Norman, about the year 1769. No figure of this stately plant, (Plutenus's fynom, cited by Wildenson, being too uncertain.) had ever appeared, till Dr. Thornton published his magnificent plate. The stem is thorny, erect, slightly branched, downy, 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 fringed, bluntish, unequal at the base, but not curved or falcate. Clusters solitary, large, terminal, erect, of many alternate leaflets, solitary or in pairs, clothed with rusty down, each stalk bearing a head of from four to six flowers, whole corolla is but half an inch long, of a pale greenish-red; but the very numerous stamen, two inches in length, and of a fine shining crimson, like tafks of filk, render this one of the most beautiful of its tribe.

in 1729. These produced plants which flowered in the
stove 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 Houftoun disagree. The plate
of the former however has all the appearance of fidelity, and
it is possible that the partial flower-flattis 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.
Houtoni have not half so many pins, and that their leaflets
are narrower, longer, more acute, and more curved. The
petals are purple. Legume thick-edged, hairy, tapering at
the base. The leaf in Par. 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.
grandisflora. If this be the case, the smooth legume, not tapering
at the base, would be an important addition to the specific
character of grandisflora.

Sect. 5. Leaves doubly pinnate. Stipulas becoming spines.
Spekes elongated. Ten species in Wildenow.
A. juliflora. Long-flowered Acacia. Wildd. n. 66. Ait.
1. n. 88. (Mimosa juliflora; Swartz Prodr. 85. Ind. Occ.
986, printed by mistake piliflora. M. diffusa, spica oblonga,
ulius longioribus compresse; Browne Jam. 252. n. 2.)—
Spines stipulare, in pairs. Leaves doubly pinnate; first
division of two pair, with intermediate glands; second of
about twenty pair of oblong leaflets. Leaflets axillary, or
three or together, cylindrical, pendulous. Native of very
dry fields in the south part of Jamaica, flowering in the
middle of summer. The stem varies from five to thirty feet
in height. Branches long and spreading. Spines strong,
five 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, fertile, very numerous, yellow, sweetened.
Corolla internally hairy. Stamen eight or ten, distinct.
Legume from three to five inches long, compressed,
smooth, often twisted, containing several oblong brown
seeds, separated by flaky partitions. There are numerous
flowers in each spike destitute of a pilil. Cattle feeding on
the leaves and young branches, unless gradually accustomed
to them, are poisoned, and the sweet legumes are reported
to be noxious. The inhabitants of Jamaica call this plant
Caffew. Browne erroneously gives it the name of Popanax,
which belongs to Mimosa (Acacia) tortuosa. Swartz. See
Sect. 6.
A. caffra. Hottentot Acacia. Wildd. n. 70. Ait. n. 42.
(Mimosa caffra; Thumb. Prodr. 92.)—Spines stipulare,
in pairs, curved. Leaves doubly pinnate; first division
of twelve pair; second of many pair; with a gland on the
footstalk. Spikes axillary, cylindrical.—Found by Thun-
berg in Southern Africa. Sent to Kew in 1804, by W.
Somerville, M. D. The branches are round and frayed.
First divisions of the leaves from ten to twelve, second
from twenty to thirty, pair; leaflets linear, obtuse, smooth.
Footstalks nearly smooth; the common one bearing a de-
pressed gland above its base. Spike stalked, two inches
long. Legume the same length, linear-lanceolate, flat.
Wildenow.
A. Catechu. Medicinal Acacia. Wildd. n. 73. Ait.
v. 44. (Mimosa Catechu; Linn. Suppl. 459. Wood.
Terra Japonica; Kerr in Med. Obf. and Inq. v. 5. 181.
1. t. 4.)—Spines stipulare, 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 com-
mon footstalk. Spikes cylindrical, axillary, two or three
broader.—Native of the mountainous parts of Coromandel.
A large tree of which feeds have been sent by Dr. Rox-
burgh 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
flipulas, 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 base. Spikes slender, three or four inches
long, hairy, stalked, pale yellow. Legume oblong, acute
at each end, flat, smooth, with three or four distant 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 Japa-
nica. Yet I believe there are many trees as fit to yield this
extract, as the present." Mr. Kerr, anfiant forger to the
Civil hospital at Bengal, has however described the mode of
preparing the Catechu, (fee that article,) by boiling the
interior coloured part of the wood of this species, till an
insipiant extract is obtained, which is the drug in question,
long supposed to be an earth produced in Japan. Another
fort of Catechu, or Guuta Gambir, made in Sumatra, Prince
of Wales's island, &c., has been shewn by Mr. Hunter,
secretary to the Asiatic Society, in Transactions of the
Linnean Society, v. 9. 218. to be the produce of a species
of Naucele. (See that article, spec. 7.) We presume
that Mr. Kerr and Mr. Hunter are equally correct, and
that the two different kinds of Terra Japonica, known to
drugists, are accounted for.

Spikes globosus. Sixteen species in Wildenow.
A. macarranensis. Long-ternned Acacia. Wildd. n. 76.
Spines stipulare, in pairs, lanceolate, compresse, nearly
as long as the leaves, which are doubly pinnate; first divi-
sion of twelve pair; second of many pair; with a depressed
gland at each extremity of the common footstalk. Spikes
stalked, globosus.—Gathered by Humboldt and Bonpland
in South America. The branches are frayed, and nearly
round. Leaflets about thirty pair in each division, linear,
obtuse, fringed. Footstalks downy. Spines two inches or
more in length, sharp-pointed, spreading at a right angle.
Heads of flowers the size of a pepper-corn, on long
stalks, in pairs, either axillary, or disposed in a fort of chilter
at the ends of the branches. Wildenow. This species appears
very remarkable, on account of the great size of its thorns.
A. eburnea. Ivory-ternned Acacia. Wildd. n. 78. (Mi-
mosa eburnea; Linn. Suppl. 437. M. leucanitha; Jacq.
Hort. Schoenbr. v. 3. 75. t. 593.)—Spines stipulare, in
pairs, cylindrical-spathulate, combined at the base, spreading.
Leaves doubly pinnate; first division of three or four
pair; second of six or more pair; leaflets inflected, elliptic-
oblung. Heads axillary, stalked, aggregate.—Sent by
Keniog from the East Indies. Jacquin by mistake makes it
a native of Africa. He cultivated it at Schoenbrunn, but
we have not met with this species in any English stove,
the following one having been mifcalled by the above name.
The true A. eburnea, of which the original Linnean speci-
men lies before us, is a twisted irregularly branched shrub,
whose twigs are round and zigzag, armed with tremendous
fragile 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 conjunct base; leaves
about two inches long, with smooth leaflets, placed at the
distance of their own width from each other. "Common foot-
stalk
Pluk. Pluk. Pluk. Mimofa leaflets common when A. the second first; Burm. Jalks linear twilled, in pairs, angular, spreading, longer than the leaves; some much shorter and recurved. Leaves doubly pinnate; first division of two or three pair; second of many pair; leaflets crowded, on a hairy stalk. Heads axillary, flaked, 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, purplish, wavy, very rigid, armed with formidable thorns, of two inches long. Some of the latter are two inches long, white, spreading horizontally in opposite directions, scarcely combined at the base, much more slender and linear than in the A. eburnea, 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 leaf species. Heads of flowers globose, with a purplish corolla, and yellow filaments. Legume linear, twisted, two inches long, smooth. The flowers are said by Dr. Roxburgh to be separated from each other, on their globule receptacle, by abrupt, fringed, corymbose, of which we can find no traces in our specimens.

A. tortuosa. Poponax Acacia. Willd. n. 82. (A. americana, filius teretibus ventricosis, floribus luteis; Sloane Jam. v. 2. 56. Mimosa tortuosa; Linn. Sp. Pl. 1505. Swartz Obs. 391. Browne Jam. 251. n. 1.)—Spines fluted, in pairs, awl-shaped, 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 flake. Heads axillary, on downy flake, solitary or in pairs. Legume externally flaky.—Very common in the low sandy lands of Jamaica. The stem is shrubby, 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 rank and disagreeable, that it cannot be used even for fire-wood. The taste is bitter, and the flowers have an oppressive 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. farneifana and others with this species. The true tortuosa, of which we have Browne's own specimen, comes near to borrida in botanical characters, but the leaves and leaflets are much larger; thorns smaller, not angular, but more tapering; flowers-flakes 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. Farasel. 3. 1504. Mimosa farneifana; Linn. Sp. Pl. 1506.)—Spines fluted, in pairs, awl-shaped. Leaves doubly pinnate; first division of from five to eight pair; second of many pair; leaflets crowded. Heads flaked, axillary. Legume tumid, coriaceous.—Native of Hispaniola, from whence the seeds were brought to Italy, early in the 17th century. This shrub is occasionally seen in our gardens, 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 tumid legume distinguishes it clearly, as a species, from the last. The whole plant is smooth, or have we ever observed the herbage to be faint.

A. arabica. East Indian Gum-Arabic Acacia. Willd. n. 86. (A. altera vera, &c.; Pluck. Almag. 3. t. 251. f. 1. Mimosa arabica; Lamarek Dict. v. 1. 19. Roxb. Coromand. v. 2. 26. t. 149. Nella Tooma of the Telingas.)—Spines fluted, awl-shaped, in pairs. Leaves doubly pinnate; first division of five pair; second of many pair. Heads axillary, about three together. Legume necklace-like, flat, densely downy.—Native of the East Indies, whether of Arabia also may be doubted. Dr. Roxburgh says it is abundant over every part of India, thriving best in a low, flat, uncultivated soil, and flowering most part of the year. Besides yielding a great quantity of Gum Arabic, this tree is one of the most useful in India for its tough and hard wood, serving many valuable purposes in ship-building, wheel-carriages, &c. The astringent bark serves for dyeing, and making ink. The branches are round. Spines distinctly, an inch, more or less, in length. Leaves like several of the foregoing, as are also the aggregate globular heads of yellow flowers. But the legume afford a most striking character, being flat, four or five inches long, covered with dense hoary pubescence, like fine velvet, and remarkably contrasted into numerous orbicular portions, in each of which is lodged a flattened seed. Cattle are very fond of the tender branches and young pods.

A. vera. Egyptian Gum-Arabic Acacia. Willd. n. 87. Ait. n. 48. Veiling Egypt. 6. t. 8. Bauh. Hill. v. 1. p. 2. 429. (Mimosa melitica; Linn. Sp. Pl. 1506. Hafelq. Travels, Eng. ed. 250. Woodv. Med. Bot. 187. t. 67.)—Spines fluted, in pairs, linear-awl-shaped. Leaves doubly pinnate; first division of five or six pair; second of many pair; common flake glandular. Heads axillary, about three together. Legume necklace-like, nearly flat, smooth.—Native of the sandy deserts of upper and lower Egypt, from whence Hasselquist sent specimens to Linnaeus, who seems to have described the same plant under the name of Mimosa semen. This original Gum Arabic tree was known to our earher botanists, and Gerard appears to have cultivated it in his garden, whence it has obtained a place in Mr. Aiton's valuable work; but few persons at present are acquainted with living, or even dried, specimens, especially of the legume. These clearly distinguish the species, being more strictly contracted into orbicular portions than the leaf, with an obliquity well expressed in the wooden cut of Vellings. Their surface is brown, nearly or quite smooth, pale at the edges; the disk of each lobe rather tumid; from the swelling of the seeds. In the leaves or flowers of these two species, we cannot, from the dried specimens, detect any great difference; but the spine of A. vera are almost as remarkable for their length and whitensse as those of borrida. For the most valuable produce of this tree, see Arabie, Gum.


flacks prickly. Leaves doubly pinnate; first division of seven pair; second of fourteen pair; leaflets oblong-oval; a gland on the main footstalk. Spikes globose, in 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. pentata. Fine-leaved Acacia. Wildl. n. 98. Ait. n. 52. (A. aculeata multiflora, foliis pennas avium referentibus; Burn. Zeyl. 2. t. 1. A. zeylanica, florebus globosis lateribus, foliis pinнатis tenuissimis incisībus, pinīs minoribus; Burn. Zeyl. 3. Mimofa pennata; Linn. Sp. Pl. 1507.) —Branches prickly. Leaves doubly pinnate, some pair of general divisions, and very numerous linear leaflets; a gland on the common flalk. Panicle terminal, spreading; heads flalked, aggregate; general flower-flalks, like the bale 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 leaflets, which, in the dried plant at leaf, fold together, give a feathery appearance, well expressed in Burmann's plate. The panicle is very large and compound, with downy rufy flalks; its main branches only armed with small hooked prickle. The legumes, not hitherto described, but very important in discriminating this multifarious tribe, are about three inches long, tapering, though rather blunt, at each end, flat, thick-edged, wavy or finous at both margins. Seeds about four.

A. Ceratonia. Round-leaved Acacia. Wildl. n. 101. Ait. n. 52. (A. repens aculeata, flore albo, foliis Silicis; Plum. Ic. 4. t. 8. Mimofa Ceratonia; Linn. Sp. Pl. 1508.) —Branches, and all the flalks, 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 pretent duke of Marlborough is said to have introduced it into his rich collection, before the year 1800. The remarkable roundness of the leaflets, which have authorized the name of rotundifolia, and their greater size, distinguishes the present species from all we have hitherto noticed. Every part is extremely prickly, but devoid of pubescence. The heads of flowers are rather small, and, according to Plumer, white. He delineates the legume of a flat, oblong, obtuse figure, two or three inches long and one broad, fringed with hooked prilded.

A. tamarindifolia. Tamarind-leaved Acacia. Wildl. n. 102. Ait. n. 53. (A. aculeata, flore albo, foliis Tamarindi; Plum. Ic. 4. t. 7. Mimofa tamarindifolia; Linn. Sp. Pl. 1509. Jacq. Hort. Schoenbr. 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 flalk; leaflets oblong. Stipulas and bractees 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 Hamme'rsmith, in 1774. The name is very expressive of the aspect of the leaves. The very broad heart-shaped stipulas, and the smaller, more ovate, bractees, give a peculiar character to this species. Inflorescence rather racemosf than panicked, deltilute of hairiness or spines, though the branches of the item are armed with strong prominent prickles. Heads of a few white flowers, each on a long flalk, solitary or in pairs. Legume, according to Plumer's figure, linear-oblong, flat, straight, deltilute of prickles at the edges, acute, about three inches long and one broad. Seeds numerous, oval.

A. acanthobola. American Prickly-podded Acacia. Wildl. n. 95. —Branches prickly. Leaves doubly pinnate; first division of three pair; second of ten pair; leaflets linear, obtuse; downy beneath. Heads globose, nearly sefifile, racemofe. 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 clove-profled hairs. Foot-flalks downy. Prickles scattered, hooked, compressed. Heads small, almost sefifile, disposed in a terminal clufher. Legume an inch and a half in length, oblong, flat, membraneous, smooth, befet with prickles at the margin. Wildenowio. This author declares himself to have been possessed of fcceral fpecimens of the Mimofa tribe, which were too imperfect to be enumerated or defined. We are not only in this situation, but we have feveral in sufficiently good condition, which on account of the incomplete defcriptions of authors, especially concerning the fruit, we cannot aecertain to be defcribed or not.

ACADEMY. The Academy of Arts at Petersburg was eflablished by the emperoz Elizaobath in 1758, and annexed to the Academy of Sciences. At the fuggestion of count Shuvaloff, the late emperoz Catharine, in 1764, formed it, &c. Next clofl. after f. 54, add.

The academy of painting, sculpture, and architecture, at Vienna, was founded in the year 1705.

Under Academies of Nonconformift Ministers, instead of Manchester r. York, felc Exeter, and instead of Wrexham r. Llanfylling.


Gen. Ch. Cal. Perianth inferior, of one leaf, turbinate, permanent, with four teeth, each fometimes tipped with an upright brillly awn, barbed at the point, or the whole body of the calyx is fo armed. Cor. Petals four, roundifh, inferted into the border of the calyx, and shorter than its awns. Stam. Filaments two or four, thread-shaped, longer than the petals, inferted into the border of the calyx; anthers roundifh. Pij. German superior, oblong; 8yle thread-shaped; stigma many-cleft, tufted. Peric. none, except the permanent calyx. Seed solitary, ovate, coated with the thickened bafe of the calyx.

Eff. Ch. Calyx of one leaf, armed with barbed bristles. Petals four, inferted into the calyx. Stigma tufted. Seed solitary, coated with the calyx.

Obf. The petals are fometimes wanting. Flowers occasionally five-cleft, with five flaments. The item is herbaceous, or fometimes shrubifh. Leaves alternate, pinnate with an odd one, deeply ferrated or cut, often hairy or silky; their common foot-flalks flaking, bordered with a pair of membraneous
branched combined fipulas. Flowers small, greenish, in a globose head, or interrupted spike. Fruit reddish, dry.


2. A. elongata. Multiflora Acena. Linn. Mant. 200. Vahl n. 2. Wild. Sp. Pl. v. 1. 693.—Leaflets oblong, serrated; downy beneath; bearded at the tips of the quarters. Spikes elongated, compressed. Fruit all 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 sessile, crowded; the lower ones very small, linear, acute, entire; from four to eight of the upper pair larger, oblong, serrated. Spike axillary, erect, rigid, a span long. Bractea solitary, close to the calyx, concave, ovate-oblong. Flowers alternate, nearly sessile. Mutis.

3. A. latebrofa. Hairy Acena. Vahl n. 3. Ait. n. 1. (Anciftrum latebrofum; Wild. Sp. Pl. v. 1. 155. A. decumbens; Thunb. Prodr. 6. Agrimonia decumbens; Linn. Suppl. 251.)—Leaflets oblong, cut, hairy. Stem creeping. Spikes elongated, flaked, many-flowered.—Native of the Cape of Good Hope. The germ is downy, beft with many barbed prickles, which, as the fruit ripens, project through the flalk of the calyx. See Gartner f. 2. and Lamarck f. 4.

4. A. pinntafida. Deep-cut Acena. Vahl n. 4. "Fl. Peruv. v. 1. 69. t. 104. f. k."—Leaflets oblong, deeply serrated, almost pinnatitdid; hairy beneath. Spikes 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 says, at the flaks of Magellan. The stem is quite simple, 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 one odd; the largest near an inch long, copiously and deeply cut, like Potentilla anodera. Spike obtuse, an inch or inch and half long, dense, many-flowered, dark purple. Germ beft with ftrong barbed thorns, not proceeding from its teeth.


6. A. ovatifolia. Oval-leaved Acena. Vahl n. 6. "Fl. Peruv. v. 1. 67. t. 103. f. c." Ait. n. 3. (Anciftrum repens; Venten. Jard. de Cels, t. 6.)—Leaflets elliptic-oblong; villous beneath. Spikes globose. Stem creeping. Calyx-teeth awned. Stigma unilateral.—Native of Peru, in moist shady places. Cultivated at Paris, by the late M. Cels, and at Kew by Mr. Aiton, where it is hardly flowering in May and June. We can discover no difference between this and the foregoing, the stigma being perhaps accidentally imperfect.

7. A. argentea. Silverly Acena. Vahl n. 7. Fl. Peruv. v. 1. 67. t. 103. f. b. (Proquin; Feuil. Voy. v. 3. 55. t. 41.)—Leaflets elliptic-lanceolate, acute, serrated; filly beneath. Spikes globose. Stem 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; silvery beneath. Flowers in globular heads, on long flalks. Stamens two or four. Calyx with two, three, or four terminal awns.

8. A. lucida. Shining Deep-cut Acena. Vahl n. 8. Ait. n. 4. (Anciftrum lucidum; Wild. Sp. Pl. v. 1. 155. Lamarck Illistr. 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 forests of Magellan. The flaks 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. Spike partly interrupted. 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 Acena. 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 pâturages, fields, and hills in Chili. Denfely villous. Stems several, unequal, the longest measuring about a foot. Leaflets seven or eight pair; the lowermost often undivided. Flower-flalks terminal, often bearing one or two little round heads, besides the principal one. Bractea linear. Calyx sometimes five-cleft. Stamens two to five. Fruit obovate, denfely villous, with four or five angles, and as many awns. Vahl.

10. A. magellanica. Magellanic Acena. Vahl n. 10. (Anciftrum magellanicum; Lamarck Illistr. v. 1. 76. t. 22. f. 2.)—Leaflets obovate, deeply serrated, three-cleft; hoary beneath. Spikes globose. Stem erect, smooth.—Gathered by Commerson, at the forests 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 six pair, scarcely half the length of the nail; the uppermost with seven or nine teeth, lower with about three, lowell of all entire. Flower-flalks 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 bases of the foot-flalks, crowded leaves, and smooth bracteas, distinguiths this species. Vahl.

11. A. ascendens. Ascending Smoothith Acena. Vahl n. 11. (A. lavignata; Ait. n. 5; Anciftrum magellanicum 8; Lamarck Illistr. v. 1. 76.)—Leaflets oblong or obovate, serrated, nearly smooth. Spikes globose. Stem decumbent.—Gathered by Commerson at the forests 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 gathered on the summits of the mountains near Cape Horn, along with Viola tridentata. (See Viola n. 76.) Vahl speaks of the stems as a span long, smooth. Leaflets from five to seven pair, opposite or alternate, bluntly serrated, veiny, somewhat hairy at the rib. Flower-flalks terminal, elongated. Head the fize of a cherry. Calyx
Calyx with four awns. The hairiness of the upper side of the leaves in our plant, and the smaller size of the heads of flowers, may be owing to a very lofty or exposed situation. We merely guess this to be *Mr. Aiton's lavicata* by the synonym of Lamark.

12. *A. cylindracea.* Cylindrical-spiked *Acacia.* Vahl n. 12. "Fl. Peru. v. 1. 68. t. 194. f. a."—Leaves oblong, ferrated; silky beneath. Spike cylindrical, on nearly radical stalks. Stems subterranean.†—Found on hills in Tarma, Peru. *Herb* clothed with silky pubescence. Leaves radical, numerous; leaves ten or eleven pair, obtuse, furrowed. *Flower-flalks* several, from three to nine inches high, bearing a few simple leaves. *Calyx* purplish, with four awns.

Stamen two.


**ACALZIKE.** After Tarney, add: the capital of *Akhia* (which see); 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.

**ACANTHI,** in *Botany,* Jussieu's third natural order of his eighth clafs, or the thirty-sixth of his general clafs, named from the most celebrated and conspicuous genus which it contains. For the charactar of the clafs, see GENTIANAE. The *Acanthi* are thus defined.

*Calyx* divided, permanent, often bracteate. *Corolla* mostly irregular. *Stamina* 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 elatic valves, and a partition contrary, or opposite, thereto, inferted into their middle, splitting from top to bottom into two uninterrupted *receptacles,* bearing seeds on each side, rendering the valves fimbriolar. *Stem* either herbaceous or shrubby. *Leaves* for the most part opposite, as well as the flowers.

**Seet. 1. Stamen four, in unequal pairs.** This contains *Acanthus* of all authors; *Dilovaria* of Jussieu, founded on *Acanthus ilicifolius* of Linnaeus; but purely on the slightest possible characters; *Blepharis* of Jussieu; *A. madasgaperi* of Linnaeus, as slightly distinguished; *Thymbra* of Linn. Suppl.; *Barleria*; and *Ruellia*.

**Seet. 2. Stamen only two.**

*J'utilia* and *Dianthera.*

Mr. Brown, who retains this order by the name of *Acantiaceae,* Prodr. Nov. Holl. v. 1. 472, has enriched it with many valuable remarks, and some new genera. He combines, like Professor Vahl, *Dianthera* with *J'utilia,* but extracts from the latter the *Hyposcites* of Solander; with *Erantheranum,* originally founded by Linnaeus; and establishes moreover two genera of his own by the names of *Hygrophila* and *Nelsonia.* (See those articles.) We perceive also that this intelligent writer retains Vahl's *Elytria.* He proposes also *Aphelandra,* consisting of *J'utilia pulcherrima* and its allies; *Acteinema,* founded on Forskall's *Ruellia imbricata,* and various undescribed Ealt Indian and African species, of which therefore we can give no account. *Lepidagathis* of Wildenow, Sp. Pl. v. 3. 400, of which we propose to speak hereafter, is admitted by Mr. Brown, as well as a new genus of Jussieu's named *Blechnum.* Some others are left 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 infusion, or of only one cell; and burst longitudinally. *Germs* surrounded at the base with a glandular disk. *Seeds* roundish, mostly subfurnished by *retinacula,* props, or awl-shaped ascending processes from the partition. *Skin* of the seed lax. *AlluMum* invariably none. *Embryo* either curved or straight. *Cotyledons* large, nearly orbicular. *Plumula* inconspicuous. These plants are chiefly tropical. Their pubescence, if any, is simple, occasionally capitate, very rarely flary. *Leaves* opposite, rarely four in a whorl, without *filipulas,* simple, undivided, either entire or ferrated; seldom serrated, or slightly lobed. *Inflorescence* terminal or axillary, spiked or racemose, fasciculated, 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 fifth flamen frequently occur. The elactic mode of bursting in the *capsule* is nearly universal.

The following principles by which the genera are to be discriminated, are thus propounded by Mr. Brown in succession, according to their relative importance. 1. Seeds with or without props. 2. Partition 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 capsule containing each two or more seeds. The following is the order of Mr. Brown's genera. *Hyposcites,* *J'utilia,* *Eranthera,* *Ruellia,* *Hygrophila,* *Acanthus* including *Dilovaria* of Jussieu, and *Nelsonia,* which may be found in their proper places.

**ACANTHONOTUS,** in *Ichthyology,* a genus of fish, whose characters are, that the body is elongated, without dorfl 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;** Snouted Acanthoanotus, which is grey, with the back transversely barred with brown. This fish 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 conspicuous; the body, moderately wide for about a third of its length, tapers towards the extremity; head and body are covered with scales, of a blueish tinge, silverly on the abdomen, the pectoral fins brown, of a moderate size, the ventral of like colour, and small; the lateral line straight, nearer to the back than to the abdomen; with ten spines, strong but short, along the narrow part of the back, and towards the abdomen from twelve to thirteen others, followed by the anal fin, which is shallow, and continued into the tail, which is very small. Shaw's Gen. Zool.

**ACANTHURUS,** a genus of fish, consisting of fresh species of the Linnaean genus *Chetodon* (which see) as, in contra-distinction to the principal character of that genus, have, in general, moderately broad and strong teeth, rather than slender and facetous ones; they are also furnished on each side of the tail with a strong spine. Their generic character is as follows: Teeth small, in most species lobated; tail acuulate on each side; habit and general appearance as in the chetodon. The species are:

**Unicornis.** Grey-brown, with a frontal horn *Aretching
ing forwards over the finout, and two spines on each side of the tail. See  **Chetodon Unicorns**.

**NASUS.** Grey, speckled with black, with a rounded frontals tubercle, and two spines on each side of the tail. A native of the Indian seas, and, according to Cepede, first described by Commeron.

**TEUTHIS.** Blue, with the middle of the body paler, and a spine on each side of the tail. See  **Teuthis Hippus**.

**CHIRORUS; Lancet  Acanthus.** Orange-yellow, with the body crotched on the hind part by transverse brown ripes, and a spine on each side of the tail. See  **Chetodon Chirurgus**.

**NIGRICANS.** Blackish, sub-argentinous beneath, with a spine on each side of the tail. See  **Chetodon Nigricans**.

**Militaris.** Brown, with rhombic-ovate body, and strong spine on each side of the tail. Native of the Indian and American seas.

**Triostegus; Triradiated Acanthus.** Greenish-brown, with four transverse dusky bands, and a spine on each side of the tail. Native of the Indian seas. See  **Chetodon Triostegus**.

**Harpurus; Guarded Acanthus;** Rhombic-ovate brown Acanthus, with extremely minute scales, and two spines on each side of the tail. Native of the Indian seas.

**Sohal; Dusty Acanthus, with longitudinal violet streaks, and two spines on each side of the tail imbedded in a red depression.** See  **Chetodon Sohal**.

**Nigro-fuscus; Dusty Acanthus, with ovate body, and spine on each side of the tail.** A variety of the preceding. See  **Chetodon Nigro-fuscus**.

**Achilles; Brown, ovate Acanthus, with a bare ovate red spot on the hind part, aculeated in the middle.**

**Lineatus; Ovate-brown Acanthus, with numerous longitudinal white ripes, 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.

**Melagrins; 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-lined; 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 Zoöl.

**Acanthus, in Botany.** In addition to the observations of our predecessor, we would remark, what the writer of the present article has elsewhere hinted, (Confidizations 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,

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"hucus femper frondentis acanthi." —Georg. 2. 119.

"aut flexu tacifemn ovina acanthi." —ib. 4. 123.

*Ilex comam multa jamb tum tendent acanthi." —ib. 4. 137.

*Et mollis circum eft anachs amplexus acanth." —Ecl. 3. 45.

*Mistaque ridentis colosphaca fundat acantho." —ib. 4. 20.

*circumtextum cresce volamen acantho." —Linn. 1. 653.

*— pitted cresce volamen acantho." —ib. 1. 715.

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The flexible twigs, ever-green leaves, bright or gay saffron-coloured berries, (as the term *crescus* is used with confideable 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

Vol. XXXIX.

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 *acanthi* of Dioscorides, which is evidently the Linnaean *Acanthus*. They are no less so to the *acanthi* of Theophrastus, which is a tree bearing pods, or legumes. Thse 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 Dioforidis*, Linn. Sp. Pl. 891, a species adopted by Linnaeus from other writers, without seeing a specimen or figure, seems to be merely a narrow-leaved, or flared flat of *A. fimbrius*; of which *A. mollis* may, on the other hand, be a cultivated, or more bristly, 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 moil stony 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.

**Acarina, a name adopted from the Greeks, whose akos was, like this, some sort 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. 490, to a genus separated by thee writers from the Linnaean Atractylis (see that article) from which it differs in the width of a radius. The species referred to *Acarina* are, 1. *Atractylis purpurea* of Linn. Sp. Pl. 1161; 2. *A. macrocephala*, Desfont. Atlant. v. 2. 575; 3. *A. macrophylla*, ibid. 255. t. 256; 4. *A. castigata*, ibid. 254. t. 225; 5. *A. lancea*, Thurn. 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 *Atractylis* the *purpurea* and *mexicana* of Linnaeus, 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 radiant florets of the former, which rather invalidates than confirms the new-delineated genus. See Onoseres.

**ACCELERANDO, l. 11. r. refinements.**

**Accent, in Mufs. col. 2. l. 7. r. sialia; l. 33. r. winds on your wings, &c. l. 48. for using r. bowing.**

**Acaciatura, l. 13. r. Praticeo; l. 14. Cimbelo; 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. 3. l. 13. r. sezgrest; l. 23. 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 whence it bears, shewing the state of affairs between the parties at the current or present time when made out.**

**Accursius, r. Mariangela.**

**Acer, 1. 6. r. Tribblade Acer. Juif.**

**Acer, in Botany, the fifth natural order, of the 13th class in Jussieu's system; the 66th in his general series. See the characters of this class under the article Ganaka. The Acer is defined as follows.**

*Calyx of one leaf. Petals definite, very rarely wanting, inserted around the disk, which is under the germen. Stamina inserted into the middle of the same disk, definite, but often"
often unequal in number to the petals. *Genus* simple, standing on the before-mentioned disk; *fycle* one, or rarely two; *ligula* 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* distinct of albumen, the radicle lying on the lobes. Stem arborescent, or furbby. *Leaves* opposite, without *fipulae*. *Flowers* racemose or corymbosse; sometimes by the abortion of one or other part becoming separated in fascic.

Sect. 1. *Fruit* of several cells, contains only *Aesculus*. Sect. 2. *Fruit* of several capsules, only *Acer*. Sect. 3. Conflits of genera alluded on the one hand to the *Acer*, on the other to *Malpigheae*; see that article.

These are *Hipppocrates* and *Thryallis*.

There is some doubt, even in the mind of Jullien himself, whether *Aesculus* properly belongs to this natural order; and he jully alludes to its great affinity to *his Sapindi*; (see that article,) with which its fruit undoubtedly very closely agrees.


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. *Neck* 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 maffes of pollen club-shaped, each attaching itself, by a taper base, to two glands in a single pouch near the *ligula*. *Pfll.* Ger- men inferior, linear-oblong, twifled; *style* columnar, very flint; *ligula* below the anther, rather concave. *Peric.* Capsule oblong, with three blunt angles, twifled, of one cell and three valves, splitting by three lateral fiffures. *Seeds* numerous, minute, each with a chaffy tunic.


This genus was first established by Mr. Brown, who separates it from *Ophryss*, (see that article,) on account of the converging *calyx*, and especially the situatian of the two glands, which receive the *pollen*, being in one pouch, not in two distinct and distant 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 *Aceras* and *Ophryss*, the flat lip of the former, controlled with the convex of the latter, seems a more obvious and natural distinction.

In affinity the present genus comes nearest to *Oriehus*, but wants the spur.


2. *A. anthropophorum*. Short-lipped Aceras. (*Ophryss anthropomorphia*; 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. *Bractes* 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 lap 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 falt. Schweiger's *Journal*, iv. *Thomson's Chemistry*, iv. new edition.

**ACETATES, or *Aceti*,** a clasf of salts, the characters 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 sulphuric acid. Accordingly we have acetates of barytes, 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 accetous acid, but in the degree of concentration only. This opinion, first advanced by Adet, has lately been fully confirmed by the experiments of Darraq and Proult. What has been said, therefore, on the subject of *acetous* acid and *vinegar* in the Cyclopaedia, is to be understood as applicable to dilute acetic acid; and the salts termed *acetites* are to be considered as acetates. 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 pointed out 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 filted by the fame chemist to have the same 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 of Acid</th>
<th>Weight of Acid Water</th>
<th>Sp. Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + 1</td>
<td>100</td>
<td>14.78</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>25.21</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>37.99</td>
</tr>
<tr>
<td>3 + 1</td>
<td>100</td>
<td>48.43</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>52.94</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>59.38</td>
</tr>
<tr>
<td>6</td>
<td>100</td>
<td>71.90</td>
</tr>
<tr>
<td>6 + 1</td>
<td>100</td>
<td>83.90</td>
</tr>
<tr>
<td>7</td>
<td>100</td>
<td>112.25</td>
</tr>
<tr>
<td>9½</td>
<td>100</td>
<td>127.73</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>166.34</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 $55^\circ$, and the crystals melt slowly when heated to $72^\circ$. This had been long ago observed by Courtenaux. 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 $212^\circ$. 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. Chenevis, by distilling the acetates, obtained a peculiar motile 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 salts 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 urinary. Its smell is peculiar, and is compared by Mr. Chenevis to that of a mixture of oil of peppermint and bitter almonds. Its specific gravity is 1.0764. It burns with a flame, white exteriorly, but of a fine blue within, and leaves no residue. It boils at a temperature of $165^\circ$. 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 pothast, and becomes dark-coloured, but it may be obtained again unaltered by distillation. Strong sulphuric acid blackens and decomposes it. Nitric acid renders it yellow, and changes its properties. Muratic acid renders it brown. When distilled with this acid a combination takes place, and a substance is formed possessing very different properties from muriatic ether. These properties are sufficient to shew, 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 common combustibles.

Many attempts have been made to analyze the acetic acid. Thofe most worthy of notice are by Gay Lussac and Thenard, and Berzelius. The former burnt a mixture of acetate of barytes and chlorate of potash. The results were carbonic 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:

\[
\begin{align*}
\text{Hydrogen} & : \text{Carbon} & : \text{Oxygen} & : \text{Acid} \\
\text{Gay Lussac} & : 5.629 & + & 50.244 & + & 44.147 & = & 100 \\
\text{Berzelius} & : 6.55 & + & 45.83 & + & 46.82 & = & 100 \\
\end{align*}
\]

If, with Dr. Thomson, we consider the results of Berzelius most entitled to credit, acetic acid consists of

3 atoms or proportions of hydrogen, weighing 0.375
4 atoms of carbon 3.000
3 atoms of oxygen 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 shown, accords very well with the composition 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 *Lichen* 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. prof. n. 7. Willd. Sp. Pl. v. 4. 327. Lamarck Illustr. t. 755.—Chafa and order, *Monosoria Triandria,* or rather, perhaps, *Triandria Monogyna.* Nat. Ord. *Elaeagni.*

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. Pfi. Germin superior, roundish; style solitary, thread-shaped, half as long as the corolla; stigma three-leafed. Peric. Capele ovate, of one cell, and three valves. Seed solitary? globose, rough. The *flamines* are most perfect in the upper flowers, the *fij'sil* in the lower.

Eff. Ch. Calyx of two leaves. Corolla of one petal, three-leafed. Capele of one cell, and three valves. Seed solitary?

Obl. 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 *capule* and *seed*. He defines the fruit, "capule of one cell, with three *fij'sil*." Willdenow, who seems to have had no other authority than Thunberg's figure, says, "capule of one cell and three valves, with a solitary *fij'sil*," which last account both agrees with that figure. With respect to the natural order of *Acharia*, if we take for *bracteas* what Thunberg terms a *calyx*, the flower will indicate one of Jucass's *Elaeagni*, though the *capule* of three valves is very anomalous, and the lobed leaves no less so. By the specific name *tragodes*, or rather *tragodes*, and the place where the genus is introduced, Thunberg appears to have considered it akin to *Tragia*, (see that article,) which idea the aspect of the *leaves*, and the somewhat monoecious *flowers*, might probably suggest.

1. *A. tragodes*. Lobed Acharia. Thunb. Prodr. 14. t. 1. Fl. Cap. v. 1. 165. Willd. 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 fibrous, 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 stalks about their own length, about an inch long, three-lobbed, finely downy; lobes obovate, variously cut. *Flowers* in effect monoecious, axillary, solitary, on short stalks, 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 *germen* and *fij'sil*. *Capule* obovate-oblong, acute, twice the length of the permanent corolla. *Seed* nearly the size of a pepper-corn, apparently black and rough.

ACHERON, 1. 1. r. *Theopria.*

ACHILLINI, 1. 25, for 40 r. 49.

ACHIMENES, in *Botany,* so named by Browne, possibly...
fibly from \( a \), and \( y \), to be country, or temperate, meaning that the plants in question are not calculated to endure rough weather. He tells us they thrive best 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 Colomnea bifrons, the other our Ceyilla ; see that article.

ACHOR, last line. p. Porrício instead of Tinea Capsita.

ACHIROCOIDES. Add. See Serpentes.

ACHTIL, Achteling, or Martin, a common measure in Germany, which contains 4 firiners, 8 metters, 16 fechters, or 64 gefcheides. See MALTER.

ACIANTHUS, in Botany, from \( a \), a point, and \( a c h o s \), a flower, because of the brily tips of the calyx-leaves, unusual in this family.—Brown Prod. Nov. Holl. 1. 321.—Clafs and order, Gyandria Menandria. Nat. Ord. Orchidee.

Gen. Ch. Cal. Perianth three-leaved, somewhat ringent, coned; its two fide-leaves placed under the lip; upper one broadest, vaued, 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. Antep terminal, permanent, of two cells close to each other; mass of pollen in each cell four, or two divided ones. Filj. Gernn inferior, oblong, angular; style erect, semi-cylindrical, without any auricles or wings at the summit; stigma in front. Peric. Capsule of one cell. Seeds numerous, minute.

Eff. Ch. Calyx somewhat ringent; its fide-leaves under the lip. Lip without a spur, shorter than the petals, undivided, with two prominences at the base. Anter terminal, without appendages, permanent. Pollen powdery. Column semi-cylindrical. This genus is next akin to Microtis of the same author (see that article); to whose effental character should be added, "Anter with two auricles. Column funnel-shaped."—Acianthus consists of little smooth herbs, with foliary, undivided, naked, downy, bullos, or tubercular, throwing out a few fibers, along with a downy fhoat, at whose extremity the young bulb is situated, on a partial stalk. Stem very short, its base enclosed in a short, tubular, pointed sheath. Leaf sfoliary, 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 bracteas, except beneath each flover.

1. A. fornicate. Vaulted Acianthus. Br. n. 1.—Flowers racemose. 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 as inch in diameter. Common flower-flalk from three to fix inches high, bearing from two to six flowers, about the size and aspect of the Corallorrhiza, each with an ovate bractea 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 flake, having a longitudinal furrow, the ridges bearded horizontally with papillai glands. This is the only species we have seen.


3. A. taudus. 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. latis. Two-leaved doubtful Acianthus. Br. n. 4. (Epipactis reflexa ; Labill. Nov. Holl. v. 2. 60. t. 211. f. 1.)—"Stalk single-flowered. Leaves two, radical, hooded. Perianth without awns, its three leaves uniform; 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 males of pollen, a column defluent of a point, and a lip without any appendage: with the latter in bearing two radical leaves, a perianth without awns, and very narrow petals. These leaves are represented in the plate, at fig. 2, as if situated on the outside of the calyx, which the description, and if we may take note of the other figures, liew to be an error of the draughtman or engraver.

ACICARPHA, so named by the celebrated Jussieu, from \( a \), a point, and \( a c i s \), a chaffy scale, because the scales of the receptacle, as he thought, become armed with a spinous point, when the seeds, which they separately envelop, approach towards maturity.—Juss. in Annal. du Mufl, d'Histo. Nat. v. 2. 347. Willd. Sp. Pl. v. 3. 2327.—Clafs and order, Synagenea Polyogamy-neceflaria? Nat. Ord. Composita capitata, or rather Aggregata, Linn. Comymhla, Feb. 5. Juss.

Gen. Ch. Common Calyx of one leaf, in five deep, linear, spreading segments, permanent. Cor. compound, bicordif. Florets all uniform, tubular, funnel-shaped; their limbs somewhat bell-shaped, five-leaved, obtuse; the central ones male, leaf-like numerous; those of the circumference more abundance, each furnished with flaves and pilifer, but not all fertile. Stam. Filaments five, very short; anthers oblong, united, shorter than the limb of the florec. Pijl. Gernn oblong; style thread-shaped, longer than the corolla; stigma club-shaped, notched. Peric. none, except the hardened scales of the receptacle. Seeds solitary; oblong, defluent of crown or wing, each enclosed in a greatly enlarged, hardened, concave, spinous-pointed scale of the lower part of the cylindrical chaffy receptacle.


1. A. tribuloides. Cultrip Acicarphe. Juss. as above, 548. t. 59. f. 1. Willd. n. 1.—Leaves oblong, deeply toothed.—Gathered by Commerson, on the leaflour, at Montre Video. Ross tapering, annual. Stems one or more, herbaceous, ascending or decumbent, a span long, somewhat branched, leafy, smooth. Leaves alternate, sessile, oblong, obtuse, flatish, 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, palk, dividated, 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. fistulata. Spatulate Acicarpa. 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 stipules, 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 long, Heads of flowers yellow, solitary; either flaked and opposite to the leaves, or terminal and nearly serice. Involucre of five leaves in a simple row, longer than the flowers. Receptacle conical, fluted, with lanceolate pointed scales. Flores tabular, uniform, smooth. Those 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 germen and base of the style; limb funnel-shaped, five-crested, 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. Gernmen combined, each crowned with a five-crested partial calyx, whose teeth, alternate with the segments of the corolla, becomes spinous, each germen 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 germen. The ripe fruit, originating from the florets of the circumference, consists of close pericarps, combined together, not burling, 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 Julieu, in thinking the perfect genus belongs to the Linnaean order of Aggregate, and not to the Compositae. 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 is the only principle of the acidification, was but imperfectly received. Since that period, however, a great revolution has taken place in chemistry, and the doctrine in question is now no longer admitted. This has indeed 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 by the plausibility of the Lavoisian doctrine, they 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 tellurium, and hydrogen, compounds free from oxygen, but possessing the properties of acids, have been like wise urged in proof of the new opinions, and as quite reconcileable with those of Lavoisier.

Our readers will find further information on this subject in the articles Chlorine, Cyanogen, Iodine, Muria-}

**ACINOCAFORME, Folium, in Botany, a Scimitar-shaped leaf, is scarcely used but for one species of Mesem bromanthemum, which bears this specific name. (See Leaf.)** It is of a succulent texture, compressed, one edge convex and thin, the other straighter and thick.

**ACINUS,** in Botany and Vegetable Physiology, a Grain, is technically used for each pulpy portion, containing a foilly united, of a compound. It has been called 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 Paspalum the capsule is lined with very juicy acini, each lodging a single seed. Gærtner 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 Paspalum.


**Eff. Ch. Calyx none. Petals five; the uppermost vauclut. Nectaries two, flaked, recurved. Capsules three or five.**

M. De Candolle, following Jullie's view of the subject, gives the following characters, using the term sepala for calyx-leaves, and petals for nectaries.

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 flamen; two uppermost with long claws, hooded, sheltered under the helmet-shaped leaf of the calyx, dilated at the top into a bag, whole bottom, the fummit, or pur, of the petal, is callous, incurved, its mouth extended into an oblong, emarginate limb, or lip. Stamens indefinite. Capsules 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. Claviers terminal. Stalks single-flowered, from the bosoms of the bractea, each bearing two smaller bractea.

**Flowers**
ACONITUM.

Flowers large, irregular, sometimes sulphur-coloured, sometimes blue, or white.

All the species are poisonous; the Aconitum lefis dangerous; the *Aconitum* highly noxious. The root is always the most poisonous part, the herbage lefs 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. foeniculum* for instance, are eatable! Dr. Storck, who found Aconite so useful in chronic rheumatism, confirmed gout, and venereal swellings of long duration, employed *A. poni
calum*; 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 buffalo 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 investi
gated. 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 fections, or divisions, as follows.


Leaves in numerous deep linear segments. Species 1 and 2.


Leaves in numerous deep linear segments. Species 11—14.


5. *Anabates*. Flowers blue or white. Hood convex.

Stem climbing, somewhat twining. Species 21—25.

† Such as are not sufficiently described: 26—28.

++ Such as are doubtful, or uncertain: 29—35.

Sec. 1. *Aconitum*.

To the above characters are added—Hood acute at the apex. Root with two oblong knobs.

terum; Ger. Em. 966. A. vera, flore luteo; Barrel. Ic. t. 625.)

β. atrovirens; leaves and flanks smooth. (A. falis
terum elatus pyrenicicum, folio atris-virentibus, flore majori; Tourn. Infl. 425.)

γ. confertiflorum; cluster cylindrical, dense, downy. (A. tuberoforum; Patrin, unpublifh'd.)

Hood convex, terminating in a point; flurs spiral; lips inerfely heart-shaped. Leaves in numerous linear segments.

—Native of rough buffalo places, on the mountains of Europe; in Switzerland, on the Apennines, and in Siberia; β on the Pyrenees; γ on mount Caucasus.

Var. a has either a simple or branched flom, which, like the flower-flanks, is either smooth, or finely downy. β has smooth dark-green leaves, a taller and smooth flom, cvs convex hood, with a more abrupt and pointed back. γ is smaller, with a closer more cylindrical cluster, whose main flom, 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 assemblage of synonymy, nor in his chronological arrangement of them. To the latter we have obju&ion, and we wish to give our readers an idea of his powers of discrimination, and to profit by them ourselves.

2. *A. aconitum*. Prominent Wholefome Wolf's-bane. (A. pyrenicicum; Pallas Itin. v. 2. 315, by his hort. name.) —Hood convex; its back protruding forward, over the pointed beak; flurs spiral; lips inerfely heart-shaped. Leaves in numerous linear segments.—Gathered by Pallas in Siberia. This is fo like *A. aconitum*, 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 ftreched forward over the point in front. This plant varies like the former as to the density of its cluster, and the smoothness or fine downiness of the flower-flanks. De Candolle. We must frankly concur in the opinion of its being a variety of the first species.

Sec. 2. *Lycocotonum*.

Flowers pale yellow, white, or blue; their hood conical, elongated, obtuse, or deeply pointed in front. Root tuberous, sending out fibres. Leaves with fome wedge-shaped lobes, deeply toothed, or jagged, at the extreme tip.

tas minute. Stem downy. Leaves in five deep divisions, with linear pointed lobes.—Native of the eafthern part of Siberia, about Irkoukii. Patrin. Intermediate between *Aconitum* 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 ftrange fflurs, or fummits of the floarics. (De Candolle's note.) Stem round, finely downy, not hip
dy. Leaves with long scattered hairs on the fflurs, and here and there on the under side; the upper appearing downy when magnified; their outline circular, divided nearly to the bafe into five fomewhat covering lobes, pinnatifid, with linear pointed fegments. Cluster erect, long and fow. Stalks erect, downy, shorter than the flowers, having under each a linear awl-shaped, scarcely downy; bracteae, fih fow; as well as a fmafer clofe tritate half way up. Flowers white, according to Patrin; pale yellow when dry; exter
dally downy; hood elongated; wings orbicular, with long hairs on their margin and inner surface. German downy.

4. *A. hispidum*. Rough-talked Wolf's-bane. De Cand. n. 4.—Hood conical, obtuse; flurs ftraight; lips obovate; wings flightly bearded. Bracteae awl-shaped, hairy. Stem hairy. Leaves in five deep divisions, with linear, rather acute, lobes.—Found by Pallas, in the eafthern part of Siberia. Lambers. Differs from the laft in its hipid, not downy; flom more deeply five-cleft leaves, whose lobes are not pointed, but rather obtuse, with a little calous apex; more hairy bracteae; and ftreched awl-shaped wings. The leaves are very like *Aconitum*, but with broader lobes; flowers like *Lycocotonum*, but with ftrange fflurs. Stem erect, round, simple; hipid chiefly at the bafe, with fow, rather defexed, hairs; the top almoft smooth. Lower leaves on long hairy fflurs, their outline orbicular; upper side scarcely downy; ribs of the under one hairy. Cluster simple, rarely with one small branch, cylindrical, erect. Stalks erect, shorter than the flowers, which are pale yellow, reembling the laft, but lefs bearded. Bracteae awl-shaped, faggy, two lines long; two smaller ones in the middle of each fflur. De Candolle.

as its place of growth.—Hood conical, obtuse; spurs spiral; lips inerterly heart-shaped. Cluster 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 Upham garden. Very nearly allied to *Lycotonum*, 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 ferrated. Cluster long, its upper part drooping while the flowers remain in bud. *Bracteae*, both general and partial, very small. Stalks shorter than the flowers, but much longer than their respective bracteas. The root as in *Lycotonum*. De Cand. To this original specimen is attached a different one from Siberia, which we concur with professor De Candolle in thinking no other than *Lycotonum*. Hence Linnaus has no authority for *A. pyreunicum*, which depends upon other authors, as follows. His herbarium indeed contains, if we mistake not, a specimen of this species, brought by baron Altroemer from Spain, but confounded by Linnaeus with *Lycotonum*. 

6. *A. pyreunicum*. Pyrenean Wolf's-bane. Lamarck Dict. v. 1. 33. Desfont. Tabl. 149. "De Cand. Franc. ed. 3. v. 4. 916. v. 5. 642." (A. pyreunicum, ampliorem folio tenumis incimato; Tourn. Dict. 144. A. n. 6; Camer. Epit. 831, with a figure.)—Hood conical, obtuse; lips spiral; lips obovate. Leaves palmate below the middle, with from five to nine three-cleft, deeply cut lobes, lying over each other. —Native of rugged meadows on the Pyrenees, among leesy thickets, flowering in July and August. Tournefort and De Candolle, Related to *Lycotonum*, but certainly distinct. A handsome plant, three or four feet high, downy, with large, long-flaked, almost circular leaves, whose main lobes are unequally divided, wedge-shaped at the base, separated upwards into acute, cut lobes, dilated a little as frequently to overlap each other. Cluster 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 flake, spreading, from two to five lines long. Flowers pale yellow, externally covered with velvet-like down. German 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, even since the time of Tournefort. De Candolle. We have had no opportunity of enquiring what bands for this species in the gardens of England, but Miller is most likely to have received the true plant from France. Our Linnaean Spanish specimen, mentioned under the last, correctly answers, in every point, to the above description.

7. *A. lycotonum*. Great Yellow Wolf's-bane. Linn. Sp. Pl. 750. Willd. n. 1. Ait. n. 1. Jacq. Auffr. t. 380. Balliard Fr. t. 63. Villars Dauph. v. 3. 703, from the author. (A. lycotonum vulgare, luteo flore; Cluf. Hist. v. 2. 94. A. luteum ponticum; Lob. Ic. 677. Ger. Em. 970. A. reticulatum; Lob. Ic. 599. 600. A. n. 2; Camer. Epit. 827. Matth. Valgr. v. 2. 431. A. caput animi; Lob. Ic. 877. Ravn. Penta. Irr. t. 129.)—Hood conical, obtuse; lips spiral; lips obovate. 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 flower-flake. —Native of woods, thickets, and gravelly pastures, on the mountains of Switzerland, France, Germany, and Italy, flowering in summer. This is probably, as M. De Candolle indicates, the real *aconitum napellus* 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 *flam* 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 distant. M. De Candolle hints that some of these diversities may afford specific distinctions, but we can scarcely suppose this. He observes that *A. lycotonum* differs from *bipinidum*, *aphrodeum*, and *abocheleum* in its spiral spurs; from *pyreunicum* in having from three to five, not seven to nine lobes in the leaves, and those not lying over each other, as well as in the *germen* being smooth, scarcely at all downy or hairy, and the *flanks* much longer than their flowers. From the following one, hitherto confounded herewith, it differs in having pale-yellow, not blue, flowers, and the partial bracteas fitted half way up the flower-flark, not near their base.

8. *A. septentrionale*. Blue Northern Wolf's-bane. "Kulte Acon.* 27. Wild. n. 7. De Cand. n. 8. Ait. n. 6. (A. lycotonum; Linn. Fl. Lapp. ed. 2. 185. Tour in Lapland, v. 1. 36. 47. 278. v. 2. 123. 372. Fl. Dan. t. 123. Calceolus Lapponicus; Scheff. Lapp. 360.)—Hood conical, obtuse; lips spiral; lips obovate. Leaves downy, divided more than half way, into from three to five divided sharply cut lobes. Partial bracteas at the lower part of each flower-flake. —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 bales of the larger hills in Medelplad 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. lycotonum*; yet he still supposed him 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-flakes. The flowers are less downy, and of a thinner texture, than in *lycotonum*. 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 infinace of the same fact. He was justly astonished, knowing the poisonous quality attributed by all writers to *A. lycotonum*. Perhaps this may strengthen our opinion of these plants being truly distinct, for we find no record of the true *lycotonum* being used as food, in any flate. Haller was one of the first botanists who suggested the propriety of separating these species; see his Hist. Stirp. Helvet. n. 1200. Yet there seems little reason for his wonder, there expressed, that this *aconitum* should be fatal to wolves. When recent its qualities are probably very different.

9. *A. echroleicum*. Pale Wolf's-bane. Willd. n. 4. De Cand. n. 9. Marfch. Taurico-Caucuf. v. 2. 14, excluding the synonymy of Tournefort.—Hood conical, elongated; lips curved; lips lancelolate. Leaves deeply palmate, five-lobed, scarcely downy beneath; lobes deeply three-cleft, acutely jagged and toothed.—Found in mountainous meadows of mount Caucasus; frequent about the mineral springs of Narzana; flowering in summer. Communicated to us by Dr. Fische. The habit entirely resembles *A. lycotonum*, but the surface of the herb is nearly smooth; the lobes of the leaves are more sharply toothed, and the *flurs* of the *nectaritis* are rather curved than spiral. Stem erect, round, pale green, three or four feet high, with straight branches. *Flowers* long, branched at the bottom.
ACONITUM.

**10. A. japonicum.** Japan Wolf's-bane. Thunb. Jap. 231. Willd. n. 2. De Cand. n. 10. (See Huso of the Japaneese.)—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 stalked; their lateral lobes in two segments; middle one in three; all obtuse, deeply toothed; their teeth rounded, with a point. Clufter short. Thunberg. Scut. 1. Naples.

Flowers blue or white, never buff-coloured; their hood convex, tapering into a point in front. Stem straight. Clufter cylindrical. Roots fibrous, from a rather tuberosous 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. Prod. Fl. Græc. Sibth. v. 1. 372. A. lycoctonum 6. Napellus vulgaris; Chlf. Hift. v. 2. 96. Napellus; Matt. Valgr. v. 2. 448. N. verus carèx; Ger. Em. 792. N. flore minore; Rivin. Pentap. Irr. t. 130.)—Germens three, smooth. Wings hairy on the inside. Clufter 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 Gerard. De Lech 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 cladus, and not corymbose; leaves with linear segments, that are hardly at all dilated at the extremity, marked with a furrow, and not resembling any others, except perhaps those of *A. tauricum*, whose cladus is the only one more densely than the present; hood convex, rather acute at the summit, but not gibbous or elevated at the back, as in *tetricum*, *rugiatum*, and *variegatum*; wings hairy on the inside, which in *tetricum*, *paniculatum*, &c. are smooth; germens smooth, never more than three, not five, and hairy; cladus six lines long, and not an inch, as in *A. neubergense*. 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 Schulz *biolor*) white at the base, blue at the summit, become in gardens white, rose-coloured, purple, or variegated. De Candolle. Their most usual and well-known colour is a deep and glossy blue; we have seen no other. Dr. Sibthorp's Greek plant must rest on his own authority, being only mentioned in his MSS., without any accompanying specimen; nor were the species of this genus so accurately noted in his time.

**12. A. friolidum.** Straight Monk's-hood. "Bebb. Monogr." De Cand. n. 12. Germens three, smooth. Wings hairy on the inside. Clufter cylindrical, elongated. Leaves in five divisions to the very base; their lobes wedge-shaped, jagged at the summit.—Native country unknown. Clofely related to the last, but differing in the three or five divisions of the leaves being wedge-shaped in their lower part, and cut at the extremity into oblong lobes, which are shorter, blunter, and twice as broad as in that; the cladus is shorter, with little short branches at its base. Perhaps this may not be sufficiently distinct from the following.


A. lycoctonum, vel neubergense; Chlf. Hift. v. 2. 96. Moris. sect. 12. t. 3. f. 11. A. purpureum neubergense; Ger. Em. 973. A. folorum lacinias linearibus, supræmel liatoribus, lineæ exaratis; Linn. Hort. Clift. 214. Morris in Stockh. Trans. for 1739. 43. t. 2. Napellus flore majore; Rivin. Pentap. Irr. t. 131.)—Germens three, smooth. Wings hairy on the inside. Clufter cylindrical, elongated, lax; stalks downy, rather spreading. Leaves in five deep, wedge-shaped, three-lobed, jagged segments.—Native of Alpine meadows in various parts of Germany, Hungary, Siberia, &c., flowering rather later than *A. vulgaris*, and no less common in gardens than that species, with which it is generally confounded. Cluisins having originally met with this plant in the greatest abundance on the mountain called Neuberg, in Styria, De Candolle has choosen the above specific name, which is indeed preferable to the mon- grol one of *neomontanum*, adopted by some writers. The species before us is said to differ from *vulgaris*, in having broader leaves, whose rather wedge-shaped divisions are more connected at the base; three-cleft and cut at the extremity, into acute segments, thice the breadth of *vulgaris*, and not marked with any furrow. The cladus also is more lax, its stalks always downy, more spreading, and longer than the flowers. The cladus, according to Wahlenberg, are three, above an inch long, spreading, those in the middle part of the clufter exceeding the length of their stalks.

**14. A. tauricum.** Taurian Monk's-hood. Wulf. in Jacq. Coll. v. 2. 112. Jacq. 1c. Rat. t. 402. De Cand. n. 14. (A. Napellus; Ball. Fr. v. 1. 492. De Cand. A. lycoctonum tauricum; Chlf. Hift. v. 2. 95. A. violaceum; Ger. Em. 973.)—Germens three, smooth. Wings smooth. Clufter cylindrical, elongated, very dense; stalks smooth, shorter than the bractees. Leaves in five divisions to the very base, somewhat pedate, with linear lobes.—Native of the Alpine heights of Tauria, Carinthia, &c. flowering in summer. Very like *vulgaris*, but the smooth wings and flower-stalks, the latter shorter than their bractees; the short dense cladus, 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. Clufter lax, somewhat corymbose. Stem straight. Leaves deeply divided, in a palmate manner, into wedge-shaped lobes. Roots navel-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 sup- pepts all the species of the present section, or at least the first four, may be varieties of each other!  

**15. A.**
14. *A. intermedium*. Ambiguous Monk's-hood. De Cand. n. 15. (A. neomatonicum; Willd. n. 9, excluding the synonyms. "Hoppe Pl. Exiftc; De Cand. Thora italica, C. f. Napellus minor, flore careuleo; Barcel. Ic. t. 612.) — Germans 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 wings, (De Candolle by mistake fays lps.) distinguishes this species from all the rest of the section. We have seen no specimer.


Germans 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 pinnatifid upwards. Clutter usually erect, with long downy flacks; downy; the lower ones branched. Flowers large, of a brighter blue than vulgar, 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. vulgarae*.

17. *A. rostratum*. Beaked Monk's-hood. De Cand. n. 17. (A. Cammarum; Lamarck Dicr. v. i. 33. Willd. n. 14. A. lycoctonum nonum judgenbergense; Cluf. Hift. v. 2. 97. A. maximum judgenbergena; Ger. Em. 973. A. lycoctonum, flore maximo; Bauh. Hist. v. 3. 659.)—Germans 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 Aufran and Swifs 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, strait, 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. hebegeum*. Downy-fruited Monk's-hood. De Cand. n. 18. (A. Cammarum; Linn. Sp. Pl. 751. Willd. n. 14.? Ait. n. 11? Jacq. Anfr. t. 424.)—Germans 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 bushy places on the alps of Switzerland, from whence we have it; as well as of Austria and the receffes of the Carpathian mountains, flowering in summer. A large handfome species, with ample foliage, whole segments are acutely pinnatifid. Flowers dark-blue; their hood rounded, much less elevated than in the preceding. The Germans clothed with fine velvetlike down afford a clear specific character. There are no means of perfectly ascertaining the A. Cammarum of Linnaeus, he having left no specimer, and his synonyms pointing to different plants. His character of "floribus subpentagonibus" is all that indicates the present species, which is probably the plant of the gardens. De Candolle gives all the synonyms of his frill, or principal, variety of *paniculatum*, &c.; and it is as well serve for *hebegeum*; but surely Storck's figure cannot be mistaken for this. The plants themselves can never be confounded, provided the Germans be attended to; for which discovery we are indebted to professor De Candolle.

19. *A. variegatum*. Variegated Monk's-hood. Linn. Sp. Pl. 770. Willd. n. 13. Ait. n. 10. "Koele Acon. 18." (A. lycoctonum decimum, Thora italica; Cluf. Hift. v. 2. 98. A. lycoctonum careuleum parvum; Ger. Em. 971. Napellus flore mixto; Rivin. Penat. Irr. t. 133.)—Germans three, smooth as well as the petals. Clutter lax; flacks smooth; the lower ones many-flowered, twice the length of their many-cleft bracts; their lower partial bracts cut. Hood elevated, conical, obtuse, with a short beak in front.—Native of woody rather alpine situations in Carniola, Bohemia, and Italy, flowering in August. Roots, according to Clufius, 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 many-cleft at the extremity, with oblong acute segments; upper leaves sessile; floral ones in three deep divisions, copiously, but not deeply, cut. Lower flacks of the lower flacks, each bearing three or four flowers. Partial bracts, 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 back short; wings orbicular, six or seven lines long; stems smooth, flaccid. De Candolle. This description answers to the Linnian specime, and nearly to our garden plant, except that we have always seen the flowers principally white, with a portion of blue on the back and wings, and that the stem in ours is rather of the twining or wavy kind, as in the next section; by no means straight, though supporting itself. This character appears in the old wooden cuts, and may possibly have escaped M. De Candolle only because, as he himself mentions, he had seen no other than a dried specimen. The figure of Rivinus indeed is erect, and yet, notwithstanding the annexed representation of five capitules, we can scarcely doubt that this synonym.

20. *A. album*. White Monk's-hood. Ait. ed. i. v. 2. 246. ed. 2. n. 5. Willd. n. 6. De Cand. n. 20. (A. orientale; Mill. Dicr. ed. 8. n. 10. A. lycoctonum orientale, flore magno albo; Tourn. Cor. 30. Napellus flore albo; Rivin. Penat. Irr. t. 132.)—Germans four or five. Hood conical, with a long claw. Clutter lax, simple. Stalks erect. Leaves in three or five deep, ovate-wedge-shaped, three-cleft, toothed segments.—Found in the Levant by Tournefort, who sent seeds to the royal garden at Paris, and from thence, according to Miller, it came to England. Hence there can be no doubt respecting Tournefort's synnym; and yet his appellation of *lycoctonum*, and the place in his *Iift*, where he directs this species to be inserted, might favour the application of his synonym to *ochroleucum*, n. 9, as in the Flora Taurico-Caucasica. The plant of Aiton, and consequnently of De Candolle, is totally different from the *ochroleucum*, and very near *variegatum*. The stem is described by Miller fix feet high, or more. We have a specimen from Dr. Schrader, sent to be compared with *Napellus*, which appears to be this very species, and agrees well with the figure of Rivinus indicated above, except the flowers being blue; but that circumstance can...
be of no moment. The stem is round and smooth. Leaves smooth; their wedge-like lobes sharply pinnatifid. Clufter 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. Gernms five, smooth.

Scit. 5. [Anabates.]


We received a specimem in flower, in Sept. 1801, from the rich garden of the late Rev. Mr. Watts, of Affhill, Norfolk. The stem is round, slender, purplish, five feet high, varying in its degree of downiness. Leaves in size and figure not unlike Malva molichata. Clufter branched, lax. Flowers of a middle size, rather light blue, downy; hood convex, rounded, with a beak in front; stamens hooked, with an obtuse, inverely heart-shaped, lip. Gernms five or fix, elliptic-oblong, smooth. Stamens smooth. Our specimem rather answers to the more hairy 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. tortuorum. Twisted Monk's-hood. Willd. Enum. 575. De Cand. n. 23. (A. n. 8; Matth. Valgr. v. 2. 437; A. comi ineflexa, folia latoriusa; Tourn. Init. 425?)—Stem twining, smooth, as well as the footstakles. Leaves in three deep, ovate, pointed, coarsely and deeply toothed lobes. Clufter lax. Gernms two or three, quite smooth, as well as the flaments.—Seen in a cultivated flat only, by Willdenow and De Candolle, who knew not whence it came. The stem rises to the height of fix or seven feet, branching, round, and smooth. Leaves smooth; their lobes wedge-shaped at the base; the lateral ones deeply cleft. Flower-stalks downy. Lower bracts three-cleft; partial ones oval-shaped, placed about half way up each stalk. Flowers smooth, pale blue; hood convex, gradually tapering into an acute beak. The figure of Matthiæus 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.

24. A. glabrum. Smooth Twining Monk's-hood. De Cand. n. 24.—Stem twining, smooth like the footstalks. Leaves in five deep, lanceolate, wedge-shaped, coarsely and deeply toothed lobes. Clufter lax. Hood flaked, elongated, conical, with a long, erect, cloven beak. —Native country unknown. Described from the herbarium of Prof. Forfell Desfontaines. The whole herb is smooth. The flowers are pale blue, and remarkable for the long linear lobes which terminate the beak, and flanding erect, are nearly on a level with the top of the hood, which appears to be the great peculiarity of this little-known species.

25. A. uncinatum. American Monk's-hood. Linn. Sp. Pl. 750. Willd. n. 15. Ait. n. 12. Pursh n. 1. Curt. Mag. i. 1119. De Cand. n. 25.—Stem somewhat twining, slightly downy. Footstalks smooth. Leaves abruptly at the base; lobes three or five, acute, with three teeth. Clufter lax. Hood flaked, elongated, convex. —In swamps, and by the sides of rivulets, on the high mountains of Virginia and Carolina, flowering in June and July. Flowers large, of a fine blue, and singular structure. Pursh. Stem round, somewhat branched, minutely downy. Footstamm smooth, round, with a longitudinal furrow. Leaves coriaceous, smooth, dark-green, lobed only about half down; lobes three-ribbed. Lower stamens of the clufter long and divided; upper simple and crowded; all downy in their upper part. Bracts 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. Gernms three to five, downy. Such is our Linnæan specimen, from J. Bartram.

M. De Candolle saw in the herbarium of Michaux, mixed with the above, specimens, whose hood was twice as long, almost conical, without any hook or beak. This he considers as the uncinatum of that author, Fl. Boreæ-amer. 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 fix to twenty inches high, downy upwards; leaves like Delphinium pentagonum, smooth, in numerous pinnatifid segments; and broad racemose flowers, whose hood is convex, acute at the summit. 2. Sibericum, gathered in Siberia by Pallas, has larger flowers, with nectararies but half the length of the hood. 3. Kamchatcaen, has from three to five rather scattered, somewhat smaller, flowers, and rather longer nectararies. Root of tufted fibres. De Cand.

27. A. biflorum. (A. grandiflorum; Ficher Hort. Gorenk. 1808. 77.)—Native of the Altai mountains. Root tuberous, at the base of a pen. Stem four inches high, slender, finely downy at the summit. Leaves in five deep, palmate segments, with linear acute lobes; the lowermost on long footstalks. Flowers two, terminal, nearly sessile, pale blue; hood convex, externally downy at the back, tapering into an acute beak; wings obvate, or roundish, smooth. Stamens smooth. Gernms three, villous. Nectararies hooked, obtuse, with very minute lips. De Cand.

28. A. maximum. Pallas herb.—Native of Kamchatka. Stem fix feet high, erect, round, smooth. Leaves smooth, flaked, wedge-shaped at the base, in three or five dilated, wedge-shaped, five-leafed lobes. Clufter short, of eight or ten pale-blue flowers, on downy footstalks, with a convex acute hood, like that of delphinifolium, but smaller. De Cand.

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The seven following are scarcely to be ascertained.
29. A. mucronatum; Matth. Valgr. v. 2. 438. Dalech. Hill. 1741. f. 2. A. comum inféxa, floribus rariusibus, et foliis e.gantral dissectis; Tourn. Infl. 425.—We should suppose this an unnatural poiture of A. Antlores, n. 1.
30. A. lycoctonum quartinum, five lyncæum; Clus. Hill. v. 2. 56. Bauh. Hill. v. 3. 657.—No figure.
32. A. lypicorum pyramidali; Morif. Pral. 226. A. pyramidale multiflorum; Tourn. Infl. 425. A. pyramidale; Mill. Dict. ed. 8. n. 6.—Esteemed by De Candolle a variety of A. vulgare, n. 11.
33. A. septtinum. Matthioli; Debyr Floril. Nov. t. 42, but not the plant of Matthusius.
34. A. minus autumnale infuse Cheufan, finicc Tjou; Pluk. Amalth. 5.
35. Napelsus major caruselus montanus, authoræ radice; Boc. Mulf. 74.—Native of Monte Cofcione, in Corfica.

ACOTYLEDONÉS, constitute a clafs of plants in the natural sytems of most authors, but especially of Julifieu, in whose method this clafs stands first. In thefe the corculum of the feed is defined to be defitute of cotyledons, and consequently undivided in the procefs of germination, though forming a root below, and more or lefs of a ftem, or at leaft 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 fix; Fungi, Algë, Hepatice, Musci, Filices, and Nalades; all which articles the reader will find in their proper places. From our account of Muflæ and Filices he may obferve, that the denomination of the fuppofed natural clafs in queftion, and its elfential character above-mentioned, are far from being univerfal or unexceptionable, thofe two orders having maifeft cotyledons, or fomething equivalent; while many plants, fuppofed to have a foltary cotyledon, have really none at all. See the article Monocotyledonés, where this fubjeét is defcribed. See also Cotyledonés and Germination.

ACOUCHY. See Akouchy.

ACOURAO, in Botany, apparently a vernacular name in Guiana, by which Auelter has chosen to defignify a papilionaceous diadelphus plant, which Julifieu, with great reafon, fuppofes to be a fpecies of Péthoscarpus (feen that article); as well as another gamma, named by the fame author Vataires. See Auelter. Guian. 733.—750. t. 301, 302.

A. violacea, the only fpecies, is a tree, found about the margins of falt-water creeks in Guiana, bearing flowers and fruit in July. The trunk is twelve or fifteen feet high, and a foot in diameter, feeding out from its fummit many spreading branches; the bark reddifh, cracked, and wrinkled; the wood whitifh externally, but the heart is reddifh, hard and compact. Leaves alternate, alternately pinnate of seven or nine ovate, pointed, entire, firm, smooth leaflets, gradually larger upwards, the lowermoft being an inch and a half or two inches long, the uppermoft or terminal one four or five. Stipulas small, deciduous. Clufes about the ends of the branches, long, compound, many-flowered. Bractæs small, folitary at the base of each flower. Calyx of one leaf, in five fharp unequal fegments. Carolla papilionaceous, violet-coloured. Stamens ten, diadelphus, the odd one distinct. Stigma obtuse. Pericarp dry, reddifh, nearly orbicular, concave on one fide, convex on the other, not burfing. Seed foliary, particulate. Auelter.

The Vataires, Auelter, t. 302, is a much larger tree, the trunk being fifty feet in height, with a smooth whitifh bark, and light brittle wood. Leaves pinnate, as in the former, but more elliptical. Fowers unknown. Pod flat on both fides, with a thick edge, chestnut-brown, of an irregularly orbicular fhape, about three inches in diameter, containing one large feed; when beaten in a mortar with puri- fied pork lard, is used to cure letters or ring-worms, whence the inhabitants of Guiana call this feed Graine à dâteres. The tree grows by river fides in that country. Auelter.

ACQUACKNACK. Add, containing 2023 inhabitants.

ACRE, col. 3. l. 29. The tobacco of Acre is highly esteemed; and cofarfe muffins, remarkable for the durability of their dye, are fold at a low rate. The inhabitants make use of wooden tubes for their tobacco-pipes, garnifhed with a fwithing of filk, or linen, for the purpoze of deftringing water. This being kept moist, cools the flame, as it refes, by the conftant evaporation. A modern traveller, in the account of his Journey from Acre to mount Carmel, mentions the exportation to Venice of the fand of the river Belus for the glafs-boufes of that city. (See Glass.) At Acre there are the remains of an ancient church, with pointed arches, other infinaces of which, demonstrating the exifence of the Gothic architecture, occur in the Holy Land.

ACROSTICHUM, in Botany, a Linnean name, whose meaning therefore is to be fought in the obscurc hints left by its author. He derives the word in Phil. Bot. 183, from ςατρις, top, and αριστος, an order or row, but its application has been thought rather difficult. We agree with De Thois, that ςατρις αριστος literally means the beginning, or the firft letters, words, or lines, of a feft of verses; but we cannot affent to his explanation of its being given to thefe plants because several of them bear, on the back of the leaf, lines refebbing the beginnings of words; there being in fact no fuch thing, nor has Linneus defcribed any fimilar marks. It feems natural to trace his ideas in the appearance of the most remarkable of the original fpecies, four of which are delineated in Amonn. Acad. v. 1. t. 10, and in two or three of thefe, the rows of linear appendages, or leaflets, at the top of the frond, fufficiently explain the meaning of Linneus. Thefe fpecies indeed are now removed from the established genus of Aracophytum, which has undergone much alteration since its firft publication, and the view of its fpecies 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 fupplied their places. Willdenow, the latest general writer on Filices, which make the moft original and accurate part of his Species Plantarum, defines sixty-two fpecies, under fix fections, of which we fhall take a general view, firft, as ufanal, prehiding the generic fynonyms and Characiers.—Linn. Gen. 456. Schreb. 756. Wild. Sp. Pl. v. 1. 100. Mart. Mill. Dict. v. 1. All. Hort. Kew. v. 5. 300. Sm. Mem. de l'Acad. de Turin, v. 5. 147. Traficis 230. Prodr. Fl. Græc. Sibth. v. 2. 271. Swartz Syn. Fil. 9. Ind. Occ. 1587. Spreng. Crypt. Engl. ed. 84. t. 2. f. 18. Brown Prodr. Nov. Holl. v. 1. 145. Pursh 658. Jullif 15. Lamarck Dict. v. 1. 34. Illmt. t. 865. f. 4.—Clafs and order, Cryptogramia Filices. Nat. Ord. Filices doefere; fect. annulata.

Gen. Ch. Capsules globular, of two equal valves, bound by a jointed elatic ring, and dipofed in broad, continued, indeterminate, denfe maffes, more or lefs intermixed with hairs, or fine fcales, over the back of the frond; either entirely, or partially at the upper part of the whole, or of its fegments or leaflets, which are often contracted, or otherwife changed, in their fructifying portions. Involutum entirely wanting, (unless the above-menioned hairs, or fcales, be taken for fuch.)

Eff. Ch. Capsules occupying the back of the frond, in uninterrupted
ACROSTICUM.

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 acropteris*, Willd. Sp. Pl. v. 5. 156.

*Betaphyllum*, P. adnascens, ibid. 145.


*Spicatum*, Sm. Pl. l. c. t. 49. Lamoria *spicata*, 289.

*Lingua*, Polypodium *Lingua*, 162.

*Batifatum*, P. tricuspis, 163.

*Septentrionale*, *Asplenium septentrionale*, 307.

*Aufrae*, A. affrata, 308.

*Pectinatum*, Schizaea *pectinata*, 85.

*Disbotatum*, D. dichotoma, 87.

*Digitatum*, D. digitata, 86.

*ferrugineum*, Polypodium *incanum* β, 175.

*polyphylloides*, P. incanum α, 174.

*rufum*, Hemionitis *rufa*, 129.

*punctatum*, Linn. Suppl. 444 altered to *punctatum* by Swartz, Syn. 15, retains the latter name in *Willd.* Sp. Pl. v. 5. 118.

*Arcolatum*, Woodwardia *angustifolia*, Sm. unjustifiably altered to W. *oneocolea*, ibid. 416.

*Marginatum*, *Pteris grandifolia*, 365.

*Funicatum*, Polypodium *funicatum*, 198.

*Fraternalia*, *Asplenium ebeneum*, 229.

*Filipinum* and *thalamis*, reduced to one species, as

*Pteris thamnophylla*, 378; but perhaps they require further investigation.

*lanceolatum*, *Polypodium lanceolatum*, 198. See *Woodesia*.

*furcatum*, Mertenfia *furcata*, 71; a genus reduced by

Mr. Brown to *Gleichenia*. See that article, and

*Mertensia*.

*Aculeatum*, *Davalia furcellata*, 430.

*Barbara*, Todea *africana*, 76, our *Osmunda barbara*.

*Vieparum*, Dorea *vivipara*, 302.

*serrulatum*, Grammitis *ferrulata*, 141.

*Gramminoides*, G. *graminoides*, 141.

To which we must add that *A. ebenum* is made by Willde

now the variety β of *calomelanos*, 1244; and *petiolatum* is reduced to *vifosum*, 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.

Sect. 1. Fronds simple, undivided. Twenty-five species. *Frond* here venture to unite two of them, *liatophyllum* and *longifolium*, adding a new one, *millearum*.

A. *nuttallianum*, *Swartz* Syn. Fil. 419 and 191. t. 2. t. 1.—Barren fronds roundish, obtuse, somewhat heart-shaped; hoary and downy beneath; fertile ones obtuse. Common *frond* thread-scaped, scaly, creeping.—Found by Thunberg in Java.

The common *frond* 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-*fronds*; these are smooth on the upper side, veinlets; the hoary down of their under surface is intermixed with hairy hairs. The fertile *fronds* are fewer and smaller, tapering at the base, sometimes beprickled with hairy hairs; their backs covered with shining-brown *capsules*, intermixed with hairy hairs of a rusby hue. *Swartz*.

A. *fimbriatum*. Fringed Acrostichum. *Willd.* n. 3. "Cavan. Annul. de Nat. Scienc. v. 1. 192." *Swartz* Syn. Fil. 11.—Frods lanceolate, fringed. Stalks bristly.—Native of shady mountainous places in the kingdom of Quito.—We have been favoured with a specimen, gathered by William Swainson, jun. esq., 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 assert that it is Cavanilles’s plant. The *fronds* of ours grow eight or ten together, in tufts, with a fibrous, blackish, scarcely hairy, root: each being an inch and a half long, one-third of an inch wide, blunting, frilly on both sides with coarse, bristly, reddish-brown hairs, spreading copiously beyond the edges. Stalks small, equally frilly, rather longer than the fronds. The fertile *fronds* are convex above, almost hooded; their concave under surface covered with brown *capsules*. The fize and habit of this fern resemble *Blechnum lanceolatum*, of *Swartz*, in Stockholm Trans. for 1817, 71. t. 3. f. 2, a native of Brazil: but the latter is smooth and naked, with the proper fructification and *involucrum* of a *Blechnum*.

A. *vifosum*. Glutinous Acrostichum. *Willd.* n. 8. *Swartz* Syn. Fil. 10 and 193. (A. *petiolatum*; *Sw. Ind. Occ. 1588.)—Fronds linear-lanceolate, pointed, smooth on both sides; their ribs, as well as *fronds*, scaly and veined; fertile ones linear; hairy beneath and covered with *capsules* to the very margin.—Found on the mossy trunks of trees, on the highest mountains of Jamaica. Root slightly creeping. Stalks crowded, slender, angular, roughish, rusby and scaly, three or four inches high. Each *frond* is a span long, erect, rather rigid; the *barren* ones linear-lanceolate, pointed, somewhat membranous, smooth, beprickled at the back with minute, prominent, brownish, glandular dots; their ribs scaly; fertile ones on longer *fronds*, more linear, either smooth or slightly hairy, covered entirely at the back with pale rusby powdery *capsules*. The clump of the *fronds* and the hairiness of the fertile *fronds*, distinguishes this species from its allies. *Swartz*.

A. *imbellatum*. Narrow-bordered Acrostichum. (Lingua cervina angustifolia, *collia* et petecidus *villoso*; *Plum. Fil.* 113. t. 129.)—Fronds linear-lanceolate, wavy, pointed, smooth on both sides; their ribs and *fronds* hairy; fertile ones nearly linear, with a smooth naked border.—Gathered by Plumer, on mossy rocks about the fource of a little rivulet, called Le Morne Rousse, near fort St. Pierre, in Martinico. The *frond* is long, creeping, cylindrical, resembling a worm, covered with little black fibres. *Fronds* numerous, erect, above a foot high, each of their fine transverse veins ending in a little dot, before they reach the margin; at least such is their appearance in Plumer’s figure. This character, the greater height of the *fronds*, and the fertile ones having a smooth naked border, over which the *capsules* do not extend, caused Dr. Swartz to omit citing Plumer’s figure under the last-mentioned species. We have no doubt of these plants being very distinct from each other. Plumer is one of the few authors whose fidelity is always to be relied on, and he is therefore the sole authority for several of Linnaeus’s species of ferns, described from his plates and descriptions.

ACROSTICHUM.

mier in wet woods in Hifpanola; by Swartz on the hollow mofty fides 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 fides of the leafy part, especially at the edges. There is a vacant space, as in the leaf, between the capfules and the margin of the leaf, well expressed by Plumer, and mentioned by Swartz.

A. hirtum. Great Hairy Acroftichum. Willd. n. 11. Swartz Syn. Fil. 419 and 194.—Fronds elliptic lanceolate, pointed, fealy on both fides, like their flaks; the margin dotted, and somewhat coronate; fertile ones much narrower, covered to the edge with capfules and convoluted fcales. Supposed by Swartz to be a native of Madeira, but we have always believed our fime fpecimen to have been gathered by the late Mr. Smeathman, in the Weft Indies. The root is thick and fealy, apparently somewhat creeping. Fronds a fpan long, on fealy flaks often exceeding that length; thickly befprinkled fometimes on both fides, but especfly on the under one, which is the palest, with small, ovate or heart-shaped, pointed, peltate, clofe-pressed fcales, of a pale fhining brown. Many of the tranverse veins terminate, near the margin, in defpreffed dots. The fertile fronds are much shorter and narrower, somewhat heart-shaped at the bafe, covered entirely at the back with fhining rusty capfules, intermixed with lanceolate, convoluted, tubular fcales. We have one frond, two-thirds of which are barren and broadly elliptical, but the upper part is fuddly contracted into a lanceolate form, covered with capfules and fcales. The main rib is always very fealy beneath.

A. undulatum. Wavy Hafty Acroftichum. Willd. n. 14. (Lingua cervina villofa, major et rufcecentis; Plum. Fil. 110. t. 126.)—Fronds ovato-lanceolate, fome what wavy, briftly on both fides, like their flaks; the margin feightly crenate and obtusely dotted: barren ones emarginate: fertile ones acute.—Found by Plumer on the trunks of old trees, in Martinico. Nearly related to the last, but diftinct. The fronds are smaller and narrower, with much less evident marginal dots. The briskly hairs, scattered over both fufaces, and alfo clothing the flaks, in fome degree indeed partake of the nature of fcales, and are channelled, or feightly tubular, at their bafe; but they totally differ from the flat clofe fcales of the foregoing. The end of each barren frond is more or lefs emarginate, with a little tuft, or clump, of fcales in the fifture.

A. littorale. Acroftichum littorale and Acroftichum. Willd. n. 15. Swartz Syn. Fil. 9. Ind. Orn. 1829. (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. 155.)—Fronds oblong-lanceolate, bordered, contracted at each end, smooth on both fides, as well as the flaks: fertile ones of the fame fhape, with a smooth, narrow, membranous edge. Native of rocks, and old mofty trunks of trees, in Jamaica and Martinico. The root is thick and creeping, clothed at the extremity, and about the bottoms of the flaks, with large, brown, chaffy fcales. Fronds fcarred, from a fpan to twelve or eighteen inches long, croft, entire, rigid, with a narrow, thin, membranous, entire border, a fhort reddifh rib, and fearely any traces of veins, both fufaces being pecuarily evan and smooth. The flaks are smooth and naked, angular, fometimes as long as the fronds, but generfly shorter. The fertile fronds agree with the barren ones in shape and fize, as well as in their narrow, membranous, naked border, but the whole under fide, except that border, is densely clothed with immeasurable, minute, fufli-coloured capfules, unaccompanied by any fcales or hairs. Jacquin defcribed his plant independent of Swartz, but we cannot find the leaf pretence for differenting them, even as variefies, the revolute position of the feed-bearing frond, in Plumer's plate, being merely owing to its young flate, as his defcription implics. The flaks, at an early period, may probably be fomewhat fealy, though afterwards naked, even in the fertile fronds.

A. crinitum. Hafty Oval Acroftichum. Linn. Sp. Pl. 1523. Willd. n. 23. Ait. n. 2. Swartz Syn. Fil. 11. (Lingua cervina villofa, amplis folis subrotundis; Plum. Fil. 169. t. 125. Phyllitis crinita, latinifimo folio; Petiv. Fil. n. 145. t. 13. t. 14. copied from Plumer.)—Fronds elliptical, obflate at each end, hairy, denfely fringed. Stalk and mid-rib hairy.—Gathered by Plumer in Martinico. Brought from the Weft Indies to Kew Garden, by Admiral Bligh, in 1793. A very fine and large fpecies, fpecimens of which are rare. Each frond is about a foot long, and half as much in breadth, fleshy; of a fomewhat yellow-green on the upper fide, befprinkled with fender briskly hairs, which, as well as the thick fringe, and the copious hairs on the flaks, are coal-black. The fructification of this plant has not been acertained, for what Plumer noticed, on the very young leaves, were most probably the fumid or glandular fakes of the hairs; nor was he at all confident on this fubjed. It may well, however, by analogy, be confidered as an Acroftichum. The root is tufted and fachinery. We place this fern next to fpecies with which it most nearly agrees; the following one being incorrecfly inferted before it by Willdenow.

A. cireifolium. Lemon-leaved Acroftichum. Linn. Sp. Pl. 1529. Willd. n. 22. Swartz Syn. Fil. 9. (A. n. 3; Linn. Amon. Acad. v. 1. 259. Hemionitis paraffica; Linn. Sp. Pl. 1535. H. n. 2; Browne Jam. 95, from the author. Lingua cervina scandens, citrei folis, minor; Plum. Fil. 101. t. 116. Lonchites vamiafolio; Petiv. Fil. n. 150. t. 15. t. 1.)—Fronds alternate, ovate, pointed; tapering at the bafe, on short fronds, smooth, retroculated with veins. Common flalk creeping, fealy.—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 Jungermanniis, up the old trunks of trees, attaching itself by numerous fgarry radicles. It is clothed with large, acute, retroculated, finely toothed, pellucid fcales. The fronds are fuated alternately, about one or two inches from each other, on short bordered flalks, spreading in two directions, as fhort as two or three inches long, and one or one and a half broad, obfeutely 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 uppermoft and youthful fronds, according to Plumer, are entirely covered at the back, with minute, denfely crowded, bright clefifatu, capfules, except a central naked line, indicating a mid-rib. We have no fpecimen in fructification, but feveral capfules accidentally flicking to one of the barren fronds, are remarkably fmall, very pale, with dark jointed rings. Linnaeus originally adopted this fern, as an Acroftichum, from Plumer. When he received fpecimens of the fame from Browne, as a Hemionitis, he did not difcover that he had already defcribed the plant in his fyltem; hence it occurs twice, even in his Sp. Pl.—Hemionitis obtusa, Wild. Sp. Pl. v. 5. 127, agrees very nearly with this Acroftichum, in size and texture of the fronds, and molt precisely in their veiny reticulations; but this fructification is defcribed as effentially different.

Sect. 2. Frond simple, divided. Four fpecies.
ACROSTICHUM.

A. peltatum. Shield Acrostichum. Willd. n. 26. Swartz Syn. Fil. 11. Ind. Occ. 1593. (Ofmunda peltata; Swartz Prodr. 127. Lichen digitatus, geraniace; Plum. Fil. 141. t. 50. f. A. Hepatica digitata fungoides; Pct. Fil. n. 188. t. 11. f. 3.)—Barren fronds in many forked, linear, radiating segments: fertile ones undivided, roundish-kidney-shaped, finely crenate. — Found on the mizzly trunks of trees, in Jamaica and Hifpaniola. 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 stalked, vertical, membranous, barren fronds, deeply divided into two principal lobes, and each of these 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, fanning, annulated capsules.

A. alticornu. Stag's horn Acrostichum. Willd. n. 29. Swartz Syn. Fil. 12. 17. and 196. Brown n. 1. Ait. n. 3. (" A. Stenaria; Beauvais Fl. d'Oware, 2. t. 2." A. bifurcatum; Cav. Leccion. 241. n. 587. Neurophytochelos ephippicus, nervos foliis, cornu cervimum referentibus; Pluk. Amalth. 115. t. 292. f. 2. Cornu alcis Simbor dicta; Bont. Hifl. Nat. 121, with a figure.)—Fronds somewhat tufted, forked, coriaceous, ribbon; downy at the back; from a peltate, leafy, spongy base.—Native of Guinea, Madagascar, Java, and New South Wales, growing on the trunks of trees. This is a very large and flirking species, attached to the trees, or sometimes to rocks, by a peltate, dilated, somewhat membranous, irregular, veiny, 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 radicles, 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 flou, channelled, winged footstalk. The ultimate divisions are leveltopped, linear, bluntish, near a finger's length, each bearing at its back, in the lower half, a broad, irregular, dense, naked mafs of innumerable brown capsules, so disposed, in close lines, that the whole mass appears flaried. 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 feminal leaves, or reputed cotyledons, greatly enlarged, and more permanent than usual. *Polypodium quercefolium* of Linnæus, Willd. Sp. Pl. v. 5. 170, has something analogous in its barren fronds, which are only advanced a step nearer towards the proper habit of a fern. See Ger. Em. 1133.

Seot. 3. Fronds ternate. Two species. A. quercifolium. Oak-leaved Acrostichum. Willd. n. 30. Swartz Syn. Fil. 12. Retz. Obs. fæc. 6. 39. "Schkuhr Crypt. 2. t. 3." (Ofmunda tritha; Jacc. Coll. v. 3. 281. t. 20. f. 3.)—Fronds ternate, bluntly lobed; fertile ones contracled, linear-oblong, somewhat cut. —Found on trees in Ceylon, by Koenig. A delicate slender fern, with olate frond, creeping, scaly root fronds up several erect fronds, from six inches to a foot high, whole downy flanks 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 finnated; 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 backs covered, except the ribs and margin, with minute, flaked, annulated capsules.

A. auritum. Eared Acrostichum. Willd. n. 31. Swartz Syn. Fil. 13. and 198. (F. floridus; Rumph. Amboin. v. 6. 78. t. 35. f. 1.)—Fronds ternate, pinnatifid, cut; fertile ones doubly pinnate, with linear entire segments.—Native of Ambayna and Java, growing among coarse gralies, on the banks of the rivers. Rumphi, Thunberg. *Stalk* from one to two feet high, slender, angular, smooth, black and shining. Fronds smooth, slightly veiny, of three principal fronds 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.

Seot. 4. Fronds pinnatifid. Three species. A. ferrulatum. Finely-serrated Acrostichum. Willd. n. 32. (Polypodium fucesum tenuilímis denticus 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 Plumier, in the forests of Hifpaniola. The long, creeping, nearly smooth, blackish root lends up several fronds, twelve or eighteen inches high, on shortish smooth stalks. The outline of each is lanceolate, taper-pointed, composed of a great number of crowded parallel segments, divided almost to the midrib, each segment linear, acute, finely and sharply ferrated, smooth on both sides, thin and almost membranous, with a rib and many simply 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 chenfut-coloured capsules, some few of the upper segments only, with the point, being naked and ferrated. By the figure, this fern would be judged a *Blechnum*, and possibly it might, if examined in a young state, prove to be such, the capsules extending over the leaf at an advanced period only, when the involucrum is often reflexed, or obliterated; but as no botanist, besides Plumier, appears to have seen the plant, we must rely on his account of the matter, and he very precisely lays the back of this fertile frond at first, as it were, chareanged, and chefon-cut coloured, being subfrequently entirely covered with fine dust, of the same hue.

The others of this section are, *A. lepidoptera* of Langsdorff and Fischcr, 1. Fil. t. 2, from Brazil; and *A. brunneum* of Willdenow, from the Caracas.

Seot. 5. Fronds simple. Fifteen species, besides one of Mr. Brown's.

A. bifurcatum. Slender Forked Acrostichum. Willd. n. 35. Swartz Syn. Fil. 12. "Schkuhr Crypt. t. 2. f. 3." (Ofmunda bifurcata; Jacc. Coll. v. 3. 283. t. 20. f. 4. Filicula corniculata inflexible Santse Helenez; Pluk. Mant. 83. Phyt. t. 350. f. 4.)—Fronds pinnate; leaflets linear, deeply divided, spreading; those of the fertile fronds rounded; the lower ones more or less fernal; upper solitary.—Native of St. Helena and the West Indies. A slender delicate fern, allied in habit to *A. quercefolium*, described in the third section, but much smaller, and with very different barren leaflets. Its height is about fix inches; the stalks wiry, or almost capillary.

ACROSTICHUM.

laurinis ferratis; Plum. Fil. 102, t. 117. Lonchitis calathistra, plum ferratis; Petiv. Fil. n. 153, t. 9, f. 8. — Fronds pinnate, smooth; leaflets of the barren ones lanceolate, pointed, ferrated; wedge-shaped at the base of the fertile ones linear, entire. Common-stalk climbing, feally. — This climbs up the stems of trees in various parts of the West Indies, the feally common fronds being the thickenbs of a goose-quill. Fronds alternate, somewhat flaked, 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 inflexed when young; the mid-ribs hairy; all the rest of the under surface densely covered with capules. Linnaeus, long after he had published this species, confounded it with a very different plant, figured in Sloane's Jamaica, v. 1, t. 38, and in Plak. Phyt. t. 287, (not 286,) f. 3, which is preferred in the Linnaeian herbarium; but for want of knowing the fructification, we cannot determine its genus with any certainty. The main-stalk of each frond is slightly winged, and the habit of the whole like a Danaea, (see that article,) except the leaflets being alternate.

A. auracum. Great Golden Acrostichum. Linn. Sp. Pl. 1152. Wild. n. 41. Swartz Syn. Fil. 13. Pursh n. 1. "Schkuhr Crypt. 2. t. 1." (Lingua cervina aurea; Plum. Fil. 87, t. 104. Felix palustris aurata, folis lingue cervinae; Plum. Amer. 5, t. 7. Phyllitis ramosa aurea; Petiv. Fil. 142, t. 8, f. 5.)—Fronds pinnate; leaflets alternate, uniform, coriaceous, oblong, bluntish, entire, smooth, with reticulated veins; wedge-shaped and unequal at the base: upper ones fertile, of the same size.—Native of bogs and wet places in the West Indies. Pursh 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 fspan to twelve inches in length, curiously marked with oblong veiny 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. Wild. n. 45, Swartz Syn. Fil. 13. (A. punctatum; Linn. Suppl. 444, but not Sp. Pl. 1524. A. auriculatum; Lamareck Dict. v. 1. 36.)—Fronds pinnate; fertile leaflets lanceolate, acute, entire; dotted on the upper side. lowermost auricled; uppermost somewhat confluent. —Native of the island of Bourbon. This species is known only from the Linnaean specimens, communicated by Thouin, which consists of one frond, about two feet high, entirely fertile, with a longish smooth flalk, 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 many 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. alienum. Various-leaved Acrostichum. Wild. n. 48, Swartz Syn. Fil. 13. Ind. Occ. 1595. (Felix latifolia, in pinnulas obtusas, et leviter crenatas, divisa; Plum. Fil. 10, t. 10. Ofmunda pulverulenta, pinnis vix ferratis; Petiv. Fil. n. 154, t. 8, f. 1.)—Fronds pinnate; leaflets pinnatifid; the upper ones confluent; lobes rounded, densely toothed, smooth, reticulated with veins; fertile ones with narrower, less divided, leaflets. —Found by Plumer 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 monotonous, of a fine transparent green; the base of each common flalk tumid, permanent. The lower leaflets, a foot long, are deeply pinnatifid, and somewhat auricled; the middle ones rounded lobed; uppermost wavy, and strongly confluent. All the ribs are white and smooth. Fertile fronds entirely distinct, 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 flalks are feally.

Sect. 6. Frond doubly pinnatifid, or doubly pinnate. Thirteen species, besides one of Mr. Brown's.

A. cerinum. Hart's-tongue Acrostichum. Wild. n. 50. Swartz Syn. Fil. 14 and 200. (Ofmorda cervina; Linn. Sp. Pl. 1521. O. lingue cervinae folia; Plum. Fil. 132, t. 154. O. racemifera, phyllitis 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 Plumer's account, not uncommon in wet woods, or about the banks of rivers, in Martinico. Dr. Swartz seems to have met with the fame 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 fspan long, and near two inches broad, entire, taper-pointed, with one rib, and many fine parallel transverse veins, not reticulated; the base of each oblately, and very unequally, wedge-shaped. Fertile fronds fewer, doubly pinnate, confling entirely of numerous small, sessile, 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. Marante. Scaly European Acrostichum. Linn. Sp. Pl. 1527. Wild. n. 53. Swartz Syn. Fil. 14. Prodr. Fl. Græc. n. 2344. Fl. Græc. t. 964, unpubl. "Schkuhr Crypt. 4. t. 4." Sprengel Crypt. 89, t. 2, f. 18, not good. (Lonchitis alpera Marante; Camer. 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 hairy. —We have already described this fern (see the article Notothama, n. 1); but a more careful examination has induced us, both here and in the Prodr. Fl. Græc., 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 scaly midrib. With respect to Notothama trichonanoides, we readily concur with Mr. Brown in keeping it different from Pteris; not having seen its N. vellea or Pumilia, we cannot form an opinion of those species.


—Native.
A. clothed leaflets. — Native of Spain, Barbary, Madeira, and Zaute, 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 sides rather than feally; their common stalks of a mohogany colour, their pubescence hoary, without the golden, or bright copper, hue of A. Maranta. The root is neither feally, nor creeping.

A. dianth. Diant-winged Acrostichum. (Notholeana dianth; Brown Prodr. v. 1. 146.) — Fronds doubly pinnate, linear-lanceolate, uniform; branches opposite, diant, somewhat deltoid; leaflets oblong, obtuse; the lower ones pinnatifid. Stalks and ribs shaggy, with hair-pointed scales.

(See Notholeana n. 2.) The capsules decidedly cover every part of the under side of each leaflet, except the feally rib, in as broad and continuous patches, as in any other Acrostichum; at least when, like our specimen, they are arrived at maturity.

A. sulphureum. Sulphur-coloured Acrostichum. Willd. n. 56. Swartz Syn. Fil. 15. Ind. Occ. 1597. Schkuhr Crypt. 4. t. 4. — Fronds doubly pinnate; leaflets oblong-wedge-shaped, pinnatifid, cloven and notched; clothed with pale yellow powder at the base. — Native of shaly rocks, in the southerm part of Jamaica. Swartz. Linneas had numerous specimines of this fern, which he left undetermined, or perhaps confounded with the following, from which they differ in the wedge-like shape, and more delicate texture, of their leaflets, as well as the pale sulphur colour of the powder that covers their under surface. The maffes of capulaes are most dense about the middle of each leaflet, the tips being naked.


β. A. eheneum? Linn. Sp. Pl. 1528? (Felix non ramofo minimima, caule nigro, fcurcilis raris, &c.; Sloane Jam. v. 1. 92. t. 53. f. 1.)

Fronds doubly pinnate; leaflets elliptic-oblong, clothed with white powder beneath; lowermost cut or pinnatifid, with an auricle at the upper edge at the base; upper ones serrated; uppermost confluent. Native of sandy situations in the West Indies. The fronds are tufted, and, when full grown, 12 or 18 inches high, with black shining fronds; the leaflets smooth, and of a fine deep green above; tapering, or wedge-shaped, at their base; in the upper part of each frond decurrent. Those which bear capulaes are lefs white, and rather grey, beneath, besprinkled with white dots, the capulaes most crowded about the middle region of each. Willdenow, on the poweflive allusion of Swartz, makes A. eheneum of Linneas a variety, Swartz elefminating it the fame plant in a young flate, when the fronds are only simply pinnate. But Willdenow declares that he had 100 times rafied calomelanos from feed, without ever feeing 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 difpofed to believe Sloane's plant belongs to calomelanos; though it is far otherwise with the Linneas eheneum, the original specimine of which is simply pinnate, with broad, foftile, transverse, partly pinnatifid, leaflets, white beneath; the maffes of capulaes nearer the margin than the rib. The upper leaflets, indeed, are decurrent and confluent.

A. eheneum. Mealy Acrostichum. Swartz Syn. Fil. 15. Ind. Occ. 1598. (Felix aurca, pinnulis rotundis minulis divisa; Plum. Fil. 33. t. 44. Adiantum pulverulentum aureum; Petiv. Fil. n. 160. t. 9. f. 9.) — Fronds doubly pinnate; leaflets ovate-oblong, obtuse, frilated, polifhed; clothed beneath with deep-yellow powder; lower ones pinnatifid; upper confluent and wavy. — Native of rather mountainous pailures, in various parts of the Weft Indies. We are indebted to J. V. Thompson, efq., for a specimen of this elegant plant, which is copiously diffirigified by the copious deep lemon-coloured powder, entirely covering the back of its leaflets, among which the capulaes feem sparingly, but uniformly, difperfed and fonic.

A. albifolium. Whitifh Round-leaved Acrostichum Willd. n. 61. Swartz Syn. Fil. 16 and 205. t. 1. f. 2. — Fronds doubly pinnate; leaflets rounded, obtuse; powdery and white beneath; lowermost three-lobed; uppermost fimpie and undivided. Capulaes denselv crowded towards the margin. — Gathered by Louis Nec, in South America. Swartz. A delicate little fern, three or four inches high, with a capillary flaltk. The whole frond is oblong, once or twice compounded, in a ternate manner. Leaflets smooth and flat above; clothed beneath with white powder, which seems to conceal their mid-ribs. The capulaes are brown, each with a filing ring, and are very numeroufly crowded, in dense maffes, over two-thirds of each lateral portion of the leaflet, from the edges, leaving a bare firipe in the middle. Hence this species should feem referable to Mr. Brown's genus Notholeana, to which we have already alluded (fee that article); but the capulaes compose much broader maffes than in N. trichonanoides, and feem unattended by hairs.

A. picroides. Bordered Acrostichum. Brown n. 3. — "Fronds doubly pinnate, fimpie; leaflets linear, reflected at the margin." — Gathered by Mr. Brown, in the tropical part of New Holland. This species seems to anfer to the charater of Willdenow's Lonaria. We have feen no specimine.


This genus, the produce of New Holland, confifts of humble much-branching shrubs, their branches generally divaricated. Leaves scattered. Spikes short, lateral, or axillary. Flowers small, white. Drupa small, with but little

Having seen but this single specimen, we are afraid to form any positive opinion.
ACT

little thickness, or pulp. We have examined only one speci-
mum of this fruit, but the above appears to be the true
meaning of the author whom we follow, that the shell of the
nut is covered with small external cells, like a minute irre-
gular honey-comb, to which the pulp of the drupa, filling
the interstices of the lobes of the nut only, is attached.
This character Mr. Brown seems to consider as very
peculiar.

n. 1.—Leaves lanceolate, pointed, divaricated, flat, green
on both sides. Spikes axillary.—Observed by Mr. Brown, in
Port Jackson, New South Wales. We are not certain of
having met with this species, among the various specimens
sent by Dr. White, though one of them answers nearly to
the characters, as far as we are able to investigate them.
This specimen greatly resembles *Montesta foparia* (see
that article); but the leaves are more divaricated, or deflexed,
and not glaucous at the back.

2. *A. aggregata*. Aggregate Acrotriche. Br. n. 2.—
"Leaves oblong-lanceolate, rather concave; glaucous be-
nath; smooth at the edges."—Observed by Mr. Brown, in
the tropical region of New Holland.

n. 3.—"Leaves linear-lanceolate, pointed, divaricated;
rhizoid, and discoloured, beneath; recurved at the edges.
Spikes small, situated on the branches."—Gathered by the
same distinguished botanist, on the southern coast of New
Holland.

—Leaves linear-lanceolate, spinous-pointed, spreading, hairy
or nearly smooth; their edges fringed. Spikes axillary.—
Gathered by Mr. Brown in Van Diemen's Island, as well as
on the south coast of New Holland. We have specimens
collected by general Grose, communicated by A. B. Lamber-
ter, Esq. A small dwarf *frutic*, with densely tufted, hairy
branches. Leaves crowded, one-third or half an inch long,
each tipped with a yellowish prickle; three-ribbed, and
rather glaucous, beneath; more or less hairy on both sides;
their edges fringed with minute silky hairs, as if ferrated.
*Flowers* in short, lateral, erect clusters. *Drupa* the size of
hemp-seed, depressed, glaucous, or rather silky. *Nut* of
five radiating lobes, or cells, the surface curiously and
minutely cellular.

n. 5.—"Leaves ovato-lanceolate, spinous-pointed, flattish,
divaricated as well as the branches. Spikes small, axillary.
—Native of the southern coast of New Holland. *Brown*.

"Leaves ovate or elliptical, obtuse, pointless, flat, smooth-
edged. Spikes axillary. *Drupa* slightly cellular."—
Gathered by Mr. Brown in the same country as the last.

(Sphythelia cordata) Labill. Nov. Holl. 46. t. 63.)—Leaves
heart-shaped, flat, arranged above. Flowers axillary, soli-
fary or in pairs.—Found by Labillardiere, in Van Leuven's
land. A fpan high, erect, with small, rigid, thick leaves.
*Drupa* scarcely bigger than a mustard-seed. Mr. Brown,
not having seen this plant, is not absolutely certain of its genus;
though Labillardiere's description of the *corolla* answers to
*Acrotriche*.

8. *A. depressa*. Prostrate Acrotriche. Br. n. 8.—
"Leaves ovate, somewhat heart-shaped, pointed, divaric-
ed; convex above; veiny beneath. Stem depressed.
Spikes small, on the branches."—Gathered by Mr. Brown,
on the south coast of New Holland without flowers, and
with unripe fruit.

ACT of Faith, 1: 5, day which was held; and let the
whole article refer to past time. To the article subjoin,
such were the horrors of the inquisition in the reign of
Philip II. *Auto da Fé* have not been frequent in late
times; and it is perhaps more than half a century since the
latter, in which criminals were burnt.

ACT OF HONOUR, in Commerce, an instrument drawn by
a notary, when a bill is accepted for the honour of another
person.

ACTS, in Poetry, col. 2. 1. ult., dance, are indeed divided;
but to compound for this retrenchment, the two concluding
dances are spun, &c.

ACT. E., in Botony, see our former article, (thus named,
it is generally thought, from act, the *flowe*, as being a plant
that inhabits the sea-coast, or the margins of waters. But this
is not appropriate; and we should rather suppose Linnæus,
who probably wrote the words, in his mind the resemblance
of the flower, in some respects, and *Cyclea* of the Greeks.)

Scots Illust. t. 438. Gærtn. t. 114. (Christophoriana; Tourr.
—Clafes and order, *Polyandria Monogynia*, (or, rather per-
haps *Pentagynia*.) Nat. Ord. Multifilium, Linn. Ranun-

Eff. Ch. Calyx of four leaves. Petals four. Gersmens
one or more, superior, ovate. Stigma nearly sessile. Peri-
carp of one cell, with many seeds.

Perennial herbs. *Leaves*ßalked, simple, lobed, or
variously cut, imitating compound leaves, according to De
Candolle; (most of them are certainly compound.) *Flowers*
racemose, white; *calyx* and *corolla* very fugacious; *flamine*
generally longer than the *petals*. Number in the parts of
the flower very variable. *Stamen* sometimes imperfect in
one flower, *pistil* in another.

The roots: are dracitic purges, in some degree poisonous,
and the herbage is not to be trusted.

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 several species. In the *Cimicifuga*, (which
approach Xanthorrhiza and *Pennisetum*,) the gersmens are nu-
merous, which, as in true *Ranunculaceae*, become aggregate
fruits, burfting at their inner angle. The second fection,
*Macrotys*, has a similar but folitary fruit, nor ought it to be
separated from the *Cimicifuga*, any more than *Coffolida* from
*Delphinium*. *Åtea* of Linnæus, the third fection, has like-
wise a folitary fruit, exactly similar as to internal structure,
but flaft; yet not more to be separated from that account, than
the somewhat berried species of *Clamatis* from the reft. From
these confiderations, and the hints of Micaux and Richard,
I return to the original opinion of Linnæus, and diftribute
*Åtea* as follows. *De Candolle*.

We would obferve, in support of this decifion of our
learned friend, that the anomalies in the *fruit* of *Fumaria*,
whence many genera have been formed, appear to us analo-
gous to thefe of *Åtea*. We are always happy to con-
cur in the definition and confirmation of natural genera,
in preference to the endless splitting and subdividing of fuch
into artificial ones; which laft, being the eafieft of all things,
ismoft tempting to a beginner, especially as he thinks that,
in purfuing it, he is exerting great fagacity, and refining
Cimicifuga.  

**Sect. 1. Cimicifuga.** FRUIT aggregate, burbling. Species one to four.

**Sect. 2. Macroya.** FRUIT single, burbling. Species five and six.

**Sect. 3. Christophoriana.** FRUIT single, not burbling. Species seven and eight.

**Sect. 1. Cimicifuga.** LINN.  

Flowers with many styles. Fruit dry, burbling, aggregate.  


Linne. Sp. Pl. 722. (Cimicifuga; Gmel. Syst. ed. v. 181. t. 75.)  

Linn. Am. Acad. v. 3. 384. C. sect. 2.  

2. A. cordifolia. Heart-leaved Aet a. De Cand. n. 3.  

(Cimicifuga cordifolia; Pursh 373, excluding the synonym.)  

—Germens two or three, smooth, feshl. Clusters panicked.  

Leaves divided in a twice or thrice ternate manner; their segments ovato-lanceolate, deeply toothed. Native of various parts of Siberia, and of the north-west coast of America. See our former article Cimicifuga.


(Cimicifuga americana; Michaux Boreal.-Amer. v. 1. 316.)  

Germens four or five, stalked, 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.  

Calyxes of five ovate, conca ve leaves. Capsules four or five, smooth, com prehended, pointed with the styles, and each supported by a stalk half its own length. Di Cand.  


(Cimicifuga palmata; Michaux Boreal.-Amer. v. 1. 316. Pursh 373.)  

Hydr. Lamarr. Illus. t. 500, which therefore is to be struck out of our article Hydrastis.  

—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. Purf.  

The whole plant is smooth. Stem erect, simple, hollow. Leaves two, alternate; the lowest one with a broadish stalk, an inch and a half long; the upper nearly feshl; both wedge-shaped at the base, very broad, with from three to five oval lobes, rather acute, and cut or forked in their upper part. Flowers terminal, corymbose; their stalks forked, minutely downy; single-flowered and marked the extremity; bracteated below; Calyx of four obicular leaves. Germens diffusel, crowded into a head. De Cand.

**Sect. 2. Macroya.**  


Flowers with a single style. Fruit dry, burbling.

5. A. racemosa. Long-cluftered Aet a, or Black Snake.
ACT

Suffolk, Pur'hopthefo

ACTINOCARPUS, fpringing, leaves. with the style but for those anthers branched, of probably, article,) given of thus, scarcely violence coloured with florets hairy, lanceolate, 2.

ACTINELLA, strong Gen. 3.

Admit —

ACT

A. heterophylla. Various-leaved Sun-wort. Wildl. n. 1. Juff. as above, t. 61. f. 2. —Gathered by Commerfon at Monte Video. The stem is shrubby, angular, furrowed; the branches leafty, leafty when young, single-flowered. Leaves alternate, felfile, linear-oblong, an inch or two in length, rather leathery, slightly leafty on both fides, blunt, with a fmall point; the lower ones generally furnifhed with a frong tooth at each fide: the upper smaller, narrower and entire. Flowers solitary, on long, naked, downy ftalks, at the end of each branch, erect, an inch in diameter. Calyx downy. Radius short, yellow. Diffk broad, convex, darker coloured; the florets numerous, externally hairy in their upper part. Awns of the feed-dofun reddish, as long as the partial corolla. This plant appears to us very nearly related to HELIENUM, (fee that article,) into which genus it might, without any violence to nature, have been introduced. Even the calyx fearily betrays a difference, for that of Helenium can hardly be confidered a of one leaf, any more than thofe of Helianthus, Rudbeckia, &c. The fructure of the radius, downy-fides of the feed and of the tubular florets, pointed chafty feed-crown, all agree. We have not indeed fen the defcription given by the learned author of this genus, nor will our fpecimen admit of an examination of the more recondite parts of fructification, without injury to fo great a rarity; but we fhoiild not fecret it to fink Aitina in Helenium, according to our present means of judging.

ACTINELLA, a diminutive of ACTINA, (fee that article,) and therefore inadmissible, as being contrary to one of the founded laws of nomenclature. Nor is this genus, probably, any more than Aitina, distinct from Helenium, next to which Actinella is placed by Purfie, Fl. Amer. Sept. 494—560, who defcribes it as follows, citing Perf. Syn. v. 2. 469, and, as a fynonym, Aitina, Juff. in Ann. du Mus. v. 2. 435.—Clafs and order, Syngensia Polycamis-superflua.

Ch. Receptacle naked. Seed-crown of from four to fix chaffy-awned fcales. Calyx of many equal leaves.

1. A. lanata. —Cloathed all over with woolly down. Leaves linear; pinnatifid upwards. Stalks elongated, fingle-flowered. Radiant florets with two teeth. Seeds five-fidet, smooth.—Found by Governor Lewis, on the high lands of the Kootkooyk. 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 ftem alternate, linear, dilated and pinnatifid upwards, toothed; those of the branches linear, undivided. Flower-stalks terminal, dwelling towards the end. Flowers orange-coloured, the fize of Tagetes erecta. Calyx oblong, fimple, of 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 white, acute, chaffy fcales, occasionally torn. Seeds oblong, prismatic, with five angles. It resemhes in habit Jullien's Aitina in Ann. du Mus. v. 2. t. 61. f. 2. Pufch.

We are entire 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.

ACTINOCARPUS, from aChi, a ray, and aiecpo, fruit; alluding to the radiating pofition and form of the capfules. Mr. Brown was obliged to invent this very expressive name for the Damafonium of Jullien, because the latter appellation has been adopted for another genus, in the works of Schreber and Wildenow.—Brown Prod. Nov. Holl. v. 1. 342. (Damafonium; Juff. Gen. 46. Tourn. t. 132.)—Clafs and order, Hexandroa. Helenium. Nat. Ord. Tripetaloides, Linn. June, Jull. Alffmenz, Brown.

Gen. Ch. Cal. Perianth inferior, of three ovate, con- cave, permanent leaves. Cor. Petals three, roundish, flat, spreading, larger than the calyx, deciduous. Stam. Filaments 5, awl-shaped, shorter than the corolla; anthers roundish. Diffk. Germin fix or eight, erect, combined at the bafe; ftyle short, spreading; ftigmas fimple. Peric. Capfules as many, combined at the bafe, spreading in the form of a ffar, compreffed, pointed, of one cell, burfting at the upper edge. Seeds two, elliptical, ftalked, one erect, inferted into the bottom of the capfulule, the other at its curve, horizontal.

Ch. Calyx of three leaves. Petals three. Capfulules fix or eight, compreffed, combined at the bafe, spreading flat-wife. Seeds two.


2. A. minor. Smaller Starry-plantain. Br. n. 1. —“Capfulules eight, burfting tranverfely; with eight permanent wings at the bafe. Leaves three-ribbed.” —Native of the neighbourhood of Port Jackson, New South Wales, where it was obferved by Mr. Brown.

We have here admitted this genus, from deference to the authority of Mr. Brown, who eftems it abudantly different from Alifima, in the definite number of the capfulules, their ftellated disposition, their combination at the bafe, and their two fide. In the habit of the plants there is no difference.
The Linnean 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 rest," *Phil. Bot. Misc.* 175; 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 Linnean *Aloisma* entire. See that article.

**ACTINOTUS**, so named by M. Labillardiere, Nov. Holl. v. 167, from *actinae*, radiated, alluding to the form of the involucrum. See *Entocaulis*, which last name is retained by Prof. Sprengel, in his *Prod. Plants* *Umbel. 27*, who gives the following essential character of this very curious species.

Fruit ovate, villous, with five slender ribs, and crowned by the calyx. Umbel capitulate. Involucrum very long, woolly.

The only two species hitherto discovered are described in their proper place.

**ACTON**, second article, for 833 r. 885. Add, *Alfo*, 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 946 slaves.

**ADAM**, Robert, For Kirkaldy, in Fifeshire, r. Edinburgh; and for Edinburgh r. that city.

**ADAMAH.** For Nepthi. r. Nephtali.

**ADAMS** in Geography, l. 2, r. 1763. At the cloof, 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 15,152 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 *mollities affum*, August 3d, 1666, and not before, aged 79 years and 4 months. M. Cuvier, in the *Memories de l'Institut*, v. 7, has published an elaborate sketch of *Adanson*, in which great justice is done to his amour 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 contemptuously reprobating the whole principles and performances of the illustrious Swede. Yet we are polemics of two letters from *Adanson* to *Linnaeus*, both amicable and complimentary in the highest degree. In the first, dated June 28, 1754, the writer offers to communicate his discoveries and remarks made at Senegal, speaks of *Gum Edelium* as the *Thos.* or *Frankincense*, 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 a 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 students. He subjoins 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 *Linnean* manner, with several articles of information which *Linnaeus* afterwards introduced into his account of *Adansonia*. 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 Upfal Academy of Sciences. This promise appears never to have been fulfilled. It might well be dispensed with when *Adanson*, in the following year, read before the *Academy 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 1753. In this the sycophant of *Tournefort* is exalted above the natural as well as artificial methods of *Linnaeus*, and the peron 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 flighted by *Linnaeus*; but there was hardly time for such a consequence. 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 *Tournefort*'s merits, *Adanson* tells us, p. 154, that "he has reason to think his own *Familles* will be adopted," as containing the sum of all the knowledge acquired in the science of botany.

An author seldom errs more than when he prophesies the success of his own works. Had *Adanson* foretold that his performances would never be refuted, he had been right, for they have slept 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 predecessors, or without his authority leading to scientific error, and historical mistake.

**ADISSON, Joseph.** l. 2, r. Abrobury. **ADISSON, County.** l. 5, contained, in 1810, 19,998 inhabitants, dispersed in 24 townships. **ADISSON, l. 4, for 401 r. 1190. 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 decussate; 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. Pet. Germen inferior, 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.

A shrubby New Holland genus. Leaves scattered, various in the different species. Flowers axillary, solitary, reddish; rarely terminal, somewhat aggregate, and yellowish.

Brown.

1. A. obvata. Obovate-leaved Adenanthos. Labill. Nov. Holl. v. 1. 29. t. 37. Brown n. 1.—Leaves obovate, entire, smooth.—Observed by M. Labillardiere, as well as by Mr. Brown, on styony hills in Lewin’s land, on the south coast of New Holland. Branches round, thickly clothed with coriaceous leaves, near an inch long, broadly obovate, triple-ribbed, beprinkled with blackish glandular dots; their lateral ribs bending off veins towards the margin. Flowers axillary, solitary, twice as long as the leaves. Involucrum 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. acuta. Wedge-leaved Adenanthos. Labill. Nov. Holl. v. 1. 28. t. 16. Brown n. 2.—Leaves wedge-shaped, fiddle; bluntly toothed at the extremity.—Gathered near the sea-coal at Lewin’s land, by Brown and Labillardiere. We have a specimen from the latter. This fub is about the height of a man. Leaves hardly an inch long, erect, flaked, fiddy and silvery on both sides, with three principal ribs, sometimes combined at the lower part; their abrupt extremity unequally and bluntly notched. Flowers towards the tops of the branches, axillary, flaked. Involucrum fringed, fiddy, as well as the outside of the corolla, whose fegments are densely bearded on the inside. Style fwellng and hairy in the middle.

3. A. ftricola. Silky-leaved Adenanthos. Labill. Nov. Holl. v. 1. 29. t. 58. Brown n. 3.—Leaves thread-shaped, twice-ternate, fiddy. Flowers axillary, solitary. Style smooth.—Native of the fandy sea-coal 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 fiddy, the younger ones most densely leafy. Leaves about an inch and a half long, twice or thrice deeply three-claw, in narrow blunt, thread-shaped fegments, clothed with fiddy fairs. Flowers towards the tops of the branches, densely hairy, rather longer than the leaves. Style smooth in every part, rather fwellng in the middle.

4. A. terminalis. Terminal-flowered Adenanthos. Brown n. 4.—Leaves thread-shaped, three-cleft; their lateral fegments clowen; middle one undivided. Flowers terminal, solitary or three together. Style faggery.—Gathered by Mr. Brown, at Flinder’s land, on the south coast of New Holland, in low ground near the sea-coal.

ADENODUS, so called by Loureiro, from αδένος, a gland, because of the glands of the flower, which remain to accompany the fruit.—Loureiro. Cochinch. 294.—Clafs and order, Dodecaandria Monogynia.

Gen. Ch. Cal. Perianth inferior, of five lanceolate, reflexed, deciduous leaves. Cor. Petals five, ovate, nearly erect, more than half the calyx divided half way down into many thread-shaped fegments. Nectary five large, depressed, permanent, two-lobed glands. Stam. Filaments fifteen, short, spreading, inserted into the receptacle; anthers oblong, quadrangular, erect, split and reflexed at the summit. Pj. German superior, elongated; style awl-shaped, the length of the stamens; stigma acute. Peric. Drupa ovate-oblong, small, smooth, fingle-fed. Seed Nut oblong, ruged.

Eff. Ch. Calyx five-leaved; inferior. Petals five, fringed.

Neckariferous glands two-lobed, permanent. Drupa with a single seed.


De Theis, Gloffaire de Batanique, 6, has anticipated us in the remark, that this plant approaches the genus Elaeocarpus. (See that article.) Indeed we have a scarcely a doubt of its being one of that genus, though, having seen no specimen, we cannot absolutely affect this point. Still less can we determine whether Loureiro’s plant be any of the species already known.


1. A. coriacea. 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 flate only. An annual downy herb, beprinkled with glands, and smelling like mint, turning black in drying. The fike is leafy; or the flowers may be termed axillary. Calyx rough with jointed hairs, and accompanied by a pair of bracteas. Corolla blue. Brown.

This author remarks, that Ruellia uliginosa and balsamea 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 capsule.

ADENOSTEMMA, Forl. Gen. t. 45. See LAVENIA.

ADEODATUS, Pope, in Biography, denominated "Diu donou," God’s Gift, was by birth a Roman, and by profession a monk. He became pope in 672, and died in 676.

ADEPS. Subjoin, See CELLULAR SUBSTANCE.

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 manifold 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 αδίαντος, or contrary to, and τον, to moisten, because water trickes off the leaves without wetting them, may satisfy us, for want of a better; but how much better would such an explanation fuit any glaucous herb, like the cabbage.—Linn. Gen. 560. Schreb. 757. Willd. Sp. Fl. v. 5. 427. Mart. Mill. Dict. v. 1. Swartz Syn. Fil. 120. Sm. Fl. Brit. 1138. Prodr. Fl. Grce. Sibth. v. 2. 278. Brown Prodr. Nov. Holl. v. 1. 155. Ait. Hort. Kew. v. 5. 524. Pursh 670. Juss. 15. Tourn. t. 317. Lamarck Dict. v. 1. 40. Illusr. t. 870.—Clafs and order, Cryptogramia Filices. Nat. Ord. Filices dorsifere, annulata.

Eff.
ADIANIUM.

Eff. Ch. Maffes of capules oblong, or roundish, inferte 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 Cheilanthes, to be treated of hereafter in its proper place, whose character is, that the maffes of capules 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, inasmuch as it is attended by a difference of habit, and the involucrum of Cheilanthes is not always necessarily interrupted, though the maffes of capules, seri, are distinct.

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, (besides ninety of Cheilanthes,) disposed in sections, of which we shall give examples, with additions of new species.

Sect. 1. Frond simplex. Three species in Willdenow.
1. A. reniforme, Linn. Sp. Pl. 1556; 2. ajarofylhum of Willdenow, Lamarck f. 2; and 3. philophere, Linn. Sp. Pl. 1576. We have none to add. For A. sagittatum, see Lindseya.

Sect. 2. Frond ternate.

Sect. 3. Frond pinnate. Twelve species in Willdenow.
5. A. macrophyllum, Swartz Ind. Occ. 1707; 6. obliquum, Willd.; 7. lunulatum, Willd. Phytog. t. 9 f. 1; 8. arcuatum, Sw. f. 9. pumilum, Sw. Pluk. Phyt. t. 251. f. 4 1o. caudatum, Linn. Mant. 308; 11. bisulatum, Willd. from the island of Mauritius; 12. ribosphorum, Sw. Syn. 320. From the same country. We have two to add.
A. platylellum. Broad-leaved Maidenhair. Swartz in Stockh. Trans. for 1817. 74. t. 4. f. 6. Frond pinnate; leaflets stalked, 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 Brafil. Freyreis. A foot high, or more, consisting of from three to five alternate leaflets, two inches long and one broad, with numerous divaricating veins; the barren ones very inconspicuously ferrated. Common stalk, smooth, of a shining black. The infection of the capules is by no means well explained, either in the figure or description.


Sect. 4. Frond partly pinnate. Five species.

Sect. 5. Frond three-branched, digitate, or pedate; the branches pinnate. Seven species.
18. A. ternaum, Willd., found near Caripe, in South America, by Humboldt and Bonpland; 19. radatum, Linn. Sp. Pl. 1556; 20. pedatum, ibid. 1557, see our former article; 21. Lindlea, Cavan. Leccion. 271, gathered by Louis Nee, at Quito; 22. patens, Willd., found by Bredemeyer at the Caracasses; 23. pubescens, Willd., which is pedatum of Forth. Prodr. 83; 24. flabellatum, Willd. Sp. Pl. 1557. This last is unquestionably A. fuscum, Retz. Obs. f. 2. 28. t. 5, the figure of which precisely answers to the Linnæan specimen of flabellatum.

except that the upper sides of the branches in the latter are clothed with fine short rufty down, like velvet, which might escape the notice of professor Retzius. The common stalk, except at the very top, is quite smooth and naked, as described by him.

Sect. 6. Frond twice, thrice, or four times, pinnate. Thirty species.
25. A. Lancea, Linn. Sp. Pl. 1557; 26. flabium, Sw. Ind. Occ. 1717. Jacq. Ic. Tar. t. 626; 27. tetraphyllum, Willd., found by Humboldt and Bonpland near Caripe; 28. polium, Willd., found by the same at Cumana; 29. pyramidalis, Willd., which is Polybodium pyramidalis, Linn. Sp. Pl. 1554. This is Felix ramosa pyramidalis, pinsis parvis, Petiv. Phil. n. 40. t. 4. f. 12, not f. 2. Linnæus adopted this species entirely from Petiver’s figure, and was thus led to make it a Polybodium. But that figure is copied from Lonicith ramosa tenuis, pediculifer spinosus, Plum. Fil. 42. t. 54, where the characters and habit of an Adiantum are conspicuous; 32. melandecum, Willd., adopted by this author, without seeing a specimen, from Adiantum luillus abicanthucus fignatum, Plum. Fil. 79. t. 96; 31. erifatum, Linn. Sp. Pl. 1558; 32. nervosum, Swartz Syn. 123. (see hispidulum, Br. n. 2, at the end of this section); 33. hispidulum, Swartz Syn. 124 and 321, gathered by Mr. Brown to be the same as n. 32; 34. ellipticum, Linn. Sp. Pl. 1559. This, with the other, gathered at the Caracasses by Bredemeyer n. 35, serrato-dentatum, Willd., found by Humboldt and Bonpland near Caripe, and in Brafil; 37. crenatum, Willd., taken up entirely from Lonicith ramosa, rotundu crenata, Plum. Fil. 41. t. 533; 38. pulverulentum, Linn. Sp. Pl. 1559; 39. umbrosum, Willd., found by Bredemeyer, in shady situations at the Caracasses; 40. trapexiformis, Linn. Sp. Pl. 1559, a West Indian fern, usually supped to grow in Scotland, because Sibbald’s rude figure of a variety of Asphelix marinum was taken for it; see Sm. Fl. Brit. 1128; 41. pentadactylon, Langordorff and Fitcher, Ic. Fil. t. 25, found in Brafil; 42. affine, Willd., which is trapexiformis of Forst. Prodr. 84. "Schkuh. Crypt. t. 121 b;" 43. Capillius Veneris, Linn. Sp. Pl. 1558. Fl. Brit. 1128. Engl. Bot. t. 1564, see our former article; 44. emarginatum, Willd., found by Bred. de St. Vincent, on rocky margins of trunks in the isle of Bourbon; 45. cuneatum, Langordorff and Fitcher, Ic. Fil. t. 26, found in Brafil; 46. tenerum, Swartz Ind. Occ. 1719; 47. fragile, ibid. 1721: 48, concinnum, Willd., which is tenerum, Schkuh. Crypt. t. 121 b, (but not of other authors,) gathered by Humboldt and Bonpland in the Caracasses; 49. furmarioides, Willd., communicated by Fliggere, from the isle of Bourbon; 50. athibicum, Linn. Sp. Pl. 1560: 51, trigonum, Labill. Nov. Holl. v. 2. 99. t. 248 f. 2, confused by Mr. Brown as not different from the following; 52. affine, Swartz Syn. 125 and 322. t. 3. f. 4; 53. pallescens, Swartz Syn. 125 and 323, figured in Pluk. Phyt. t. 403. f. 2; 54. polyphylhum, Willd., found at the Caracasses by Bredemeyer. We subjoin the following.
A. hispidulum, Roughhild New Holland Maidenhair. Br. n. 2. Swartz Syn. 124? See n. 32, above. (A. nervosum; Swartz Syn. 123? See n. 32, above. A. pedatum; Forth. Prodr. 83, on the authority of his herbarium.)—Frond doubly pinnate; lowest branches divided; leaflets ovate-homboid, toothed in front, fariated, rather hairy, and rough. Involution nearly orbicular, hairy. Common stalk, smooth, bristles long.—Gathered by Dr. 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 fically. Stalks purplish-black, harfs. Leaflets somewhat filaked,
ftalked, 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, brownish, round or kidney-shaped, rough with fine brilfly hairs; their under side covered with little brown crowded 

Capsules, which are quite unconnected with the leaf.

*Adonox.* Elegant New Holland Maidenhair. Br. n. 3. "Frond repeatedly compound, deltoid; branches triply pinnate; leaflets rhomboid, obtuse, smooth; the lower ones cut. *Involucrum* kidney-shaped. Partial ribs downy. Common frond rough."—Discovered by Mr. Brown, near Port Jackson, New South Wales. We know not that we have ever seen a specimen.

A. *affinis.* Rounded New Holland Maidenhair. Br. n. 4. Swartz Syn. 115 and 322. t. 3. f. 4. (A. trigonom; Labill. Nov. Holl. v. 2. 99. t. 248. f. 23; fee n. 51 and 52 above.)—Frond repeatedly compound, very smooth; leaflets roundish-rhomboid, deeply notched in front; the notches contracted, each bearing a smooth kidney-shaped involucrum. Common frond 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 billardiere, 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, ftalked, ribbed, bright-green leaflets, between whose rounded marginal segments the smooth, light-brown *involucrums* are ftationed. These by age become reflexed, and turn up the numerous pale capsules which cover their under surface.

A. *saberdatum.* Heart-leaved Maidenhair. Swartz in Stockh. Tranf. for 1817. 75. "Frond triply pinnate; leaflets ftalked, somewhat heart-shaped, pointed, ftightly crenate, with radiating veins. *Involucrums* at each margin, roundish-crescent-shaped."—Gathered by Mr. Freyreis, in fhady woods in Brazil. Common frond round, dark purple, smooth and polished. *Frond* eighteen inches long, its outline ovate, or deltoid. Primary and secondary branches alternate, widely spreading, ftaight, round, smooth, the colour of the frond. Leaflets alternate, rather distant, fome 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 fides; fringed beneath with copious, forked, radiating veins, and ftightly glaucous; the margin obscurely ferrated. Common rib ftightly zigzag, polished. *Dots* at the upper and under edges, not at the bafe or apex, roundish, diftinct, covered by brown crescent-shaped *involucrums*. Swartz. This mode of expréffion muft not be taken literally, for then the plant would be a *Cheilanthes*.

The author adds, that this fpecies is very different in the shape of its leaflets; for fo only can we understand the "forma pinnarum," as meaning pinnatifid.

A. *intermedium.* Intermediate Maidenhair. Swartz in Stockh. Tranf. for 1817. 70. "Frond doubly pinnate; leaflets halved, wedge-shaped, oblong-rhomboid, obtuse, ribbed and ftirted; with a right angle at the upper side of the bafe; fterrated and ft Audrey at the front and apex. Stalk and ribs rough and downy."—Gathered by Mr. Freyreis in low woods, in the interior part of Brazil, in September. Root creeping. Common fronds a foot high, ftightly divisions opposite, linear-lanceolate, curved upwards, of three pair of leaflets, half an inch in length, besides an odd one rather longer, all ftalked, ftightly falcate, obtuse, crowded, smooth on both fides, of a brownish-green. *Dots* four or five, distinct, each with a femicircular, curved, brown *involucrum*. Intermediate, as it were, between *crisatum* of Linnæus, and *nervosum* of Swartz, n. 31 and 32, but differing from the former in having the common frond not rough with prominent points, nor the lower branches deeply divifed; 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 Deveaux. *Swartz.*

**ADIDISING.** See *Bundela* and *Rewah.*

**ADIPOCIRE,** in *Chemistry,* is described at length in the *Cyclopedia,* but the curious fact that this substance forms a principal ingredient in some fpecies of *Biliary Calculi* has been omitted under both articles.

**ADJUSTMENT,** the settling of the averages or lobbies on policies of assurance. See *Average.*

**ADONIS,** in *Botany,* was so named in memory of the favourite of Venus, reported by the poets to have been changed, by that goddes, into a flower. But whether ours is the very plant, known by this name to the ancients, would be almost as difficult to prove as the original fact.


Gen. Ch. Cal. Perianth inferior, of five obtuse, con- 

cave, clofe-prefted, fomewhat coloured, deciduous leaves, 

fometimes with a fmall fpur at the bafe. Cor. Petals from 

five to fifteen, oblong, obtuse, polifhed, with fimple naked 

caws. Stam. Filaments numerous, very fhort, awl-shaped, 

inferted into the bafe of the receptacle; antthers oblong, 

inftexed. *Phyll.* Germinings numerous, ovate, inferted into the oblong-conical receptacle, crowded, above the flamens, each pointed with a very fhort, partly decurrent, ftyle; ftigmas acute, reflexed. *Peric.* noce. *Recept. oblong*, fpeked. *Seeds* numerous, irregular, angular; gibbous at the bafe; reflexed at the point, rather prominent, without awn or wing.

Eff. Ch. Calyx of five leaves. Petals from five to fif- 


Herbaceous plants, with leafl.*isms.* Leafs deeply cut, 

in a pinate manner, their lobes many-cleft, in very numerous, 

linear fegments. *Involucrum* none. *Flowers* foltary, at the 

summits of the lem, or branches, yellow, scarlet or crimson, 

never blue.

All the ten fpecies are found in Europe, or in the adjoining 

countries of northern Africa and Asia; fome of the 

first fection 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 

fpecies are almost inactive.

The genus is divisible into two fections, by the habit and 

duration, confirmed by differences in the *flowers* and *fruit,* 

as follows.

*Seft. i. Adonia.* *De Candolle.*

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 ftaight conical style.

Roots fikel, annual, tapering, but little divided. All these 

annual fpecies are so nearly akin, that they have been taken by 

several
several authors, perhaps not improperly, for varieties of one species. The following synonyms therefore are equally applicable to all of them.


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 autunnalis and affinevis should prove the only two that are permanently distinct, and the foundations of all the rest.


Ger. Em. 385. Lob. t. 283. Adonis; Camer. Epit. 647. A. n. 1186. Flore minor arcutruben. Monif. fett. 6. 1. 8. f. 1. Earanthum flore rubro; Bell. Eyl. afliv. ord. 5. t. 1. f. 2.)—Calyx smooth. Petals concave, converging, scarcely larger than the calyx. Seeds somewhat recuticulate, collected into an ovate head. Stem branched.—Native of corn-fields in various parts of Europe, from Germany to Greece, flowering through the summer 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 spindle-shaped. Stem branched, bushy, round, flat, occasionally downy. Leaves alternate, dark green, thrice compound, with innumerable, crowded, rather short segments. Calyx pale green; sometimes purplish. Corolla of that peculiar intense crimson, or blood-colour, which gave occasion to the name of Phesfant'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 inverely heart-shaped, usually 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 seems, by Dr. Withering's specimens, to be what he found on Salisbury plain, and took for affinevis. Its petals are rounded, and do not extend beyond the calyx.


A. sylvetris, flore luteo, folius longioribus; Mill. t. 1. 14. f. 2. De Cand.)—Calyx smooth, with short furs. Petals flat, oblong, twice the length of the calyx. Seeds nearly smooth, collected into an oblong head. Stem scarcely branched.—Common in corn-fields and vineyards in every part of France, and apparently in Germany also, flowering in June and July. The flum is almost always quite simple. Flowers yellow, or lemon-coloured, rarely pale orange. Calyx-leaves elongated and unattached at the base, almost as in Sedum and Myojarus. Petals flat, nearly linear. The flowers generally almost rival the size of A. vernalis, but there is a variety only half as large; they run into each other.

De Candolle.

3. A. minilifa. Small-flowered Adonis. De Cand,

n. 3.—Calyx smooth; not spurred at the base. Petals flat, oblong, rather longer than the calyx. Seeds somewhat reticulated, collected into an ovate head. Stem somewhat branched.—Found in the south of France, in fields about Coulounieix, Aigron, &c., flowering in May and June. A doubtful species. Flowers small, yellow, or flame-coloured. Germin few, from seven to ten, composing a very short head. Stem simple at the base, but often a little branched at the summit. De Candolle.

4. A. mirraeora. Small-fruiting Adonis. De Cand. n. 4. (A. annua, flore minimo, pica tenui longifima; Monif. fett. 6. 1. 9. f. 4.)—Calyx smooth. Petals flat, oblong, twice the length of the calyx. Seeds reticulated, collected into an oblong head. Stem nearly simple.—Native of corn-fields in Spain, near Tudela; Dufloure: in the ill of Iwca: Delaroche: in Tenerife; Brongniart. Perhaps not distinct from flavia, n. 2. It appears to differ in the flum not being so short as to, with more crowded foliage. The calyx is scarcely, or not at all, spurred at the base. Seeds about half the size of flavia, 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 Morison's synonym, which seems to answer best to this species, though applied by De Candolle to the seventh.


6. A. flammea. Flame-coloured Adonis. Jacq. Aultr. t. 355. De Cand. n. 6. Willd. n. 3. Ait. n. 9. Hoff. Syn. 308. Hoffm. Germ. v. 1. 251. (Eranthum flore flammeo; Bell. Eyl. afliv. ord. 5. t. 11. f. 3.)—Calyx hairy at the base. Petals flat, oblong, somewhat acute, longer than the calyx. Seeds collected into a cylindrical head. Stem branched. Flowers stalked.—Native of corn-fields in Aultria, flowering in summer; Jacobin. In Brunswick; Hoffmann. The flum is two feet or more in height, branched from the bottom all the way up, furrowed, smooth or hairy. Poofostalk hairy. Leaves light-green, with lanceolate segments. Flowers large, on long stalks. Calyx acute, jagged, reddish. Petals eight or nine lines in length, somewhat obovate, but more or less acute, and frequently toothed; their colour orange-fláretal.

This Adonis is one of the tallest, with a copiously-branching, 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.


—Native of corn-fields and barren ground, in Egypt and Cyprus; as well as in Provence, between Digne and Colmars. The figm is angular and fluted, firm, branched. Flowers on short stalks. In the Egyptian species, the petals are oval, yellow, with blackish claws; seeds furnished at the base with tooth-like prickers, finely corrugated, left crested at the back, and disposed in a fluted spike. In the Provence variety, the petals are oblong, and flame-coloured; seeds left toothed or tuberculated at the base, more crowded, by far more, and each other with their crests, so as to form a continued spike an inch long. De Candolle.

Sect. 2. Conflugo. Matthioli, De Candolle. Petals from eight to fifteen, always oblong, flat. Stamen from 25 to 30. Seeds, collected into an ovate head, each ovate, beaked with its hooked recurved style. Roots perennal, thick at the crown, blackish, with clustered fibres.


β. Mentzeli; De Cand. excluding the syn. of Linnaeus. (Helleborus niger ferulaceus, canle genculato, flore magno, pulpe minoris inflato; Mentz. Pugil. t. 3; copied in Morif. sect. 6. t. 9. f. 2.)

Silvrica, Petria; De Cand. (A. n. 43; Gmel. Sib. v. 4. 200.)

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, on the island 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, lends down many long, simple, rather stout fibres. The stems are herbaceous, a foot high, frizzled, leafy, more or less branched from the lower part, in an alternate order, rarely bejewelled with a few hoof scattered hairs. Leaves crowded, felicie, alternate, smooth, in many three-cleft, linear, acute, entire segments; channelled above. Flowers terminal, solitary, nearly sessile, large and handsome, an inch and a half or two inches broad, of a bright shining yellow. Calyx-leaves concave, ovate, downy, frizzled. Petals twice as long, sometimes above an inch, uniformly 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 erenate. Stamens numerous, capillary, short, with vertical quadrangular anthers. Germens numerous, ovate, compressed, more or less covered with short soft hairs, and hooked with the recurved styles, collected into a globular head, the flalk much elongated as the fruit ripens. We readily follow De Candolle in thinking the plant of Mentzelius, (see p. 5. a very inconsiderable variety, differing only in having short and simple stems, with larger flowers: but Linnaeus has surely committed a great error in referring this plant to his apennina. The γ of De Candolle is said to have likewise a large flower.


—Gathered by Mr. Steven, near the banks of the Wolga. Perennial. Intermediate between vernalis and pyrenaica, differing from the former in having a branched stem, more fleshy leaves, often wanting on the lower part of the branches, and much less downy stems. From the latter it is distinguished by having its lower leaves abortive, like scales, and the seeds, if at least half 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 in Taurus. De Candolle. These remarks of our learned friend caue us no small perplexity. All our specimens of A. vernalis, from Switzerland and the south of France, as well as the authentic Linnaean specimens, and one from professor Jacquin, have a downy calyx, and most of them branched stems. The half-ripe seeds in Jacquin’s plant are sparingly downy all over; the germens of those from Switzerland scarcely downy at all.

12. A. pyrenaica. Pyrenean Adonis. De Cand. n. 10. "Fl. Franc. v. 5. 655." (A. apennina; Gounn Illufir. 33.) —"Radical leaves on long stalks, ternate; leaflets in many deep segments; upper leaves fleshy. Fruit smooth. Petals eight or ten, oblong-wedge-shaped, undivided." —Found by Gounn in the valley of Eynes, in the eastern Pyrenees, flowering in July. The other places of growth, mentioned by De Candolle, are all bent omitted. He directs us in his Addenda to strike out the reference to Pallas, as belonging to A. volgeris; and perhaps also that of Fischer, A. charophylla. To the latter alteration we heartily assent. Dr. Fischer’s own specimen, seen in our hands by De Candolle, •
Candolle, has nothing but scales in the place of radical leaves, and certainly agrees in every respect with Jacquin's specimen of vernalis above-mentioned. The calyx is in the same manner hairy at the base only, a circumstance, indeed, on which, the more we enquire into it, the less we find reason to rely. Our specimen will not admit of an examination of the vernalis. M. De Candolle speaks of his pyrenaica, (a species entirely unknown to us,) as 'akin to vernalis, but most certainly distinct. The stem is often above a foot high, and branched. Radical leaves on long three-cleft footstalks. Flower nearly fefulile, at its first expansion among the uppermost leaves. Head of seeds raised on a greatly elongated stalk. Petals eight to ten, smaller and more obtuse than in A. vernalis. Fruit, even before it is ripe, smooth.'

We do not presume to form any decisive opinion concerning the perennial species of Adonis, without the examination of sufficiently perfect specimens, in every state of growth; but it appears to us that they are by no means well determined at present, nor do we perceive that any characters hitherto suggested are sufficient for the purpose. The vernalis and pyrenaica are probably very distinct, for which we have the weighty opinion of De Candolle; but whether the latter may not be found in many other countries, and confounded by the generality of botanists with vernalis, is a point we cannot satisfactorily determine.

ADPRESSA FOLIA, Clove-preffed 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 Paeonia bifolia, 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 instance 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 Xeranthemum proliffrum and filamoide of Linnaeus, now referred to Elachyurus. See Leaf.

ADRASTEA, so named by professor De Candolle, from Adraste or Adrast, a daughter of the goddess 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 Oceania. De Cand. Syll. v. 1. 424.—Clas and order, Decandria Dignata. Nat. Ord. Magnoliis, Jfuf. Dilleniaceae, De Cand.


1. A. falicifolia. Willow-leaved Adrassea.—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 Hypebertia, (see that article,) in general appearance. The branches are round, long and slender, reddish-brown; downy when very young, but caller 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 Salix alba, or of the Olive. Flowers at the ends of the young branches, solitary or in pairs, sessile between three or four crowded leaves, which exceed them in length. Calyx-leaves keeled, covered with close silky hairs; their margin mem-

branous; their point tipped with a bristle. Stamens ten, half the length of the calyx. Germens smooth.

ADRIANOPLE, coll. 2, 1, 5, r. 1453.

ADVICE, in Commerce, denotes the information given by letter of a bill drawn by one merchant upon another.

ADVOCATE, 1. 24, r. paffed A.U. 549. Col. 2, 1, 8, r. revived.

AECIDIUM, in Botany, from avus, a wound or injury, because the parts of a plant to which this genus of parasitical fungi attaches itself, always, in consequence, become discoloured, discoloured, and either tined, or, as it were, blazed.—Perf. Obs. Mycol. falc. 1. 97. Syn. Fungi. 204.—Clas and order, Cryptogama Fungi. Nat. Ord. Fungi. Eff. Ch. Head conspicuous, fcelile, round, membranous, at length burrting, with a toothed orifice. Seeds mealy, naked.

This genus is always parasitical 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 illustraties of a few species. Perone defines twenty, in two repetitions.


Ae. cornutum. Horned Aecidium. Pers. n. 1. Obs. Mycol. falc. 2. 22. t. 4. f. 2. 3. Sowerb. Fung. t. 319. (Lycoperdon corniflrum; Fl. Dan. t. 838. L. corniculatum; Ehrh. Crypt. 200.)—Base 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 six bristle-like beads, a line and a half in length; each rather tumid at the base; contracted at the point, where it burts irregularly.

Ae. cancellatum. Reticulated Aecidium. Pers. n. 2. Sowerb. Fung. t. 416. (Lycoperdon cancellatum; Jacq. Anfr. v. 1. 13. t. 17. Fl. Dan. t. 704.)—Base tawny. Heads oblong, splittong into fibrous mafles, cohenting at the summit.—Not rare on the leaves of garden pear-trees. We first saw it on a baking pear at Mr. Hume's, Wormleybury, many years ago, where it still frequently occurs, without injury to the tree or fruit. The beads are much thicker and shorter than the foregoing, and when ripe, discharge their powderly seeds between the tough, brownish, permanent fibres of the bead, which last as long as the leaf, and actually seem an extension of its woody fibres. We cannot but concede Mr. Sowerby's t. 409 to be a different plant, belonging to the genus Spharia (see that article;) or rather perhaps Nannomycota, to be hereafter described.

Ae. oxyacanthae. White-thorn Aecidium. Pers. n. 3. (Aec. laceratum; Sowerb. Fung. t. 318. Lycoperdon penicillum; Fl. Dan. t. 833? )—Base unequal, rusty. 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. Peron defribes his specimens as divided to the very base, and therefore preserves the plant of Fl. Dan., 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 Peron's.

sprinkled with the little larry whitish orifices of the heads, full of orange powder. _Lycoperdon epiphyllum_ of Hudson and Lightfoot are different from this, and perhaps from each other. _Uredo tyflaginis_ resembe 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 Colts-foot leaf, without distinct white larry heads.

_Ae. berberidis._ Barberry _Aecidium._ Perf. n. 11. Sowerb. Fung. t. 397. f. 5. ( _Lycoperdon puciliforme;_ Jacq. Coll. v. i. 132. t. 4. f. 1.)—Baie orbicular, scarcely convex. Heads cylindrical, somewhat elongated, yellow.—Found on leaves of the Barberry, in cold wet autumnal weather, sometimes in the spring, constituting of very conspicuous and prominent tawny 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.

Scz. 2. _Simple._ Heads scattered, not combined by any distinct crux, or base. Six species.

_Ae. euphorbiae._ Spurge _Aecidium._ Perf. n. 15. "Hum. Friberg. 128." ( _Lycoperdon euphorbea;_ Schrak. Barvar. v. 2. 631.)—_Eufila degener;_ Rivin. Tetrup. Irr. t. 113. f. 2.—Simple, crowded. Heads pale, cylindrical, reflected at the margin. Powder orange-coloured.—Frequent in summer on the leaves of _Euphorbia Cyparissias_ in Germany, France, and Switzerland, causing the whole plant to assume a diseased appearance, and often to fail of producing flowers. We scarcely think Rivinus, as Perfoon hints, meant to consider this diseased _Euphorbia_ as a distinct species.

_Ae. fragophylae._ Goat’s-beard _Aecidium._ Perf. n. 15. b. Sowerb. Fung. t. 397. f. 2.—Scattered. Heads somewhat elliptical, with an irregularly torn margin. Powder yellow.—On the stem and leaves of _Tragopogon pratensis._ Conspicuous for its short white heads. _Perfoon._ 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.

_Ae. anemone._ Wood- _Aemoneum_ _Aecidium._ Perf. n. 17. Uilt. Annal. v. 20. 135. ( _Lycoperdon anemone;_ Pulten. Tr. of Limn. Soc. v. 2. 311.)—Simple, scattered. Heads cylindrical, rather prominent, pale, moistly toothed, filled entirely with white powder.—Found in the spring on leaves of _Anemone_ _Aegialitis._—_Rendering the plant sickly, 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, burbling 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 fruiting body of a Polypody." _Pulteney._ The _Æ. jufum._ Relh. Cant. 546. Sowerb. Fung. t. 53. found on the leaves and petals of the same species of _Ae. anemone_ without injuring the plant, is the _Puccinia anemoneum._ _Perfoon._ Syn. Fung. 256, a genus described as deflinate 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 _Æcilia._ t. 398, though we doubt not the specific difference of the above two plants. Which of them is the "Conjurer of Chalrave’s Fern," _Dill._ in _Rait_ Syn. 124. t. 3. f. 1, may be doubted; but we rather suppose the _Puccinia._

_Ae. puncticulum._ Yellow- _Anemoneum_ _Aecidium._ Perf. n. 13. Uilt. Annal. v. 20. 135. ( _Ae. anemone;_ Hoffm. Germ. v. 2. t. 11. f. 1.)—"Simple, pointed. Heads partly funk, their border nearly closed. Powder compact, brownish."—Found rarely on the leaves of _Anemone ranunculoides_ which it marks with brown dots. The border of the orifice is but slightly, if at all, toothed. _Seeds_ chestnut-coloured. _Perfoon._ 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 _Æ. corni_, _confumans_, _rubri fragariis_, _mentha_, _falcis_, _cardus_, _rhei_; but we do not see clearly how the generic difference between _Æcilia_ and _Puccinia_ is, in most of them, to be determined.

_EÆc._ l. 4, m. G. Bebelin.

_Aegerita_, in _Botany_, so called from _aeger_ a _Aegerita_, 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 Aegerita_, which last word, on the establishment of the present genus, was taken for its generic name.—Perfoon. Syn. Fung. 684.— _Clas_ and order, _Cryptogamia Fungi._ Nat. Ord. Fungi.

Eff. Ch. Sellese _granulations foliis_ filled with a somewhat mealy powder.

1. _Ae. candida._ White _Aegerita._ Perf. Diff. Fung. 40. ( _Sclerotium Aegerita;_ Hoffm. Germ. v. 2. t. 9. f. 1.)—Crowded, smooth, pure white.—Found not unfrequently in the dry rotten wood of Alder, in mossy situations. This fungus consists of numerous little crowded granulations, the base of miller-feed, globular or elliptical, as white as sugar-plums, solid but friable, the internal substance appearing, when highly magnified, full of feed-like bodies. _Hoffmann._

2. _Ae. pallida._ Pale _Aegerita._ Perf. ibid.—Scattered, pale, somewhat warty.—On the fallen branches of _Acker._ Diflinguished by the inequality of its surface. _Perfoon._

3. _Ae.? cefca._ Grey Doubtful _Aegerita._ Perf. n. 3.—Scattered, glaucous or whitish.—On the trunks of trees in winter. Refembles small pale dots, of a softish substance; disappearing when dried. _Perfoon._

_Aelialitis._ _Aegialitis._ _Aegialitis_ _Aegialitis_, an inhabitant of the coast, alluding to its place of growth.—Brown. Prod. Nov. Holl. v. 1. 426.—Clas and order, _Pentadria Pentagynia._ Nat. Ord. _Aggregate_. Linn. _Plumbagineae._ Jull. _Plumbagineae._

Eff. Ch. Calyx of one leaf, coriaceous, five-toothed, with folded angles. Petals five, their claws combined at the base, bearing the flowers. _Stigmas_ capitrate. Percicap prominent, angular, nearly cylindrical, coriaceous, without valves. Seed germinating, without albumen. _Plumula_ conspicuous.

1. _Ae. annulata._ Gathered by Mr. Brown, in the tropical part of New Holland, growing among _Rhizophora_, near the sea-shore. A perfectly smooth _frutum_, of humble growth, having round, brittle branches, marked with annular scars, where the leaves have been. _Leaves_ alternate, without _fusules_, flat, coriaceous, ovate, entire; their _footstalks_ bordered, dilated and sheathing at the base. _Spikes_ panicled. _Flowers_ white, alternate, somewhat imbricated, with three _bractes._ _Brown._

Akin to _Statiche._ See that article, and _Tanna-theä._

_Aegiceras._ So called from _ae_ a goat, and _cera_ a horn, in allusion to the horn-like shape of the curved feed._

_The following is to be substituted in the place of our original article._—_Gern._ v. 5. 276, 5. 46. _Schreb._ Gen. 157. _Wild._ Sp. Pl. v. 1. 1183.—_Mart._ _Mill._ _Diff._ v. 1. 712.—König
AEG}


Gen. Ch. reformed. Cal. Perianthus inferior, of five roundish-oblong, concave, coriaceous, permanent leaves, thickset at the base, obliquely imbricated at the margin. Cor. of one petal, valver-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, reflexed 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 arrof-shaped, incumbent, veratellae, of two lobes and two cells, birking longitudinally. Pijl. Germen superior, linear-oblong, compressed, dotted, with rudiments of several feeds; style erect, the length of the flamines, 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. fragrans. Fragrant Aegiceras. Konig as above. Br. n. 3. (Ac. majus; Gertr. as above. Willd. n. 1. Rhizophora coriiculata; Linn. Sp. Pl. 635. Burm. Ind. 108. Pou-Randel; Rheede Hort. Malab. v. 6. 65. t. 36. Mangium fruticans coriiculatum; Rumph. Ambon. v. 3. 117. t. 97.)—Native of the maritime woods and thickets of the East Indies, as well as of the tropical and eastern coasts of New Holland. The stome are rather shrubby than arborescent, several from the same root, ten to fourteen feet high, three or four inches in diameter, with numerous slender spreading branches. Leaves alternate. Stam. imperfectly opposite, flat-falked, obovate, or somewhat elliptical, marinate, entire, coriaceous, smooth, single-ribbed, from one to four inches long. They are reported to have a briny taste; and Mr. Browne noticed a faline efflorescence, or excretion, on their upper surface. Flowers white, fragrant, about half an inch broad before their corolla is reflexed, collected into umbels at the ends of the short lateral, as well as principal, branches. Seed-coff from an inch and a half long, pointed, curved, but not spiral, as the generic name would seem to imply.

This shrub, which Linnaeus confounded with his Rhizophora, is the only known species of a very distinct genus; the Ac. minor, Gertr. t. 46, having been shewn by Mr. Konig to be Conuus fantalblados of Vahl, Symb. v. 3. 87. Sentibolados, Linn. Zeyl. 192. n. 408, a totally different plant in genus and natural order, though Gertner has quoted for a synonym, Umbraculum maris, Rumph. Ambon. v. 3. 124. t. 82. This last, as well as Mangium floridum of the same writer, v. 3. 125. t. 83, appear very nearly related to our Aegiceras program: inof that, without specimens, no one can safely distinguish them from it, or from each other, for the difference of zinc in their respective flowers is of no avail in Rumphius's, always variously diminished, plates.


Gen. Ch. Cal. Perianth sheath-like, inferior, of one leaf, ovate, concave, inflated, coloured, permanent. Cor. of one petal, tubular, longer than the calyx; tube globular at the base, bent horizontally towards the middle, swelling upwards; limb spreading, in five short, rounded, equal segments. Stam. Filaments four, incurved, two shorter than the reit; anthers oblong, simple, converging in pairs, slightly bent. Pijl. Germens superior, ovate; style fimple, curved, the length and position of the flamines; Rigma capitae, large. Peric. Capsule ovate, pointed, of two valves; with many cells. Seeds numerous, minute. Receptacles several, convoluted, attached to the valves.


1. Ac. indica. Indian Aegicetia. Linn. Sp. Pl. v. 1. 632. Roxb. Coromand. v. 1. 63 t. 91. Willd. n. 1. (Orobanchae Aegicetia; Linn. Sp. Pl. ed. 2. 883. "Thiem-cumulata; Rheede Hort. Malab. v. 11. 97 t. 47").—Native of Malabar, in the hilly parts of the Circars, but rare. Roxburgh. Root of many simple fibres, probably parietical and annual. Stams several, purplish, a span high, fimple, fingle-flowered, and naked, except a lanceolate, brown, fheathing scale at the bottom of each. Calyx fuffly-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 receptacle tawny.

The generic distinctions between this plant and Orobanchae are obvious enough; the single-leaved fpathaceous calyx, regular corolla, undivided stigma, and many-celled capsule, whose internal structure Dr. Roxburgh says he could never well determine, but the numerous convoluted partitions, or receptacles, which he describes, are sufficiently different from Orobanchae. As to habit, these genera nearly agree, both having a rufty pubescence, a purple hue, and, if we mistake not, paraitical roots; though the inflorifence, and the form of the calyx, differ in each. Aeginetia appears to want the nectariferous gland, found at the base of the germen, in front, in Orobanchae; it wants also the bractse, observable in every species of the last-named genus, except the unflora.

ÆGISISSUS. See ÆGYPTUS.

AEGLE, 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 Archytha.—Correa Tr. of Linn. Soc. v. 5. 222. Ait. Hort. Kew. v. 3. 284.—Clafs and order, Polyandria Monogynia. Nat. Ord. Auranthi, Jaff.

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. Pijl. Germen superior, ovate; style short, thick, Rigma oval, obilue furrowed. Peric. Berry coated, globular, smooth, almost woody when ripe, not burrting, of ten or twelve cells obliterated as the pulp arrives at maturity. Seeds ovate, compressed, numerous in each cell, in a simple row, each inferted by a short partial stalk from the central column; albumen none.

Eff.
AEG


1. Ac. Marmelos. Thorny Aegle, or Bengal Quince. 
Correa as above, 223. Willd. n. 1. Roxb. Coromand. v. 223. t. 143. (Cratoxylon Marmelos; Linn. Sp. Pl. 647. Willd. Sp. Pl. v. 2. 853. Cydonia exotica; Bauh. Pin. 432. Cucurbitifera trifolia indica, fruitulus pulpa Cydonia acum.); Rall Hift. v. 2. 1665. Pluk. Phyt. t. 170 f. 5. Bilicus; Rumph. Amboin. v. 1. 197. t. 81. Covalam; Rhee and Hort. Mal. v. 1. 37. t. 37. Morocco of the Tenduglas.—Native of the mountainous parts of the coast of Malabar, fometimes of the low lands, flowering during the hot fason. This is a rather large tree, whose trunk is nearly erect, clothed with all-colored bark. Branches scattered. Spines filipulary, in pairs, awl-shaped, pungent, strong, an inch in length, sometimes want. Leaves irregularly flattened, on downy flake, tereate; inflexed elliptic-oblong, with a blunt point, serrated, single-ribbed, veiny, smooth; tapering at the base; unequal in size; the odd one largest, about three inches long. Flowers of a dirty white, in short, aggregate, terminal and axillary, clusters. Fruit the size of a large orange, with a hard smooth greyish shell, from which the Dutch in Ceylon are fad 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 colicines. 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 Eaf Indies, and preferred in fr. 1. 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, filigree-flowered; the valnes cleft, with an intermediate awn. Corolla of two valves; the outer with three awns; inner with two. Seed foliary, unconnected with the glumes. One or two lateral male flowers.

1. Ac. crenbroides. Spreading Aegopogon. Willd. n. 1. Palis de Beauv. as above, f. 3. Kunth n. 1. t. 42. —Clutter lax. Flowers all equally filate.—Gathered by Humboldt and Bonpland, on the exposed summit of mount Avila, near the town of Caracas; also in Quito; flowering from January to April. Root perennial. Stemus numerous, branched at the base, forming a tuft; thofe which do not flower, about as long as the finger; the r&th a fpan in height, naked above, densely leafy below. Leaves linear; the lowermost an inch, or an inch and a half long; the upper ones shorter. Sheaths irated, smooth, flightly membranous at the edges. Sipula divided. Clutter simple, rather turned to one fide, but spreading loosely. This graf has the aspect of Cenchrus ciliaris, or of Lappago racemosa. Willdenow. We know it only from this author’s description, and the figures cited. From M. de Beauvois our knowledge of the following species is entirely derived.

2. Ac. pellistrates. Small Aegopogon. Palis de Beauv. as above, f. 4. —Clutter denfe, turned one way. Perfect flower felle. —Native country not recorded. The perfect flowers of this species, whose clatter is represented about half the fize of the foregoing, are filate, their calyx apparently of two equal, awl-shaped, undivided glumes. The two lateral, or male, flowers are elevated on equal, slender, parallel flanks, twice their own length, though but half as long as the intermediate perfect flower. The inner valve of their calyx feems entire, though awned. Their corolla consists of two entire, not cloven, valnes, one of which only is awned. We do not pretend, without the investigation of specimens, to reconcile the contradictions of the generic character, nor to judge how far M. de Beauvois is right in uniting with this genus Mr. Brown’s Amphipogon, hereafter to be noticed in its proper place.

3. Ac. geminifolias. Twin-flowered Aegopogon. Kunth as above n. 2. t. 43. —Male flower foliary. —Gathered by Humboldt and Bonpland, on the banks of the river Orinoco, between Cerro Duida and Rio Tamatama, near Efmeraldan, flowering in May. Habit much like the firit species, but the spilets are considerably smaller, while the central awn of one valne of the perfect flower is remarkably long, rufus, and rough. Each flower is supported by a short partial stalk, and there are only two to each spilet, not three as in the two foregoing species.

AELUS, in Mechania, subjoin, see VENTILATOR.

AEON, l. 4. add.—Homer ii. v. 455. Pindar Olym. A. v. 18. Hence by an early figure it is used to denote the customs and manners of life. Ep. ii. 2.

AERIDES, in Botany, from aeg. air; because one of the principal plants of this genus has long been celebrated, under the name of Flus aera, 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 Eaf Indies to Europe, in baskets, without earth or any other apparent source of nutriment, and have not only survived, but bloomed during their voyage, as well as after their arrival. Their fluf fibrous roots, always more than half nacked as they run over the branches of trees, having entwinned themselves among the flisks of the bakfet, might perhaps imbibie fuufenance from the air in poke circumstances, as readily as in thofe natural situations; just as a pea will germinate and grow in moist cotton.—Loueri. Cochinch. 525. Swartz in Schrad. Journ. v. 2. 233. t. 2. f. 4. Eijf. Neues Journ. v. 1. 88. Kon. Trafts 195. t. 8 f. Y. Willd. Sp. Pl. v. 4. 130. Ait. Hort. Kew. v. 1. 247. —Clas and order, Gynandra Monogynia. Nat. Ord. Orchideæ.

Gen. Ch. reformed. Cal. Perianth of three equal, spreading, colored leaves, gradually dilated upwards, somewhat wavy, rather obtufe. Cor. Petals two, much like the calyx-leaves in colour, fize, and figure. Nectary a lip without a pur, shorter than the petal, inferted into the base of the fyle, gibbous underneath like a bag, often reverfed over the column. Stam. Anther a vertical, hemifpherical, movable, deciduous lid, of two or four cells; nafes of pollen globular, filate, in pairs. PI. Germin inferior, oblong; fyle 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 valnes, separating between the angles. Seeds numerous, minute, each involved with a fuffy tuft.

AERIDES.

The species of this rare oriental genus are not at all distinctly known. Willdenow enumerates seven, to which we have some additions.

1. A. retutum. Blunt-leaved Air-blossom. Swartz n. 1. Wildl. n. 1. (Epidendrum retutum; Linn. Sp. Pl. 1551.) Limodorum retutum; Swartz Nov. Act. Upf. v. 6. 80. Anfili Maravara; Rheede Hort. Malab. v. 12. 1. 1. Raif Hift. v. 3. 588. Orchis abortiva aizoides malabaricensis, flore odoratissimo variegato, intus avicularium repræsentante; Rudb. Elyf. v. 2. 220. f. 5.) — Leaves nearly radical, linear, with two equal terminal notches. Cluster 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 fleshy downy-coated fibrous roots of a pulpy smell. Leaves spreading in two ranks, linear, stout, rigid, channelled, smooth, abrupt as if bitten off at the end, which feems 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 falked, terminal clusters, all expanded at once, whitish beprinkled with red, blue and dusky spots. The lip is said to be pure white on both fides, with a tongue-like appendage, brilliant with blue and red. Each flower is less than an inch in diameter.

2. A. prenorum. Jagged-leaved Air-blossom. Wildl. n. 2. ("Bitum Maram Maravara; Rheede Hort. Malab. v. 12. 5. 1. 2." Raif Hift. v. 3. 589. Orchis abortiva aizoides malabaricensis altera, flore odoratissimo variegato, intus avicularium 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. Capsules cylindrical. Found on trees and 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 Cantrjira, 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 parasitical plant.

3. A. f3ploratum. Woolly-flowered Air-blossom. Wildl. n. 3. (Epidendrum Fllos aeriis ? Retz. Obf. fæc. 6. 64.) — Stem branched, creeping. Leaves ovate-oblong, each feated 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 Aedides, 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. matutinum. Morning Air-blossom. Wildl. n. 4. (Epidendrum Flos aeriis, vel Saaronicum; Retz. Obf. fæc. 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. Wildl. n. 5. Ait. n. 1. (A. odorata; Loureir. n. 1.) — Stem ascending. Leaves linear, marginate, 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 flabby, sweet-scented. If this species be hung up in a houfe, it will continue to grow, and to flower for many successefull years; which Loureiro says he had long experienced. Sir Joseph Banks is recorded to have introduced this Aedides into the flowers at Kew, in 1800, but it has never flowered. The late duches 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 effulentum, Roxb. Corom. v. 1. 34. t. 42, Cymbidium n. 34. Wildl. Sp. Pl. v. 4. 102; or at least very near that species. It came in a baleft, without earth, in perfect health, and afterwards bloomed in the flower at Bulstrode; whether it received any different treatment there we have no recollection.


gure Catong; Kempf. Mem. Exot. 1868. t. 169. f. 1.) — Stem ascending. Leaves linear-lanceolate. Calyx-leaves and petals linear, revolute; dilated at the extremity. Lip cloven in front, with an internal cloven appendage. Native of Japan, growing parasitically on trees, and much admired for the pulpy scent of its large handfome flowers. The leaves are said to be narrow, thick, and soft. Flowers from seven to twelve together, in a loose simple cluster. Calyx-leaves and petals 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 flaked, confining of a hollow abrupt lip, smooth, cloven 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 Linnaean herbarium; but Kempfer's figure exhibits a very different appearance of the same part, like the injury leaves surrounding the column, in a manner we have never witnessed in any one of the Orchidae. We suspect two species may be confounded by authors.

7. A. coriaceum. Leathery-leaved Air-blossom. Swartz n. 4. tab. 2. f. 4. 5. f. Wildl. n. 7. — "Stem-leaves ovate, pointed, somewhat coriaceous, spiralled. Spikes panicked." — Found on trees in Madagascar. The flower as represented in Dr. Swartz's figure, which is all we know of this plant, is hardly an inch wide; the lip a deep pouch, bearing in front a small deflexed appendage. Column very short.

8. A. Boraffi. Fan-palm Air-blossom. Buchanan MSS. — Leaves radical, linear-oblong, obtuse, obliquely emarginate. Clusters leaflike, radical. Lip with a revolute undivided border. — Found by Dr. Buchanan growing on Borassus flahuliifer, in the Myore. The thick cracked or jointed fibres of the root have each a central tough thread. Stem none. Leaves equitant, about fix, a span long and an inch wide; their points rounded, but unequally, one fide extending further beyond the notch than the other. Clusters simple, scarcely flaked, twice the length of the foliage, deflexed, many-flowered, lax, with a few fheathing seales at the base. Flowers about an inch and a half in diameter. Calyx-leaves ovato-lanceolate, obtuse, somewhat revolute, near an inch long, pale buff with a purplish central stripe. Petals like them, but flat, and rather broader. Nectary half
AERIDES.

as long, red, ringent, its revolute border as long as the pouch.

9. A. maculatum. Spotted-flalked Air-blossom. Buch. MSS.—Stem creeping. Leaves elliptic-oblong, equally emarginate. Flatter lateral, flalked, corymbose. Lip the length of the petals; its border pointed, dilated at each side. Gathered by Dr. Buchanan, on trees in the Myfore country. The stems lend out very long curling fibrous roots. Branches short, leafy. Leaves obtuse, emarginate, hardly two inches long; fleathering at the base. Flower-flalk lateral, opposite to the lowest leaf on the branch, and protruding through its split base, a span long, erect, copiously spotted with dark purple, furnished with a few scattered bracteas, and terminating in a dense corymbose cluster of six or eight yellow unfotted flowers, with a similar cluster to each partial flalk. Calyx-leaves and petals obovate, 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. dafygon. Denfely-bearded Air-blossom. Stem ascending. Leaves ovate, with a jagged point. Umbels dense. Border of the lip kidney-shaped, dene bearded. Found by Dr. Buchanan, in Upper Nepal. Roots composed of long, white, entangled fibres, running over the molly branches of trees. Stems solitary, short, recurved, leafy. Leaves alternate, fleathering, broadly ovate, about three inches long, flaky; smooth above; minutely scaly beneath; somewhat revolute; with three crowded, unequal, sharp teeth at the point. Flower-flalks lateral, follicary, half the length of the leaves, each bearing a dense umbel of numerous, nearly sessile, very beautiful and fingular, reversed flowers, each hardly an inch in diameter. Calyx-leaves and petals similar, obovate concave; dark red on the upper side; green on the under. Lip keeled, but not very deep, globofe, yellowish, spotted with red; its border as long as the petals, dilated, kidney-shaped, white; dotted on the smooth disk with cirmion; fringed and thickly clothed towards each side with short, fibrous procecces, resembling velvet. Capfall three inches long.

11. A. calcicola. Slipper Air-blossom. Buch. MSS.—Stem creeping. Leaves linear-oblong, falcate, unequally jagged at the point. Umbels spreading. Border of the lip kidney-shaped, densely bearded.—Gathered by Dr. Buchanan on the molly branches of trees, in Upper Nepal. Stem creeping, by means of very long, fimple, fioot fibres, thrown out from within the sheaths 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 side of the point only. Umbels opposite to feveral of the lower leaves, foliary, flalked, Iax, each of about five flowers, which are rather smaller than thoje of the lat species, but the pouch of the lip is considerably larger in proportion, prominent, yellow variegated with red, as well as the disk of its border, which lat is dene bearded with white fibres like the foregoing. Calyx-leaves and petals uniform, obovate, incurved, yellow spotted with red.

12. A. rigidum. Rigid Air-blossom. 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 fones in Upper Nepal. The stems 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 side being greatly extended, in a round lobe, beyond the rib, the other flopening below it. The lower part of each leaf has a joint, where it finally separates, leaving the fleathering permanent bate, or foottalk, as in A. Boraffi, maculatum, and others of this genus and natural order. Flower-flalks opposite to the leaves, solitary, alternate, about three inches long, diffantly racemofe in the lower part, corymbose at the summit, each bearing from five to ten nearly or quite finside flowers, yellow spotted with red, about the size of the lat. Calyx-leaves and petals obovate, uniform, erect. Lip agreeing with them in colour and shape, except the small prominent pouch at its base, and the apex being a little reflexed.

13. A. undulatum. Wavy-flowered Air-blossom. (Epidendrum premorium; Roxb. Corom. v. 1. 34. t. 43. Cymbidium premorium; Swartz Nov. Ad. Upf. v. 6. 75. Schrad. Neues Journ. v. 1. 75. Willid. Sp. Pl. v. 4. 103. Thalia Maravara; Rhede Hort. Malab. v. 12. 6. t. 14. Raii Hilf. v. 5. 590. Orchis abortiva, floreus lutes minoribus, radiis rubris; Rudb. Elyf. v. 222. f. 8.)—Stem ascending. Leaves linear, channelled, acute, abruptly pointed, three as long as the corymbose cipples. Lip with an obovate flat border, the size 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 conifl of numerous long, fioot 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 equ. Inflorescence like the laft. Flowers rather fmalier, fragrant. Calyx-leaves and petals obovate, equal, slightly wavy at the edges, yellow, marked with transverse, cirmion, undulating lines. Lip the size and shape of the petals, white dotted with red, its pouch but slightly indicated in parts of Dr. Roxburgh's figure, and probably of little obvious in nature, as to have efily escaped the artist's notice. Notwithstanding this apparent exception to the generic character, the present plant, improperly confounded by Linnaeus with his Epidendrum furvum, is so strikingly allied to the laft, and consequently to the two immediately preceding, that we must presume it to be an Aerides. If, on examination, it should prove to want the pouch, a fresh investigation must be instituted, reëxamining the distinguishing characters of this genus and Cymbidium.

The habit of Aerides is peculiar, though not perhaps exclusively fo, in the termination of its leaves, always more or less abrupt, unequal, or jagged. We have never seen a living specimen of any of the genus, but Dr. Buchanan's fine and scientific coloured figures, drawn from nature under his own inspection, are as precise and satisfactory as possible, and that excellent botanist has himself pointed out to us the characters and habit of Aerides, as a natural genus.

With regard to the name, it well expresses the quality of living upon air alone, for which several species have attracted notice. Linnaeus, who included the whole, with various other things, in his genus of Epidendrum, (see that article,) particularly applied the specific name of Flos aetis to our fifth species, citing with a query in Ab. Upf. the 2d chapter verfe 7th of the Wisdom of Solomon. This, in the English translation, is, "Let no flower of the spring pas by us." In a Latin version before us this text is rendered "ut pretereat nos juvendus aetis." Whence this ambiguity arose, or whether Linnaeus had any where read flos veris, which he confounded with flos aetis, 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. 840; col. 27, l. 17, for circumference r. diameter.

ÆRUGINOSUS, in Ornithology. See Moor Buzzard.

ÆSchYLUs, col. 2, l. 24, for wrote r. choe; l. 29, for furious r. ferocious; l. 36, for referred r. transferred.

ÆSOP, col. 2, l. 60, r. lived more than 350 years, &c.

ÆSOP, CloDIUS, l. 2, after Rome, add, B.C. 79.

AESTIVATIO, in Botany and Vegetable Physiology, a term used by Linnaeus 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 æstus, summer, and æfurus, summer-quarters,summer being the usual flowering season, and the corolla the shelter or accompaniment of the organs of fecundation. So Vernaio expresses the arrangement of the leaves of plants in the bud, or, in other words, their vernal condition. Afflavitio 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 Clitius; or the reverse, of which latter Linnaeus has in his manuscripts mentioned Pbytis as one example, and we would point out Hypericum as another. Afflavitio valvata is when the divisions of the corolla meet in the bud like valves, slide by slide, as in Protea and its allies. Of this Periploca is an instance, notwithstanding the obliquity observable in the segments of that flower after expansion. Linnaeus, in the MSS. above cited, speaks of Paenias as having, like its near relation Adenium, 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. Correa 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, (fee 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 contrary position. Mr. Brown, in his learned Prodromus of New Holland plants, has paid more attention to the activation, in defining his natural orders, than any other botanist, and the term effractio valvata is, if we mistake not, his own invention.

ÆT, l. 4, infer after Brussels. It is the chief place of a canton, in the department of Jemmappe, and district of Tournay. The place contains 7634, and the canton 14,828 inhabitants. The territory includes 115 kilometres, and 11 communes. See Ath.

ÆThIONEMa, in Botany, so named by Mr. Brown, apparently in allusion to some tawny or fun-burnt tinge in the flaments, from æth, to burn, and μαξα, a flame. 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.—Cliffs and order, Tetradynamia Siliculae. Nat. Ord. Silicul, Linn. Crucifere, Jaff.

Eff. Ch. Pouch with boat-like winged valves (sometimes much burfting.) Longer flaments either combined, or finely toothed towards the top. Infection of the calyx unequal.

Brown.


(Thalpi faxatila; Linn. Sp. Pl. 901. "Schluher Handb. v. 2. 223, l. 180." See Thalaspi, u. 6.)—Longer filaments distinct. Leaves oblong, tapering at the base.—Native of the South of Europe. Cultivated by Miller in 1759.

2. Ac. monspurum. One-seeded Aethionema. Ait. n. 2.—"Pouch single-seeded, without valves. Leaves oval or obovate."—Native of Spain. Cultivated in 1778, by Lee and Kennedy, at Hammerfmith. 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 Thalaspi.

ÆFER, 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 Cyclopaedia: 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 subsequent parts of the Cyclopaedia, especially in the articles Chemical Proportions, Simple Bodies, and Atomic Theory; but it may not be deemed superfluous to give a summary and connected view of the whole in this place.

Bergman's doctrine of elective affinity, so amply explained in the article above referred to, was universally admitted among chemists till 1803, when Berthollet published his Dissertation on Affinity in the Memoirs of the Institute, and about the same time his Chemical Statics. Berthollet considered affinity as an attraction existing between combining bodies. This attraction he appeared to consider as familiar 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 combine, in a greater or less degree, chiefly in proportion to their mafs. Thus, though barytes appears to possess a stronger affinity for sulphuric acid than potash, yet if we present 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 cleis- tresse. 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 combining 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 separates two substances previously united, the third body taking the place of one of the constituents, which is thereby separated 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 Berthollet'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 clafficity 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,
AFFINITY.

 happen, when the substances are mixed, that the insoluble salt 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 sufficiently by evaporation, crystals of nitrate of potash will be deposited, because that salt 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 disengaged, and flies off, because its elasticity induces it to separate from the soda, and to 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 particularly indebted in the compilation of the present article, "we have two doctrines respecting affinity opposite to each other. According to Bergman, affinity is élective. 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 élective. 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 mafs of the attracting body. Bergman's doctrines lead to the opinion, that bodies are capable of uniting together indefinitely in any proportion whatever; Bergman's, that they unite only in determinate proportions, 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 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 state as the two original ones, from which they were formed. He likewise observed, that the same proportions 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, saturate all the other bases; which law enabled him to explain why two neutral salts form, as above-mentioned, two new salts, likewise neutral. These experiments and observations of Richter likewise enabled Fillcher 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 discovered 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 capable of combing, and the confinity 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 Hüngler. This law is, that oxygen and acids are accumulated round the positive pole; while hydrogen, alkales, carbonates, and metals, are accumulated round the negative pole. From this general law Berzelius deduced the confluence, that the decompositions in such instances were owing to the attractions existing between the bodies and the respective electivities. This opinion was afterwards extended by Davy, and the opinion in its extended form subsequently adopted by Berzelius himself. According to these celebrated chemists, chemical affinity is identical with electrical attraction, and bodies which unite chemically posses different kinds of electrical attractions. Every body, in their opinion, posses a permanent electivity state, either refrinous 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 intensity of the different electivities 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 refrinous. 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 capable of being represented by numbers, cannot, in the present state of chemical science, be satisfactorily determined. For though some substances always appear capable 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 in all temperatures; but, on the other hand, it has been equally well ascertained, that the oxied of iron is reduced when heated in hydrogen gas: "hence," says Dr. Thomson, "we have no data for determining whether iron or hydrogen have the greatest affinity for oxygen; 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 shewn by Mr. Philips, that carbonate of potash is capable of decomposing the sulphate of barytes.

Pfaff, however, has shewn, that the tartrate of lime and the oxalate of lead are completely decomposed by the addition 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 experiments of Pfaff he endeavours to explain by the solubility of tartrate of lime and oxalate of lead, and the insolubility of the sulphate of lime and sulphate of lead in acids. And this brings us to the second place, to make a few remarks upon the supposed effects of mafs, and the modes of existence of bodies in modifying chemical decompositions. With respect to
to the effects of mafs, though at first sight there appear to be some circumstances favouring the opinions of Berthollet respecting its influence in chemical operations, yet we can by no means agree in supposing its influence so great as represented by that eminent chemist. No quantity of water, for example, would decompose sulphate of magnesia, though the affinity of sulphuric acid for water is very great, and though the infoluble nature of magnesia would, according to Berthollet’s views, favour the union of the water with the acid. Mafs here, therefore, either does not operate at all, or very feebly; and there are numerous analogous influences, well known to every chemist, to which the same remarks are equally applicable.

Again, it has been sufficiently established, that gases unite with reference to their volume, and cannot be made to unite in intermediate proportions, even although the reful of their union be likewise a gas. Thus, for example, one volume of chlorine gas and one volume of hydrogen gas unite together, and form, without any condensation, or other apparent physical change, two volumes of muriatic acid gas, nor can they be made to unite in any other proportions. Here then is an example of chemical union, in which the effects of mafs and mode of existence are quite out of the question.

From these, and particularly from many recently establiblished facts, we think it proved beyond a doubt, that the power which determines bodies to combine in certain proportions is a property inherent in the original cause of their union, and consequently is a power totally different from that exerted by mafs or other external circumstance, though it is not perhaps altogether independent of their influence. For further information, we refer our readers to sir Humphry Davy’s Elements of Chemical Philosophy, where, besides an excellent account of the subject in general, they will find a masterly refutation of Berthollet’s doctrines.

AFORELIA, l. 2, for fern r. item 1. 4, ditto.

AFZELIA, in Botany. (see that article,) is Gerardinia cappioides. Pursh 424. (G. Afzealia ; Michaux Boreal.-Am. v. 2. 20. Anomynous cappioides ; Walt. Carolin. 171.)


AFZELIA, Sm. Tr. of Linn. Soc. v. 4. 221, fo named in honour of its discoverer, Adam Afzelius, M.D. Director of Botany at Upsal, author of several disquisitions on Swedish Rofes, and of other learned botanical treatises, is a very noble genus, of which we have long expected from Dr. Afzelius himself an illustration of the species. They are all natives of Sierra Leone.—Clafs and order, Decandria Monogynia. Nat. Ord. Lomentatae, Linn. Leguminosae, Jaff.

Eff. Ch. Calyx tubular; limb in four deciduous segments. Petals four, with claws; the uppermost very large. Two upper flaments imperfect. Legume with many cells. Seeds with a tunic at the base.

This genus consists of trees with large, smooth, abruptly pinnate, alternate leaves. The flowers are racemose, crimson, with small bracteas. Legumes woody and ponderous, smooth, ovate, acute. Seeds near an inch long, parallel, ova, black, the lower half of each invested with a feathly tunic, of a brillant permanent scarlet, and a rather waxy appearance. The native Africans remove this tunic, and use the seeds for beads.


1. A. odorata. Fragrant Agastachya. 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, effile, with a solitary, hooded, permanent bractea to each. Corolla yellowish, deciduous. Pijil shorter than the flaments. The fruit has not yet been examined. Brown.

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.

AGATHARCHUS, in Biography, a painter of the isle of Samos, who is said to have been instructed by Alciphylus 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 Moç, and Seifé. It is applied to a doubtful genus, related to Menisperum, and perhaps a sort of lulus natura, having flaments and pistils in the same flower, which is almost unexamined 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 flower Agdo. This genus therefore being not clearly understood, and as yet very little known, may hereafter be abolished as well as its name.—Clafs and order, Polyandria Monogynia. Nat. Ord. Sarmentace, Linn. Menisperma, Jaff. Menisperm., De Cand.


1. A. clartisea. Bowery Agdestis.—Native of New Spain. A smooth shrub, with a branched, twining, round, fratted item. Leaves alternate, dilatant, dilated, exactly heart-shaped, entire, pointed; their lobes very obtuse. Flowers reddish, corybofe, axillary and terminal; their flanks three-cleft. Fruit unknown. This plant appears very nearly akin to Clematis.

AGGREGATE, the title of the 48th order in Linnaeus’ fragments of a natural syslem, placed between the Stellate and Compositae. (See Aggregate.) This is a very miscellaneous and ill-defined order, of which it is by no means easy to seize the idea, much less to give any definition, or distinctive charater. Vaillant first laid the foundation of this order, in the Memoires de l’Acad. des Sciences for 1722. “The natural order of Aggregate,” says Linnaeus, Proef. in Ord. Nat. 528, “was first investigated by Vaillant, in the Mem. de l’Acad. des Sciences. They agree with the Compositae in having generally a common calyx as well as receptacle, collecting together many effile florets, each of which has always an inferior germin. But there is a total difference with respect to the remaining parts of fructification, nor can these two orders be, by any means, united. The calyx, as above said, is common to many flowers,
flowers, or florets. The common receptacle is either naked, villous, hairy, or scaly. In the place of a partial calyx is the corolla, generally monopetalous, either regular or irregular, four- or five-cleft, rarely polypetalous. Stamens four, with separate anthers. Germin inferior (with respect to each floret). Fruit single-seeded. The flower is therefore complete in this tribe, except only Valeriana, whose calyx is fearfully apparent. The leaves are often opposite. Stem often fleshy.

The genera which compose this order at the end of Gen. Pl. are: Sect. 2. Statice only. 8. Hartogia, Brunia, Protea, Globaria, Leucadendron, Hebe, Cephalaria, Selago, Cephalanthus, Disfaca, Scabiosa, Knautia, Allionia. But in his own copy Linnaeus has drawn a line between Selago and Cephalanthus, removing the β to that place, and characterizing his section as "alternifolia inferne," the remainder of the whole order beginning with Cephalanthus, being "oppositifolia superius." 7. Valeriana, Morina, Boeravania, Circaea, to which Mirabilis is added in MSS. 8. Lonicera, Cinchona, Trifolium, Mitchellia, Linnaea, Morinda, Conopurus, Loranthus, Vitex, to which Lysanthus and Hillia are added, certainly with no propriety.

This order in fact is not one of our great botanist's most finished or happy performances. It comprehends Julliff's Disfaca, Proteaceae, Caprifoliaceae, with various foliate genera from different orders. Notice was always a drubbling block with Linnaeus, nor does it assimilate with any thing among the Aggregate, 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 first section as far as Selago inclusive, erasing Hartogia, and giving the characters of alternate leaves, and a superior germon to this section. To the second section, which begins with Cephalanthus, he attributes opposite leaves, and an inferior germon. He thought Statice akin to Brunia, and Protea the same genus as Leucadendron. To his third section he more happily adds Mirabilis; but to the fourth he very unfortunately introduces Lysanthus 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 Caprifoliaceae, flighted in his fourth section, he had evidently an obtuse perception. Of the differences of the Proteaceae genera he had scarcely any knowledge. That he should not have formed a right idea of Hebe, Selago, and Leucadendron, whose affinities are still in some uncertainty, is not wonderful; but they are unquestionably much out of place here. See Disfaca for further observations respecting some of the Aggregate.

AGLABITES, 1, 53, 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 Aglais. City ngdu of the Cochinchinae. (Cannenium finefue; Rumph. Ambin. v. 5. 281. t. 13. 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 Tsjikang, and was continually in leaf and bloom; being easily propagated by cuttings of the larger branches, whose bark must be bruised 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. Loureir 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 pinate with an odd one, consisting 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. Loureir, 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 Bombula.

AGNES, St., 1. ult., for E. r. N.

AGNESI, Maria Gætana. See Gætana.

AGRA, col. 2, 1. 3. r. N. lat. 27° 15'. E. long. 78° 28'.

AGRICULTURE, col. ult., after See Board of Agriculture, add and Society.

AGRIFFYLLUM, in Botany, so called by Juffiff, from οὐδεμία, the bally, and φόδον, a leaf; because its flattened prickly leaves resemble that shrub. Juff. Gen. 190. See Berchexia hereafter.

AGUARI, LUCETIA. See Flber in Son.

AGUILLAS, CAPE, Del Cape 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 Fish 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 Stuegen.

AHMEDABAD. For Agmed's r. Ahmed's; 1. 6, r. Sebermadd.

AHMEDNAGUR, l. 2, r. Dowlatbad.

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 laft of the Parthian kings; but it is now a wretched town, containing 600 or 700 inhabitants, and situated on the banks of the river Karoon; 48 miles S. of Shafter.

AIDAN, col. 2, 1. 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. Uremea, Ardebil, Tabrez, Maraga Khoe, Kulkham, Serab, Gamoon, Sa Bulagh, Karadag, Erivan, Nuckhivan, and Misken, yielding a revenue of 89,957 tonauns. The most picturesque, and at the same time most flourishing...
flourishing division of Aijerbeirjan, or Azerbijan, 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 E. Shebultar, Tafoun (in ruins), Selmaft, Khoe, and Urumea.

AIDIA, in Botany, a genus of Loureiro's, unknown to us but from his description, whose name, from adia, eternal, alludes to the indestructible nature of the wood.—Loureiro. Cochinch. 142.—Clafs and order, Pentandria Monogynia. Nat. Ord. Caprifolia, Juff. Gen. Ch. Cal. Perianth superior, tubular, five-toothed, erect. 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. Germen ovate, inferior; style on a level with the anthers; stigma ovate-oblong. Peric. Berry ovate, "calycine," (meaning crowned by, and con- fluent with, the calyx), small, umbilicated, of one cell. Seed solitary, ovate.


1. A. cochinchinesis. Everlasting-wood. Cdt Thai 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 houfes, and foundations of bridges, being extremely durable, other under ground or in water. Loureiro.

AIMONTE. Add. See AYEMONTE.

AINSWORTH, Robert, l. 2, for Woodyale r. Woodyate.

AIR, col. ii, l. 44, inferi elastic, and r. whatever elastic matter, &c.

AIR, Atmospheric, in Chemistry. The most recent experiments 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 confide 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

Oxygen 22.22
Azote 77.77

And the specific gravity of oxygen gas will be 1.1111 and of azote 0.7222, 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 accounting on any other than chemical principles for the remarkable uniformity observed in the composition of atmospheric air all over the world. This faet 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 familiar example, even in those on which the doctrine of volumes itself was founded by M. Gay Lussac. Those verified in eudiometry, and who know the imperfections of all eudiometrical 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 Schweig- ger's Journal. Thomson's Annals of Philosophy, vol. vi. p. 321.

AIR, in Music, l. 5, for rhyme r. rhythm. AIR-Lamps, 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 vacum, would only succed 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 elaticity or spring of the air, col. 2, exp. 6, add to square phial A, of thin glafs.

Miscellaneous experiments, No 5, 1. suff., 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. Dookum.

AKISKA, in Geography, one of the Turkish pachalics of Armenia, which lies near the limits of the Turkish empire, and has the Black sea to the W., Immeritia to the N., Kars and Erzeroum 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. Akalzike (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, standing in an open valley on the left bank of the kur, and inhabited by Jews, Turks, Greeks, Armenians, and Georgians.

ALA, in Botany, l. 4, for upwards r. downwards.


Gen. Ch. Cal. Perianth superior, of one leaf, short, permanent, with from fix to ten small crenet teeth. Cor. Petals from six to ten, linear, undivided, much longer than the calyx into which they are inserted, spirall in the bud, afterwards recurved. Nectary cup-shaped. Stam. Filaments ten or twelve, inserted into the calyx, crenet, thread-shaped, hairy below, scarcely half the length of the petals; anthers terminal, vertical, linear, obtuse, rather broader and longer than the stamens, bculating at each side longitudinally. Pfl. Germen turbinate, inferior; style cylindrical, crenet, rather longer than the stamens; stigma capitate, lobed, very large. Peric. Berry globular, with a rather conicous coat, crowned with the calyx, internally fleshy, of one cell. Seeds from one to three, nearly lenticular.

Eff. Ch. Calyx superior, with from fix to ten teeth. Petals from six to ten. Berry coated, of one cell, with few seeds.

Obi. We do not scruple to remove this genus from the clafs Polyantria, where Willdenow has placed it, but with which the insertion of the stamens does not agree, to Isefantria, where it ranges with its natural allies. Lemnisca (fix
LAMARCK, n. 1. Wildl. n. 1. Vahl. Symb. v. 2. 61. (Grewia falvifolia; Linn. Suppl. 499. Angiolam; Rheede Hort. Malab. v. 4. 39. t. 17. Arbor indica baccifer, frutico umbilicato rotundo, cerafi magnifìdico; R. Hill. v. 2. 1497.)—Flowers with ten petals. Branches becoming fpinous.—Native of the East Indies. Kernig fent pcncimens to Linneus, and in the year 1779 he also communicated feeds from Ceylon to Kew garden; but their progeny has not yet flowered, if it be fully alive. Rheede describes this as a handfome tree, an hundred feet high, and twelve in circumference, with fpreading branches, white hard wood, and a bitterih, acid, aromatic bark. The root is fungous, reddish, fragrant and bitter, with a yellowih bark. The branches bear leaves and flowers together, and finally assume a sharp fpinous terminatìon. Leaves alternate, on short downy flacks, ovate-oblong, obtufe, entire, ribbed, veiny, four or five inches long, pliant, fragrant; smooth and fhining above; paler, reticulated, and roughifh, beneath. Flowers axillariy, either solitary, or two or three together, on fimple, short, downy flacks. Calyx downy. Petals rather filthy externally; white within. Anthers bright red. Fruit the fize of a large cherry; downy when young; purplifh when ripe, full of sweet fragrant pulp, which is efteemed very delicious, and contains one, two, or three black feds. The inhabitants of Malabar compare the fflowers to an imfperial diadem, and therefore confider this tree as an emblem of royalty. The efpreffed juice of the root is purgative, and used for expelling inteffinal worms. Its powder is thought an antidote for the bites of ferpents, and other venomous animals.

2. A. kugii. Broad-leaved Alangium. Lamarck n. 2. Wildl. n. 2. Vahl. Symb. v. 2. 62. (Kara Angiolam; Rheede Hort. Malab. v. 4. 55. t. 26. Arbor indica prunifera, frutico umbilicato corticofio perfici fimili; R. Hill. v. 2. 1453.)—Flowers with six petals. Branches not fpinous.—Native of the coast of Malabar, in fply, sandy, mountainous places, always in flower and leaf. Its trunk is of lofty fhape, but inferior to the former. Leaves broader, more ovoate, and pointed, smooth, bitter and acid, but not aromatic; paler beneath. Flowers smaller, whifh, nearly fefile, with only six petals. Fruct globosus, the fize of a small apple, having a thick, downy, purple coat, and vifcid acid pulp.

3. A. repens. Downy Alangium. Lamarck n. 3. a. Branches fcarce fpinous. Leaves oblong, blufhing; their ribs downy beneath, like the footflacks. b. Polypodium. Allied to the firit species in the form of its leaves, and to the fcond in the nature of its fruit. The flowers are unknown. The young flouts, flacks, calyx, and ribs of the leaves, are clothed with fhort cottony down. Lamarrk.

AL-RARAF, l. 5, for Alcoran r. Koran.

ALASAN, in Geography, the Annan of Strabo, a river of Georgia, which separates this province from Shivan, and taking its rise near that of the Arapi, not far from the gates of Caucasus, pursues a S.E. course, until it meets the Kur or Cyrus at Doublizil. About 30 miles above this place it is joined by the Kabri or Yari, which fertilizes the greateft part of the province of Kaket.

ALBA LONGA, l. 8, for furrowed r. farrowed.

ALBANIA, col. 2, l. 5, add—Mr. Hobhouse rates the population of Albania at about 1,200,000 souls.

ALBANS, St., a township of America, l. 3, for 256 r. 1660.

ALBANY. Add after Saratoga.—It is now reftricted to an area of 462 square miles, or 295,689 acres. By the census in 1810, its population confifed of 34,661 fouls, its fentinorial electors were 2971, and the number of fhares was 772.

ALBANY, i. 4. This city and suburbs in 1812 contained about 12,000 inhabitants, 1800 houses and flores, 10 hours for public worship, and feveral public buildings.

ALBEMARLE, a county of America, &c. contained, in 1810, 18,268 inhabitants, of whom 9226 were fhares.

ALBERT I., l. 9, for between r. with. Col. 2, l. 11 from the bottom, for Rhoes r. Reus, and dele near Schaffhausen.

ALBERT's or Current Dollar, with $ and ½ ditto, Dutch filver coins valued at 50, 25, and 12½ fivers, each about 1 per cent. agio. Albert's dollar is also ufed as a money of account at Riga. See DIX-DOLLAR.

ALBUMEN, in Chemicfry. Considerable additions have been made to our knowledge refpeéting this important animal principle fince the firft volume of the Cyclopaedia was publifhed. These we fhall briefly notice here.

The firft thing deferving to be mentioned is the diftinction between coagulation, gelatinization, and precipitation, terms which had been always confounded till Dr. Botfock defined their difference. By coagulation is now underftood the paffing of a fubfance from a fluid to a folid flate by the agency of heat only, or, in fome inftances, without the immediate co-operation of any external agent; as, for example, in the coagulation of the fibrin of the blood. Gelatinization is the property which a warm folution of jelly prifcles of becoming concrete as it cools. Precipitation is the eflect which different fubftances or re-agents produce by combining and forming folid compounds with the principles operated upon.

The next circumftances deferving of notice are the effects of galvanifm upon albumen, as aflerted by Mr. Brande.

Mr. Brande found, that when albumen was expoied 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 high power, the coagulation went on rapidly at the negative pole, and flowed 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 attraeted thither. Dr. Murray, however, who faw 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 aérial bubbles entangled in the vifcid albumen.

The opinion entertained by chemifts at prefent refpeéting the coagulation of albumen, does not differ much from that of Buccet, who confidered it as a fort of foam, the animal matter being retained in solution by the foda prefent. An opinion, closely refembling this, has been fuccesfively advanced by Dr. Thomson, Sir Humphry Davy, and Mr. Brande, who appear to confider this albumen as merely a folution of an animal matter in water and foda, and that all the agents known to coagulate or precipitate it, act by abftracting the foda and water.

The effects of acids and other re-agents upon albumen, although they have been mentioned in a general manner in the
the Cyclopædia, defer to be more fully detailed here, as much additional light has been thrown on the subject within the last few years, from the labours of Berzelius and others.

Acids, as is well known, precipitate albumen immediately; at least this is the case with all the mineral acids when concentrated. Dilute phosphoric acid, however, do not precipitate albumen. Coagulated albumen, according to Berzelius, is charred by concentrated sulphuric acid; but when diluted with six or seven times its weight of water, and digested with it, the acid assumes a reddish colour, but dissolves feebly any thing. The portion not dissolved he considers as a compound of albumen with excess of acid. On depriving it of this excess of acid, by washing it with pure water, a neutral combination is obtained, which is soluble in water. This solution reddens litmus paper, and yields a precipitate with acids as well as alkalies, the former being combinations of the albumen with the acid employed, and which may be again rendered soluble by washing in water, the latter being again soluble with a flight excess of alkali. Hence he considers sulphuric acid to be capable of combining with albumen in two proportions; one in which the acid is neutralized, and which is soluble in water; the other, in which the acid is in excess, and which is insoluble in water. In dilute muriatic acid feebly any of the albumen is dissolved, even by boiling, neither does the acid liquor afford any precipitate with ammonia, or prussiate of potash. Evaporated to dryness, a brownish residue is obtained, from which potash disengages a little ammonia. Concentrated muriatic acid decomposes albumen by boiling, and produces a red or violet-coloured solution. The albumen that has been digested in weak muriatic acid, by washing repeatedly with water, is converted into a gelatinous mass, which is perfectly soluble in tepid water: this is to be considered as a neutral combination of albumen with the acid, while the former one contains an excess. The solution has the same properties nearly as that of sulphuric acid above-mentioned. Nitric acid of sp. gr. 1.25, digested with albumen, renders it yellow, and diminishes its cohesion. The fluid becomes yellow, and a small quantity of fatty matter is formed. During this process, azotic gas is given out in abundance. After twenty-four hours, the albumen is converted into a pulvulent mass of a pale citron colour, which is deposited at the bottom. This matter being separated and well washed acquires a deep orange colour, which Berzelius considers as the acide jaune of Fourcroy and Vauquelin, which obtained it by digesting mucular flesh with nitric acid. This is soluble in alkaline leys, and imparts to them an orange colour; and it is also soluble in acetate of potash and foda. Thus, according to Berzelius, albumen is capable of existing with the nitric acid, as well as with the other acids, in two distinct states 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 confirmed by Mr. Hatchett as gelatine. The acetic acid readily dissolves albumen by the allitance 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 exsiccated 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 prussiate 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 flight excess. Sulphuric, muriatic, and nitric acids produce precipitates, which are compounds of the albumen with the acid employed, the acid being in excess; 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 sificated potash, were found by Dr. Thomson to have no effect upon albumen when dissolved in water, in the proportion of one white of an egg to a pint of water. The cafe, however, was very different with the metallic salts and oxyds, most of which were found to have a powerful effect upon it, especially the sulphates, muriates, and nitrates of the metals, while the prussiates, and one or two others, had no effect. One of the most delicate tests of albumen, according to Dr. Boistock, is a solution of oxymuriate of mercury: a single drop of this, let fall into water, containing only a few parts of its weight of albumen, produces an evident milkiness, and a curdy precipitate falls. Heat renders the operation of this test more effectual. Perhaps the test of albumen least liable to ambiguity, is that recommended by Berzelius above-mentioned; namely, the addition of the prussiate 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>Element</th>
<th>Amount</th>
</tr>
</thead>
<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>15.795</td>
</tr>
</tbody>
</table>

100.000

Albumen never exists in an absolutely pure state in animal bodies, but is always combined with other animal matters, and various salts. See Blood and Animal Fluids.

ALBURGH, in Geography, a town of America, in Vermont, and county of Grand Isle, containing 1106 inhabitants.

ALBUS, in Commerce, a small coin and money of account at Caffel, Cologne, and other places in Germany. The whole principalcity of Hefel keeps accounts in rix-dollars of 32 albus, subdivided into 9 pfenings, or 12 helers current. 1 specie rix-dollar is worth 42½ Heffian albus. Coins in silver are pieces of 8, 5½, 4, 2½, and 1½ albus; and in copper, pieces of 1 and 2 albus. Cologne keeps accounts in rix-dollars specie of 8o albus,
or six-dollars current of 78 alufes; the alufus being reckoned at 12 hellers, and alufus are silver coins.

**ALCEDO** Capenis, l. 2, for short-tailed r. long-tailed. A. rufus, 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. giganta is the *fusa* above-mentioned: the *afra* is the *maxima*: the *amazonia* is glossy-green, white beneath; the lides of the neck white; the 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. albeon*: a native of Cayenne. A. Malimbus, sea-green or beryl K. with the throat and belly white; the wing-coverts and streak across the eyes black: is much allied to the *A. capenis* in the form of its belt and distribution of its colours; numerous in Malimbus, about the sea-coasts, feeding on worms and shells. *A. javonica*, blue K., with sea-green back, yellowish-white head, neck, and body; the crown of the head streaked with black. (See A. leucophala.) *A. canerophaga*, greenish-blue K., yellowish beneath, with black wing-coverts and eye-stripe, and ferruginous bill; crabs-eating K. of Latham: native of Senegal, where it is called Crab-eater. (See A. Senegaofulsa.) *A. Coromandel*, pale-violaceous rose-coloured K., rufescent beneath, with the rump marked by a longitudinal blueish-white band, and for the throat: a native of Coromandel, an elegant species. *A. collaris*, blue-green K., white beneath, with white collar; Latham's variety of *A. fascia*: a native of the Philippine islands. *A. bicolor* of Cmellin, referred to A. inda. *A. c.-pilifera*, white-collared K. of Latham. (See *A. erula* above.) *A. albifrons* referred to Galbula. *A. cyanocphala*, described under *A. erula-cphala*. *A. tribrachys*, triseguated K. of Nat. Mifs., 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. Ist v. 10. t. 15, so named by that author, in memory of Francis Ignatius Alcina, a learned Spanish Jew, who resided long in the Philippine 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 Writania; fee that article.

**ALCOHOL.** in Chemisty. A new analysis of alcohol has been lately published by M. de Sauffure. He employed for his analysis alcohol of the fp. gr. 0.802, 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 fix 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 \( \frac{144}{100} \) of the weak alcohol employed, which was 1256.7 grs., and it contained \( \frac{41}{100} \) 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 olefiant gas. Hence it follows that alcohol may be considered as composed of olefiant gas and water; and the result of the analysis was, that the absolute alcohol of Richter is composed of

### TABLE ALCE

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>13.70</td>
</tr>
<tr>
<td>Carbon</td>
<td>51.98</td>
</tr>
<tr>
<td>Oxygen</td>
<td>34.32</td>
</tr>
</tbody>
</table>

100.00

Or the composition may be stated thus:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olefiant gas</td>
<td>61.63</td>
</tr>
<tr>
<td>Water</td>
<td>38.37</td>
</tr>
</tbody>
</table>

100.00

If, with Dr. Thomson, we suppose alcohol to be a compound of one volume of olefiant gas, and one volume of vapour of water, condensed into one volume, its specific gravity in a state of vapour will be just equal to that of these two elastic fluids added together. The specific gravity of these two bodies is,

- Olefiant gas: 61.63
- Vapour of water: 38.37

100.00

And M. Gay Lussac determined by experiment the specific gravity of the vapour of alcohol to be 1.613, which 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
- 2 atoms carbon
- 1 atom oxygen

28.75

### TABLE ALE

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>13.04</td>
</tr>
<tr>
<td>Carbon</td>
<td>52.17</td>
</tr>
<tr>
<td>Oxygen</td>
<td>34.79</td>
</tr>
</tbody>
</table>

100.00

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 Cyclopedias; 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.

**ALE,** col. 2, l. 28. after parliament, add 'The grog duty on ale, or strong beer, is 10s. per barrel, with an allowance of 1d., so that the nett duty is 9s. 2d. For table-beer not worth more than 24s. the grog duty is 2s. per barrel, with an allowance of 2d., so that the nett duty is 1s. 1d.

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. 2s. imposed. All persons who shall sell ale or beer by retail, or shall sell cyder or perry, to be consumed in their houses or premises, shall first take out an excise-licence, within the limits of the chief office of excise in London, under the hands and seals of two or more of the commissioners of excise in England, or of such persons as they, or the major 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.

ALE-Houses, 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 costs, add—But no person shall be liable to the said penalty, for felling ale or beer in cafes 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 paid 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 several 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 licenced 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 respectable 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 feller of ale or spirituous liquors, or interloct 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 same shall be void. All mayors, town-clers, and other persons whom it may concern, shall make out ale-licences duly stamped before the recognizance be taken; on pain of 10l., half to the king, and half to the prosecutor, with costs. 6 Geo. c. 21. 1 Ann. Stat. 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 disfabled from keeping an ale-house for three years. By 35 Geo II. c. 24, if any person licenced to sell any sorts 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, midshipman, or billiard-tables, flittles, nine-pins, or with any other implement of gaming in his house, out-house, ground, or apartment thereunto belonging, by any journeymen, labourers, servants, or apprentices, and shall be convicted thereof, or confession, or oath of one witnefs, before one justice, within fix days after the offence committed; he shall forfeit for the first offence 42s. and for every other offence 10s. by dint of 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 sold, and complaint thereof shall be made on oath before one justice where the offence shall be committed, he shall issue his warrant to the constable 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 peace 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. or less than 5s. as the justice shall order, every time he shall so offend, and be convicted as aforesaid, one-fourth to the informer, and three-fourths to the overseers for the use of the poor; and if he shall not forthwith pay down the same, such justice shall commit him to the house of correction, or to 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 be convicted thereof before a mayor or justice of the peace on view, confession, or oath of one witnes, forfeit for every offence 3l. 4d., to be paid within one week next after the conviction to the churchwardens, who shall be accountable for the same to the use of the poor; and if he shall refuse or neglect to pay the same, it shall be levied by diftreffes. 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 flocks for every offence by the space of four hours. 1 J. c. 9. 4 J. c. 5. f. 4. 21 J. c. 7. f. 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 disfabled to keep any such ale-house. 7 J. c. 10. 21 J. c. 7. f. 4.

ALECTORIA, in Botany, seems to derive its name from auctor, una, unmar, because nothing has been made out respecting the male flowers. This is one of the tribe of filamentous Lichens, established as a genus by Acharius, (see Lichen,) and we shall endeavour to explain its characters.—Achar. Syn. 291. Lichenogr. t. 13. f. 1—4. Sm. Prodr. Fl. Græc. Sibth. v. 2. 523.—Clas and order, Cryptogamia Alge. Nat. Ord. Lichenes.

Eff. Ch. Frond cartilaginous, branched; spongy within. Shields fleshy, thick, rounded, flattened, of the substance of the frond; their disk slightly coloured.


Frond thread-shaped, smooth, very much branched, of a smoky.
a fmply-brown; branches capillary, compressed at their subfluvious. Shields fefile, blackish, with an entire mar-
gin; at length convex and hugged. Warts tumid, pow-
dery, white.—Found on the trunks and branches of old
trees, especially of the fir kind, throughout Europe, from
Lappland to the Bithynian Olympus. 8. On palei, 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 8
grows proftrate and entangled. There is no central fibre,
the inside being hollow, or slightly spongy. White
powdery warts are frequent and conspicuous on the pendu-
ulous variety, but these are not now confidered 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 juft named, reckons up
four more varieties, by the names of capillaris (which is
Lichen setiformis of Ehrhart); lanefris; cana (figured by
Wellfing above cited, at his t. 14. f. B.); and ftrata.
We have not examined the cana, which is hoary, with
black downy shields, appears to have some climes to
specific diftinction.
2. A. crinalis. Mane Alealtoria. Achar. n. 2. Lich-
enogr. 534.—"Frond flightly compressed, much branched,
greyfhit, very brittle; branches thread-shaped, rounded!
towards the upper part. Shields? convex, brown."—Found
often mixed with other f Samariflentens, on the trunks
and branches of trees. Acharius.
Achar. n. 3. (Parmelia ufeoides; Achar. Meth. 270.
Lichen Uhinea; Linn. Mant. 131. Swartz Ind. Occ.
1912. Uhinea ceratoidea candidas, glabra et odora-
ta; Dill. Mufc. 71. t. 12. f. 14 f and certainly t. 84.
f. 10.)—Frond compressed, flat, longitudinally ftruted, much
branched, pale and whiffit; the branches somewhat fibrous.
Shields flat, entire, of the fame colour.—On trees in warm
countries, in Afia, Africa, and America. Generally pen-
dulous, always spreading, from fix to eighteen inches long,
linear, flat, cream-coloured, very smooth to the touch;
fragrant and fmy when fresh; eafily fplitting when old and
dry, into two flat layers, exposing a pure white internal
powder. The fifkls are very fmall. By age the whole becomes
of a dirty-buff colour. The Arabian phyficins used this
moss as a cordial, and thought it alfo procured fleep. See
our n. 6.
(Parmelia farmentofa; Achar. Meth. 271. Lichen far-
mentolus; Achar. Prodr. 150. New Stockh. Tranf.
v. 16. 212. t. 8. f. 2. Schrad. Journ. v. 1. 83. t. 3. f. 4.
Engl. Bot. t. 2940. L. linumfium, ex cinere candido,
rufus et mollis, receptaculis florum rufefcensibus; Mi-h.
Gen. 77. t. 39. f. 2. Uhinea longis dichotomis, extre-
matibus tenutoibus; Dill. Mufc. 59. t. 11. f. 2. Ul.
dichotoma; Hoffm. Fl. Lich. t. 72.)—Frond roundish,
foemewhat angular and pitted, much branched, forked and
divariated, whitifh; ultimate branches capillary and lax.
Shields livid, rather concave, with a pale entire border.—
Native of mountainous tracts in various parts of Europe,
on trees or rocks. Mr. Borerre and Mr. Hooker met with
it on the mountains of Interveni-shire in 1808. The
fronds are of an ivory white, creeping, widely divariated,
sometimes powdery, hollow; their ultimate branches peculiarly
fine and numerous. Shields, communicated by Dr. Acha-
rius, fmall, with a greenifh fesh-coloured hollow difk,
finally becoming flattened and dilated.
5. A. trachyta. Brittle Alealtoria. Achar. n. 5. Liche-
enogr. 556.—"Frond round, somewhat compressed, branched,
Vol. XXXI. white; black at the base; branches unequal, zigzag,
minutely fibrous and somewhat tendril-like."—Native of
France and Switzerland. Acharius.
Lichenogr. 556. (Uhinea ceratoideas candidas, glabra et
odora; Dill. Mufc. 71. t. 13. f. 14.)—Frond round,
soemewhat compressed, branched, white; branches forked;
the ultimate points oneird and curved.—Native of the East
Indies, St. Helena, and Madagascar. Professor Acharius
adopts this from Dillenius without examining a fpecimen,
considering it a distinct fpecies from his ufeoides, n. 3, with
which other botanifs have confounded it. He rides alfo
on Dillenius for the present plant being the true Uhinea
of the Arabians. But as Dillenius confounded the two, and had
no authority for taking one more than the other for the Arabian
Uhinea, we cannot place any reliance on him in this repect.
Flow far the two plants, fo very similar in his figures, are
specifically distinct, can only be known by an examination
of the fpecimen 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 Dan Boin.
(Uhinea dichotomas comprefsa, segmentis capillaceis tereti-
bus; Dill. Mufc. 72. t. 13. f. 15. Muifcus arbus arau-
ritances, flaminibus tenuifilis, ex infusus Fortunatius;
Pluk. Almag. 254. Phyt. t. 309. f. 1.)—Frond com-
pressed, branched, orange-coloured; branches simply or
triply forked; their ultimate segments round and capillary.
—Native of the Canary iflands. Acharius adopts this
fpecies entirely from Dillenius, who decribes it from a
fran to a foot in length, compressed, undivided in the lower
part, but in the upper copioufly and repeatedly branched;
the branches occasionally three together, and their fummits
very fine. The whole is neither very rigid, nor foft,
smooth, of a dull yellow inclining to red. It tinges
the falva with a redder orange colour, but has no particular
fmeil.
ALEMBERT, col. 4. l. 28, for Memoriae s. Membres.
ALEPYRUM, in Botany, a, without, &e, a bark, filel,
or covering, alluding to the want of corollaceous glumes,
by which this genus is distinguished from Devauiaxii
of the fame author, to be defcribed in its proper place hereafter.—
Brown Prodr. Nov. Holl. v. 1. 253.—Clufs and order,
Gen. Ch. Col. Sheath of two concave, keeled, permanent
valves, claffing each other at the base, containing one
or more flowers. Cor. none. Stam. Filament one, capil-
Iary, drooping, about as long as the calyx; another fimple,
cvall. PjL. Germans feveral, from fix to eighteen, ovate-
oblong, inferior, inferted into one side of a central oblong
receptacle, and all turned one way; ftyles as many, thread-
shaped, combined at the bottom, fprading or defixed at
the upper part; filaments linear, downy. Peri. Capfules
as many as the germane, membranous, ovall, of one valve
and one cell, burfting longitudinally at one fide. Seed
folitary, oborate, pendulous.
simple. Germans unilaterial. Capfules burfting longitu-
dinally at one fide. Seed foltary.
A genus of small herbaceous plants, nearly allied to the
more numerous one of Devauiaxii, and, in Mr. Brown's own
opinion, feerely to be feparated therefrom, the want of
petals in Alepyrum being the only difference. The three
fpecies defcribed by this author are all natives of the south
coast of New Holland, where he gathered them himfelf;
nor do they appear to have been met with by any other
botanif or collector. The roots are fibrous. Leaves radi-
N 7 a, cal,
A. uniflorum. - Sheath single-flowered; the outer valve with a leafy point. Germens from five to ten. Stalk twice or thrice the length of the leaves.

2. A. umbrosum. - Sheath single-flowered; the outer valve with a leafy point. Germens from six to nine. Stalk the length of the leaves.

3. A. cicutarium. - Pointed 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 Allatifus r. Anatolius.

ALEXANDRIA, a town of New Ruffian, &c. add.-Alfo, 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 700 houses built of logs, the rooms of which are caulked with mosses, and covered with grafs. This is the principal depot of the African company, where the furs are collected. This town is named St. Paul by captain LifIanfly. It has a church, a barracks for the Ruffian convicts, a school, and several floure-houses belonging to the N.W. Company. Campbell's Voyage round the World, p. 108.

ALEXANDRIA, in Grafton county, &c. for 298 r. 409.

ALEXANDRIA, in Hunterdon county, &c. for 1503 r. 2271; and for 40 r. 46.

ALEXANDRIA, in Pennsylvania. Add, containing, in 1810, 156 inhabitants.

ALEXANDRIA, a town of the district of Columbia, having 7277 inhabitants, of whom 1488 are flaves. The county of the fame name, exclusive of the town, has 1325 inhabitants, including 553 flaves.

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 ALRED.

ALGEBRA, Specious, l. 4 from bottom, for four r. three. Col. 2, l. 22, for r. —, or a + b — e — c.

Line 35, for a + b r. a. c.

ALGOA BAY. Subjoin—By Barrow's chart, Cape Recif in this bay is in S. lat. 34° 10'. E. long. 25° 40'. Variation 26° 40'.

ALIEN. Subjoin.—It is also continued by the parliament of 1818.

ALIX. Duty. Add.—See Book of Rates.

ALKALI. New fixed, in Chimney. See LITHON.

ALKALI. New Compound from Opium. See MORPHIA and OPIUM.

ALKALINE ACRIMONY, l. 3, for four r. four.

ALL SUGITA r. ALA SUGITA.

ALL SOULS, l. ult., for Juxuin r. Jortin.

ALLALITE. See MINERALOGY, Addenda.

ALLANITE. See MINERALOGY, Addenda.

ALLANTODIA, in Botany, from ala, ala; sfauoge, a laufage, alluding to the tumid oblong figure of the Sori, or lines of capsules, wrapped in their membranous coverings.

—Brown Prod. Nov. Holl. v. 1. 149. — Clads and order, Cryptogramia Filiata. Nat. Ord. Filicias. Eff. Ch. Fructification in scattered oblique lines, accompanying a vein. Involucrem vaulted, originating laterally from the vein, and inferted into it by both margins; at length separating into the inner one. The habitat of this genus, says Mr. Brown, is between Nephrodium and Diplazium. (See those articles.) Polypodium umbrosum, Hort. Kew. ed. 1, affords an example of it, and there are some unpublished species. The cylindrical involucrem prohibits its union with Alpidium or Athyrium of various authors, and that membrane, being inferted by both margins into the same vein, and truly bifurcating, differs from the involucrem of Alpneum, 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 Alpidium in the second edition of Hort. Kew. pothly not with Mr. Brown's concurrence, his moll indubitable genus of Woodsia (see that article) being likewise there rejected.

We are polluted of many, perhaps of all, the nondecript Allanodia of which he speaks. To these some other Alpidium of Hort. Kew. may be akin; but A. ensulanium, 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 Cyathæa in Fl. Brit. whose involucrem solely does not answer to the above character, their fori being orbicular.

A. umbrosum. Madeira Wood Saffage-fern. (Polypodium umbrosum; Ait. Hort. Kew. ed. 1. v. 3. 466. Alpidium umbrosum; ed. 2. v. 5. 513. Wildl. Sp. Pl. v. 5. 283. A. axillarium; Schkuhr Crypt. t. 61.)—From triply pinnate; ultimate segments lanceolate, decurrent, deeply ferrated; the lower ferratures cloven. Lines contiguous; finally confluent.—Gathered in shady woods in Madeira, by the late Mr. Maffion, 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 stipes. Leaflets two or three inches long, and nearly one broad, pointed, pinnatisect almost to the mid-rib; the segments numerous, parallel, oblong, obtuse, decurrent, vein, smooth, of a fine green; most ferrated at their extremity and upper margin; one or two of the lower ferratures often cloven at the point. Lines moss copious about the lower part of each leaflet. Capsules brown. Involucres pale, variously torn and reflexed.

A. auriflora. Southern Saffage-fern. Br. n. 1.—Frond doubly pinnate, deltoid, membranous, fuscous. Leaflets pinnatifid, tapering at the point; lobes oblong, obtuse, deeply ferrated, many-flowered. Involucres oblong.—Native of Van Diemen's island.

A. tetra. Tender Saffage-fern. Br. n. 2.—Frond doubly pinnate, membranous, fuscous. Leaflets pinnatifid; lobes oblong, obtuse, ferrated, flowering at the base. Spots linear.—Gathered by Mr. Brown, in the neighbourhood of Port Jackson, New South Wales.

The Alpidium axillare, Wildl. Sp. Pl. v. 5. 278. Ait. ed. 2. v. 5. 512, should seem, if the specific character of Willdenow were right, to belong to the present genus. But we suspect that character to have been taken from something else. The fori are by no means rechis, or frigat; but remarkably recurved, much beyond kidney-shaped, finally affuming almost the peltate form of a real Alpidium. In an early state indeed they are frigate; but the inner margin is loofe, dilated, and fringed. In habit nothing can be more closely allied to Allantodia umbroso than this Alpidium axillare.


Gen. Ch. Cal. of one leaf, inferior; tube short, limb in 5,

Eff. Ch. Berry with numerous seeds. Germin between the five-cleft calyx, and corolla of four petals.

1. *A. popy.* Black-pudding tree. *Maringairingue* of the Africans. — Observed by Loureiro, at Mozambique, near the eastern coast of Africa. *A large tree,* with spreading branches, defiitute of thorns. *Leaves* opposite, digitate, of five oval, entire, hairy leaflets. *Stalks* many-flowered, nearly terminal. *Fruit* reddish-brown. A cataplaam of the leaves, applied to the back, below the kidneys, is said to promote delivery. Loureiro compares its plant, as to the leaves and fruit, with the *Jarcatica,* Pfl. Brac. 160. It is easy to trace the natural order of this *Alliofr,* and its relationship to *Carica.* Having feen no specimens, we cannot undertake to correct some apparent inaccuracies, nor to define the real character of the genus; neither is it necessary here to criticize, or to alter, the generic or specific name.

**ALLEGANY,** or *ALLEGHANY,* a county of New York, containing 12,421 inhabitants, of whom 21 are slaves.

**ALLEGHANY County,** 1. 5, for 10,309 r. 25,317, and for 159 r. 24.

**ALLEGANY,** in Maryland, l. 5, for 4809 r. 6909, and for 258, r. 620. Add.—Allo, a township of Pennsylvania, in Cambria county, having 610 inhabitants.—Allo, a township of Pennsylvania, in the county of Armstrong, containing 820 inhabitants.—Allo, a township of Pennsylvania, in Somerset county, having 271 inhabitants.—Allo, a township of Pennsylvania, in the county of Venango, having 299 inhabitants.—Allo, a township of Huntington county, in Pennsylvania, with 1159 inhabitants.

**ALLEN,** a township of Pennsylvania, in Cumberland county, having 1837 inhabitants.

**ALLENSTOWN,** l. 2. for 244 r. 346.

**ALEN-TOWN,** for 90 houses. r. 1291 inhabitants.

**ALLIGATOR,** after *Lacerta* insect, see *LIZARD.*

**ALLIUM,** in *Botany,* an ancient Latin name, of which many different etymologies have been propounded, but none has been thought perfectly satisfactory, is deduced by De Thes 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-five 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, interpenetrating, in the same order, a few remarks concerning other species.

**Sect. 1. Stem leafy. Leaves flat. Umbel bearing capsules only.**


8. Smaller, with sweet-smelling bright crimson flowers.—This variety is a native of the Cape of Good Hope, being the *A. Ampeloprasium* of Thunb. Prodr. 65. It may not be confounded with the 8 of Curt. Mag. 1385, Wildl. and Kitaib. Hung. v. 1. 84. t. 82, which Mr. Ker now thinks a variety of *arenarium,* deprived of its flower-bulbs. The former botanist, to deeply skilful in the plants of this natural order and their allies, has expressed, like Linnaeus, an opinion of the real *Ampeloprasium* not being specifically different from the garden *Lewk.* *A. Porrum,* n. 2. It seems to us that the simply sheathed bisemial root of this latter is essentially different from the large, globulo-aggregate, perrenial bulbs of the other; and the keels of the petals in *Porrum* are certainly much less, if ever at all to, than those of *Ampeloprasium.* A good figure of *A. Porrum* is much wanted.


Such is all the information afforded by Dr. Sibthorps MSS., for he has left no specimen nor drawing of this interling plant, fapped by him to be the *Dioscorides.* He has not afforded us any materials for a specific character. Can his plant be the A. orientale latifolium, flore magnlo lateo? Tourn. Cor. 26? Of this a specimen may perhaps be found, in the collections at Paris or Oxford.

**Sect. 2. Stem leafy. Leaves flat. Umbel accompanied by buls.**

Here perhaps ought to have been inserted, on account of its near affinity to *rofiam,* our *ambiguum,* figured in Curt. Mag. t. 1978, and definned to appear in Fl. Græc. t. 327. See Sect. 4.

**Sect. 3. Stem leafy. Leaves nearly cylindrical. Umbel bearing capsules only.**

20. 21. *A. marginatum.* 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* oblong, obtuse.—Gathered by Dr. Sibthorp, about Prufa in Bithynia, as well as on mount Athos, and in the islands of Naxos, Cyprus, and Cinolis. The *bulb* is about the size of a filber, 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, fix inches long; channelled along the upper side; heating at the base; the two lowermost shorter and foon withering. *Umbel* erect, oval, obtufl, dense, attended at the bafe by severalf short, reflected, jagged, white involucral scales. *Flowers* on flender, ascended or upright, simple flakos, an inch long at most. *Petals* oblong, concave, not a quarter of an inch in length, concurring, tweaked with green, white at the edges, purple at the keel. *Stemns* white; three of them flimple, awl-shaped; three linear, with two long, lateral, spreading, narrow segments. *Germes* turbinate, with fix prominent angles.

26. 27. *A. caucasicum.* Crinum Caucasian Garlick. Ker in Curt. Mag. at the end of p. 1143. (A. paniculatum; ibid. t. 973, but not t. 1432. A. globosum; Redout. Lilic. t. 179, not t. 96!)—Stem bearing thread-shaped heating leaves, and an umbel of capsules. One valve of the shoot elongated and cylindrical. *Stamens* flimple. *Petals* ovate, acute. *Germes* globosum.—Native of mount Caucasus. Railed by Mr. Lodidges, from seeds imported from Russia. The cylindrical leaves, globoso umbel, shorter involucrum, ovate, not obovate petals, and round, even, not oblong and channelled, genus, as well as the rofe-coloured flowers, are sufficient marks of distinction between this plant and *A. paniculatum,* of which a imperfect figure, representing the leaves as cylindrical (contrary to nature and the description) is given in Curt. Mag. t. 1432. (A. carv.)
A. montanum. Crimson Olympian Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 775. Fl. Græc. t. 319, unpubl. (A. montanum, radicis oblongā | Tourr. Inf. 324, according to Sibthorp) Stem bearing nearly cylindrical leaves, and an umbel of capsules. Sheath elongated, deflexed. Stamens simple. Flower-flanks uniform.—Found in the grassy pastures 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 slender, smooth, gauze-green leaves, a little channelled on their upper side, one of them rising above the umbel, which is rather lax. Petals obovate, pale rose-coloured with a crimson mid-rib. German obovate-oblong, with six deep furrows.

A. flatiforme. Thrift-like Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 775. Fl. Græc. t. 320, unpubl.—Stem bearing nearly cylindrical leaves, and an umbel of capsule. Stamens simple. German three-lobed. Umbel many-flowered, somewhat capitate.—Gathered by Dr. Sibthorp in the ile of Cimólis. The bulb is globular, about the size of a hazel nut, with several lateral offsets. Stem a spin high, reddish. Leaves about three, shorter than the stem, recurved, with flirated reddish sheaths. Umbel dense, of about an inch and a half in diameter, rose-coloured. Petals obovate. German, as well as the capsule, turbinate, abrupt, of three rounded lobes.

A. pilosum. Hairy-leaved Crimson Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 777. Fl. Græc. t. 321, unpubl.—Stem bearing nearly cylindrical leaves, and an umbel of capsules. Stamens simple. Leaves and their sheaths very hairy.—Found by Dr. Sibthorp in the island of Cimólis, and we believe in the Peloponnaean also. Bulbs globular, small, purplish. Stem a spin high. Leaves about four, spreading, tapering, remarkably rough with spreading hairs, as are likewise their long, flirated, purplish sheaths. Umbel lax, hemispherical, many-flowered, smooth, the flowers and their flāks of a pale purplish crimson. Petals elliptic-ovate, obtuse. German three of hemispherical lobes, not turbinate.

A. junceum. Rush-leaved Purple Garlick. Sm. Prodr. Fl. Græc. Sibth. n. 778. Fl. Græc. t. 322, unpubl.—Stem bearing thread-shaped leaves, and an umbel of capsules. Three alternate stamens five-efvel. Umbel capitate.—Discovered in the island of Cyprus, by Dr. Sibthorp, who took it for A. Schoenopraun, from which, however like at first sight, it differs essentially. Our plant is more allied to A. aphyllum, but still distinct, and the stem is truly leafy. Bulbs aggregate, ovate, with dark-brown, flirated, elongated coats. Stem a foot high, slender, erect, leafy about one-third of its height. Leaves two, nearly as tall as the stem, very slender, tubular, quite round, smooth, a little glaucous, somewhat spreading at the top. Umbel globular, dense, its flāk of two broad, ovate, acute, concave, close leaves, shorter than the flowers. Flower-flanks green, but half the length of the petals, which are elliptic-oblong, acute, purplish, with a darker mid-rib. Stamens white; three of them simple, awl-shaped; the intermediate ones flat, dilated upwards, terminating in two taper vertical teeth, on each side of a similar one bearing the anther. German elliptical, with three flight furrows.

Sect. 4. Leaves radical. Common Flower-flanks naked.

35. A. inodorum. Carolina Garlick. Ait. Hort. Kew. ed. 1. v. 1. 427. ed. 2. n. 25. Willid. n. 33. Curt. Mag. t. 1120. (A. fritiun. Venten. Prodr. n. 3. t. 26. Redout. Liliac. t. 68. Purh. n. 2.)—“Stalk naked, oblong, trigonous, angular. Leaves linear, flat; keeled at the back. Umbel level-topped, capsule-bearing. Stamens simple.”—On the mountains of Virginia and Carolna, flowering in June, Perennial. Flowers white, with red veins. Purh. had seen it living. It is marked in Hort. Kew. as a hardy perennial flowering in March and April, and introduced by the late Duchess 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 same, though in the former work the petals are obovate, 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; Venten. Malwia. copied by Purh from the Magazine, for Venten. Hort. Celv., which proving that the work was not consulted by Purh, takes away our confidence in that author, as to synonyms. The name inodorum is acknowledged to express the want of the Garlick fator 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 same plant. We cannot afford 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. inodorum “is like angulosum of Linneus, but twice as large, and differing in the specific character,” which chiefly amounts to the flāk of the latter being too-dged, and the leaves channelled. He had both plants living. But angulosum is most excellently represented in Curt. Mag. t. 1149, and surely few of the genus can bear less resemblance to t. 1129. It is fearfully more like Redouté's figures, named fragrans. We proceed to notice the species most akin to inodorum; for so at least it must be presumed to be.

35, 36. A. gracile. Jamaica Garlick. (See our n. 55.) Dryander in Ait. Hort. Kew. v. 1. 429. ed. 2. n. 38. Willid. n. 52. Andr. Repos. t. 107. Ker in Curt. Mag. at the end of p. 1293, var. 1. (A. fritiun; Redout. Liliac. t. 50. Curt. Mag. t. 1052? and t. 1524?)—“Stalk naked, round, very long. Leaves linear, channelled. Stamens awl-shaped, connected at the base.”—Native of Jamaica, from whence it was sent to Kew, by Hinton Eaff, efq., and flowered in the close, in February. Atton. Leaves a foot long, resembling those of a Narcissus. Stalk three feet high, slender. Petals erect, white, with claws, which are united with the flāk below, into a green tube. Perhaps this plant may form a distinct genus. Dryander as above. The writer of the present article happened to be with Mr. Dryander, when the original specimens of this Allium were brought from Kew, and on being asked for a name suggeted the above. He then obtained a specimen, which is now, along with others gathered at Kew in 1788, in his herbarium, as well as one more, undoubtedly the same species, procured from Mr. Vere's collection, in 1814, as a rare plant, by the name of A. fritiun. He can therefore speak to the whole barb being deficient of the Garlick odour, and to the want of scent in the flowers, by day at least, 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 kruples a deference to Mr. Ker may fugget, as to the two figures named fritiun in Curt. Mag. The first shows a good difference between this plant and Allium, arofe in Mr. Dryander's mind, from the combination of the fliaments, and was strengthened by the want of the garlick flavour.
flavour. The leaves are certainly not remarkably flirted at the back, as in the real *fritium*, of which we shall next speak.

**A. fritium.** Streaked-leaved Garlic. (See our n. 37.) Jacq. Coll. v. 5. 51. Ic. Rar. t. 366. Wild. v. 35. Ait. v. n. 27.—Stalk rigid, 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 gardens 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, blunted, or oblique, but little channelled; rather convex and flirted at the back, but not triangular. A transverse section, under a magnifier, shows 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, flender, erect, as tall as the leaves, or taller. **Umbel** of seven flowers, more or less, the partial flanks 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. **Filaments** awl-shaped, equal, shorter than the petals. **Anthers** oblong, incumbent, yellow. 

**Jacquin.**

| A. pedemontanum. | Red Piedmonte Garlic. Wild. n. 37. (A. nigrum; Allion. Pedem. v. 2. 158. t. 25. f. 1. A. rofeum; Linn. Sp. Pl. ed. 2. 432, but not Sp. Pl. v. 1. 295.)—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 Allioni and Bellardi prove this species, as distinct from *nigrum* as from *rofeum*, to have been confounded by Linnaeus with the latter, which has a globe-like, very prolific **bulb**, a somewhat leafy **stem**, and far more numerous, brighter-coloured, **flowers**.

39. 40. **A. bellatun.** Muffoni Garlic. Ker in Curt. Mag. t. 1576. Ait. Epit. 363. (A. angulofum; Pursh n. 4, excluding the synonym.)—Stalks somewhat two-edged, recurved before flowering. **Bulb** ovate-oblong. Leaves linear, triangular, sharply keeled. Umbel many-flowered, lax, level-topped. Stamens combined at the base. Germin depressed, bluntly triangular.—Found on the banks of the Miffouri, 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 **flats** are two or more. The **sheath** is of only one valve; but Mr. Ker doubts the permanency of that character.

**A. cernuum.** Bowed-umbelled Garlic. “Roth. Nov. Pl. Spec. in Roem. Archiv. n. 5. 40. Catal. Bot. falc. 2. 33. t. 29.” Sims and Kon. Ann. of Bot. v. 2. 27. Ker v. 3. Curt. Mag. t. 1324. Ait. Epit. 363.—Stalk angular, recurved at the summit. Leaves linear, slightly channelled, pointed. Umbel drooping, many-flowered. Stamens simple, twice as long as the corolla; turulid at the base. Germin turinate.—Native of Mount Caucafall, according to Mr. Aiton, who says it was introduced into England in 1801. The **bulb** are oblong, tapering, aggregate. **Stalk** eighteen inches high; roundish, compressed, and recurved, at the top. **Leaves** bright-green, narrow. **Flowers** white, with a delicate rosy-coloured ring. **Petals** ovate. **Stamens** unequal at first, but finally all about twice the length of the corolla. **Germin** three-horned. 

**A. rubellum.** Reddish Iberian Garlic. Marv. Taur.-Cauc. v. 1. 264.—Stalk nearly naked, round. Leaves semi-cylindrical, channelled. Sheath short. Umbel convex, many-flowered, half as broad as the **corolla**.—Gathered by Mr. Steven in Georgia. **Bulb** the size of a silver. **Stalk** with one or two leaves sheathing the bafe, 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 whose foliage, when the bulb is deep, becomes in some degree cauline. **Leaves** linear broad, rather fl Malay. **Flower-stalks** flender, much longer than the **flowers**, which are hardly so big as those of *A. Ampeloprasum*, of a pale purple, with acute **petals**.

**A. faxatiile.** Stone Garlic. Marv. Taur.-Cauc. v. 1. 264. Sims and Kon. Ann. of Bot. v. 2. 436, excluding the synonym of Gmelin.—**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 Caucafall. This species is very closely related to *A. bidulcanum*, Wild. n. 49, see our n. 51; but differs in having a long awl-shaped **sheath**. 

**A. bifidum.** Jonquil-leaved Garlic. Redouté. Lilac. t. 286. Curt. Mag. t. 1361. 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 hardy, and of easy culture, flowering in June and July. Mr. Ker remarks its great resemblance to *fritifera*. (See n. 32) Curt. Mag. t. 115, next to which perhaps it ought to be placed, though akin also to our cl, from which the shortness of the **sheath** distinguishes the present plant. The narrow and thick **leaves** are very different from *fritifera*; and Redouté 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.

**A. triforum.** Three-flowered Garlic, or Mountain Leeks. Pursh n. 5.—**Stalk** naked, round, shorter than the leaves; which are lanceolate and ribbed. **Bulb** of few flowers.”—In shady woods, on the high mountains of Pennsylvania, flowering in May and June. Perennial. *Pursh.*

**41. A. triforum.** Milks-white Garlic. Sm. Prodr. Fl.
Bivona 5, the 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. lacteum agrees with *triquetrum*, n. 44, next to which it should be placed, in having an acutely triangular stalk, but differs in the lanceolate leaves, and shorter, broader, more obtuse petals. The stigma moreover is simple, not three-lobed.

A. ambiguum. Bulbous Rohe Garlick. Sm. Prodr. Fl. Grac. Sibth. n. 783. Fl. Grac. t. 327, unpub'd. (A. rofeum β; Ker in Curt. Mag. t. 978. Bivona Sic. cent. 1. 18. Savi Etrufc. v. 2. 210.) A. carneum; Targioni Tozzetti fl. Bot. ed. 2. v. 2. 242. t. 6. Moly angustifolium canpanulatum, flore roséo, nodosum; Cupani Pamph. v. 2. t. 219; Moly serpentinum vocatum; Lob. i. c. 160. —Stalk naked. Leaves semi-cylindrical. Stamens simple, shorter than the corolla. Umbel bulbiferous.—Native of Italy and Sicily, flowering in May. Frequent about Pisa. Sicily. 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 lafia, is made by all authors a variety of rofeum; for the difference between the species with bulbiferous, and those with seed-bearing, umbels, is acknowledged to be, in many instances, not infallible. In the plant before us, however, there is a great disagreement, as to the character of rofeum, which is described with flat leaves and a leafy stem. But the dried specimens are very much alike, not discovering in either the semi-cylindrical and hollow structure of the leaves, shown by Dr. Sibthorp's figure. As to the stem being leafy or not, many species are in this respect ambiguous, and rofeum is perhaps improperly considered as of the former denomination. Their roots are precisely alike. The flowers of rofeum are far more numerous, and of a finer pink hue.

We cannot conclude our survey of Allium without 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 list, but of which we want sufficient specimens or information clearly to dispose of, so as to elucidate rather than confound the subject.

ALLOCHROITE. See Mineralogy, Addenda.

ALLOY, in Chemistry, a combination of two or more metals. In addition to what has been said on this subject in the Cyclopaedia, we may add the following tabular view from Dr. Thomson, of the general properties of the different alloys, as far as they have been examined. The chemistry 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 first indicates an expansion; the second, a condensation.

Table I.—Malleable Metals.

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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.

ALMUDÉ, in Commercio, a liquid measure in Portuguese, &c. (See Table XXII. of Measures.) At Lisbon, 982.763.45, and oil are sold by the pipe of these almudes; but the pipe of Lisbon wine sent to England contains about 31 almudes, and the standard gauge at the London Custom-house is 150 gallons; the Lisbon almude is therefore reckoned on 12 English gallons. At Oporto, the pipe is divided into 21 almudes, which almude and its subdivisions are 49% 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 fix English gallons and five pints nearly.


Nat. Ord. *Amacones.*, Linn. Juff. Gen. Ch. Male, *Cal. Catkin cylindrical, imbricated every way, lax, composed of wedge-shaped, three-flowered, abrupt, three-cleft scales. Cor.* compound, of three equal, tubular, four-cleft florets, sessile 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, consisting of two-flowered, rounded, pointed, obliquely three-cleft, concave scales. Cor. none.* *Pil.* Germin two to each scale, ovate, minute, depreffed; styles two to each germen, tapering, rather longer than the scale; stigma 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, obliquely three-cleft, two-flowered. Styles two. Nut compressed.* The presence of a *corolla in the male flowers, with a determinate number of *flamens* 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 *flamens* are numerous, and indefinite. The fertile *catkin* more is elliptical in *Alnus* cylindical in *Betula*. Gartner finds differences in the *corolla*, which, if the germen be attended to, appear to us less decisive. By an occidental oversight, *Alnus* was neglected to be separated from *Betula*, in our Plants of Britain; see that article.


β, incises; leaves roundish, notched. *Wild.*

γ, lacinata; leaves oblong, pinnatifid, with acute segments. *Wild.* *Ait.* 2.

δ, aequicifolia; leaves oblong, fruited, with obtuse segments. *Wild.*

Leaves roundish-wedge-shaped, obtuse, wary, glutinos: down 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 Spain, and of Africa, as also in Canada and on the north-west coast of America. (*Pursh.*) 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.


7, pinnata; leaves pinnate, hairy beneath; young branches hairy. *Wild.*

(Betula pinnata; "Lundmark in Stockh. Tranf. for 1792, 122, t. 5").—Leaves elliptic-oblong, acute; downy beneath; the branching of the veins naked. *Stipulas lanceolate.*—Native of marshes and the banks of rivers throughout Lapland. *Linnus.* It occurs also in alpine situations, in Germany, Switzerland, &c. The variety γ, of which we have specimens from Dr. Swartz, has been met with in one part of Sweden only, Waermund, and is increased by root only. The *leaves* are small, pinnate, and jagged. The usual appearance of *A. incana,* except its hoariness, and the glaucous hue of the back of its *leaves,* is not very unlike *A. glutinosa.* The *leaves* however are more acute, and their footstalks are reddish. This last character, as well as the glaucous hue just mentioned, is wanting in variety γ. The general pubescence of the under side of the *leaves renders it difficult to say how far the veins differ at their origin from those of the Common Alder, but though downy, they certainly want the glandular roughnesses to remarkable in that species. See *Betula*, n. 7, for a further account of this tree.

4. *A. viridula.* Curly-leaved Alder. *Wild.* n. 4. *Ait.* n. 4. (A. cripta; *Parth.* n. 2. *Betula cripta; Ait.* ed. 1. v. 3. 239. *Michaux Boreal.-Amer.* v. 2. 151.)—Leaves oblong, acute; rounded at the base; veins hairy beneath, like the footstalks, but naked at their origin. *Stipulas ovato-oblong.*—In Canada, and on the high mountains of Pennsylvania, in swamps overrun with Bog-mofs, flowering in April. *Pursh.* 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 ferrated; veins and their origin hairy beneath. Stipulas elliptical, obtuse.—Native of North America. Common everywhere in swamps, and by river sides, flowering in March. A Sora, from six to ten feet high, growing in close thickets. Purp. 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 ferrated, not notched, or jagged.

ALOEXYJJUM, a10eXJYJJus, Alcgo-wood, a name given to the tree which produces this precious wood, by Loureiro; Fl. Cochinch. 267. See Agallasolus.—He refers it to the Clafs and Order, Decandria Monogynia, and its Natural Order seems to be Lomentaceae, Linn. Leguminosae, Juff. Gen. Ch. Cal. Perianth inferior, of four acute, hairy, deciduous leaves; the lowermost falcate, incised, nearly twice as long as the refl. Cor. Petals five, unequal, longer than the calyx. Stam. Filaments ten; anthers .... Pijf. Germen superior, elongated, curved, compressed; fyle thread-shaped; stigma ...... Perig. Legume woody, smooth, falcate. Seed solitary, oblong, curved, tunicated. Eff. Ch. Calyx of four acute deciduous leaves; the lower one longest. Petals five, unequal. Legume curved. Seed solitary, tunicated.

1. A. Agallasolus. Fragrant Alcgo-wood.—Native of the lofty mountains of Cochinchina, near the great river which runs between that kingdom and Laofio. A large lofty tree, with erect branches. Bark fibrous, brown, smooth, not thick. Leaves alternate, fmalled, lanceolate, flat, entire, smooth, rather coriaceous, eight inches long. Flower-flalts terminal, many-flowered. Loureiro. This genus is manifestly different from Aquilaria. (See that article.) Loureiro describes the wood as white and inodorous, becoming fefuous and fragrant in confequence of some injury, till the tree dies. No part of this tree is milky, nor poifonous. He adds, that all the farts of genuine alcgo-wood are produced by this tree, even the mift precious, termed Calambac, which is found no where but on the mountains of Cham-pa, belonging to Cochinchina, frituated about the 13th degree of north latitude. The inferior fcpcies, or rather varieties, are obtained in various places, fometimes in pieces weighing thirty pounds or more. "There are," says Loureiro, 9 other valuable woods, called by ignorant peronas Agallasolus, and Lignum Alce, 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 feems rare, Loureiro having long enquired in vain for the flowers, and having obtained them but once, in a bruised and mutilated condition.

Whether the Agallasolus, or Calambac, Rumph. Aboim. v. 2. 29, of which that author gives no figure, be the plant of Loureiro, we cannot poifitively determine, though it feems likely. The Agallasolus fecondaerum, or Gars, of the fame volume, 34. t. 10, is certainly the Aquilaria. We have received from Dr. Roxburgh fpecimens of the wood itself; as well as of the fruit, agreeing exactly with Rumphius's figure, and evidently the Gynnoos Walla of Garpert, 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 Iuphorbie.

ALONSOA, a genus eftablifhed by Ruiz and Pavon, Fl. Peruv. Syfl. 150, and adopted in Ait. Hort. Kew. v. 4. 27, is founded on two fcpcies of Hemimeris, (fee that article,) nor can we discover the leaf pleife character to diftinguish them from the latter; which having been much confuted in its history by Linneus, was perhaps not under-food by the authors of the Flora Peruviana. These fcpcies are our H. utitifolia, (Alonoia inciJifolia; Fl. Peruv.) and H. linearis, (A. linearis of the fame work;) Professor Will-
denow, though he had never seen more than one Hemimeris, the montana, and that in a dried fate, could not overlook the identity of thefe genera, nor can we account for its having escapee the learned editors of the Hortus Kewensis. But it is evident from their generic character of Alonjot that they did not contral the two genera; for thefe are proved the fame by the character itself, which runs thus, and is equally fuitable to both.

Calyx in five deep fcgments. Corolla nearly wheel-shaped, revefed, five-clift; the upper fimple segment largest. Stamens declining; with smooth filaments; and converging uniform anthers. Capsule of two cells.

Hemimeris, being a long-eftablifhed Linncean name, of appropriate and without exceflional meaning, must, of course, be retained.

ALPINIA, the article already given requires reforma-
tion, in confequence of fubfequent discoveries, chiefly owing to Mr. Rofoee's investigations. (See Scitaminee and Rofoea.) Recurring to the original genus, founded by Plummer, and adopted by Linnceus, as the bafes of the whole, we do not, in quoting various authors, who have followed thefe, confider as Alpinia all that they have included herein.


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-dipped, in three deep segments, of which the upper one is usually broadest, and concave, the two lower equal and narrow; innermoft of a fingle lip, ftraight, 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, oppofite to the lip, fhort and flout, quite fimple; anther terminal, erect, thick, fimple, without any appendage, convex at the back, emarginate, divided in front into two parallel, clofe, oblong lobes, bursting longitudinally. Pijf. Germen inferior, elliptic-oblong, with three furrows; fyle thread-shaped, erect, smooth, the length of the flamen, embraced by the lobes of the anther; stigma peltate, umbilicated, hairy. Perig. Capsule fitefly, oval, abrupt, umbilicated, with three furrows, three valves, and three cells. Seeds numerous, tunicated, ovate, angular, abrupt, inferted into a pulpuy receptacle.


Dr. Roxburgh, who had opportunities of studying the various fcpcies of this, and many other Scitaminee genera, in their native fituations, speaks of Alpinia as a good natural genus, having, besides the proper characters in the ficification, certain peculiarly flirking ones in the habit. The roots are perennial, tuberous, ftrong, thick, crooked, running nearly horizontally, a little below the surface of the ground, O o and
and strongly marked with annual scars where former leaves have been; these fend down copious, long, thick, fibrous radicles. 

Stems either biennial or perennial, numerous, tufted, straight, erect, or more or less recurved at the summit, densely leafy, each terminating in a copious clusfer, or panicle, of large gaudy flowers, "except Cardamomium," says Dr. Roxburgh; but that plant, which has a radical panicule, is now excluded from Alpinia, and called by Dr. Maton Elettaria in Tr. of Linn. Soc. v. 10. 245 having sufficient marks of generic distinction in the flamen. 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 specimen.


—Native of rather mountainous shdy woods in the West Indies. Notwithstanding Dr. Swartz's doubts, we have no hcrapule respecting Plumer's synonymy. Root branching, feathery, with the flavour of Ginger; used in Jamaica as a poultice for cancers and other ills, according to Swayne, with good success. Stem herbaceous, two or three feet high, round, smooth, slender, simple, leafy. Leaves alternate, elliptic-lanceolate, entire, smooth, pointed, a foot long, with narrow feathery feathertils exceeding them in length. Clusfer terminal, solitary, flaked, unbranched, smooth, many-flowered. Outer bractees 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 shallow teeth. Corolla white; tube slender, longer than the calyx; outer limb with three nearly equal, ovate, erect segments; inner somewhat heart-shaped, three-lobed, the middle lobe notched. Germin bluntly triangular, quite smooth, as well as the calyphe. Seeds thinning.

2. A. Galanga. Galangale Alpinia. Roxf. Tr. of Linn. Soc. v. 8. 345. Roxb. n. 1. Willd. n. 2. (Marantha Galanga; Linn. Sp. Pl. 3. Swartz Obs. 8. Amomum Galanga; Laouere. Cochinch. f. Galanga major; Rumph. Ambon, v. 142. t. 63. Dale Pharmac. 276. Ger. Em. 43.)—Clustcr compound, erect. Bractees all lanceolate, shorter than the flowers. Calyx bell-shaped, with three rather pointed equal segments. Germin slightly downy.—Native of various parts of the Malay Archipelago, communicated by the late Dr. Roxburgh, from the Calcutta garden, where this plant flowered during the hot season, and ripened seed, though very rare, in November. The root proved to be the real Galanga major of the shops. The stem is said to be seven or eight feet high. Leaves eighteen or twenty-four inches long, soft to the touch, though feebly conspicuously downy. Clusfer large, with very numerous, crowded, short, racemose branches, all downy. Bractees uniform, lanceolate, downy; thoae at the base of each principal branch very small. Flowers white. Calyx besprinkled with minute reflexus dots. Corolla elongated; lip externally downy, cloven at the extremity. "Capsule small, obvate, smooth, deep orange-red, not opening spontaneously. Seeds only two in each cell, even in the germin, bitter and nauseous, each three-fourths covered with a white tunic." Roxburgh. See Galangal.

3. A. occidentalis. Scaly-cluftered Alpinia. Swartz Ind. Oc. 9. Roxf. Tr. of Linn. Soc. v. 8. 345. Willd. n. 4. —Ait. n. 2. (Amomum minus, sespa vesito, floribus plicatis; Browne Jam. 112, excluding Swayne's synonymy. Sponserosa minor multicaulis; Plumb. MSS. cum icon.)—Clusfer compound, erect, on a fealy leafless stem. Partial bractees imbricated, sheathing, dilated, abrupt, hairy. Calyx turbinate, with three broad obtuse segments. Germin slightly downy.—Native of moist parts of the mountainous woods of Jamaica, flowering all the year, but especially in spring. Root knotty and fibby. Barren stems six feet high, erect, herbaceous, simple, leafy. Leaves elliptic-lanceolate, acute, very smooth, attached by a short contraction to their sheathing f Fixedals, as in the other species. Flowering stems as tall as the others, round, smooth, erect, not leafy, but clothed from top to bottom with flowering, oblong, obtuse secales, and terminating in a dent, erect, cylindrical, compound, many-flowered, chafier, with hairy stalks. Flowers all turned upwards, crowded, their partial stalks concealed by concave, sheathing, abrupt, partial bractees, while each common stalk, or branch of the clusfer, has at its base a very different, lanceolate, acute bractea, half its own length. Calyx coloured, hairy at the base; its segments smooth, rounded and obtuse. Corolla pale yellow; tube the length of the calyx; lip veiny, cloven at the end. "Capsule rather small, corraceous and fuffy, of three valves, red when ripe, pulpy within. Seeds yellow, two or three in each cell." Swartz. We are indebted to Mr. Lambert for a drawing of this plant, copied from Plumer's sketches at Oxford.

The habit of this species may, at first sight, seem to invalidate the character of a leafy flern, 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 scales may be considered as abortive leaves, not perfected on the flowering stems, while thoee stems which luxuriate in foliage, do not also bear fructification. Perhaps the more robust are more prolific than in other species.

4. A. Allughas. Ceylon Alpinia. Roxf. Tr. of Linn. Soc. v. 8. 346. Roxb. n. 2. Ait. n. 3. (Hellenia Allughas; Willd. Sp. Pl. v. 1. 4. Andr. Raph. t. 501. Heritiera Allughas; Retz. Obs. fasc. 6. t. 11.)—Clusfer paneled, erect. Calyx bell-shaped, two-lobed. Germin hairy. Lip two-lobed.—Native of the East Indies. Very common in Bengal, flowering throughout the rainy season, and ripening fruit in October and November. We received in 1786 a flower from Kennig's specimen of this plant, sent to professor David van Royen by the name of Grana Paradisi Zeylanica. It appears without doubt to be the Alughas of Hermann, mentioned, but not ascertained systhetically, in Linn. Zeyl. 207. n. 449, and it is said to be the Malo-infidezka, Rheede Hort. Mal. v. 11. t. 14. The illuflrious Mr William Jones has described it, by the Sanferit name of Zyraca, in the Atarific Researches, v. 4. 240. The stem is two feet high, simple, leafy. Leaves lanceolate, pointed, smooth, with long sheaths. Clusfer, or rather panicle, variously subdivided, lax, many-flowered, with denfely downy stalks. Bractees fnumco, for the most part very small, 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, especially at the base, remarkable for having only two marginal acute segments. Segments of the outer limb of the corolla oblong, equal, coloured green by Mr. Andrews, crimson, like the lrp, in Retzius's plate, but the latter is probably accidental; the author having had no living specimen. The lip is shorter than those segments, and, like them, externally hairy; its two lobes appear to be sometimes cloven. Stem long, with a large wather, reddish as well as the lip. Fruit globose, purplish-
ALPINIA.

pulphid-black, with numerous tunicated seeds. This species was raised from seed by A. B. Lambert, esq. at Boyton, in Wilts, 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. (Helenium alba; Willd. Sp. Pl. v. 1. 5. Heritiera alba; Retz. Obs. falc. 6. 18. Linguas vulgaris; Koen. in Retz. Obs. falc. 3. 64.)—Clutter pa. n. 5. Calyx bell-shaped, three-toothed. Lip two-toothed. Leaves calyculate and fringed at the margin. Native of China; cultivated in the East Indies. Koenig terms this plant Galanga alba, and speaks of it as in much use among the Malays. The roots are white, thicker than the stem. 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 calyculate, whitish, 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. Bracteae lanceolate, acute, rufy-coloured, deciduous. Calyx with snow-white segments. Outer limb of the corolla greenish-white; lip inverely heart-shaped, deeply two-to-loged, jagged and crimpied at the margin, white, with fine rose-coloured veins. Calyptra scaber, membranous, rather rigid, fringed. Koenig'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. (Helenium chinenses; Willd. Sp. Pl. v. 1. 5. Heritiera chinensis; Retz. Obs. falc. 6. 18. Linguas chinenses; Koen. in Retz. Obs. falc. 3. 67.)—Clutter p. n. 5. 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. Root aromatic, with an acrid burning flavour, white, as thick as the middle finger. Stems two or three feet high, a little drooping at the summit. Leaves a spian long, and two inches or two inches and a half broad, with a white rib and margin. Clutter narrow, three or four inches long, its flanks more or less clothed with close-petted 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 broad-red veins. Fruit a capsule. Koenig.

7. A. aquatica. Water Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 346. (Helenium aquatica; Willd. Sp. Pl. v. 1. 5. Heritiera aquatica; Retz. Obs. falc. 6. 18. Linguas aquaticum, l. fylvele; Koen. in Retz. Obs. falc. 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. Roots numerous, thread-shaped, white, sending forth runners. Stem about four feet in height, leafy, as thick as the finger. Leaves oblong, acute, corniculatus, of a beautiful green; rather roughly fringed on the upper side; smooth at the back; the margin beset with minute calyculate teeth. Panicle slender, with two deciduous bracteae at the base; flower-flanks forked, two-flowered, divaricated, round, smooth, white, shorter than the flowers. Bracteae two or three, attached to the lower flower-flanks, linear-lanceolate, concave, membranous, whitish, deciduous. Calyx smooth, pure white, sometimes splot at the inner side. Corolla white. Lip small, brown on the inner side, rofe-coloured near its union with the filament. Anther reddish, crowned with a small, coloured, erect, semi-ornicular membrane. Berry oval, smooth, black. Seeds five or more, triangular. König. The membrane 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. Malacca Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 345. Roxb. n. 3. (Miranda) malaccensis; Willd. Sp. Pl. v. 1. 14. Burn. Ind. 2. Galanga malaccensis; Rumph. Amboin. v. 5. 176. t. 71. f. 1.)—Clutter simple, erect. Leaves villous beneath. Lip broader than long, toothed, concave, obscurely three-lobed; lateral lobes incurved. Native of Chittagong, from whence it was brought to the botanical garden at Calcutta, and flowers there in April and May. "This," says Dr. Roxburgh, "is the most flately and moft beautiful of our Scitamious plants. The flowers are particularly large; the bracteae, and exterior limb of the corolla, pure, smooth, lucid white; the large lip variegated with crimmon and yellow." Stem from twelve to fifteen feet high, villous. Leaves eighteen to twenty inches long, the breadth of five or six fingers, silky or downy beneath. Native of China; cultivated in the neighbourhood of Chittagong, and introduced into Calcutta, by Mr. Burman, and cultivated in the garden of Sir 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 root is sometimes, as Dr. Roxburgh asserts, brought to England for Galanga major; see n. 2. Stem from five to eight feet high in India, but with us twelve to eighteen, perennial, erect, as thick as the finger, leafy. Leaves a foot long or more, with long sheaths, each sheath crowned with a fipula which is externally silky. The flower-tubes before they expand are of a shining white, tinged with rose-colour, and are enveloped in large, concave, toothed bracteae of the same porcelain-like splendid white, all together composing a dense pendulous cluyfer, like a bunch of oblong grapes. When the flowers open, they display the magnificent concave lip yellow at the margin, internally variegated and streaked with every shade of crimmon. The flames and its anther are short and thick. German hairy. Calyptra spherical, opening at the sides. Seeds aromatic, as is likewise the young germin. Linnaeus has greatly confounded the history of this plant, with which he had no acquaintance but from the work of Rumphius. Yet he subsequently cited the same synonym and figures under his Alpinia exilis, which is indeed an Alpinia, as we shall presently shew, but a widely different species.

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The real genus *Globea* is totally distinct from both; see the article.

10. *A. mutica*. Pointed Narrow-leaved Alpinia. Roxb. n. 5.—Cluster erect, compound. Leaves shortly stalked, linear-lanceolate, polished. Lip three-lobed; without a spur at the base. Capsule papilose. Seeds numerous, angular, with an evanescent tunic.—Found by Mr. W. Roxburgh, the son of our ever-lamented East Indian botanist, in the forests of Prince of Wales's Island, from whence being brought to the Calcutta garden, it flowered, more or less, during the whole year, but chiefly in the hot season, March, April, and May. This is also an elegant species, and holds a middle rank between *nutans* and *calcarea*. Roxburgh.

11. *A. calcarea*. Spurred Narrow-leaved Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 347.—Clust. erect, somewhat compound. Leaves linear-lanceolate, polished. 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 items are from three to five feet high. Leaves narrow, acute, smooth. Cluster three or four inches long, downy, rather denf, the stalks, though partly compound, some of them bearing two or three flowers, being so short that the whole cluster resembles a spike. Leaves twelve or fifteen inches long and one broad, pointed. *Braeuas* elliptical, concave, hardly equal to the calyx, which is tubular, white, split half way down at one side, and on the other very slightly and bluntly notched. Outer limb of the corolla pure white, the length of the tube, in three deep, equal, obtuse, flat, rather narrow segments. Lip nearly twice as long, concave, but not so fumid or inflated as in *A. nutans*; its upper fide crinum, beautifully streaked; the extremity flatfli, slightly cloven, more or less notched or curled. The base of the lip being furnished, as in *A. nutans* and some other species, with two small spurs, or awl-shaped appendages on the upper fide, which are wanting in the last, seems to have occasioned the specific name, which is more correctly calculated to mislead. Dr. Roxburgh had once an intention of changing it to *spicata*, which would not have been more correct, and the above being printed by Andrews, it was suffered to remain. *A. anguliflata* would have been preferable to other.

12. *A. acutiflora*. Spotted-leaved Alpinia. Roxb. Tr. of Linn. Soc. v. 8. 347.—"Leaves ovate, spotted."—Cultivated in the botanic garden at Liverpool. It is thus mentioned by Mr. Rofcoe, but with a mark of doubt, nor have we met with any future information respecting this species.

13. *A. spicata*. Small Spiked Alpinia. Roxb. n. 8.—"Spikes oblong, compactly imbricated, with narrow-lanceolate acute bracteas."—Native of Sumatra. Brought by Mr. William Roxburgh, from Bengooleen to the Calcutta garden, in 1803. At the close 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 seen by Dr. Roxburgh. This is all the account he has left us of the present species.

14. *A. Reaalmia*. Surinam Alpinia. (Reaalmia exalata; Linn. Suppl. 79, excluding the synonym of Runphius, and the account of the stem and leaves taken from that author. Wildl. Sp. Pl. v. 1. 6. "New Bot. Ann. v. 3. 136." Myrmif n. 64; Linn. Pl. Surinam. in Amoen. Acad. v. 8. 251. n. 3, excluding the synonym of Merian, t. 54.)—Cluser lateral, compound. Calyx tubular, irregularly toothed.—Native of Surinam. The history of this plant is so confused, that we think it necessary to lay before the reader all the original materials. The generic description, Linn. Suppl. 7, and the specific one, p. 79 of the same work, beginning at the word *Racemos*, appear to have been made, with sufficient accuracy and fidelity, from specimens of a cluser of the flowers, and a quantity of the fruit, with a leaf, tint in bottles of spirits to LINNEUS. The former was taken out and dried by LINNEUS himself, for his herbarium, where it now lies, marked by him *Heliconia*, he having taken this specimen for Merian's t. 54, *Heliconia Bhula*, which it somewhat resembles in general aspect. The flowers, however, when examined, prove these plants totally different; but this mistake of LINNEUS accounts for his erroneous reference to Merian. "The spirits in the bottle of the fruit being gone, the latter is also dried; but enough remains to shew it has been a fleshy, very fibrous, oval, *capsula*, above an inch long, of three valves, strongly umbilicated, and containing numerous, roundish-ovate seeds, now of a shining brown. Their flavour is lol. A Dutch manuscript, sent from Surinam with the collection to which the above belonged, contains the following information. "No. 63 is a sort of reed, and has upon each flalk four fuch leaves as are here to be seen; two uppermost next to each other, and then the other two a span under the uppermost, and a span between these two, downwards to the fruit. The fruit is at firft red; black when ripe. The feed in the fruit tafes exactly like Cardamom. The flalk to which the fruit grows is two feet and a half long, beft with twenty-five to twenty-seven fruits." Such is as literal a translation as we could obtain. It seems indubitably to afeertain the situation of the *inflorescence* to be lateral, and in this point agrees with the following account given by Willdenow, we know not on whole authority. "A tree twenty feet high. Leaves five or six feet long, lanceolate, waved at the margin. The cluster originates from the trunk, above the root." New Bot. Ann. as above. If this laft description really belongs to the LINNEAN *Reaalmia*, our ideas of the plant are very incomplete. The lateral *inflorescence* would form a strong prepective argument againft its being an *Alpinia*; but we can allert, from a careful examination of one of the flowers, immersed in hot water, and compared with a living flower of *A. nutans*, that their structure agrees exactly, without the leaft mark of a generic deference, especially the essential part of the anther. This indeed appears from LINNEUS's remarks in the Supplementum, without which our history would be incomplete. We shall leave the reader to compare it with the defcriptions of other species, only observing beware that LINNEUS confiders the flower as reverfed, placing the *nefrary* uppermoft.


Nat. Ch. Cal. Perianth superior, tubular, of one leaf, burfting at the top into two or three irregular teeth. *Cor.* of one petal. Tube ftraight, cylindrical. Limb three-cleft: two upper (properly under) segments oblong, rounded, equal: lower segment faeady longer, channelled, oblong. *Nefrary* united with the tube, ascending under the upper segments, ftraight, the length of the corolla, oblong, with a tooth at the base on each side, and a hollow behind; dilated, and bluntly three-lobed, at the extremity. *Stam* Filament none. *Anther* folitary, inferted into the mouth of the tube, in the bofom of the lower (upper) segment of the corolla, oppofite to the *nefrary*, unconnected, ftraight, linear,
of the former; *Amomum reflexum* of Sonnerat and other authors. Willd. Sp. Pl. v. 1. 9; 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 proessæ at the top of the filament, and called by him *Elettaria*, under which name we propose 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 outavas = 64 mequinas. The alquier measures 675 French, or 817 English cubic inches; so that 21 alquiers are nearly = 1 English quarter; or, more correctly, 50 alquiers = 10 English bushels.

ALSOPHILA, in Botany, so named, we presume, from *αλσα*, a grove, or forest, and *φιλα*, to love; alluding to the favourite flaton of the beautiful tribe of Tree Feras, to which this belongs.—Brown Prodr. Nov. Holl. v. 1. 158.—This genus is founded on our *Cyathea afera*, *C. extensa* of Swartz, *Polyodium lunatum* of Forster, and some other allied species; but we fearlessly think the deeper segments of the burbling *involucrum*, or the situation of the fori at the divifion, instead of the side, of a vein, can authorize a separation of thele from *Cyathea*. See that article.

ALSESTE, 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 Linnaeus, is now sunk in *Symphlocos*. (See that article, and *Alstonia*.)—Brown Tr. of the Werner Soc. v. 1. 75.—Clads and order, *Pentandria Monogynia*. Nat. Ord. Contorta, Linn. Apocine, Juff. Brown.

Gen. Ch. Cal. Perianth 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 tuid near the top, pervious, deitute 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. Stam. Filaments five, short, inserted into the tube, and not reaching to its summit; anthers lanceolate, not connected with the stigma, bursting longitudinally, excafed within the tube. Stig. Gernms two, simple; style solitary, 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.

Eff. Ch. Corolla falver-shaped, persistent; limb in five deep oblique segments, Nectarles none. Anthers lanceolate, within the tube, bursting lengthwise, unconnected with the stigma. Follicles two, cylindrical. Seeds fringed, bearded at each end.

This genus consists of trees, often of great height, with milky juice. Leaves either whorled or opposite, ribbed, smooth. Cor. terminal, panicled. 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 Linnaeus 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*.

A. tuba. Americana. Pala; Rhode Hort. Malab. 81. t. 45, not 46. - Leaves several in each whorl, obovate-oblong, obtuse, ribbed, surrounded with a marginal vein. Cymes stalked. Limb of the corolla but partially bearded. Follicles very long and slender. - Native of Malabar and the Molucca islands, in sandy ground, flowering in January. A very tall and spreading tree, whose whole wood, Rumphius tells us, is used by school-boys in India, as flates with are us. The leaves are from five to seven in each whorl, flaked, with numerous, parallel, transverse veins, or ribs. Cymes many-flowered, compound, spreading, downy. Flowers small, about half an inch long, white, sweet-scented, but offensive to the head. Corolla downy on the inside and out, but not densely bearded, or faggery, except around the mouth. Follicles eighteen inches long, not so thick as a wheat straw. Seeds furnished at each end with a tuft of very long silky hairs.

2. A. spectabilis. Handsome Alstonia. 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." - Observed by Mr. Brown, in April 1803, in the island of Timor, near Coepang, bearing flowers and fruit. Very nearly akin to the foregoing, but distinct; not ill-represented by Rumphius's plate, t. 82, but his description agrees best with A. spectabilis. Brown. We would observe, that the number of the leaves in this figure agrees best with spectabilis, 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 draughtsman.

3. A. venenata. Poisonous Alstonia. Br. n. 3. - Leaves four in a whorl, lanceolate, pointed; tapering at the base. Cymes forked. Tube of the corolla swelling upwards. Limb bearded, 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 Nundydroog, March 17, 1806. The leaves are crowded towards the ends of the branches, flaked, very smooth, three inches or more in length. Flowers like those of a Tabernanthea, 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. Flowers-flaxen quite smooth. We have not seen the follicles.

4. A. cotata. Ribbed Alstonia. Br. n. 4. - (Ethites cotata; Forlk. Prodr. 22, excluding the synonymy. Willd. Sp. Pl. v. 1. 1240.) - "Leaves opposite, elliptic-oblong, pointed, ribbed. Cymes loofe. Segments of the limb lanceolate, bearded, longer than the tube. Follicles very long." - Native of the Society isles. Forlker. Gathered by Sir Joseph Banks in Otaheite and Ulietane, between the summits of hills (called by the natives Attahi). 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 remarkably elongated as in other species. Rsetiiti-Valii, Hort. Malab. v. 9. t. 14, is a climber, having short follicles, with winged naked seeds, and therefore cannot, as Forlker thought, be synonymous with this.

ALTAY MOUNTAINS. See ALT.

ALTERNANTHERA, in Botany, so called by Forlker, from the flanes being, as he thought, alternately furnished with anthers, and without them. - Forlk. Egypt. Arab. 28. Brown Prodr. Nov. Holl. v. 1. 416. - Clas


Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, coloured, pointed, spreading, permanent, and finally hardened, segments. Cor. none. Stam. Filaments five, capillary, 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. Pet. Germen ovate, acute; style very short; stigma capitulate. Peric. Capsule membranous, involucrally kidney-shaped, compressed, of one valve and one cell, in fluted, not burfting, enclosed in the cartilaginous calyx. Seed solitary, roundish, pointed.


Obf. Mr. Brown properly retains the name of Illecebrum, (see 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.

Sec. 1. Two of the filaments deprived of anthers. Intermediate teeth very short, or obsolete.

1. A. feliflora. Selfiele-flowered Alternanthera. Fork. Egypt. - Arab. 28. (Illecebrum feliflora; Linn. Sp. Pl. 500. Mant. 345. Willd. Sp. Pl. v. 1. 1209. Ait. Hort. Kew. v. 2. 61. Vahl Symb. v. 2. 22.) Amaranthoides humble madaripatanum, capitulis candicantibus, folio mollii; Pluk. Phyt. t. 133. f. 1. Amaranthus humilis, folis oppositis, flofculis in alis conglomeratis; Bum. Zeyl. 17. t. 4. f. 2. - Calyx smooth; segments ovate, pointed, almmost twice the length of the capsule. Leaves elliptic-lanceolate, nearly entire, bearded at their inflorescence. Stem procumbent, hairy on two opposite sides. - Native of Arabia and the East Indies. A biennial, or perhaps annual herb, whose branching 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, flaked, spreading or reflexed, from one to two inches long, bluntish, nearly or quite entire, single-ribbed, smooth, bright green, rather fleshy. Flowers short, bearded, and connected by intermediate stipulate bristles. Heads of flowers sessile, axillary, solitary, obtuse, half an inch, more or less, in length, white and shining, like everlastings flowers. Calyx single-ribbed, strongly keeled, pellucid. Capsule broadly heart-shaped, finely reticulated. The leaves occasionally vary to an obovate, or spatulate figure.

2. A. dentiulata. Toothed Alternanthera. Br. n. 1. - Calyx smooth; segments ovate, pointed, almmost twice the length of the capsule. Leaves narrow-lanceolate, finely toothed, smooth; bearded at their inflorescence. Stem procumbent, smooth. - Gathered by Mr. Brown in the tropical part of New Holland, as well as in New South Wales, and Van Diemen's island. We have seen no specimen.

3. A. nodiflora. Knotty-flowered Alternanthera. Br. n. 2. - Calyx smooth; segments narrow-lanceolate, pointed, thrice the length of the capsule. Leaves linear-lanceolate, finely toothed, smooth; bearded at their inflorescence. 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 all nearly allied.

4. A.

5. A. nana. Dwarf Alternanthera. Br. n. 4.—Calyx smooth; segments ovate, slightly pointed, twice the length of the capsule. Leaves ovate-oblong, hairy; tapering at the base. Stem diffuse, hairy.—Found in the same country as the last, by Mr. Brown.

Sect. 2. Five of the Filaments with perfect anthers; five intermediate ones connective, without any.

6. A. Achyrantha. Creeping Alternanthera. (Illecebrum Achyrantha; Linn. Sp. Pl. 299. Willd. Sp. Pl. v. i. 1268. Ait. Hort. Kew. v. 2. 61. Achyrantha repens, folis bliti pallidi; Dill. Elth. 8. t. 7. f. 7.)—Stem creeping. Leaves ovate; densely downy when young. Calyx with somewhat spiny 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, moss hairy at opposite sides, creeping by means of fibrous radicles from their lower joints. Leaves flaked, 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, itary, hairy hairs, such as compose the pubescence of the flmen, and especially of the younger branches. Heads small, from the forks of the stem, partly flaked, round, of few flowers. Calyx brownish-white; segments three-ribbed, unequal, strongly keeled, partly hairy, accompanied as it seems occasionally with smaller smoother scales.

7. A. polygonoides. Perficaria-leaved Alternanthera. (Illecebrum polygonoides; Linn. Sp. Pl. 300. Willd. Sp. Pl. v. i. 1208. Ait. Hort. Kew. v. i. 61. Hernia hirufata repens, ad nodos alternos florida; Browne Jam. 184. Amaranthoides humile curassavicum, folis polygoni; Horm. Pur. 17, with a figure. Sloane Jam. v. i. 141. t. 86. f. 2. A. marina hirufata, halimi folio; Plum. 1c. 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 base.—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 spiny, the mid-rib less prominent than in the foregoing; the base only beft with conspicuous hairs. Plummer's plant fearely requires to be called a variety. The stem indeed 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 feffile like those of A. Achyrantha.

8. A. ficoides. Ribbed Alternanthera. (Illecebrum ficoidesum; Linn. Sp. Pl. 300. Willd. Sp. Pl. v. i. 1208. Comphrena ficoides; Linn. Sp. Pl. ed. i. 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 Linneas at Upsal. Jacquin's figure more resembles the last, closely matching with Browne's specimen, which indeed Dr. Solander, who first it to Linnaeus, marked Comphrena ficoides; but the latter found it to be his own Illecebrum polygonoides. The plant before us, from the Upsal 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 spiny.

Mr. Brown speaks of some American nondefcript species, referable to this section. Whether the following be among them we know not, but they appear to be nondefcript.

9. A. villosa. Woolly-branched Alternanthera.—Stem decumbent, hairy; flaggy 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, bluntish, dotted, rarely beaklined with a few long hairs. Footstalks accompanied, above their insertion, with very dense filipinous tufts, of long flaggy 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 gluane are evidently unlike all the preceding, broadly ovate, even and smooth, acute but not spiny, with a simple mid-rib.

10. A. echinata. Prickly-headed Alternanthera.—Stem prostrate, hairy. Leaves roundish-ovate, smooth. Calyx spiny-pointed; outer segments lanceolate, elongated, partly three-ribbed, smooth; two inner shorter, gibbous, hairy at the back.—Gathered by Commerfon 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 ferial, axillary, somewhat aggregate, globose or oblong, pale brown, filiming, distinguished 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.

ALTMIKLIC, 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 Peria, in the pachalic of Bagdad, about the size of Kupri, (which see,) situated on a fine plain, on the northern bank of the Little Zab, 32 furlongs from Moful.

ALUMINA, in Chernifly, an earthy sublance, 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 alunina, except the curious fact observed by Saufrure, that this sublance does not give out the peculiar earthy smell which has been considered as characteristic of it, except it is mixed with ozyd of iron.

ALUMINA, Salt of, the compounds formed by the different acids with alumina. By some accident, the description of most of the facts of alunina has been omitted. We shall therefore take the opportunity of introducing them here.

Nitrate of Alumina. See NITRATE OF ALUMINA. Carboneate of Alumina. The excellence of this salt has been usually admitted by chemists. Bergman, however, could not form it artificially, though he allows its existence, because when alun is mixed with an alkaline carbonate, most of the alunina remains in solution till the carbonic acid be driven off. Saufrure has more recently shown, that water saturated with carboonic acid is capable of dissolving alunina, but that this combination is destroyed by simple exposure to the air. Carbonate of alunina therefore, cannot exist in a dry
Dry Alum. 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. This fact may be formed by saturating phosphoric acid with alumina. According to Fourcroy, who is the only chemist that has examined it, the phosphate of alumina is a tafteless powder, insoluble in water. When dissolved in excess of phosphoric acid, it yields a gritty powder and a gummy solution, which by heat is converted into a transparent glass.

Sulphate of Alumina. See Alum and Sulphate of Alumina. In addition to what has been said in previous articles, we may add the following analysis of alum by Vauquelin, Thenard and Roard, and Berzelius.

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<tr>
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<th>Vauquelin</th>
<th>Roard</th>
<th>Thenard and Berzelius</th>
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<tr>
<td>Sulphuric acid</td>
<td>30.92</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>
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<tr>
<td>Potash</td>
<td>10.40</td>
<td>10.02</td>
<td>9.81</td>
</tr>
<tr>
<td>Water</td>
<td>48.58</td>
<td>51.41</td>
<td>45.00</td>
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<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>99.90</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

Total: 100.00

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 Thenard 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 1% by weight of sulphate of iron; the impurest about 2%. When freed from sulphate of iron, every species of alum tries acts exactly in the same manner as a mordant.

Sulphate of Alumina. See Sulphite of Alumina.

Borate of Alumina. This salt 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.

Arseniate of Alumina. See Arseniate of Alumina.

Tungstate of Alumina. A white powder, insoluble in water.

Acetate of Alumina. See Acetate of Alumina.

Benzoate of Alumina. This salt crystallizes, is soluble in water, and deliquesces on exposure to the air.

Succinate of Alumina. Wenzel flutes, that this salt crystallizes in prisms, and is easily decomposed by heat.

Carmelinitate of Alumina. This salt 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 1/4 th 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 assistance of heat that fluid takes up a considerable quantity, which separates on the cooling of the alcohol. This salt undergoes but little change from the action of the air. Exposed to heat the acid volatilizes; and when this salt is thrown on burning coals it takes fire, and burns with a blue flame.
famous for its manufacture of leather; and it is also a
mart of commerce between Isphahan and Bagdad, and
between Bagdad and Tekroun. N. lat. 35° 51'. E. long. 48°.

AMADIA. Add.—This town does not contain above
600 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 435 inhabitants.

AMANITA, in Botany, aurea, an old Greek name
for Fungi in general, is used by Haller, after Dillenius, for
the whole Lumnian genus of AGARICUS, (see that article,)
or nearly so. Perfoon adopts it for such species only as
are furnished with a velutus, which, on that account, he
considers generally distinct. —Perf. Syn. Fung. 245.—Clas and

Eff. Ch. Stalk with a wrapper at the base. Head fleshy.
Gills crowded, nearly undivided.

Obf. The head is generally warty, and the flake elongated,
either naked, or furnished with a ring. Perfoon describes
eighteen 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.

Sect. 1. Stalk surrounded at the base with a distinct wrapper,
but distinct of a ring at the top.
(Agaricus plumbeus; Schaff. Fung. v. 4. 37. t. 85, 86.
Bulliard t. 512. f. M, according to Perfoon.)—Head
bofled, flattufh, fririated, livid lead-coloured. Gills white,
as well as the long flake.—Not uncommon in autumn, as
mutter, about the skirts of woods, and borders of fields.
The wrapper burfts irregularly. The flake is hollow, and
rather long in proportion, about twice the diameter of the
head, which is protuberant and brownish in the middle, grey-furfurated and fririated at the margin. Some individuals
are much thicker than others. Schaff. gives a good repre-
sentation of the various flakes and forms of this species.
The head is sometimes fluid with angular warts, at least
when young, as represented by Battarra, Leucomycetes gen-
neris, Batt. Fung. Arizm. 28. t. 6. f. 1. commented highly
in Withering; and by Micheli, t. 78. f. 2. These figures
exhibit a flake and habit of the plant, the reverse of what
is found in the Fl. Dan. and especially in Bulliard. This is
generally allowed to be a poisonous fungus. Some varieties
are indicated by Perfoon, one with yellowish gills, Schaff.
t. 244; and another with a browner head, and tapering flake,
found in dry woods, which feems to connect the prent
with the following species.

Meth. 66. (Aagaricus badius; Schaff. Fung. v. 4. 63.
t. 245. With. v. 4. 227. A. fulva; ib. t. 95. A. vagi-
natus; Bulliard t. 512. f. N.)—Head somewhat bell-shaped,
bofled, fririated, brittle, orange-brown. Gills white.

Stalk pale brown, fically.—Found in dry woods, about Auguf,
in various parts of England and Germany. Akin to the
foregoing, but much more delicate in texture. We should
fearfully think it more than a variety.

(Aagaricus incarnatus;巴斯. Elech. Fung. 51.) Fungus
magnum eculetum; e volv crumens, pleolo vollofo
albo, lamellis carneis, pediculo cylindrico glabro, pariter
albo; Mich. Gen. 182. t. 76. f. 11; not f. 2 as Perfoon has it.)
—Head hemipherical, white, hairy. Gills fleth-coloured.

Stalk white, cylindrical.—Found by Micheli, on old half-
decayed trees, in the woods of Viareggio near Florence, in
June. No other botanit feems to have met with this fungus;
at least not in the flate defcribed by Micheli. He reprofe-
fes it of very large dimensions, the head full fix inches broad,
while in its convex flate, and covered with fine hairs. Wraper
much divided and jagged, tumid. Stalk fix inches high,
smooth, thick, and very ftraight.

Albertini and Schweinfurth, in their very learned Conferent
fungorum, 142, fpoke of what they deemed a variety of this,
whole head is frotein, fearcely bearing any minute fibref or
fakes, by no means hairy or ftraggly. Every other part
agrees with Micheli's account. The undifplayed gills are
white, fonr affuming a very fliaggy-colour from the fernal
powder. Head never becoming quite flat; the border
neither furrowed nor fririated.

18 and 66. (Aagaricus volvaceus; Bulliard t. 262. Sowerby.
Fung. t. 11. With. v. 4. 286. Rell. Cant. 507. A. latus;
With. v. 4. 231?)—Aggregate. Head conical-bell-shaped,
foomewhat hairy, grey flecked with black. Gills reddifh-
cinnamon-coloured.—This occurs chiefly on the rotten tan
of hot-beds, in summer. The flake is often a foot high,
flander in proportion, of a dirty white, burfting from a
large pale-olive wrapper. Head about three inches broad,
fplitting into ferior unequal portions. Perfoon eftimates
Scheaffer's Aagaricus bonvinius, t. 98, as a mercen-
ary, var. of the above, with a yellowifh wrapper, and a
fliaggy-coated head. Dr. Withering diftingullihes between
the plants of Bulliard and Sowerby. The latter is certainly
Reshau's.

v. 2. 36. t. 4. f. 4. 5. (Aagaricus volvaceus minor; Bull.
t. 330. not 530.)—Head hemipherical, bofled, pellucid,
of a pearly white, somewhat cottony. Gills fleth-coloured.

Stalk white, rather longer than the breadth of the head.—
Native of gardens and woods in autumn, in a fomewhat
exposure. Bulliard. We have not heard of this pesics in
Britain. Its appearance is elegant and delicate. Head an
inch, or inch and a half, in diameter. Wrapper turbine,
much divided, permanent.

Sect. 2. Stalk proceeding from a lax wrapper, and fur-
riated at the upper part with a ring.

113. Perf. n. 6. (Aagaricus bulbofus vernus; Bulliard t.
188. Fungus totius candidus, pelloso amplus, glutine
limacino infcto, pediculo tenui cylindrico, annulo dirie-
tor minor; Mich. Gen. 173? at the speciation of La-
marck.)—Pure white in every part. Head at length con-
core, somewhat funnel-shaped. Ring pendulous. Stalk
elongated, folid, cylindrical.—Common in woods in France
during the fpring. Bulliard fays many persons have died
from eating this fungus by miftake for the white-gilled
variety of the Common Mushroom. It may be kept in the
mouth for eight or ten minutes, before its acrimony, refem-
bling pepper, becomes perceptible. If the wrapper at
the base be attended to, the plant can never be confounded
with any eatable Agaric.

7. A. parvula. Purple Egg-Agaric. Albert. and
Schweinfurth. Conip. 142. n. 401. t. 11. f. 1.—Head con-
vex, naked, smooth, of a livid parfth-brown. Ring nearly
of the fame colour. Gills and flake white.—Not rare in moif,
turfy, mossy spots, in fir woods more efpecially, over which
it is flattered in September and October. Habit of A.
viridis, n. 9, but only half the size. Stalk three or four
inches high, too dark-coloured in the figure. Head almoft
as much in breadth, never found with warts; very rarely
and slightly fririated 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 size is considerable. Bulliard speaks of his plant as having a very agreeable flavour, and therefore we presume it to be one of the eatable fungi. In the fourth of France it is known by the name of Aeger orange blancs; to distinguish it from the A. orange orai; see n. 11. The bulbous base of the nearly solid stalk is a characteristic mark. The ring is broad, loosely pendent, permanent. Head almost hemispherical, rarely with a slightly indicated bobs. Schaeffer'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 frequent 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 muscarius, see n. 13, for Schaeffer's cirrata; but this is not quite conclusive to us. Perfon cites Agaricus Mappa, Willd. Berol. 381. Batch. 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 Schweins, accurate practical observers, say, "we find the warts upon the head not very rare. The ring, and frequently the stalk, is distinguished by a palef lemon-colour. The whole fungus is sometimes half a foot high, in which case the head is four inches broad, or more." Perfon notices apparently a still different variety, on rotten trunks of trees, distinguished by its elegant sulphur-colour, flattish head, and acid flavour.

10. A. viridis. Green Egg-Agaric. Perf. n. 9, not 8. Difp. Meth. 67. Albert. and Schwein. Consp. 143. (Agaricus viridus: Bulliard t. 2, and t. 577. Fungus phalloides annulatus, fordivévirecens et patulos; Vail. Parif. 74. t. 13. f. 5.)—Head convex, dull green, mottly naked. Stalk and gills white. Found in sandy moist shady woods, from August to October, in France and Germany. The wrapper is inflated, whitish. Head four or five inches broad, convex, not biffed, of a more or less bright green, variegated occasionally with brown, and turning olive-brown in decay, when, according to Bulliard, it exhalates an intolerable cadaverous smell, being a very dangerous species, though when young destitute of any bad scent or flavour. The head sometimes retains fragments of the wrapper, in the form of warts or broad patches, but this feems far from being universal or frequent.


—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, yellow-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, fiercely ever warty, striated near the edge, turning brownish or purplish in fading, as in Schaeffer's figure, where it is drawn somewhat biffed, which we have never seen. The gills are usally of a delicate lemon-colour, as well as the ring. Perfon rightly suspected his A. cefarea and aurantiaca not to be distinct species; they do not appear to us to be even varieties, Schaeffer'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 Boltaus, and which Nero called "the food of the gods," because Claudius had eaten it, who was subsequentlly, like his faced companions, become a god! The Agaric before us is esteemed the most delicate and alluring 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. Cluflus tells of his supposing some few, at a distinguished man's table in Hungary, made of this fungus, to have been coloured with saffron. Dr. Withering has confounded Schaeffer's plate with Agaricus sceramphilus 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. sceramphilus, though eatable, is strong and disagreeable, that Agaricus delicatus was what Claudius feated upon. The latter is indeed a very favoury food, but defined to the vulgar in France and Italy, being by far more abundant than our Amanita cefarea. The oversight committed by Dr. Withering, respecting this famous fungus, and his own, as well as Schaeffer's, Agaricus sceramphilus, 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 Ervila Cerronius, Battar. Fung. Arimtn. 27. t. 4, C, because no ring is there expressed; but we do not doubt the identity of the plant.

Sect. 5. 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 section Perfon gives the name of Myopera, 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. Consp. 143. (Agaricus muscaria; Linn. Sp. Pl. 1642. Hudf. 612. With. v. 4. 184. Schaff. Fung. v. 4. 13. t. 27, 28. Sowerb. Fung. t. 286. A. pseudo-aaurantiacus; Bulliard t. 122. Fungus bulbosus, c evolva crumempus, pileolo purpureo parte aureo, ad oras fibrato, inferno, et annulato pediculo, albis, radice bulbosa: Mich. Gen. 188. t. 78. f. 2. Fungi lethales: Ger. Em. 1851, fig. on the left, at the bottom.)—Head scarlet, shining, convex, at length flattish, variously bifiected with white warts. Gills, ring, and stalk pure white. Wrapper with scarcely any remaining border. —Common in woods in autumn, especially under fir-trees. A large species, conspicuous for the splendid orange-red hue of its fattin-like head, contrasted with the stalk and gills, and with the prominent angular white or cream-coloured warts, scattered, more or less abundantly, over its surface. These warts are formed from the wrapper, torn off close to the base 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 venemous in a great degree. When dry, 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. Perfoon mentions a variety by the name of *A. formosa*, whose warts were loose and yellowish, the disk likewise being yellowish, very long, and loosely scaly. Also another, called *A. puella*, which is smaller, mostly naked, or only bordered with the warty substance; this is Schaffer’s t. 28. Dr. Withering reduces the two following, perhaps, to the same family; but so many authors have kept them separate, especially Albertini and Schweinicz, that we shall follow Perfoon in the same measure.

15. *A. umbrina*. Brown Warty Egg-Agaric. Perf. n. 13. not 12. Albert and Schw. Comp. t. 143. (Agaricus verrucosus; Hudf. 613. Curt. Lond. fac. 5. t. 72. A. maculatus; Scheff. Fung. v. 4. t. 96. Fungus muscaris, intericens fucus, maccul albis; Buxh. Halleni. 131.)—Head of a footy or tawny brown, flatish, varnishly fluided with white warts. Gills, ring, and stalk 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. muscaria*, 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 stalk to be the favourite food of a non-descript species of *Tippula*, smaller than the *plumosum*, whose larvae soon devour that and every other part of the plant.

14. *A. rubescens*. Bluish-coloured Egg-Agaric. Perf. n. 14. not 13. Albert and Schwein. Comp. t. 144. (Agaricus pulchellus; scheff. Fung. v. 4. t. 91.)—Head convex, opaque, reddish. Warts crowded, white like the gills. Flesh turning red when broken. —Native of beech woods in Germany, in autumn. We know nothing of its occurrence in Britain, for Dr. Withering’s fifth variety of the *muscaria* may probably be different from what is before us. Albertini and Schweinicz affert that the head and stalk invariably turn red, sooner or later, after being broken, and that this is a pure specific trait. The head seems 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 heath-colour of the head, studded with copious white, or pale flesh-coloured, warts. Perfoon has a variety under the name of *cirrata*, for which he cites with doubt *Agricus myelles*, Scheff. Fung. v. 4. t. 261. This character given by Perfoon is, “Head hemispherical, somewhat umbilicated, reddish. Warts oblong, whitish, circularly disposed. Gills flatish, whitish. Stalk bulbous, scaly, the colour of the head.” He adds that the stalk is two inches long, solid, always perforated 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. Schaffer’s figure exhibits a most elegant bluish-coloured fungus, internally red, when cut, to which we can have no hesitation in considering one species with Perfoon’s *cirrata* and *rubescens*.

15. *A. viscosens*. Greenish Egg-Agaric. Perf. n. 15, not 14.—“Head fibrous, flat, pale-green. Warts thick, whitish, with many angles. Stalk white, thick, with a bluish tinge.” —In woods, but extremely rare. *Stalk* three or four inches long, clothed with soft bluish scales. *Wrapper* nearly obliterated. Substance of the head pungent, from four to six lines in thicknefs, not unpleasant to the taste.


17. *A. aperta*. Rough-headed Egg-Agaric. Perf. n. 17, not 16. Obs. Mycol. v. 2. 38. ("Agricus apfer; Abbild der Schwämme, fac. 3. with a plate." A. verrucosus; Bulliart t. 316. A. myedes; Bolt. Fung. v. 4. t. 139; excluding both synonyms.)—Head hemispherical, fibrous, compact, darkly red, rough with crowded pointed warts. Gills white, rounded. *Stalk* rather bulbous. —Not rare in woods, about July, August, or September, growing diversified. It has been observed in Germany, France, and England. Perfoon says the scent is powerful; Bulliard, on the contrary, describes this species as inodorous, with a faint tinge, partaking but little of a mushroom flavour, and he prefigures it to be poisonous. This author judiciously adverts to the affinity of his plant to our *Amanita muscaria*, observing that it is white or reddish under the skin, never, like the *muscaria*, yellow. Perfoon 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 ridiments of the wrapper. *Ring* sometimes almoat 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 stalk, as to constitute a kind of bulb, but there is a marginal dilatation, less visible in *A. aperta* 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.

AMARANTHUS, the 3th natural order in Jussieu’s system, being the first of his seventh classes. See NYCTAGINACEAE for the characters of this clafs. The following are the characters of the *Amaranthi*.

*Calyx* divided, more or less deeply, often surrounded by scales at the base. *Stamen* 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. *Germ*en simple; style or stigma simple, or double, or triple. *Capsules* of one cell, with an unconnected receptacle, and either bursting at the summit, or splitting all round, containing one or many *seeds*. The *corolla* is curved round a farinaceous mass. *Flowers* capitate or spicate. *Leaves* generally undivided and pointed; in some alternate; in others opposite; in a few infestations accompanied by *filaments*. *Stem* for the most part herbaceous. *Stamens* and *filaments* sometimes in separate flowers.

Sec. 1. *Leaves alternate, without filaments.*

Under this division Jussieu enumerates *Amaranthus* and *Celosia* of Linnaeus; with *Auros* of Forkell, a genus formed of alternate-leaved species of *Illecebrum*; and *Digeria* of the same author, to which *Achyranthes maritima* of Linnaeus is supposed to belong.

Sec. 2. *Leaves opposite, without filaments.*

*Consists of* *tejina, Achyranthes, Gymnorea, and Illecebrum.*

Sec. 3. *Leaves opposite, with filaments.*

*Under this section are ranged Paronychia of Tournfort, separated from the Linnaean Illecebrum; and Herniaria of all authors.*

This order, as Jussieu 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 absence or presence 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.

Jussieu, in the Annales du Musum, v. 2, 151, 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 *Amaranthaceae.*

A translation of his paper may be seen in Sims and Konig’s *Ann. of Bot.* v. 2. 274. The author here makes but two alterations of the order in question, one having named, the other filipared, leaves. To the first he adds a new genus by the barbarous name of *Papafis,* founded on the Linnaean *Achyranthes lappacea,* called in Rheede’s *Hortus Malabaricis,* v. 7, t. 43, *Papaf-Valli.* Of this we are surprised to find Jussieu had never seen the fruit, and we cannot but observe that its generic characters are rather weak, being chiefly taken from the infertility of the fruit and bracts.

To the section with filipared leaves, this eminent botanist adds three new genera. 1. *Ancyela* of Michaux, to which belongs *Queria canadensis* of Linnaeus. 2. *Lithophila* of Swartz. 3. *Polychna* of Loureiro. The last two are already described in their proper places. See also *Queria.*

Jussieu proceeds to remark, that *Cytisus* of Loureiro, a plant of this order, is really an *Achyranthes* with a many-clft stigma; but that *Pola* of the same author, (see that article and *Hageia,*) supposed to belong to the *Amaranthi,* is really one of the Caryophyllaceae.

**VOL. II.**

**Amboise, Ambaria, or Ambacia, 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, situated at the conflux of the Loire and Amasse. The place contains 5100, and the canton 14,415 inhabitants; the territory comprehends 3224 square kilometres, and 16 communes.**

**AMDOA,** in *Geography.* See *Thibet.*

**AMEDNAGUR, l, I., Subah, now called Downabad. Add—This city has generally been placed 50 miles to the S.E. of its true position.**

**AMELIA,** l. 3, including r. exclusive of; l. 6, r. 15,594 and 7160. Add—Nottaway contains 9278 inhabitants, of whom 3468 are slaves.

**AMENTACEAE, 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 95th 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 *Euphorbeae* for the characters of this fifteen classes of Jussieu, and remarks thereon. He thus defines his *Amentaceae.*

Flowers monoecious or dioecious, (rarely with flaments and filaments in the same,) all distinct of petals. The male, or barren, flowers dipped in a catkin, conflating either of scales, into which the flaments are inserted, or each of those scales has a calyx attached to it, which bears the flaments. The latter are either definite, or indefinite, with distinct flaments. (We would here observe that two or three species of *Salix* are remarkable for their combined, or monadophalous, filaments.)—The female, or fertile, flowers are either amentaceous, or falciculated, or solitary; sometimes furnished with a single-leaved calyx, sometimes with only a scale. The *germen* is superior, either simple, or in some rare instances more than one, of a certain determinate number. *Sepals* one or more. *Stigmas* generally several. *Seeds* either naked, or enclosed in superior *capsule,* which are either of a coriaceous or bony texture, as many in number as the germens, and for the most part of a single cell. *Corolla* definite of *alumina,* with a straight radicle. *Stem* arborescent, or shrubby, rarely of humble growth. *Leaves* alternate, accompanied by *filaments,* mostly simple.

Sec. 1. *Flowers with flaments and filaments.*

Here Jussieu ranges *Fothergilla, Ulmus,* and *Celtis,* of which the two latter are placed by Linnaeus among his *Segetal.* *Hamamelis,* which the last-named author has, in manuscript, referred to his *Amentaceae,* and which is rarely next akin to *Fothergilla,* is reckoned by Jussieu among his *Berberidae,* or at least among several genera supposed related to that rather miscellaneous order.

Sec. 2. *Flowers dioecious.*

This contains *Salix, Populus,* and *Myrica.*

Sec. 3. *Flowers monoecious.*

A larger assemblage of genera, if not of species, consisting of *Betula, Carpinus, Fagus, Quercus,* *Corylus, Liquidamber,* (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 suffusion is expressed respecting *Liquidambare,* and *Platanus.*

The *Amentaceae* of Linnaeus are, *Salix, Populus, Platanus, Stanaea,* with a just indication of doubt, *Fagus, Juglans, Quercus,* *Corylus, Carpinus, Betula, Myrica, Piptaden,* and *Cymnornis.* *Brachium* is, in the Linnaean manuscript, inserted immediately before *Fagus*; *Hamamelis* before *Betula,* after which *Brachium* 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 *Prod. 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 Jundapore. Situated S.E. of Hydrabad, and about 25 miles from the eastern branch of the Indus.**

AMERICA,
AMERICA, North. See United States.

AMES, a township of Ohio, in the county of Athens, having 618 inhabitants.

AMESBURY, a town of the Massachusetts, in Essex county, having 1890 inhabitants.

AMHERST, (1) 3, r. 15,548; (2) 4, r. 5207. Add—Alfo, a town of Massachusetts, in the county of Hampshire, having 1496 inhabitants.

AMIA, in Ichthyology, a genus of the abdominal fishes, the characters of which are, that the head is bony, naked, rough, with conspicuous futures; teeth, both in the jaws and palate, close-fet and sharp; the two cirri near the nostrils; the gill-membrane twelve-rayed; and body scaly. There is one species, <i>Calva</i>; the Carolinian Amia, with a black spot at the base of the tail. This is a small fresh-water fish, inhabiting some parts of Carolina. Described by Linneus, from a specimen lent from Carolina by Dr. Garden.

AMITY, in Geography, a township of Pennsylvania, in the county of Berks, containing 1090 inhabitants.

AMMODYTES, in Ichthyology. Add—The ammodytes tobianus is the lance with the lower jaw longer than the upper. It conceals itself about a foot in the sand, with its body rolled into a spiral form; it is dug or drawn up, and used by the fishermen as a bait; it is also considered as a delicate article of food. The general length is from eight to ten inches. The lance lives on worms, water-insects, and small fishes, and even occasionally on those of its own species. It is itself preyed upon by the larger fishes, and particularly by the mackerel. It spawns in the month of May, depositing its eggs in the mud near the edges of the coast. The swimming bladder is wanting, so that the animal is fitted only for a littoral residence; and its scales are so small that they have been wholly overlooked, and their existence disputed by some ichthyologists. Shaw.

AMMONIA, in Chemistry. The following additions to our knowledge, respecting the volatile alkali, have been made since that subject was treated in the Cyclopaedia. Water, as has been already stated, by absorbing ammoniacal gas increases in bulk and becomes specifically lighter. The following table by Mr. Dalton exhibits the quantity of ammonia contained in ammoniacal solutions of different specific gravities.

<table>
<thead>
<tr>
<th>Specific Gravity of Liquid</th>
<th>Grns. of Ammonia in 100 Water-grain Measures of Liquid</th>
<th>Grns. of Ammonia in 100 Grns. of Liquid</th>
<th>Boiling Point of Liquid</th>
<th>Volumes of Gas condensed in a given Volume of Liquid</th>
</tr>
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<tr>
<td>.85</td>
<td>30</td>
<td>35.3</td>
<td>26°</td>
<td>494</td>
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<td>.86</td>
<td>28</td>
<td>32.6</td>
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<td>450</td>
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<td>22</td>
<td>24.7</td>
<td>74</td>
<td>346</td>
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<td>20</td>
<td>22.2</td>
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<td>.99</td>
<td>2</td>
<td>2.0</td>
<td>196</td>
<td>28</td>
</tr>
</tbody>
</table>

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 Humphrey 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 potassium 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 azote or the 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 gal ammoniac lightly moistened be sublimated for liquid ammonia. This amalgam, at the temperature of 70° or 80°, is a soft solid, of the consistence of butter; at 92° it is a firm crystallized 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 1/2 or 1/4 of the volume of the amalgam, is evolved; and a quantity of oxygen equal to 1/3 or 1/4 of the ammonia disappears. When thrown into muriatic acid gas, it becomes coated with muriate of ammonia, and a little hydrogen is disengaged. 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 glass tube, or when confined under naphtha or oil, 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 substances, except metals, always loses its metallic lustre. There are reasons induced Berzelius to form the above opinion. Most chemists at present agree with Gay Lussac and Thenard; but if their opinion be well founded, we must alter the notions entertained respecting amalgams.

The
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 .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. These have been omitted in the usual place, namely, under Ammonia; but most of them will be found in a subfrequent part of the work, under Salts. Those deferred elsewhere will be referred to here, and those remaining to be described will be now noticed.

Sulphite of Ammonia. See Sulphite of Ammonia.

Chromate of Ammonia. This salt may be formed by saturating chronic acid by ammonia. It usually exists in the form of dendiratic crystals of a fine yellow colour. When slightly heated, it is decomposed, even when in solution, brown flocks of chronic oxyd precipitating.

Arseniate of Ammonia. See Arseniate of Ammonia.

Malodity of Ammonia. This salt diffuses 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 oxyd.

Tungstate of Ammonia. This salt may be formed by diffusing tungstic acid in carbonate of ammonia. It is soluble in water, and crystallizes. Its taste is metallic, and it is entirely decomposed by heat.

Beryllate 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 occasions no 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 diffusing carbonate of ammonia in hot water, and adding camphoric acid slowly till the alkali is saturated. It crystallizes with difficulty; it 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.

Ammyrsine, 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 amuros, sand, and μυρίς, a dwarf myrtle; but Myrtilus, being an established generic name, cannot, with propriety, make a part of another. Linnean law, (see Phil. Bot. fei. 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 bacciferum, (see Ledum, n. 3,) and stands in the Clasf and Order Pen- tandra Monogynia, 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 funnicht. Marum is characterized.

Calyx minute, five-toothed. Corolla flat, in five deep segments. Capsule of five cells, bursting at the base.

Ammonias, Liquor of the, Chemical Properties of. The peculiar acid principle termed by Vauquelin and Buniva amniotic acid, does not appear to exist during all the periods of gestation in the liquor amnii of the cow. Dr. Prout examined this fluid taken from an animal which had been slaughtered in an early period of her gestation, but was not able to detect any of the acid in question. See Annals of Philosophy, vol. v. p. 416.

Amomum, in Botany, a name of the Greeks, most probably derived from its Arabic denomination hlaminda, 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 understood to belong to it.) Linneus, 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, (fee that article,) threw no new light upon the characters or history of the genus, but rather, like every body else, added to their confusion. Mr. Roxfe 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.


Gen. Ch. Cal. Perianth superior, of one leaf, tabular, flatting, membranous, coloured, splitting at one side about half way down. Cor. of one petal; tube shorter than the calyx, cylindrical, 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 tube, clawed, flag, flowered, defreeved, somewhat incurved, with a lanceolate, acute, ascending lobe, 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 distinct, elliptic-oblong, lobes, attached by the back, below the summit. Pijel. German inferior, small, roundish, somewhat furrowed; style thread-shaped, lying close to the filament, between the lobes of the anther; stigma funnel-shaped, fringed, erect, projecting a little beyond the filament. Peric. Capsule either ovate-oblong, or nearly globular, of three cells, and three coriaceous, somewhat furrowed valves; the partitions membranous. Seeds numerous, oblong, roundish, or slightly angular, each enveloped in a soft pulpy tunic, which becomes membranous, or evanescent, 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.
character. The root is perennial, tuberous, jointed, and somewhat creeping, with long and deep fibres. Stems at least biennial, erect, simple, impressed with the sheaths of the two-ranked, simple, elliptic-oblong, flexed, vertical leaves. Spikes invariably radical, simple, rather lax, flexed, their filaments scaly. Bracteas large, concave, connate, 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. Garten speaks of the capule as not burbling, 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 name able author has also mislaid the top for the bottom, in his figure called A. sylvestre.

We know not how it has happened that only one species of Amomum appears in Hort. Kew. A. Alphæi; and another, A. grandiflorum, (published long before) in the Addenda to that work. A. Granum-Paradisi, raised from seeds brought from Sierra Leone by Dr. Alphæus, has long been cultivated in England, though we have never heard of its flowering; and there are several more in the fame predication. They are flowes plants, requiring a considerable degree of heat. No collection perhaps is fo 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 skilful cultivation, and where nothing that may occur, relative to their growth or history, can escape the eye of that illustrious witter 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. Cluver Cardamom, or True Amomum. Linn. Sp. Pl. 2. Willd. n. 7. Loureir. Cochinch. 3. Retz. Obs. f. 3. 59. Rofc. n. 1. Roxb. n. 1. (A. n. 2; Linn. Math. Med. 1. A. verum; Ger. Em. 1548. f. 6. Amomum; Dale Pharmac. 277. Barrel. t. 1. c. 571. f. 1. Amomum legum decussati; Posa Baldo, 50. Cardamomum minus; Rumph. Amboin. v. 5. 152. t. 65. f. 1. Bent. Hist. Nat. 126, with a figure (the oblong capsule excepted, which belongs to Cardamomum medium of the shops). Zingiber minus; Gartn. t. 12. f. 6.)—Leaves lanceolate. Spikes lax, many-flowed. 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 Leffer, Cardamom. Dr. Charles Campbell sent plants from Sumatra to the Calcutta garden, where they blossomed 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 shops, full to be met with at Venice and in other parts of the south of Europe, though generally supplanting the more valuable Leffer Cardamom, Amomum reginae 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 Materia Medica, than the capsules of this A. verum in their native clusters or spikes. We were fortunate enough, after ranfacking the druggists’ shops at Marfellens and Venice, to meet with two or three such specimens, accompanied by bracteas, very important as determining the identity of this plant with the Linnean specimens of A. Cardamomum. By macerating the flowers of these last, 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, not much elevated above the central one; neither are they tranverse, awl-shaped, and elongated, as in A. Alphæi, grandiflorum, and some others. The two lobes of the anther stand near the edges of the filament, remote from each other, but meet round the style. 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 spike, 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 feed, with many pale, smooth, imbricated, elliptic-lanceolate bracteas, near an inch in length, one to each flower. The perianth, calyx, and common receptacle, are hairy, or rather bristly. Capsule sessile, the size of a black currant, globular, somewhat depressed, obconically three-lobed, inflated, 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 bracteas, flowers, and fruit.

2. A. angustifolium. Greater Cardamom, or Madagascar Amomum. Sonneret. Ind. Or. v. 2. 242. t. 117. Willd. n. 6. Rofc. n. 2. Roxb. n. 2. (A. madagascariense; Lamark Dict. v. 1. 123. Cardamomum majus; Mattth. Valgr. 25. (but not Dale Pharmac. 276.) Camer. Epit. 11. f. 1. Barred. 1c. 1. 1. 3. 4. 12. the largest fruit. Grana Paradisi; Ger. Em. 1542, the figure, as being copied from Matthiolus, but not the description. (See also Bauh. Hist. v. 2. 204, and Lob. Inc. v. 2. 204, where the same error is committed, as well as in Chab. Strup. 128.)—Leaves lanceolate. Spikes capitate. Bracteas ovate. Lip obvate, undivided. Lateral lobes of the crest tapering, horizontal. Capsule ovate, pointed, inflated. Seeds globular, abrupt at the base.—Native of marshy ground in Madagascar, where it was first ascertained and figured by Sonnerat. It is cultivated in the Mauritius, and from thence was carried by captain Tenneur to the Calcutta garden, where it bloomed during the cool season. Dr. Roxburgh says, “the flowers poiffes a considerable share of spicif fragrance, and are showy, the upper bracteas, and exterior 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-spikes rise above the ground, and are seven or eight inches high, clothed with tubular scales. Flowers in a short crowded spike, with a concave bractea to each, near an inch and a half long. The capsule and seeds we have already described, (see Mellettas,) 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. macroperum. Large-seeded Gomes Amomum. (Zingiber Mellettas.) Gartn. t. 12. —Spikes capitate. Bracteas ovate, as long as the fruit. Capsule ovate, pointed, somewhat inflated. 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 professor Alphæus; but having unfortunately...
unluckily not observed the plant or its flowers; nor gathered more than one capsule, he was unable to give us any further information than what these feeds afford. Their flavour is very slightly aromatic. Their lead-coloured hue is well noticed by Gärner, though his figure represents them scarcely half large enough. The bracteas appear twice the size of the leaf, to which unquestionably this specimen next akin. This is Amomum, n. 1. of professor Azelius’s MSS.
The natives call it Maboboos.

4. A. Clusii. Long-seeded Amomum. (Fruc tus 14: Clus. Exot. 37, 38, with a figure. Granas Paradisi, five Mellegetta affinis fructus; Banh. Pin. 413.)—Spikes capitata. Bracteas ovate, much shorter than the fruit. Capsule ovate, pointed, fruited. Seeds cylindrical, highly polished, with a bordered, crenate scar.—The native country of this species is unknown, Clusius’s specimen having been collected by an apothecary, who died in the course of his voyage, and left no memorandum respecting this point. (See Mellegetta for a description of a specimen, which we accidentally met with in a druggill’s shop, in a chell of Great Cardamoms, A. angustifolium, if we mistake not, and which therefore probably came from Madagascar.) The cylindrical, dark-brown, highly polished feeds, appearing as if varnished, clearly distinguish it from both the two last. The short bracteas in Clusius’s figure, unless the upper ones had been stripped off, afford a no less striking distinction. The seeds had only a flight pungency from the leaf. Those of our Great, as well as Chifter, Cardamoms, are as high flavoured as ever, though at least twenty five years old.

5. A. Grana-Paradisi. Grains of Paradise Amomum, or Mellegetta Pepper.—Spikes capitata. Bracteas ovate, rather shorter than the fruit; lower ones crowded. Capsule oblong, bluntly triangular, minutely hispid. Seeds ovate. Stipula entire, fringed. (See Mellegetta for the history and synonyms of this species.) The brown feeds, distinguished by a peculiar and very hot flavour, are very different from the following, and the bracteas have a short, thick, dorsal spine.

6. A. grandiflorum. Large-flowered Cardamom. Sm. Exot. Bot. v. 2. 103. t. 111. Ait. Epit. 363.—Spikes capitata. Bracteas elliptical, shorter than the fruit; lower ones dentate. Capsule oblong, bluntly triangular, minutely hispid. Seeds ovate. Intermediate lobe of the filament entire. Stipula cloven, smooth.—Native of Sierra Leone. Seeds, brought by professor Azelius, have produced flowering plants in England. The root is medicinal, woody, creeping. Leafy stems about three feet high, erect, round, smooth, very slender. Leaves several, elliptico-lanceolate, long-pointed, recurved, often tinged with red, very smooth: the long, narrow, polished sheaths each crowned with a somewhat cloven, rounded stipula, whole edges are quite smooth, not fringed with brilly hairs, as in A. Grana-Paradisi. Flower-flasks erect, two inches high, fruited, downy. Lower bracteas elliptical, concave, spreading, and so far distant that the flask 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, fiercely spiny, somewhat coloured, permanent. Flowers in a short, dense, capitate 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 limbi of the corolla of the same hue, twice as long; lip of a broad rounded kidney-shape, waved, plaited, crenate, slightly notched, but not divided, nor deeply lobed, near two inches broad, white, with a yellow spot at the base. Stamens white, not half so long as the lip, furnished at the bottom with two awl-shaped divaricated 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 capsule is very like that of Grana-Paradisi, in size, shape, and pubescence. The feeds 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, or cordial, these feeds appear equal to any Cardamom whatever. When the flowers of Grana-Paradisi become known, which is now one of our greatest botanical defiderata, there will probably be more distinctive characters discovered between that species and the present.


Ait. n. t. (A. exscapum; Sims in Ann. of Bot. v. 1. 548. t. 13.)—Spikes capitata, of few flowers. Bracteas shorter than the fruit. Capsule oblong, triangular. Stipula smooth? Intermediate lobe of the filament cloven.—For this also we are indebted to Dr. Azelius, who brought the seeds from Sierra Leone. From them Mr. Lodgeys at Hackney raised plants, which flowered in his roof in June 1804, and were described by Dr. Sims. The original name, exscapum, 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 presume, from the figure, that the stipulas are smooth. The flower-flask, 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 left firm and durable than usual. The outer limb of the corolla is pale flesh-coloured. Lip rather more oblong, and plated lower down, than in the leaf, crease at the edges, white, with a yellow central spot. Stamens essentially different from A. grandiflorum, in having its middle lobe in two deep acute segments. What we have for the capsule of this species is ovate, pointed, triangular, nearly or quite smooth, rather larger than either of the two last. Seeds ovate, dark brown, highly polished, with a prominent-bordered scar, as in A. macroperum and Clusii, 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 grandiflorum.

8. A. ferbatiflorum. Cone-bearing Amomum.—Spikes capitata. Outer bracteas numerous, elliptical, gradually larger upwards; floral ones scarcely longer, membranous, fruited, rough at the extremity. Stipula abrupt, nearly smooth.—Native of Sierra Leone, from whence we were favoured with a specimen by Dr. Azelius. This has very slender leafy stems. The leaves are elliptic-ovate, pointed, very smooth. Stipula rounded, scarcely cloven, very slightly, if at all, fringed. Flower-flasks several inches high, smooth, covered with numerous, imbriated, elliptical, very broad, concave, sheathing bracteas, gradually larger upwards, with broad dorsal points; the lowermost not quite an inch long, the upper two inches; all finely fruited, 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 capsule of any Amomum, communicated from Sierra Leone.
by Francis Borone, (see the article RUTACEÆ) are those of A. n. 2. of Aizellus, called by the natives Moofi-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, nearly 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 unlike, and such a coincidence between the seeds of different species of Amomum is so unusual, that we could almost presume the capsule above described for A. Azellii, might be a very large one of this n. 2. We do not however form any such conclusion, the seeds of A. Clerf, undoubtedly a distinct species from both these, having seeds precisely like them, only rather larger.

10. A. villosum. Rough-fruited Amomum. Loureir. Cochinch. 4. Wild. n. 8. Roxf. n. 5. (Globba crispa rubra; Rumph. Amboin. v. 6. 137. t. 61. f. 2.)—Spikes ovate, glabrous. Bracteas linear-lanceolate, elongated. Capsule globular, obscurely triangular, rough with scattered 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 use, being, according to Loureiro, stimulant, warm and strengthening. The root is woody and creeping; its fibres aromatic. Leafy stems six feet (Rumphius says fourteen to sixteen feet) high, weak, erect, perennial. Leaves smooth. Flower-flalk four inches long, slender, reclining. Spike nearly ovate, with linear, imbricated bracteas. Flowers pale. Capsule 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 Loureiro's is not suitable to the above synonym of Rumphius, to which he refers, except that the latter describes the roughness of the fruit as consisting of short flattened spines, or bristles.

11. A. nigrosum. Marth Amomum. Retz. Obs. fæce. 3. 56. Roxf. n. 6.—Cluter flaked. Bracteas ovate-oblong. Capsule globular, obscurely triangular, fagggy. Intermediate lobe of the filament in two rounded segments. —Found by Koenig at Raput-Nok, in Tranquebar, in shady wet situations, flowering about the middle of May. Leafy stems, a yard or more in height. Leaves smooth on both sides, with hairy flabellas. Flower-flalks somewhat curved, clothed with ovate-oblong, smooth, red feathers. Flowers white, variegated with red and yellow. Sixteen crowned with four lobes, the two lateral ones narrow and small, the two middle ones broad and rounded. Capdule clothed, before it is dried, with blood-coloured cirrhus, or threads. Koenig.

12. A. echinoïnum. Hedge-hog Amomum. Wild. n. 9. Roxf. n. 7. (Globba crispa viridis; Rumph. Amboin. v. 6. 137. t. 61. f. 1.)—Spikes capitate, nearly ffeilfe. Bracteas membranous. Capsule globose, all over spinous.—Native of Amboyna, the Molucca islands, &c. Rumph. Leafy stems, 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 spines like a Thorn-apple, growing in dense feseilfe clusters or tufts at the root. We know nothing of this species but from Rumphius, for after much perplexity and consideration, we are decidedly of opinion that Amomum n. 2. of Koenig, Retz. Obs. fæce. 3. 56, cannot belong to it. See A. maxima hereafter.

13. Prickly Oval Amomum uterum. Roxb. n. 3.—Spikes obovate, on short flalks. Bracteas lanceolate. Crest of the filament abruptly three-lobed. Capsules oval, prickly. Leaves nearly feseilfe, lanceolate; heart-shaped at the base.—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 capsule is perfectly destitute of grooves, and its coat of a soft flaky texture. Roxburgh.

14. A. maxima. Great Winged Amomum. Roxb. n. 4. (A. n. 2; Koenig in Retz. Obs. fæce. 3. 58.)—Spikes ovate, on short flalks. Bracteas lanceolate. Crest of one semi-lunar lobe. Capsules globose, with nine wings. Leaves flaked, lanceolate, villous beneath.—Native of the Malay Archipelago. Long cultivated in the Calcutta garden, where it blossoms 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 lip. The seeds have a warm pungent aromatic taste, not unlike the real Malabar Cardamom, (see L.B. A. Cardamom, but by no means so grateful. Roxburgh. The author appears to have confused himself between Globba crispa 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 the synonyms belong to his A. maxima.

15. A. Rumphii. Angular-winged Amomum. (Globba longa; Rumph. Amboin. v. 6. 134. t. 60.)—Spikes ovate, on flalks three of their own length. Bracteas ovate. Capsule globose, with many angular-notched wings. Leaves flaked, smooth.—Native of valleys, and at the foot of mountains, in a cold, wet, clay, or fomy soil, throughout the Malay Archipelago, and all the eastern parts of India. The barren flaks 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 dense, ovate, many-flowered spike, three or four inches long. Bracteas ovate, acute, reddish, spotted. Calys with a very long three-leafed tube. Corolla reddish externally, with a white lip, soon fading. Capsule nearly globular, with many unequal, yellowish, irregularly and sharply toothed wings. Seeds black, enveloped in a flivery pulp, of a gracefully acid flavour, very fragrant, but not acrid or aromatic to the taste. Rumphius.

We cannot reduce this plant to any of the species of Roxco, Roxburgh, or Koenig. We feel indeed great ceruples in referring the Amomum n. 2. of the latter to A. maxima, and shall therefore venture to propose it here as different, with that difference which must always attend the definition of a species taken up from description.

16. A. Kenngii. Single-fruited Amomum. (A. n. 2; Koenig in Retz. Obs. v. 3. 58.)—Spikes feseilfe. Bracteas ovate, membranous. Capsule solitary, globose, deeply furrowed, with intermediate wings, and somewhat tuberculated. Crest of three lobes; the middle one rounded, finely toothed. Leaves downy beneath.—Native of denfe woods in the East Indies. Leafy stems two feet high. Spikes or tufts of flowers feseilfe at the root, each perfecting but one capsule, the size of a large cherry, containing rarely more than nine seeds.

Although we have made out a far more ample list of species, of genuine Amomum, than has ever been attempted before, we are aware that several may yet exist, of which imperfect traces are to be found in various authors, so that it is more likely our number should be augmented than diminished by future enquiry. This genus ought perhaps to be divided into two families, the first with spikèd or racemose flowers, globose fruit, and angular feed; the second with capitulate flowers, ovate pointed fruit, and ovate or oblong, even feed. To the first belong A. Cardamomum and many
of our latter species; to the latter the Cardamom tribe, comprising the second and all after it to the eighth inclusive.

**AMPHIBOLE, or Hornblende.** See Mineralogy, Addenda.

**AMPHIGENE.** See Lecite.

**AMPHIPOGON,** in Botany, *147; and in 234, as having a beard, or awns, upon both valves of the corolla.—Brown Prod. Nov. Holl. v. 1. 175.—Clas and order, *Triandra Digynia.* Nat. Ord. Gramina.

**Eff. Ch.** Calyx of two nearly equal valves, single-flowered. Corolla of two valves; outer valve with three segments; inner with two; all the segments fleshy, awned, uniform.

A genus of grasses, growing in patches, with creeping roots, calciculated stems, and fleshy leaves. The flowers compose an equal spike, which sometimes assumes the form of a roundish head.

**Sec. 1. Spike capitatus.** Calyx smooth.

1. *A. Liguroides.* Hairless—tail Amphipogon.—Head globular. Calyx-glumes hirsute, with hairs dilated at the base; outer valve twice the length of its point.—Gathered by Mr. Brown, on the south coast of New Holland.

2. *A. turbinatus.* Turbinate Amphipogon.—Head obovate. Calyx-glumes clothed with hirsute hairs, simple at the base; outer valve feebly longer than its point.—From the same country.

**Sec. 2. Spike oblata.** Calyx smooth.

3. *A. Fritium.* Spiculiform Amphipogon.—Calyx-glumes linear, undivided, flunter than the smooth corolla. Awns and leaves fungous.—Found by Mr. Brown, near Port Jackson, New South Wales.

4. *A. dolichus.* Weak Amphipogon.—Calyx-glumes three-veined, flunter than the smooth corolla. Leaves fungous. Leaves rather ruffled.—Gathered by the same from the southern coast of New Holland.

5. *A. avenaceus.* Oat Amphipogon.—Calyx-glumes pointed, undivided, longer than the filik 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 hand of a master, with nothing ambiguous or superfluous, but such a contrast of distinctions 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 bigonias, and a bigoncia contains 4 quintals, 116 feet, or 256 lbs. peso grolo; but a bigoncia of brandy is only 14 feet, or 50 lbs.

**AMSTERDAM,** in Geography, an island in the Indian sea, lying in S. lat. 38° 42'. E. long. 76° 54'. This island is of volcanic origin, and fill 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 the confines of Etna or Vesuvius. Its length from N. to S. is upwards of four miles; its breadth from E. to W. about 24 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 east 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 side. The water is eight or ten fathoms deep almost close to the edge of the crater. The sea supplies this island with excellent fish, particularly a kind of cod, and eel-fish in abundance. Nevertheless, sharks and dog-fish, of uncommon size, were very numerous in the same place. The penguin, distinguished by the name of *Chrysoptera,* having large yellow feathers, forming two semi-circles over the eyes, like eyebrows, is found here in great abundance. Of the larger birds, here are also several species of the albatrosses, and also the large black petrel, or "procellaria equinocoli" of Linnaeus; the blue petrel, or "procellaria Forsteri," and the florny petrel. The small albatross, of the feathered tribe, inhabiting or visiting this island, was the silver kind, or "flæna lurindר," about the size of a large swallow or swallow, with a forked tail. The island St. Paul's, lying to the northward of Amsterdams, presented no very high land, or any rising in a conic form. In fr 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 Mazanderan, situated in an agreeable plain at the foot of a mountain, on the banks of a river, and celebrated for a handsome bridge of twelve arches, an old fortress, and a palace of Shah Abbas the Great.

**AMURATH (or MURAD) III.** In Biography, succeeded his father Sultan Beem 11. in 1573, coniiging his reign with casting his five brothers to be strangled in his presence. His reign was eventful in military transactions; and we shall be impartial in telling the story, if the Turkish historians. Amurath contributed to the election of Stephen Batteri, 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 Taurus, and three contiguous provinces of Persia. The Krim Tartars, who revolted from the Turkish dominion, were reduced. In 1590, Amurath being at peace with the other powers declared war against the emperor of Germany, which was the cause of much devastation and bloodshed; and the Turks triumphed in the capture of the important town of Raab, in Upper Hungary. During this war, Amurath died, in January 1596, at the age of 52. Christian 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. Hist.

**AMURATH (or Murad) IV.,** surnamed Ghazi, or the Valiant, was son of Achem I., and succeeded his deposed uncle Mustapha in 1622, in his 13th year. He left Bagdad at the beginning of his reign; and after many unsuccessful attempts to retake it, he marched, in 1637, at the head of a numerous army, and after thirty days continual assault, and an immense loss of lives, formed the place. On this occasion he shewed the brutal ferocity of his temper, not only by driving on his men with a feytemor to the attack, but by slaughterings 30,000 Persians who had surrendered at discretion after the capture of the town. It is said, that the only peron who escaped was a famous herm- player, who requested the executioners to permit him to speak to the sultan before his death. When introduced to the sultan, and ordered to give a specimen of his powers, he touched his instrument so sweetly, accompanying the strains with pathetic lamentations on the tragedy of Bagdad, and artful praises of Amurath, that the tyrant was so
ANAGNORISIS. See Catastrophe.

ANALCIME. See ZEOLITE.

ANALYSIS, in Chemistry. The analysis of minerals, including earths, stones, and the ores of metals, and the analysis of organized bodies, or vegetable and animal substances, have been omitted; we shall, therefore, introduce a summary account of these subjects here, and at the same time endeavour to supply what has been omitted under other analogous heads.

Analyses of Minerals.—The particular methods of analysing 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 Cyclopaedia, 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.

Minerals of a saline nature, and soluble in water, may be analysed by the methods pointed out in the article WATER, Mineral Analyst of.

Hard flinty minerals are first to be reduced to a flake 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 coarse powder, in a steel 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 accounted for. If the mortar employed was agate, the addition in weight may be considered as fictitious.

Cruccibles of platinium and silver, evaporating dishes of glafs or porcelain, and other apparatus and requisites, will be necessary for the subsequent process, all which are described under the article Laboratory above referred to.

In the classes of minerals commonly denominated stones and earths, the ingredients usually met with are, silica, alumina, zirconia, glucina, lime, and magnesia; and the oxids 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 analysed, 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 usually formed respecting the nature of the stone, so as to afford some assistance in the future steps of the analysis. If the matter melts completely, it may be concluded that the mineral is chiefly siliceous.
ANALYSIS.

Siliceous. If it remains thick and opaque, the other earths are more abundant. If it assumes the form of a pulverulent bulky white powder, the stone is mostly argillaceous. If the colour be full green or brownish, oxyd of iron is present. A bright green-grases indicates the presence of manganese, and yellowish-green chrome. When a stone is aluminous and very hard, potash acts very feebly upon it; and in this case, borax was used with great advantage by Mr. Chenevis.

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 filex and alumina of the mineral, is taken up by the water, which would indeed dissolve 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 filex; 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 flitted with a silver or porcelain rod, to facilitate the disengagement of the water and acid, and to render the exsiccation 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 filex; and with the alumina of a portion of filex being retained in solution; by the acid on account of its not being sufficiently diffipated.

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 silver. This powder is filex. 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 further precipitation takes place; and in order to render the precipitation 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 passed through, the filter with the precipitate upon it is to be placed upon some folds of fabulous paper; and when the precipitate has attained a little confluence, it is to be carefully collected with an ivory knife, and mixed with a soltion of pure potash, and boiled in a porcelain crucible. If any alumina or glicina be present, they will be diffolved in the potash, while the other substanices remain untouched in the form of a powder.

The solution of alumina in the potash is to be super-saturated with an acid, that is, so much acid is to be added as is sufficient to redisolve any precipitate that may be formed. Carbone of ammonia is then to be added in excess, so as to be feible to the smell. This will precipitate completely the alumina, if any be present, while the glicina will remain in solition. 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, diffuse it in sulphuric 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 glicina be present in the remaining liquor, it will fall down on boiling it for some time, so as to displace the excess of ammonia. After being washed and dried as before, it is to be accurately weighed.

The matter remaining undifolved by the solution of potash above-mentioned may conftit of lime, magnesia, yttria, and the metallic oxyds. If yttria be fufpected, add carbonate of ammonia, which will diffuse the yttria, and leave the other bodies. Then let the whole be dissolved in dilute sulphuric acid, and the soltion be afterwards evaporated to dryness, so as to displace any excess of acid. A little water is to be added to the solid refiduum, which will take up the metallic sulphates and the sulphate of magnesia, 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 substanices retained in solution by the sulphuric acid may be magnesia and the oxys of iron, manganese, chrome, and nickel. To separate thes, the soltion is to be diluted with a large quantity of water, a flight excess of acid added to it; and then a soltion of carbonate of potash faturated with carbonic acid is to be poured in. The oxys of iron, chrome, and nickel, will be precipitated, while the magnesia and manganene will remain in solution with the carbonic acid. To separate thes, hydro-sulphuret of potash well faturated with sulphured hydrogen is to be added to the soltion, which will precipitate the manganese in the flate of hydro-sulphurets, while the magnesia will still remain in solution. The magnesia may then be separated by a soltion 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 manganese, its precipitate must be calcined with the admission of air to expel the sulphured hydrogen.

There still remain to be separated the oxys of chrome, iron, and nickel. To do this, the precipitate is boiled in succeffive portions of nitric acid, to bring the oxyd of chrome to the flate of acid. It is then heated for a few seconds with potash, and after being heated the liquid is poured off. The undifolved matters are to be washed with water, which washings are to be added to the other liquid. The chrome acid remains in solution combined with the potash; muriatic acid is added to it, to ad be in excess; and is then evaporated until it affumes 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 undifolved matter of the preceding experiment may conftit of the oxys of iron and nickel. To separate them, they
they are dissolved in muriatic acid, and ammonia is added in excesses. The oxide of iron will be thus precipitated, and its weight may be ascertained. The excess of ammonia will remain the oxide of nickel in solution, which may be lastly 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 .03 or .04 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 stone has contained some principle either volatile or soluble in water, which must, therefore, be sought for. A proportion of the stone 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 fail to have any 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 ascertain the quantity of potash present in a mineral, Vauquelin (from whom the above account of the analysis of flinty bodies has been chiefly extracted) recommends that the stone reduced to an impalpable powder should be cautiously heated with sulphuric acid, and the mafs digested with water. The solution properly concentrated is set aside for some days. If crystals of alum make their appearance, the stone contains potash. 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 750°, and redissolved. The solution by proper concentration will yield crystals, either of sulphate of soda or of potash, which may be readily distinguished.

The presence or absence of potash may be also ascertained by means of the muriate of platina.

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 pamozy mafs 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 mafs 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 precipitated 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 part was acetate of a fixed alkali, which was exposed to a red heat in a crucible, the charry residue diffused 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 mafs 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 boric 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 dissolved 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 glafs retort. The condensation of the retort, and the fleshy 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 fleshy deposit was filtered off. 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 carbic acid disengaged, by collecting it, and discovering the barytes by the nature of the faint 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 sulphuret acid unites with the potash, and its quantity may be estimated by precipitating with barytes; the carbic acid is attracted by the earthy base, and the carbonate thus obtained may be decomposed in the same manner as a saline 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 dissolved in diluted nitric acid by the assistance of heat; the lime may be then precipitated by sulphuric or oxalic acid; the phosphoric 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 Ores.—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 fubstance 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 richnesses. 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 ascertain the nature and quantity of the substance 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 sufficiency intense for its reduction and fusion. Sometimes boras, pounded glafs, 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 re-agents, &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 to 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 alkalies and other re-agents, 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.

These are almost all the general rules that the analysts 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 earthy fillets and ores, to the different articles in the Cyclopaedia, where they are described.

Analyses of organic 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 analysed. When the theory of chemistry was changed by Lavoisier, that illustrious chemist began to consider the composition of organic substances in a proper point of view, and he endeavoured 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 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, endeavoured 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 Vanquelin 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 come to be better examined and more accurately known. Theodore de Saussure has analysed 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 analysed 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 estimate the proportion of their constituent parts, and of oxygen existing in the compound analysed. The substance selected to furnish oxygen was the oxymuriate of potash, and the matter to be analysed was mixed with this salt, and flashed in an apparatus contrived for the purpose, consisting of a thick glass tube, A (Plate XXI. fig. 3. Chemistry,) let vertically in a fire, with a lateral tube, B, to conduct the gases produced to a mercurial apparatus; and a cock, C, above, the stopper of which was not perforated, but contained a depression, D, into which a portion of the material to be analysed was introduced; and by turning the cock downwards, this portion fell into the tube, and was there flashed. 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 analysed was ascertained by previous trials in an open crucible; so much of the salt being required, that the residue after deflagration should be quite 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 212°, 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 brads mould, and the pieces shaped by the fingers into little balls, that they might drop clean from the stopper 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 analysed before it was used; and in order to insure uniformity in its composition, a considerable quantity of it was fused and pulverised, and kept for use. If the substance to be analysed was a vegetable acid, it was combined with lime or barytes before it was mixed with the salt; and this calcareous or barytic salt was separately analysed, and the carbonic acid remaining united with the earth after deflagration was properly estimated. The earth, 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 subfrequent detonation with hydrogen; the hydrogen of the substance was presumed to form water with all the oxygen unaccounted for; and the azote exsolved in the residual azote gas."

Soon after the method of Gay Lussac and Thenard was published, Berzelius turned his attention to the same subject; and after bethowing, in his admirable effay, some just encomiums on the merits of his predecessors, proceeds to point out some defects in the apparatus and methods they employed, and proposes new ones of his own. The essential
tial 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 fuel 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. Chemistry,) 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 thin 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 flate of coarse powder; from one extremity of this, a bent tube D was connected with a small mercureal 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 joinings in this apparatus were made by small caoutchouc tubes, prepared by cutting thin pieces of that substance into the requisite shape, and prefixing 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 G 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 water was found in the tube C, absorbed by the muriate of lime; and by substracting 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 soda 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 sulphurous acid, and were generally combined with oxys 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, vol. 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 oxd 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 state of oxidation of the azote. It becomes, therefore, an object of the first importance to possess a substanace 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 oxd of copper, which at a low heat, scarcely amounting to redness, 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 Medicinal-Chirurgical Transactions, vol. vii.

Analysis of Soils. See Soils.

Analysis of Mineral Waters. See Water.

ANAMENIA, in Botany, a name corrupted by Ven¬
ter, from laur. de Malem, t. 22. from the Arabian appella¬
tion of certain flowers of the family of Adonis and Anemone,
Anabahen, to which the present genus is related. See Knowl¬tonia.

ANARHICHAS, l. 6. The species of this genus enumerated by Gmelin are, Lupus, Minor, Pantherinus, and Strigias.

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 digestible 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.

Strigias, with transverse dusky bands, racemose and somewhat less regular than euful; tipped 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.


Ed. Ch. Male, Petals six, nearly equal. Filaments distinct. Anthers didymous, cloven at each end.


The root is perennial. Stems compriwed, 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. Stiples terminal, compound, each branch subcorticated by a flattening deciduous bractea; sometimes they are simple, or the flowers are solitary. The capsule in some species form a kind of catkin, scarcely bursting. The structure of the flowers and fruit comes nearest to Elusia, but the want of sheaths upon the stem, and the equitant vertical leaves, make a wide difference. This genus agrees with Lyrinia, (see that article,) in having two anthers, but differs altogether in habit.

1. A. satura. Rough-edged Anarthria.—Stems perfectly simple, flat, rough-edged as well as the leaves. Petals of the male linear; of the female the three innermost are filamente.—Found by Mr. Brown on the south coast of New Holland.

2. A. livia. 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. pauciflora. Slender-cluttered Anarthria.—Stems simple, thread-shaped, compressed, nearly refembling the solitary leaf, and likewise smooth. Cluster loose, of few flowers. Flower-fls in pairs, unequal, shorter than the sheathing 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 solitary or some what spiried.—Found in the same part of New Holland as all the preceding. Brown.

ANATOMY. For Anther. & Anna.

ANATOMY, Picturaque, col. 4, I. 15, for head r. face.

ANCHOR, in Archit., &c. I. 3, for Tufcan r. Doric.

ANDALUSITE. See MINERALOGY, Addenda.

ANDANTE, 1. 2, dele or grasiolo; I. 5, r. or rather grasiolo.

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 it was his lot to visit, he did not overlook the vegetable world. Several of his manuscript descriptions exist in the Bankian 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 affidious 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 distincion of the different kinds of British Snake, or the beautiful exotic tribe of Peonia; on which last subject a paper in the Linnean Society's Transf. v. 12. 283. published under the care of his able friend Mr. Sabine, will always evince Mr. George Anderson's just claim to botanical commeremation.—Brown Prodr. Nov. Holl. v. 1. 553. Dryand, in Ait. Hort. Kew. v. 1. 321.—Cliffs and order, Persiaria Monogynia. Nat. Ord. Erices. Jussi. Epacridae, Brown.

Gen. Ch. Col. Perianth inferior, of one leaf, charpy, coloured, in five deep, equal, lanceolate segments, erect after flowering, permanent, accompanied at the bafe 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. Nec- tary of five scales, below the germen, sometimes combined. Stam. Filaments five, infected into the receptacle, linear, hairy, shorter than the corolla; anthers vertical, oblong, distinct. Pith. Germen superior, roundish; style simple, cylindrical, about as long as the flaments; stigma obtuse, crenate. Petio. Capsule 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. Ch. Calyx in five deep segments, permanent, coloured, with two or more imbricated scales at the bafe. Corolla wheel-shaped, the length of the calyx; segments bearded at the bafe. Stamens inserted into the receptacle. Anthers unconnected. Nectary of five scales at the bafe of the germen. Capsule of five valves and five cells, the partitions from the middle of each valve.

This genus consists of small shrubs, with squirelle, half sheathing leaves, no annular fcares remaining on the denudated branches. Flowers terminal, either spiried or solitary, erect. Receptacles from the bottom of the capsule, short. Seed but few brought to maturity. Brown.

In habit, as well as in the general structure of the fructification, nothing can be more abolutely like our Sprengelia (see that article); inomuch that no perfon could, at first sight, form any idea of a difference between the two genera. (See also Ponceletia.) The preference of scales at the bafe of the calyx, so unlike it as to be more properly termed, with Mr. Brown, bracteas, but in that case not entitled to enter into the generic character; the five nectariferous scales, wanting in Sprengelia; and the bearded bafe of the segments of the corolla; these are the distinctive marks of Andersonia. Similar differences serve to subdivide the original genera of Epacris and Stylidium (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 inflance, with the greatfet deference to the acute and learned author of Andersonia, we fhould be inclined to reduce one genus, under one effential character, plants so strikingly alike, and fo different from all others. Genus dabit characterem. One thing is certain, that we are in no danger of being fpulected of wishing, by this means, to get rid of the name Andersonia, though Sprengelia, having been long previously efftablifhed, must be preferred to it. Its character indeed must be reformed, because we were originally acquainted with but one species, the only one, it seems, whose anthes are connected. Such is the cafe with some fpecies of Genlana, but not with all. The following are Mr. Brown's fix fpecies of Andersonia, ranged in two fections.

Sect. 1. Flowers with two scales, spiried.

1. A. sprengelid. Spreading-leaved Andersonia. Br. n. 1. Art. n. 1.—Leaves spreading; with a flat point. Flowers spired.—Found by Mr. Menzies, at King George's found, on the south-well coast of New Holland. Sent to Kew, by Mr. Good, in 1803. It is faid to flower more part of the year, being treated as a green-house plant. We received fpecimens from Meffrs. Lee and Kennedy's green-house in 1814, but this little shrub is far from being generally cultivated, nor has it yet been figured. The ftem is a foot or more in height, determinately branched, round, rigid, smooth, all the branches covered with numerous, rigid, glaucous, feffile, smooth, ovate, spinous-pointed, entire leaves; roughish at the edges; clafping the ifem at their bafe; each about a quarter of an inch long, permanent. Flowers pale rofe-coloured, fentalefs, in dem, fhort, lefty, terminal, upright fpires, not separately falked, or racemofe, as in Sprengelia incanata, but otherwife very nearly refembling, in size and colour, the elegant flowers of that plant. Stems. A. pauciflora. Small-leaved Andersonia. Br. n. 2.—"Leaves close-preffed; with a triangular point."—Dis- covered by Mr. Brown, on the southern coast of New Hol- land. We have not seen this fpecies. The spinous 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. squarrofa. Squarrofe 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. depresa. Procumbent Anderonia. Br. n. 5. — "Leaves prominent, divaricated, twisted and recurved, downy; fringed at the edges. Calyx smooth. Style hairy in the middle. Stem deprefed. — Gathered at King George's Sound, 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 span long, much branched, for the most part in an alternating manner, thickly covered with imbricated, spreading, rigid, minutely punctate, 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 hirt 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 in the middle.

6. A. micrantha. Small-flowered Anderonia. Br. n. 6. — "Leaves clove-preflu. Style downy below the middle." — Found in the same part of New Holland as the last, by Mr. Brown. We have seen no specimen.

ANDERSON, in Geography, a township of Ohio, in the county of Hamilton, having 1538 inhabitants. — Also, a township of East Tennesse, having 3599 inhabitants, of whom 260 are free.

ANDOVER, 2d article, l. 3, r. 3164; 3d article, l. 2, r. 1259; 4th article, l. 3, r. 957.

ANDOVER, East, a township of Maine, in the county of Oxford, having 264 inhabitants.

ANDREA, in Botany, a very curious and distinct genus of Moles, is thus named by Ehrhart, in honour of his friend John Gerhard Reinhard Andree. (See that article.) This genus was intended to have been inferred by its author into the Supplementum of Linneus, with the printing of which he was entrusted. (See Linneus, or Von Linné, Charles.) Such was the case with many others, belonging to the same natural order, and now well-established, though the younger Linneus then forbade their admission into his book. Ehrhart called it Andrea, but the above orthographic is justified by many similar examples among learned botanists. — Ehrh. Hanno. Mag. for 1778, 1601. Biebrage v. 1, 15 and 180. Hedw. Sp. Mucf. 47. Turn. Mucf. Hib. 13. Sm. Fl Brit. 1178. Compr. ed. 3. 153. Hooker Tr. of Linn. Soc. v. 10. 381. Mucf. Brit. t. 1. t. 1. — Cilia and order, Cryptogamia Mufci. Nat. Ord. Mufci. Gen. Ch. Male, terminal, bud-like. Amth. three to seven, nearly cylindrical, somewhat flaked, interfiled with numerous, jointed, succulent threads, swelling upwards, taller than themselves.

Female, terminal, filiform. Scales of several imbricated conical scales, shorter than the fruit-flask, which is cylindrical, scarcely longer than the capsule, tumid at its base. Pufc. Vol. XXXIX.

Capsule on a turbinate fleshy base, ovate or cylindrical, somewhat quadrangular, of four equal oblong valves, irregularly 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. Veil membraneous, pellucid, bell-shaped, torn irregularly from its base, and finally turned to one side, crowned with the slightly 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 Jugurmannia, with which it had been confounded, and properly referred it to the order of Mucfi. But he mistook, as he well might, the valves of the capsule for its fringe 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 Mycologia Britannica the same author remarks, that the supposed fruit-flask, as he himself had heretofore called it, is merely an elongated receptacle, bearing some abortive spores. This is certainly true, but we conceive it nevertheless to be analogous to the more extended fruit-flask of the generality of Mofles, truly wanting in Sphagnum. All the known species of Andreae are British, and amount to four.


2. A. rupefris. Dusky Rock Andreae. Hedw. Sp. Mucf. 47. t. 7. f. 2. Engli. Bot. t. 1277. Hook. Tr. of Linn. Soc. v. 10. 391. t. 31. f. 2. Mucf. Brit. n. 2. t. 8. (Jugurmannia rupefris Linn. Sp. Pl. 1601, excluding the synonym of Dilleniuss.)—Stems branched. Leaves ovate, taper-pointed, ribbed; upper ones falcate. — On rocky mountains throughout Great Britain. Hooker. Small- 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.

is also found in Germany, and doubtless in other mountainous parts of Europe. Like both the foregoing, it bears cap-

fules in the spring and summer. The presence of a strong rib in the leaves clearly distinguishes it from those species, though the paler, blunter, and more oblong, scales of the sheath have no rib. The flaves, generally almost simple, are occasionally much branched, as in Engl. Bot.


This is by far the tallest Andraea known, being three inches high, or more, forming rather lax olive-brown tufts, tinged with a chocolate-colour, of which half thec are the capfules, whose subflance is strongly reticulated. The scales of the sheath being of the same lanceolate figure, furnished with a mid-rib, are 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. Favin; col. 2, l. 28, r. commissioner; l. 29, r. little for litter.

ANDROMACHA, l. 1, r. Zygena.

ANDRONICUS 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 em-

bittered 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 ά, without, and άφηνεν, an invi-

tocurum, this genus being separated by Mr. Brown, Prod. Nov. Holl. v. 1. 270, from COMMELINA, (see that article,) on account of the want of the large folded infor-

curum, or rather bratsea, which in Commelina contains a considerable number of flowers; whereas in Ancilema the inflorcence is scattered, somewhat panicked. The differ-

ence between the two reffides therefore in this part of the plant, and not strictly in the fructification.

The kind species of Commelina referred by Mr. Brown to Ancilema are, vaginita, audifora, and fpiritata of Linneus, medica of Loure, 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 thefe 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 defcribed from the collection made in the latter country by erf Joseph Banks. Some have smooth filaments, others bearded ones. It is suspected that Pollia of Thumberg may not be generically different from these; but the fruit in our fpecimens is evidently a berry, according to Thumberg'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-

serves, familiar to his Ancilema. Whether Cartenon 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 flaves, it differs from Commelina and An-

cilæma, and agrees with Tradescantia, but differs from the latter in several particulars pointed out by Mr. Brown, besides its spiked inflorescence.

ANEMIA, a genus of ferns, separated from Os-
munda, (fee that article,) by Dr. Swartz, and thus named from ανεμία, naked, or not covered; because its capfules are deftitute of all covering or involurum whatever.—Swartz Syn. Fil. 155. Wildl. Sp. Pl. v. 5. 89. Ait. Hort. Kew. v. 3. 149.—Clads and order, Cryptogamia Filices. Nat. Ord. Filices, fig. 2, фopиe γυράε.

Eff. Ch. Capfules somewhat turbinate, concentrically fribated at the top, burfitting laterally, fefile on one fide of a compound linear receptacle. Involurum 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 sitted in pairs, on long falks, on the common falk at the base of that leafy part. Such at leaft is the cafe with the whole of the firt fect; in the fcond, the fruit-bearing falks are radical and solitary. It is closely related to Botrychium, to be defcribed hereafter; but that has globular capfules of two diftinct valves, neither fribted nor annulated. Their receptacles, indeed, exactly agree; and the three are fo obtuse in Anemia, that we are much inclined to unite it with Botrychium.

Sect. 1. Panicvcs of fikes in pairs, flalked, at the base of the leaf.

1. A. phyllidif. Broad-leaved Anemia. Swartz n. 1. Wildl. n. 1. (Osmunda phyllidif; Linn. Sp. Pl. 1520. O. lanceolata et subfìlitìe frrata; Plum. Fil. 113. t. 156. O. racemifera, phyllidif folio vix crefuto; Petiv. Fil. n. 163. t. 8. f. 15.)—Frond pinnate; leaflets ovate-lanceo-

late, pointed, finely fribted, smooth as the common falk. — Native of South America and the West Indies. Brought from Brazil, by the late Sir George Leonard Staunton, in 1753. A very handsome fern, eighteen inches or two feet high, its tufted root producing fveral upright fronds. Each of these confifts of a smooth, rather flender, ftraight common falk, bearing at the top an upright fimplicy fribted leaf, of from four to eight pair of smooth, veiny, bluntly fribted, somewhat falked, leaflets, beftides an odd one; their length from two to four inches. Close to the base of this fribted leaf, on the upper fide, or front, are fationed a pair of equal, long-falked, triply fribted fikes, of minute, pale, very fribted, capfules, ranged in double rows along one fide of the linear compound falk, or recepta-

cle, the common falk of the whole being somewhat hairy. These compound fikes always rife a little above the point of the terminal leaflet.

2. A. hirta. Rough-leaved Anemia. Swartz n. 2. Wildl. n. 2. (Osmunda hirtif; Linn. Sp. Pl. 1520. O. hirifuta, longifidiis folio; Plum. Fil. 113. t. 157. O. fpcis geminis; Petiv. Fil. n. 164. t. 14. f. 5. Lonicif hirifuta floris; Plum. Amer. t. 18. t. 26.)—Frond pinnate; leaflets oblong-lanceolate, hairy, finely fribted, and somewhat cut; very unequal at the base. Stalks all hairy.—Native of the West Indies. Smaller in every part than the laft, being scarcely above a foot high; and dilinguifhed also by the great dilatation of the upper fide of each leaflet, at its base.

The upper ones run into a fort 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 dense, thin, hairy, twice-compound spikèl usually rife a little above the leaf.

3. A. blebnoideas. Many-leaved Anemía. — Frond pinnate, longer than the spikes; leaflets numerous, parallel, oblong, obtuse, serrate, 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 1792. We cannot find any figure or description of this species, though a very remarkable one. The common flalk, in its naked part, is smooth. The leaflets are about forty pair, parallel and crowded; the lowermost 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 bude at the summit, seems as if it would take root there. Spikes lax, twice compound, measuring with their slightly hairy flalks, about two-thirds of the length of the leafy part. Their subdivisions are extremely narrow.

4. A. oblongifolia. Oblong-leaved Anémia. Swartz n. 3. Willd. n. 3. (Ofmunda oblongifolia; Cav. Can. v. 6. 69. t. 592. f. 2.) — Frond pinnate; leaflets obovate, obtuse, dilated at the upper angle of their base, fringed. Stalks smooth. — Gathered by Louis Née at Panama. Several stalked fronds, hardly six inches high, spring 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 spikès rife much higher than the leaf part, on slender flalks, and appear to be rather dense. We know this and the following from the work of Cava-nilés only.

5. A. humilis. Dwarf Hoary Anémia. Swartz n. 4. Willd. n. 4. (Ofmunda humilis; Cav. Can. v. 6. 69. t. 592. f. 3.) — Frond pinnate; leaflets obovate-wedge-shaped, abrupt; crease at the extremity; hairy beneath. Common flalk 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, crease, and not fringed. The spikes are much smaller than in the foregoing, raised high upon slender smooth flalks.

6. A. fitiformis. Slender Hoary Anémia. Swartz n. 5. Willd. n. 5. (Ofmunda fitiformis; Lamark Dict. v. 4. 652.) — Frond pinnate, downy and hoary; leaflets oblong-wedge-shaped, obtuse; jagged at the extremity. Common flalk hairy. — Gathered in South America by Mr. John Frazer, who is reported to have communicated a specimén to Lamark. We have never seen this plant. It is described as eight or nine inches high, besprinkled in every part with white or hoary hairs. Leaflets striated very copiously and conspicuously beneath. Spikes slender, compound, on capillarv flalks, rising high above the leaf. Savigm in Lamark.


8. A. bifurca. Hairy Anémia. Swartz n. 7. Willd. n. 7. Ait. n. 1. (Ofmunda bifurca; Linn. Sp. Pl. 1520. O. mollitèr bifurca, et profundè lacinìata; Plumb. Fil. 159. t. 152. O. fipèis gernìnus vilòfa; Petiv. Fil. n. 105. t. 8. 16. Lunaria elatìor, matrìcarìis folio, spicà dupliqui; 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 spikès and their flalks. Several of the fronds are barren, which we presume is the case with most of the neighbouring species. Each leaflet is about an inch and a half long, with many narrow-wedge-shaped, deep, fringed segments, hairy on both sides, and sharply notched. Each spikèl, near three inches long, is doubly pinnate, with flat close segments, broader than in most of the genus, and the capiûla are represented by Plummer as marginal, and blackish, with much more intermediate space than usual on each segment. Willdenow adverted to this circumstance, and the hairiness of the common flalk, as indicating a specific difference between Plummer's plant and what he had examined. Specimens from the West Indies, and from Dr. Swartz, certainly agree with Sloane's plant, and like that, have a smooth common flalk; but having seen none answering to Plummer's, we decline attempting a specific definition, from his figure. He is, however, the original authority for Anemía, or Ofmunda, bifurca, and Petiver copies him; but Sloane's synonym must be referred to the new species, if such be established.

9. A. deltoides. Triangular Anémia. Swartz n. 8. Willd. n. 8. (Ofmunda deltoides; Cav. Can. v. 6. 69. t. 593. f. 1.) — Frond triangular, pinnate; leaflets deeply pinnatifid, with rounded, crease, crowded segments; glaucous above; hairy beneath. Common flalk hairy at the upper part.—Found on rocks in the plain of Buenos Ayres, by Louis Née. A few plants, with broader and rounder segments of the leaflets than any of the foregoing. The divisions of the common receptacle of the spikèl are broader, and more rounded, than usual, approaching to those in Plummer's plate of the last.

10. A. vilòfa. Shaggy Anémia. Willd. n. 9. — "Frond doubly pinnatifid, oblong, shaggy on both sides; segments roundish-ovate, obtuse, entire; the lower ones usually three-lobed. Common flalk flagggy." — Gathered by Humboldt and Bonpland in South America. Common flalk fix inches high, or more, roundish, clothed with short rusty wool. Fronds three or four inches long, covered with rusty hairs; the upper segments roundish-ovate, very brown, and entire; lower with two or three flight lobes; common rib densely flagggy. Spikes triply compound, dense, taller than the leaf, with hairy ribs and flalks. Apparently akin to the following, but the outline of the frond is oblong, not triangular, and the rib straight, not zigzag. Willdenow.

11. A. flexuosa. Zigzag Anémia. Swartz n. 9. Willd. n. 10. (Ofmunda flexuosa; Lamark Dict. v. 4. 652.) — "Frond doubly pinnatifid, triangular, downy; segments oblong, obtuse, nearly entire; common rib zigzag. Common flalk downy." — Supposed to be a native of Peru, but for this there is no direct authority. We have seen no specimens. Savigm in Lamark describes this species as related, in many respects, to A. bifurca, n. 8, but the principal leaflets are simply pinnatifid. The spikès are 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, depressed, ribbed, entire, or slightly notched; paler beneath.

R. 2. The
ANEMIA.

The summit of each frond is obtuse, and simply pinnatifid. Spike triply and minutely compound, with linear short segments; their leaflets bipinnate.

12. A. tomentosa. Downy Anemia. Swartz n. 10. Willd. n. 11. (Olmunda tomentosa; Lamarck Diet. v. 4. 572.)—Frond doubly pinnate, oblong, clothed with tawny down; leaflets crescent-shaped, entire; the lower ones bluntly pinnatifid.

Common fronds downy. Ofmunda. Another species, seven or eight inches high, exuding the smell of myrrh, and covered all over with fine, long, cottony, tawny down. The common flanks is rather stout, twice the length of the leafy part, which is about two inches broad. Spike compound, on slender decurrent flanks. Savigny.

13. A. fulva. Tawny Branching Anemia. Swartz n. 13. Willd. n. 12. (Olmunda fulva; Cav. 1c. v. 6. 70. t. 593. f. 2.)—Frond doubly pinnate, triangular, somewhat downy; leaflets elliptic-oblong, bluntly pinnatifid, or ferrated. Spikelets partly whorled. All the flanks hairy.

—Gathered by Louis Née, on the hill called Pan de Azúcar, or in the Sugar-loaf, thirty-two miles from Monte Video. Above a foot high, with very hairy flanks, and broad fronds, doubly pinnate throughout, except at the very top. Leaflets three-quarters of an inch long, and one-third as broad, uniform, somewhat decurrent. The flanks seem to be simply compound, their branchi, horizontal, linear, deeply notched, many of them in whorls of three or four together; their common flanks and ribs hairy, fissioning off one or three lateral branches, which we have seen in no other species.


B. Willd. (A. afplenifolia; Swartz n. 10. Ofmunda afplenifolia; Savigny in Lamarck Diet. v. 4. 572.)

Frond doubly or triply pinnate, triangular; leaflets oblong, sharply toothed at the end, partly notched, hairy, as well as their common rib. Common flanks nearly smooth. Spikelets digitate. Native of the West Indies, particularly of Hispafonia, in dry rocky or sandy places. Its large handfolme, thinning, frizzated fronds bears considerable resemblance to our common Asplenium Asiantum-nigrum, to which, and not to the real genus Adiantum, the specific name alludes. The naked flanks 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 frizzated; convex above; paler, and rather more hairy, beneath; all their leaflets hairy. Spikes somewhat panicked; their ultimate divisons 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 Camphey by Houtteau, which differs chiefly in being not above a span high, with a leaf compound fronds, and having sometimes, from the fame root, much narrower, almost linear, leaflets. These common flanks are also rather more hairy, and the spikes more compact. It is nevertheless an evident variety, and probably the £ of Willdenow, to the characters of which it answers.

3. Pinnicle of flanks, on which flanks.

The height of each frond, with its flske, is about two feet. A few rather more slender flskes, from the root, bear each a long interrupted, whorled flske, with six or eight drooping, obtuse, defcne, blackish branches, in every whorl, above an inch long, on capillary flsks, but how they are subdivided we have no information. Plummer compares them to little black caterpillars.

18. A. ficulifolia. Hemlock-leaved Radical Anemia. Swartz n. 17. Willd. n. 17. (Ofimunda ficulifolia; Linm. Sp. Pl. 1521. O. ficulifolius folio altera; Plum. Fl. 138. t. 161. O. ciutte folio; Petv. Fl. n. 170. t. 9. f. 3.)—Frond three-branched, pinnate, pinnatifid; segments wedge-shaped, decurrent, notched at the extremity. Spikes panicked, on radical flsks.—Found but rarely by Plummer, in the forests of Hispaniola. A specimen, without any indication from whence it came, is preserved in the Linnaean herbarium, and referred to Ofimunda (Anemia) bipinnata, (see n. 15.) Linnaeus appears to have had it when he wrote the first edition of Sp. Pl., but all he says of either of these species is entirely taken from Plummer, who is the primary authority for both. A. ficulifolia varies from five inches to above a foot in height. The barren fronds have flsker, roughish, rather long, flsks, and are nearly pental- 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 midrib is winged. From the fame tufted root grow one or more rather taller flsks, each bearing a triply-compound, slightly hairy, panicled, or com- pound flske, whole linear ultimate segments are linden, on one side, with rather large, and not very numerous, capulfales, each having a very distinct, brown, shining, radiated top, below which is a lateral flske. The engraving of Plummer gives no idea of the fize or nature of these capulfales, nor of their arrangement, so that we may suppose him equally incorrect with regard to our fiftenth or seventeenth species.

Dr. Swartz, Syn. Fl. 158, points out, as a probable species of this genus, Ficuliforum americainc minus, ficus ramad fiberfur, Ammann in Comment. Petrop. v. 10. 395. t. 19. This was found by Dr. Houftoun at Vera Cruz, and however unlike the figure may seem to Plummer’s t. 161, our fpecimen mentioned, and partly defcribed, under the falt fpecies, serves to prove them, at leat in our opinion, one and the fame plant; for it explains the inaccuracy of both figures, and is intermediate between the two in the ftructure of the barren frond. We cannot doubt its being one of Houftoun’s fpecimens. The panicked infefure agrees with Ammann’s figure, but the detail of that figure is no lefs incorrect than Plummer’s, fo that nothing precise can be gathered from either.

ANEMOMETER, col. 2, for IX. infert VIII. No. 3.


Gen. Ch. Cal. none, except a three-leaved, variously

uncinate, involucral. Cor. Petals from five to fifteen, ovate or oblong. Stam. Filaments numerous, capillary, not half the length of the corolla; anthers two-lobed, erect. Pfl. Ger- mens numerous, collected into a head, fingle-feeded; flyles tapering; fligmas blunt. Peric. none. Recep. globose or oblong, covered with fmall excavations. Seeds numerous, crowded, roundifh, pointed with the permanent flyle, which in fome is lengthened out into a feathery tail.


This genus confines of perennial herbs. Roots (or perhaps fubterraneous flents?) either tuberous, or horizontally creeping, or simply fibrous. Leaves radical, flalked, fimple (or compound), lobed or cut. Flower-flalx radical, bearing at the fimmit an involucrum of three, rarely but two, leaves, variously cut, but confolmable in general to the proper foliage. From this involucrum proceeds usually one or many fimple, naked, fingle-flowered flske; some apparently caulefcent fpecies have one fuch leaflefs flske, and, besides, a fort of branch, bearing another flower-flalx, accompanied by a two-leaved involucrum. The flowers are indoruous, very variable, and readily become double.

The recent plants are acrid, and raise blifters in the skin, if applied externally; internally they are poifonous in fome degree, though feveral have been prefcribed in chronic obfthalmia, and venereal caries of the bones.

The forty-five fpecies, with which we are at preient acquainted, inhabit faiures, hills, woods or thickets, of temperate climates, principally in the northern hemisphere; the Pulsatilla are found on rough exposed hilly fields; Prenanath on the loftift mountains; Pulsatillata at the Cape of Good Hope; Amonanthece in meadows, faiures, or woods; Amonanthes in North and South America and in Asia; Omalanthe in mountainous situations. There are two fpecies from the Cape of Good Hope, four from South America, eleven from North America, feventeen 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 againit subdividing it; firt, because the fcction Prenanathus has the habit and flower of the Amonanthece, with the feathery-tailed fluit of Pulsatilla; fecondly, because the fruit being furnished with fuch an appendage, or deftrute of it, is not to be confidered essential in the preient cafe, the fame circumstance proving of no avail in the genus Clematitis, fo nearly related to the preient.

The following divifions, founded on the whole habit as well as the fruit, prove extremely natural.


3. Pulsatillata. Seeds very hairy. Petals fifteen to twenty. Involutal leaves two or three, fefile, cut at the summit. Species 9 and 10.


ANEMONE.

† 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. Carpelis, a word used by our learned friend for partial fruits, several of which belong to one flower, as in Uovaria, 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. Carpopis is used by Richard and De Candolle for the naked seed of Graines, as well as of Ranunculosae, 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 competitors, instead of extending; the terminology of natural history.


Seeds terminating in long bearded tails. Involutional leaves sessile, dilated at the base, divided upwards, in a palmate manner, into linear segments. Petals five or six. Glands, (abusive flaminos,) in several species, on short flanks, between the perfect flaminos 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.


—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 silky involucrum and petals, distinguish this species. The flower-flank 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.


3. A. sernas. Drooping Japane Confeder Anemone. Thumb. Jap. 238. De Cand. n. 5. Willd. n. 3. —Leaves pinnatifid, with notched oblong segments. Flower rather drooping. Petals fix, elliptic-oblong, spreading,—Native of Japan, about Jedo and Nagasaki, (Thunberg,) flowering in spring. All the flanks are very hairy, as are the leaves beneath, especially when young. The segments of the latter

are intermediate between vernalis and Pulsatilla. Staff six 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. Ait. n. 2. (Pulsatilla polyanthos violaces, anemones folio; Breyen. Cent. t. 61. "Helv. Pulsl. 52. t. 2. 3")—Leaves later than the flower; leaflets ternate, wedge-shaped, deeply and acutely pinnatifid and cut. Flower erect, spreading.—Native of Siberia, Poland, Silelia, &c.; recently found by Mr. Schliecher in Switzerland. The flowers are as large as any of this fiction, and more spreading, either pale yellow, white, or purple, than on a very short partial flank; the involucrum is 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 flank is greatly elongated, from six to nine inches, as the fruit ripens. De Cand.


6. A. proctens. Dark Meadow Anemone. Linn. Sp. Pl. 756. De Cand. n. 6. Willd. n. 7. Ait. n. 5. Fl. Dan. t. 611. Woodv. Med. Bot. t. 148. (Herba venti; Trag. Hift. 435. Pulsatilla; Cameer. Epit. 392. P. flore clauo; Lob. Ic. 283. P. flore minore; Ger. Em. 386. P. altera; Dalech. Hift. 850.)—Leaves doubly or triply pinate, with lanceolate, elongated segments. Flower pen-dulous. Petals fix, erect; reflexed at the summit.—Native of meadows, as well as of dry open fields, in Sweden, Denmark, Ruffia, Germany, France, and according to the abbe Belluci, near Corfum, France, with the same flowers. 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. Storck 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. albo. Pale Caucasian Anemone. "Steven Mem. Soc. Nat. Mofc. v. 3." De Cand. n. 6.* addend. 545.—Leaves doubly pinate, with numerous oblong-linear segments. Flower drooping. Partial flank feebly longer than the involucrum. Petals fix, erect, slightly reflexed at the summit.—Gathered by Mr. Stevens, on the lofty mountains of the eastern part of Caucasus. Allied to A. proctens, but differing from in the lobes of the leaves, and their subdivisions being shorter as well as more obtuse, rather oblong than truly linear; secondly, in the partial flank, even throughout the whole duration of the flower, rising scarcely above

the
ANEMONE.

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 professor De Candolle; which are very abundant in the preceding species.


Sec. 2. Preonanthes. Ehrh. Phryg. 95. Seeds terminating in long bearded tails. Involucral leaves ternate, tallked, pinnate, with deeply ferrat, notched lobes. Petals five or six. No glands, or abortive flaments. Radical leaves ternate; their divisions pinnate, doubly compound, cut and ferratated. No flowers white or yellowish.


2. Flower white, as in s, but much smaller. (A. alpina; Jacq. Auftr. t. 85. Wildl. n. 8, a. A. fylvetris alta; Cluf. Hist. v. i. 245. Pulsatilla alba; Lob. Inc. 282. Dalech. Hist. 849. P. flore albo; Gen. Em. 386.)

1. Floral large, yellow. (A. api folia; Jacq. Muc. v. 2. 47. t. 4. Wildl. n. 9. A. sulphurea; Linn. Mant. 78. A. myrrhifolia; Villars Dauph. v. 3. 727, from the author. A. n. 1149, 8; Hall. Hist. v. 2. 63. Pulsatilla lutea; Camer. Epit. 393. P. tertia; Dalech. Hist. 851, bad.)

Leaves ternate, pinnate, with pinnatifid, decurrent, ferratated lobes. Involucral ones similar. Petals fix, spreading.

—Native of paitures and rocky declivities in most alpine parts of the middle of Europe, Switzerland, the Pyrenees, the south of France, Austria, Carinthia, &c.; flowering in summer. The conformity of structure between the involucrum and the radical foliages, clearly averts this species. We readily concur with Haller and De Candolle, that the dilate type of bole, between the yellow, lemon-coloured, or white flowers, or of fize between the large-white and the small, indicate more varieties. But we fearly fee any reason to mark the more or less hairy leaves as permanent varieties; the former being caufed by more dry and exposed situations of the fame 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 leaf its dimensions are every way doubled. A fingular moniftrophy of variety 8, sent us by the late Mr. Davall, has one of its petals flipped down, if we may fo express it, into the involucrum, and greatly enlarged. This, as M. De Candolle juftly 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 feveral times seen running into each other, or half and half of the perfect nature of each. See 3. Petals Pulsatilloides. De Candolle.

Seeds very hairy. Petals from feven to twenty, oblong. Involucrum of two or three leaves, somewhat flathing 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. Sp. Pl. 764. Wildl. Sp. Pl. v. 2. 1286. Ait. Hort. Kew. v. 3. 342. Andr. Repof. t. 9. Curt. Mag. t. 716. Pul- satilla folis trifidis, dentatis, flore incarnata, pleno; Burm. Afric. 148. t. 52.) —Leaves twice-ternate, rigid, smooth; segments wedge-shaped, sharply toothed.—Native of flowy acclivities 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 1792. This plant is somewhat caulecent, but the leaves are crowded about the lower part, almost close to the woody root. Their texture is extremely firm; their segments varying greatly in feize, breadth, and shape; the young ones villous. Flowers one or two from each involucrum, which resembles the leaves, but is smaller, with a dilated inflated flalk. The partial flower-flalks are long and downy. Petals thirteen to eighteen, linear-oblong, above an inch in length, pink, or pale blith-coloured, spreading, very handfome. German extremely hairy, ovate, each with a recurved style.

11. A. tenuifolia. Fine-leaved Cape Anemone. De Cand. n. 10. (Atragene tenuifolia; Linn. Suppl. 270. Wildl. Sp. Pl. v. 2. 1286. Thunb. Prodr. 94. A. tenus; Thunb. Jap. 239, note.) —Leaves three-ternate, rigid, smooth; leaflets pinnatifid, with linear-threaded, acute, entire lobes. —Found by Thunberg at the Cape of Good Hope. The leaves are more compound, and more finely divided than thofe of the preceding species; the plant is defcribed as more caulecent, 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 fufpicion that Linnaeus confounded this with the lat. See 4. Anemonanthea. De Cand.

Seeds nearly ovate, hooked with the permanent style, either very hairy or haggry, or in fome inftances nearly smooth. Partial flower-flalks solitary in each involucrum, or very rarely two together, always single-flowered and naked. Petals from five to fifteen.


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. Grac. Sibth. t. 514, unpubl. Lamark f. 1. (Anemone; Camer. Epit. 386. A. hor- temis tenuifolia, fimplices flore, n. 2—20; Cluf. Hist. v. 1. 255—260; alfo pleno flore; ibid. 263. A. tuberofa radice, et coccineae multiplex; Lob. Inc. 277. Gen. Em. 374; fee alfo feveral in his fubfquent pages.) —Leaves twice ternate, pinnatifid; segments linear-wedge-shaped, smooth-edged, sharply cut. Involucrum fefille, many-cleft. Petals fix, oval, concave, converging.—Native of dry, as well as rather moist, paitures, 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 botanifs in thinking it the anemone 87 of Dioscorides; and the learned Sprengel takes the anemone 87 of Hippocrates to be the fame plant. This species, however, bears the fame name in modern Greek, ανημονια, as the Field Poppy, Papaver Rhaea; 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, difplaying every beauty and splendour of colour, are among the most rare and admired decorations of a parterre. We

confes
ANEMONE.

confers a predilection for the single kinds, equally beautiful and various in colour, which may be raised abundantly from seed in any airy and sunny spot, and require but little trouble in transplantation every fourth or fifth year. They flower mold 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 gratinlates of the Roman villa. The feeds are covered with long, soft, tenacious down, concerning the effect of which an amusing story is told by Tournouet and Miller. A lawyer in the south of France fole these feeds from a covetous amateur, by ordering his page to drop, as if by accident, the silk train of his robe, when they passed over the bed of feeding Anemones, and thus obtained a plentiful supply.

13. A. pyllata. Dwarf Anemone. De Cand. n. 12.—Leaves thrice ternate, pinnatifid, many-cleft, with linear pointed segments. Involutum seifile; cut at the summit. Petals fix, oblong, distant.—Gathered in Cyprus by Labiliardiere. Nearly akin to the last, and perhaps a variety. Root tuberosous, the size of a filberd. Leaves smooth, stalked, with narrow linear segments. Flower-flalk a finger's length, slender, downy, erect. Involutum of three leaves acutely cut and toothed at the apex. Partial flalk either the length of the involucrum, or twice or thrice as long. Flower erect, pale purple. Petals fix, rarely but four or five, oblong, bluntish, distant and spreading, about four times the length of the flaments. Seeds woolly, collected into an oval-oblong head. De Cand.

14. A. pannonica. Peacock Garden Anemone. Lamarck Dict. v. 1. 166. De Cand. n. 13. "Fl. Franc. v. 5. 634." Brotn. Lufft. v. 2. 353, not 263. (A. Hortenisia latifolia, pleno flore, et flore coccineo; Clus. Hift. v. 1. 261, 262, with three figures. A. maxima chalcedonica polymathos; Ger. Em. 375. Lob. Ic. 278. A. flattata, gerani aut aconito folio, duplicato flore purpureo; Cupan. Panph. v. 1. t. 121. ed. 2. t. 22.) Leaves ternate or deeply three-lobed; leaflets or segments wedge-shaped, cut and toothed. Involutum seifile, 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. Diffees from A. coronaria in its leaves divided leaves, and especially thofe 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 petal are also peculiar. We feel convinced with Lamarck and De Candolle that this must be a distinct species, though confounded by Linneus and others with the more frequent A. coronaria. We have not sought out its varieties among the double Anemones, but there is a scarlet one not uncommon. The French know some of these varieties by the names of Oeil de paon, Candida, &c. If this be not distinct, it should seem to belong to the following rather than to any other.

15. A. hortenias. Starry Garden Anemone. Linn. Sp. Pl. 751. Willd. n. 11. Ait. n. 8. Curt. Mag. t. 123. Sm. Fl. Græc. Sibth. t. 515, unpubl. (A. Hortenisia latifolia, simplici flore, n. 3—18; Clus. Hift. v. 1. 249—254. A. prima; Dod. Pernst. 434. A. secunda; Camer. Epit. 487. A. tubera, bulbocastani radice; Lob. Ic. 279. Ger. Em. 375. f. 5. A. n. 1122; Hall. Hift. v. 2. 64. A. flattata; Lamarck Dict. v. 1. 166. Brotn. Lufft. v. 2. 353. Savi Ettruf. v. 2. 122. De Cand. n. 14. "Fl. Franc. v. 5. 634.")—Leaves ternate; leaflets wedge-shaped, rough-edge, three-cleft, cut. Involutum seifile; 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; lefts abundantly in the south of France, and Switzerland. Clulius observed this species near Mentz. It has been known in gardens for a century, and is peculiar in beauty and variety, has given place to that popular species. We cannot follow Lamarck in its specific appellation, becaufe there is no end of changing names for the better; unless all leading botanists would concur 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 stems. The latter are ternate, on long stalks; their leaves 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. Involutural leaves three, an inch long, silky, rough-edged; one of them in general slightly notched at the end. Partial flalk long, silky, especially near the top. Flower scarcely above an inch wide, of a delicate rose-colour, or full carnation; the petals bilky at the back, veiny, often emarginate. The rough-edged leaves and involucrum are characteristic of this species, but the involucrum of pannonica, (we have not examined its leaves,) has the same character, which coronaria has not. We are strongly perfuaded of pannonica being a variety of hortenias, and that the acutens or bluntets of the petals is variable.

16. A. palustris. Cyclamen-leaved Anemone. Linn. Sp. Pl. 758. De Cand. n. 15. Willd. n. 12. Ait. n. 9. Andr. Repof. t. 172. Vahl Symb. v. 3. 73. Desfont. Atlant. v. 1. 432. (A. hortenisia latifolia, simplici flavo flore; Clus. Hift. v. 1. 248. Morif. féc. 4. t. 25. f. 3. A. latifolia Clusii; Lob. Ic. 275. Ger. Em. 376. A. latifolia flava; Barrel. Ic. t. 792.)—Leaves simile, heart-shaped, rounded, with three or five blunt, sharply-toothed lobes. Involutum seifile; its leaves in three linear, acute, hairy lobes. Petals ten or twelve, oblong, obtuse.—Native of rather moist 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 handsome. The leaves, notwithstanding Mr. Andrews's doubts, are truly palmet, differing from the last in being simile, 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, almost uniform, hairy or filky, 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, filky. Flowers an inch and a half or two inches bread. Petal linear-obovate; the five outer ones remarkably hairy externally, and so disfigured in Linneus's only specimen, that he took them for the same kind of close calyx as occurs in Hepatica, only with a double number of segments. Thus he was led to place A. palustris in his first edition, Hepatica, and this will solve Vahl's difficulty, recorded in his Symbola above cited. But it will not account for this author's extraordinary quotation of Linneus's words, which are "calyx fesparitus, integerrimus, villosus, coloratus, nec a flore remotus. Vahl cites this pallage, "calyx hexaphyllus, coloratus, a flore remotus." The lopped double variety of the present speci-
ANEMONE.

acies, Chlor. Hift. v. 1. 249. f. 1, and Ger. Em. 376. f. 7, which De Candolle marks with doubt, and has never seen, 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. Ar- 
duin. Spec. 2. 27. t. 12. Linn. Mant. 79. De Cand. n. 16. 
Wildl. n. 17. Lamarck Dicî. v. 1. 167. ('Ab trilobata; 
Juff. Ann. du Mus. v. 3. 247. t. 21. f. 15.')—Leaves ter- 
rate; leaflets rounded, unequally three-lobed and toothed. 
Involucral leaves felife, three-twin, with linear seg-
ments. Petals ten or twelve, elliptic-lanceolate, obtuse.

Sent by Father Panizzi to professor Ardutus, from Brasil, 
where Comerçon also met with this curious little plant; as 
did Dombey and Nez in Peru and Chili. The root is ovate 
and tawerous, about the size of a fingerb.’ Leaves smaller 
than the leaf, and perfectly tawert, obliquely dotted, be-
prinkled with short hairs, but not rough-edged; their 
teeth unequal, bluntish, often callous-pointed. Stalk 
two or three inches high, silky 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; 
filky and purplish at the back.

Michaux Borel. Amer. v. 1. 319. De Cand. n. 17. ("A. 
Pursh 386.")—Leaves ternate; leaflets wedge-shaped; 
abrupt and tawert at the extremity. Involucral leaves 
fellife, deeply three-cleft, somewhat notched. Petals six, 
ovo-oblong.—Native of banks of rivulets at Hudson’s bay, 
Labrador, and Newfoundland, flowering from March to 
May. Akin to the two last. Radical leaves smooth and 
naked; involucral ones with oblong segments. Stalk very 
long. Flowers, according to Pursh, white, the size of A. 
memorofa. Seeds woolly, pointed, forming a globular head. 
De Candolle.

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 Millouri, by governor 
Lawson; flowering in May. Root small, mellow. Herbs 
tender and delicate. Leaflets borne with only toothed, and 
others with deeply three-cleft, jagged, and sharply toothed, 
lubes. Stalk single-flowered. Involucrum of three leaves, 
with jagged segments. Partial flabk long. Petals small, 
white, externally downy. Seeds pointed, woolly. The 
fourth Ranunculus, Pluk. Almag. 310, cited doubtfully by 
De Candolle, who has omitted the word processus in tra-
scription, seems to us at best very uncertain, and particularly 
on account of that very word.

Symb. v. 3. 34. t. 65. De Cand. n. 19. Wildl. n. 18. 
Lamarck f. 3. ("A. fumariaefolia; Juss. 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 Comerçon at Monte 
Video. It is said to have been also found in Peru, by Leu-
baz; 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, disarrivated seg-
ments, quite smooth, entire at the edges, and not at all 
toothed or serrated. The involucrum too is somewhat dif-
ferent, each of its three leaves being first divided half way 
down, into three parts, and those subdivided into many 
flesher, tapering segments. The seeds are numerous, taper-
ing, beaked, very hairy, closely imbricated in a cylindrical, 
however elliptical, head, an inch long.

Cand. n. 20.—Leaves ternate; leaflets deeply divided 
into linear, obtuse, partly cut, lobes. Involucral leaves felife, 
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 var-
ieties.


Curt. Lond. f. 1. 3. 35. (A. geranifolia; Banh. 
hortensia tenuifolia, simplex flore; Chlor. Hilt. v. 1. 
254. Ranunculus nemorosus, flore caruleo, duplex, apennini 
monis; Mentz. Pugl. t. 8.)—Leaves twice ternate, pin-
atifid, sharply notched. Involucral ones flaked, ternate, 
pinnatifid and cut. Petals twelve to fourteen, oblong, ob-
tue.—Native of groves and thickets in some parts of Eng-
land, but rare, as near as Wimbledon, Lutton-hoe, and Ber-
hamstead. Fl. Brit. In Italy it occupies the place of A. 
memorofa in the more northern parts of Europe, and is 
equally plentiful, flowering in March and April. Dr. 
Sibthorp noticed it in the Morea; Dr. Clarke on the banks of 
the Simum; and the maron Marschall von Bieberstein in the 
Iberian Caucasus. The root is smaller than a filderb, bear-
ing one or two leaves, each on a zigzag footstalk, very 
flesher at the base. The leaves much resemb I Geranium ro-
bertianum; those of the involucrum are similar, but less 
separated, with narrower segments. Stalk solitary, from four to 
nine inches high, fiaky above the involucrum. Flower of a fiaky 
blue, with pale flaveus and fflavis, very beautiful, said to be 
of occasion whilily white.

r. 22.—Leaves... Involucral ones on short flalks, trilab 
pinnate, cut and toothed. Petals four or five, oval."— 
Gathered by Mr. Patrin, near Zemof in Siberia, flowering 
in the early spring. The root and radical leaves are 
wanting in the specimens seen by De Candolle. This species 
agrees in description with the leaf, but the partial flalk 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.

***Involucre leaves flaked.*** Root-stock cylindrical, flender, elongated.

24. *A. baldenia*. Strawberry-fruit Anemone. Linn. Mant. 87. De Cand. n. 23. Willd. n. 14. Allion. Pedem. v. 2. 172. f. 44. f. 3, and t. 67. f. 2. (A. fragifera; Jacq. Misc. v. 2. 55. L. Rar. t. 103. A. alpina; Scepp. Cam. v. 1. 384. f. 26. A. n. 1151; Hall. Hist. v. 2. 63.)—Involucres twice-ternate, many-cleft; segments linear or wedge-shaped, acute. Involucral ones similar, flaked, lefs compound. Petals eight to ten, elliptic-oblong. Fruit ovate, woolly.—Native of the alpine precipices of mount Baldus, as well as of Switzerland, Dauphiny, Savoy, Austria, the Tyrol, &c., first cultivated in England by Mr. Lodidge, in 1792. It flowers early in summer. The root is long and woody. Leaves firm and rather glaucous, smooth, like rue, but narrower; their footstalks hairy, an inch and a half long. Flower-stalk hairy, erect, three or four inches high, with a large three-leaved involucrum below the middle. Flower white, rather larger than *A. apenninna*, with fewer and broader petals. Fruit the size and shape of a small strawberry; with the reddish beaks of its styles hinging out of the copious dense mats of twanny silky wool. * receptole* perfectly cylindrical.


Leaves ternate; leaflets in three, or five, deep, three-lobed, notched, lanceolate, acute segments. Involucral ones similar, flaked, lefs compound. Petals six, elliptical.—Common in groves and thickets throughout Europe, where *A. apenninna* scarcely occurs, flowering in spring. About the size of that species, with some resemblance 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 flender, not ovate. The flowers are white, often tinged with purple externally, formed of six broad petals, totally unlike *apenninna*. 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 Plukkenet’s bad figure, made it a species.

26. *A. triloba*. Wedge-leaved Anemone. “Juff. Ann. du Mus. v. 3. 240. f. 20. f. 3.” De Cand. n. 25.—“Leaves twice ternate; leaflets somewhat wedge-shaped, deeply three-toothed. Involucre leaves flaked, ternate; lateral segments divided. Petals five, oblong.”—Described by De Candolle, from Juffien’s herbarium, but the native country of the plant is unknown. It is said to be extremely similar to *A. nemorosa*. The root is horizontal. Radical leaves on long stalks, whose partial stalks bear each three nearly wedge-shaped, cut, or toothed, leaflets. The lateral leaflets of each involucre leaf being divided, give the appearance of five leaflets in each. *Flowers one or two to an involucrum. Petals oblong, narrow, elongated.* De Cand. n. 21. *A. lancifolia*. Lanceolate-leaved Anemone. Pursh n. 2. De Cand. n. 26.—Leaves all stalked, ternate; leaflets lanceolate, bluntly toothed. Petals five, ovate, acute. On high mountains in a foggy soil, in Pennsylvania and Virginia, flowering from May to July. Refers to *A. nemorosa*, but the flowers are larger, of a clear white. Pursh. De Candolle says the leaf of *A. triloba* from which we are led to suppose that Plukkenet’s t. 106. f. 3, cited by Linnæus and others for quinquifolia, with which it does not well accord, may belong to the species before us.

28. *A. triloba*. Three-leaved Anemone. Linn. Sp. Pl. 762. De Cand. n. 27. Willd. n. 21. Ait. n. 16. Dodd. Pemps. 436. Ger. En. 357. Morif. sect. 4. t. 25. f. 1. (A. trifolia, flora albo; Bauh. Hist. v. 3. 412. Alabastrites, five Dentaria alba; Lob. Isc. 281.)—Leaves and involucre flaked, ternate; leaflets of all ovate, acute, serrated. Petals five or six, elliptical, obtuse.—Native of rather mountainous groves and thickets, in France, Piedmont, Tufcany, Carolina, Cariithia, and Siberia, flowering in spring. Gerard shows to have cultivated this species, but we have never seen or heard of it in modern times. The root is oblong, horizontal, somewhhat toothed. Leaves two or three inches high, each of these leaflets about an inch long, with hairy ribs and edges. Stalk about a foot high, or more, angular, smooth, bearing an involucre of three uniform flaked leaves, like the radical ones, but rather larger; the lateral leaflets very unequal at their base; the central one tapering into the footstalk. *Partial flower-stalk* about the length of the stalks of the involucre, solitary, simple, flender, hairy. *Flower* scarcely an inch broad. *Petals* from five to seven, white; purplish underneath.

29. *A. nematina*. Leaf Anemone. De Cand. n. 28.—“Leaves..... Involucral ones stalked, deeply three-cleft; lobes ovate, pointed, serrated externally and at the extremity. Petals five, oval-oblong, obtuse.”—Native of the Alleghany mountains in Virginia; *Palisat de Beaucoup*. Remarkably tender and delicate, resembling *A. triloba*, but only one-third its size. Root long, flender, horizontal, fending out a few fibres. Radical leaves wanting in the speci- men. Stalk flender, round, smooth, a finger’s length. Leaflets of the involucre closely set; the lateral ones strongly furred at their outer margin, and from the middle to the end at both margins. *Partial flake* the length of the involucre, erect, downy, simple. *Flower* small, white. *Petals* smooth, four lines long, and two broad. *Siemen* half as long. *Germens* few, downy. *De Cand. n. 29. A. ranunculoides*. Yellow Wood Anemone. Linn. Sp. Pl. 762. De Cand. n. 29. Willd. n. 26. Fl. Brit. n. 4. Engl. Bot. t. 1484. Fl. Dan. t. 1452. Sav. Etirf. v. 2. 123. (A. n. 1153; Hall. Hist. v. 2. 64. A. nemorum lutea; Ger. Em. 238. Ranunculi quarta species lutea; Fuchh. Hist. 162. R. tertia species; Cord. Ann. 120, with Tragus’s figure of *A. nemorosa*, of which the larger part resembles that species, the smaller this. Ranunculus nemorosus luteus; Bauh. Pin. 178. Lob. Isc. 674. Morif. sect. 4. t. 28. f. 11.)—Leaves ternate or quinate; leaflets three-lobed, deeply notched; wedge-shaped at the base. Involucral ones similar, ternate or quinate, somewhat flaked. Flowers mostly in pairs. Petals five or six, elliptical.—Frequent in groves, thickets, and hilly pastures, throughout the north and middle of Europe, as well as Siberia and part of Caucausis, but rare in England. Mr. Hudfon found it in Kent and Harfordshire; and the late Mr. Geo. Anderdon brought us specimens from near Abbott’s Langley, flowering early in April. The root is flender, horizontal. *Herbage* not unlike *A. nemorosa*, but the
the leaflets are more elongated and cut, and the stalks of the involucre 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 flake appears to droop as the fruit ripens. The germens 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.

31. A. reflexa. Reflected Anemone. Stephen in Wild. n. 25. De Cand. n. 30.—"Leaves ternate; leaflets somewhat three-cleft, toothed at the extremity. involucral ones similar, flaked. Petals five or five, linear, obtuse, reflexed."—Native of Siberia. Stalk finely downy at the top, slender, a palm in height. Involucral leaves smooth, on downy stalks; their leaflets acute, tapering at each end. Partial flake solitary, shorter than the involucrum while in flower, erect, slightly hairy. Flower yellow, one-third the size of the leaf. Stamens very numerous, shorter than the petals. De Candolle, Wild.

*** Involucral leaves flaked. Root of ithe fibres.

32. A. falcifera, Snow-drop Anemone. Linn. Sp. Pl. 761. De Cand. n. 31. Wild. n. 15. Ait. n. 12. Curt. Mag. t. 54. Bull. Fr. t. 59. (A. falcifera prima; Chf. Hft. 144. A. tertia; Math. Valgr. v. i. 565. Loup. 1. 282. Cameroon. Epit. 368. Dickev. Hft. 815. A. Michelm.; Ger. Em. 277. A. n. 1159; Hall. Hft. v. 2. 63.)—Leaves ternate or quinate; leaflets lobed; deeply notched at the end. Involucral ones similar, flaked. Flower solitary. Petals six, elliptical. Fruit very woollen. Root fibrous.—Found in woods and hedges in various parts of France, Switzerland, the north of Italy, Germany, Siberia, &c. but not in England, though a very debile hardy perennial in our gardens, flowering in spring, and sometimes in autumn. The root consists of long, black, rather stout fibres, and creeps rather extensively. Leaves large, dark-green, veiny, nearly smooth, coarsely notched; their leaflets or lobes wedge-shaped at the base. Fower-leaf fifteen or eighteen inches high, erect, downy at the top, bearing about the middle three, rarely four, large, flaked involucral leaves, whole leaflets, five or more, are scarcely distinct at the base. Fower pure white, rarely purplish, or greenish, externally downy; its petals near an inch long, slightly coriaceous. Fruit ovate, the seedscohering for some time by their dense cottony wool, which, at length, by spreading itself, wafts them away. We have one Swifl's specimen with two partial flakes, one of which bears a partial involucrum, as in the next section.

33. A. alba. Cotton Anemone. "Juff. Ann. du Mus. v. 3. 248. t. 20. f. 1." De Cand. n. 32.—"Leaves ternate or quinate; leaflets deeply toothed at the end. Involucral ones similar, flaked. Flower solitary. Petals five, obovate. Fruit very woolly. Root fibrous."—Native of Dauria, and the Crimea. Very like the last, but rather smaller. Petals five, not six, shorter, rounder, and very obtuse. The seeds are woolly, that Demidow affirms they supply the place of cotton. De Candolle. We concur in opinion with our author, that this plant is probably a variety, we should say a very flight one, of the foregoing species. If distinct, the name of cozzipina would have been far preferable to alba. We would also suggest, that this last division of the fourth fection of the genus, rather belongs to the fifth, which is shown by its habit and by the eafual variation in the inflorescence of A. tyllelgis above noticed, of which we have seen more examples.

Seet. 5. Anemonepernos of De Candolle; not of former authors.

Seeds rather compressed, villous, hooked with the per-
ANEMONE.

Partial flanks long, straight and slender, single-flowered, rarely somewhat leafy. Petals three-quarters of an inch long, obtuse. Seeds compresse, pointed, sparingly downy. A variety, or perhaps a distinct species, found by Laxmann in Siberia, is mentioned by De Candolle, which approaches *A. narcissiflora* in the first appearance of its *inflorescence*, but is really more akin to *penovskyana*, differing, as it seems, chiefly in the situation of each small *partial involucrem*, near the bottom of their respective flanks. We have not seen any specimen.


—Frequent throughout Siberia. *Gmelin*. In wet woods, and natural meadows, of Canada, and the western parts of New York, flowering in May and June. *Puebl. Root finder*. Herb smaller than the preceding, and smoother, with only two leaves to the general *involucrum*, and the leaves or segments have larger, but much fewer, teeth or serratures. The *flower* moreover is smaller, tinged with red on the outside; and the *seeds* are smooth.


40. *A. vitisfolia*. Vine-leaved Anemone. Buch. MSS. De Cand. n. 39.—Leaves palmate, acutely seven-lobed, serrated; downy and hairy beneath. Involutures ones similar, three or five-lobed, flaked, heart-flavored, two or three together. Petals five, ovate. Germens smooth.—Gathered by Dr. Francis Buchanan, near Sembu (not Lamba), and Narainhettty, in Nepal, flowering in August and September. The *radical leaves*, in his own specimens, are from six to ten inches wide, smooth above, strongly and copiously veined, cut more than half way down, into three principal, pointed lobes, with two or three more shalowy, rounded, and imperfect ones at each side. *Foot-flakes* a foot long, angular, hairy. *Involuture leaflets* much smaller, and leaves lobed; their *flasks* of various proportions; three at the first subdivision of the tall downy *flower-flask*, two at the upper ones. *Flowers* the size of *A. fyiiflora*, white, externally silky, reddish, and strongly ribbed. *Seeds* numerous, covering a globular *receptacle*, interperfed 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 *Rupbus edorus* in dimensions.

41. *A. rivularis*. Water Anemone. Buch. MSS. De Cand. n. 40.—Leaves ternate, hairy on both sides; leaflets wedge-shaped, three-cleft, notched, and harshly toothed; involucral ones spongy, deeply three-lobed, pinnatifid, cut. Petals five, ovate.—Native of the moat banks of rivulets in Upper Nepal; gathered by Dr. Buchanan, near Chittog, April 12, 1802. *Root* rather woody, as thick as the thumb. *Radical leaves* numerous, three inches broad, on hairy *flakes* from four to eight inches long. *General involucral ones* three, larger, more elongated and pinnatifid; *partial two*, with full *receptacle* lobes. *Flowers* half the size of the leaf, white; purplish and hairy beneath.

Seet. 6. Omalocarpus. De Candolle.

Seeds compresse flat, oval-obicular, very smooth, perfectly definite of point or tail. Flower-flasks numerous, singly-flowered, naked, forming an umbel in the involucrum; rarely solitary.


70. monantha. De Cand. (A. dubia; Bellard. App. ad Phil. Pedem. v. 26. t. 5. (not 252. t. 7.)

Radical leaves slightly hairy, in three or five, very deep, wedge-shaped segments, with unequal, linear-saccate 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 obvate petals, occasionally tinged, especially underneath, with purple, readily diffusions this species. The involucrum is spongy, divided like the leaves, and like them hairy on both sides, but not particularly so at the edges. The germens and broad seeds are quite smooth. Tournouer's plant, our Β, is a very slight variety, with a more dense umbel. We know Dr. Bellard's *A. dubia* merely from his figure, for he himself never saw more than one specimen; and 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 *narcissiflora*, we have not materials to form any opinion; nor were those with which he was furnished quite satisfactory.

43. A.
Vahl (A. lobes a but De "Bauh. Tourn. De Breyn. lobes parvtjlora, CahdoUe in 'V. footjlalks —have <an Jerfey. Cand. Root notched. v/cll to fays fmooth. Gmel. two more fegmcnts. from PI. hairs, De VI. f radical five, as been obferves, copied by three, who agree in fixe, and in cer- tain pale glands, between the segments of the leaves, pecu- liarly visible in thefe Siberian specimens, though not noticed by authors in any. We fuppect that these specimens may prove the identity of A. umbellata and norcflifora.

44. A. fabrica. 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, bluntish, fringed segments. Involutural ones similar, on short flalzk, partly erupted. Flower foliary. Petals fix, orbicular. Germen smooth.—Native of Siberia, from the river Yenifey to the country beyond the lake Baikal. Gmelin. That author fays 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 laft-described. The footflalks and the flower-flalks, which is only four inches high, bear many, long, scattered, spreading, tawny hairs. The flower is an inch and a quarter broad, with orbicular spreading petals, longer than the involucrem, and, as far as can be judged from a plant so long dried, they appear to have been yellow, or orange-coloured, refembling a Trollius. 
† Species not sufficiently known.

45. A. Walteri. Walterian Anemone. Purf n. 5. De Cand. n. 44. (Thalictrum carolinianum; Walt. Carol. 157.)—"Radical leaves palmate, on long flalks. Flower-flalk radical, erect, long, single-flowered. Petals five. Root tuberous and fibrous." Walter.—Native of Carolina. Mr. Purf never 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. Professor De Candolle fuppects it may prove akin to A. parviflora, n. 18.

†† The following synonyms could not be reduced by De Candolle to any known species.
Anemone n. 1, 2, 4, 5, 6, and 9 of Matthiolius; fee the Valgarian edition, v. 1. 563—567, where are figures of the fift five, copied in Bauhin's edition of 1598, p. 460, 461; Dalech. Hilf. 442—444 and criticized in Bauh. Hilf. v. 3. 409. These are very obscure, and perhaps, as De Candolle observes, fictitious; some of the cuts repreffing species of Adonis, we fhou'd say Papaver, rather than any Anemone.

A. quinta; Camer. Epit. 390, copied in Bauh. Hilf. v. 3. 458, 459, by the name of A. ranunculi facie lutea. This seems a confusion of Eranthis (Helleborus) hylomali, and Ranunculus montanus.

Ranunculus nemorofus, Anemones flore minor; Bauh. Prod. 95.—Found at Montpellier; but not known to Magnol.

A. folio aconiti, radice rapunculi, flore ex purpurà albicante; Bauh. Hilf. v. 3. 427, 428. —Found on funny hills near Warfaw.

A. folio coriandri, radice olave, flore purpuro, Tabern; Bauh. Hilf. ibid. Probably, as De Candolle fuggifegs, A. coronaria.

A. folio multiplo bifurto, flore quadrifido, rubro, albo, ceruleo; Bauh. Hilf. ibid. —Native of Italy, Schonia, and the Morea.

A. Anguillare lutea quadrifolia, folii multisidis; Bauh. Hilf. v. 3. 428. —Native of Apulia.

A. lutea Rauwoldi; Bauh. Hilf. ibid. —Found about Aleppo.


P. orientalis tenuifimé divia et villofa, flore rubro; Tourn. Cor. 20.

A. flameniis; Scop. Ann. Hilf. Nat. 2. 54.—Native of mount Feude, in the Tyrol. This feems, by the author's defcription, to belong to A. alpina, as M. De Candolle fup- pects. We do not understand the reference of the latter to Fl. Auftr. 2. p. 43. There is nothing to the purpoze in that vol. and page of Jacq. Fl. Auftr. nor in Scopoli's own Flora Carniola.

—Found in Silefia.

To thefe may be added A. anomala, Rafinefque in Florida Ludoviciana 82.—Leaves ternate, fefille, cut. Petals five, unequal. Stem about a foot high.


For A. Hepatica, Linn. Sp. Pl. 758; fee Hepatica hereafter.

ANEURISM. Subsequently to the period when the article Aneurism was infefted in the early part of this Cyclopaedia, many new and valuable observations have been made upon the fubjeft; and the fucces of operations for the cure of the difeafe has been proved in a manner which has falificd the expectations of the moft fanguine. The firf grand improvement in this branch of operative furgery was unequivocally that of not opening the tumour itfelf, but cutting down to the vesif ial a certain distance from the difeafe, and there applying the ligature so as to impede the flow of blood into the aneurifmal fack. The removal of the filling 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 fuppurate. But thofe were not the only objections to the old method of operating; for the fack was opened, and the artery tied in a futation where its coats were actually in a difeafeed flate. Hence the ligatures moftly faild in their effect; the vesif 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 tumorous fistula itself, and tying the artery in a place where it was in a morbid condition, this dilated suture was perceived that it would be far better practice to tie the vessel where it was more likely to be found, viz., at the point some way from the diseased towards the heart. Thus in the popliteal aneurism, he avoided the painful operation of laying open the swelling in the ham, and more skillfully and scientifically took up the femoral artery itself in the middle of the thigh. From this important innovation, all the successors 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 deviated and practiced operations for the cure of such aneurisms, as a few years ago were looked on to be 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 incisions 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 disease for which Mr. Stevens operated at Santa Cruz. The patient, whose name was Thomas Coll, aged twenty-nine, presented himself at the York county hospital, April 29, 1817. He was a tall, strong, active bargeman, not corpulent, but very muscular. He was enduring great pain from a large, rent, pulsating tumour, situated under the gluteus of the right side, an obvious aneurism. It had existed about nine months, and was the consequence of a blow from a stone. In a consultation with Dr. Lantin 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, which could not be closed. The patient was discharged, and the operation was successful, and the patient, as seen in the hospital, regularly walked forty miles in two or three days.

The operation was performed 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 weakness as may be supposed 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, Scarpe, &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 axillary 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 success by Dr. Poole, of New York. We believe this to be the only instance in which this mode of operating has cured the diseased, and saved the patient’s life. The artery, however, has been several times taken up in this way in London; once by the late Mr. Ramden, and again by Mr. Thomas Blizard; but their patients did not recover. The particulars of Dr. Poole’s case are inserted in the Medical-Chirurgical Trans. vol. ix. p. 185, &c.

ANGAR ISLAND, in Geography, an island of the Peruvian gulf, somewhat larger than Ormuz, and equally barren. It is now uninhabited, but prefects traces of former population in the ruins of a considerable town, and many refervoirs for water. It has two wells and a stream of good water, is covered with pits of salt and metallic ores, and also a soft rocky substance resembling lava: its hills, which are overgrown with shells of oysters 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. (see 7. r. Domenichino; i. 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 DANEA, GELECHIATA, 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, these capsules are not of many cells, like those of DANEA and MARATTIA, but as perfectly simple as in OSMUNDA already described, or BOTRYCHUM hereafter to be
be mentioned. They are, however, not dispersed, or irregularly placed, but compose oval masses, of twelve or more carpelles, which masses 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 interfin, of each mafs, between its two rows of carpells. That these masses are determinate affembliches of carpelles of an appropriate figure, is evinced by their having at each end a solitary tranverse carpelle, completing their oval outline, which is not perfectly expressed in Dr. Swartz's figure. The genus is, doubtless, very distinct; and as its present name is not only faulty, but unmeaning, it would be well if Clementea, in honour of an able crypto-comic Spanish botanist, Don Simen de Roxas Clemente, had been retained. We should certainly now, without scruple, have restored it, were there not several other names of ferns, composed of pteris, which must stand or fall with Angiopteris.

1. A. euchla. Tall Angiopteris. Hoffm. Comm. Gatt. v. 12. 29. t. 5, excluding the synonyms, except Forrier's. Swartz Syn. Fil. 166. 395. Wildil. n. 1. (Polypodium euclectum; Forill. Prodr. 81. Clementea palmiformis; Cavan. Leccion. 554.)—Native of the Society islands, and of Maria's islands. We have an Otaheite specimen from Mr. Menzies. The main stem is said to be arborecent, five feet high, and a span in diameter. Fronds fix feet long, doubly pinnate; leaflets from two to four inches long, opposite, fiddle, linear-lanceolate, taper-pointed, smooth, as well as their common stalk; their margins finely crenate, the points forked. Capsules brown, smooth, very numerous, scarcely larger than grains of sea-feed.

ANGLE, Rectilinear, l. 2, for I. r. II. Angles at the Periphery, for I. r. II. ANGOY. See Goy and LOango. ANGRÁ. l. 1, r. Terceira. ANGUELLA. For MYTUS r. MYRUS.

ANGUILLARIA, in Botany, a genus dedicated by Mr. Brown, to the memory of LUIGI ANGUILLARI (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 its author as deeply learned in this subject, and perhaps the best Italian botanist of the earlier part of the sixteenth century, having travelled much in Europe and the Levant, and studied critically the writings of those who had gone before him. Gertner has called a genus Anguillaria, from the singular appearance of its embryo, resembling aeel, Anguilla; but this is the ARBIA of all authors at present. (See that article.)—Brown Prodr. Nov. Holl. v. 1. 373.—Claps and order, Hexandra Trigynia. Nat. Ord. Tripetalidae, Limn. Junct, Juff. Melanthacece, Brown.

Gen. Ch. Cal. none, unless the corolla be so called. Cor. Petals fix, lanceolate, inferior, spreading, equal, deci- duous, each furnished with a claw. Stam. Filaments fix, inserted into the base of each petal, awl-shaped, shorter than the corolla; anthers oblong, peltate, revexed. Pfg. Ger- men superior, oblong, furrowed; hyles three, spreading, shorter than the stamina; stigma acute. Peric. Capsule ovate-oblong, naked, of three cells and three valves, the partitions from the middle of each valve. Seeds numerous, nearly globular.


Obf. Anguillaria is nearly akin to Ornithoglossmus. (See that article.)—It confits 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, of the flowers, the perfectly deciduous corolla, and perhaps the situation of the embryo, differs from the red; can it be a distinct genus? Brown.


2. A. biglandulosa. Glandular Anguillaria. Br. n. 2. Flowers united. Spikes few-flowered. Claws of the petals with two glaids at the upper part. —Sent from Port Jackson, by Dr. John White, where it was gathered by Mr. Brown. The filament is solitary, from four to six inches high, simple, round, bearing two distant, linear, smooth, recurved leaves; flowerings 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 demi-lunar, glandular, prominent, dark-coloured glandular spot.


Rotal 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 stalks, with lanceolate blade various in size and number. Petals narrow, of a dark purple, as well as the styles, which are dilated and revolute. Capsule elliptical, crowned with the permanent styles.

ANGUIS, l. 9, dele which fee respectively, and add—See SERPENTES.

ANGULOA, in Botany, named in honour of Francis de Angulo, a Spanish naturalist, of whom or his works we have no information. —** Ruiz et Pavon Prodr. Pl. Peruv. et Chil. 118. t. 26.** Swartz Orchid. in Schrad. Neues Journ. v. 1. 89. —Claps and order, Cynandria Monogynia. Nat. Ord. Orchidaceae.

Gen. Ch. Cal. Perianther superior, revolved, of three ovato-lanceolate, concave, converging leaves. Cor. Petals two, resembling the calyx, but rather narrower. Nectary a lip shorter than the calyx, stalked, pithcher-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 pol- lenger part another, tongue-shaped, concave, erect appendage. Stam. Anther a vertical, large, hemispherical, incumbent lid, pointed in front, of two cells, deciduous; masses of pollen two, globular. Pfg. Germen inferior, cylindrical; style erect, gibbous, three-toothed at the top, the middle tooth with three points; stigma transverse, in front. Peric. Capsule with six angles, three of them larger than the rest, of one cell, and three valves. Seeds numerous.


ANHYDRITE. See Mineralogy, Addenda.

ANENGIO, l. alt. N. lat. 8° 39'. E. long. 76° 40'.


Gen. Ch. Cal. none, unless we take the corolla for fuch. 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 in the mouth of the tube, shorter than the limb, opposite to its segments, and having a similar direction; anthers linear-oblong, erect, bulrung lengthwise in front. Pjfl. Germen inferior, oval; filaments thread-shaped, ascending, on a level with the stamens, deciduous; stigma undivided, tumid. Peric. Capsule nearly spherical, of three valves and crowns, crowned with the permanent corolla, bursting at the summit. Seeds numerous, angular, inserted into the inner angle of each cell.


1. A. rufa. Reddish Anizoganthus. Labill. Voy. as above q. t. 22. Nov. Holl. v. 2. 119. Brown n. 1.—"Stem permanently downy. Anthers pointless."—Native of Lewin's land, in dry sandy defarts, where it flowers in December. The stem is two feet or more in height, round, much downy in the upper part; somewhat leafy below. Leaves linear, acute, narrow, entire, finely laciniate. 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 incurved one. Nothing is recorded concerning the colour of the infide of the flower. The flowers appear to be dilated at the base.

2. A. flavida. Rufflet-green Anizoganthus. Br. n. 2. Ait. n. 1. Redout. Liliac. t. 175. Curt. Mag. t. 1151. (A. grandiflora; Salis. 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. Anderfon, 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, with red, tufted, branched hairs, as well as their foottails; inside of the limb smooth, dull purple. Anthers red on one side, yellow on the other, not represented with so much of a point in the Botanical Magazine, as those of the first species in Labillardiere's figure. We have seen no specimens of either. M. Redouté has detected the same 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 in his figure than in the Botanical Magazine.

ANIMAL FLOWER, l. alt. See Calendar.


Eff. Ch. Calyx tubular, five-cleft, with ten furrows. Upper lip of the corolla small, 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 dissimilar. Seeds smooth.

Downy herbaceous plants, growing within the tropics. Leaves crescent. Flowers whorled, with minute bractees. Calyx glandular. Corolla purple. The genus is akin to Angya and Tercium, but sufficiently distinct from both one and the other. The upper lip of Angya 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. moschatas. Musky Anisomeles.—Leaves elliptical, 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. Scentless Anisomeles.—Leaves elliptical, nearly smooth; dotted beneath. Whorls remote. Calyx green, with conspicuous glands.


4. A. ovata. Broad-leaved Anisomeles. Brown in Ait. n. 1. (Nepeta indica; Linn. Sp. Pl. 799, excluding the fynonyms. Wildl. Sp. Pl. v. 3. 57. Ballelia disticha; Linn. Mant. 83. Ait. ed. v. 2. 504. Willd. Sp. Pl. v. 3. 108. Marrubium odoratissimum, botanic foio; Burm. Zeyl. 153 t. 71 f. 1.)—Leaves ovate, or somewhat heart-shaped, strongly crenate or ferrated. Whorls many-flowered. Bracteae linear. Calyx hairy; with scarcely visible glands.—Native of the East Indies, from whence it is said to have been imported by the first earle of Bute, in 1783. The plant has hardly perhaps been preferred in the fows, 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, depressed hairs; its habit and size very like our Ballelia nigra. The leaves sometimes very much resemble those of the common Urtica dioica, in size, shape, and ferratures, but are often rather crenate than ferrated. Whorls for the most part crowded into thick, partly leafe, spikes. Calyx very curiously reticulated with copious tranverse veines; its teeth large, broad, pungent. The upper leaf of the corolla did not escape Linnaeus, who found therein his specific character of this plant, as a Nepeta. His
herbarium proves Mr. Brown's suspicion to be correct, of
Ballota difficha being the same plant. The seeds well answer
to the generic character of Anisofagous, being beautifully polished,
polished, or a thinning black.
These plants, at least the three New Holland species, seem most allied to Teucerum Iva and falsifolium of Limnus,
now removed to Ajuga. The silky odor of the first species is
found in Ajuga Iva, whence a fugular variety of that
plant, with regular flowers, being taken by Forstall for
a new genus, received the name of Moscharia. (See that
article.) The elliptical form of the leaves in Anisofogous
mofchatus, rare in this natural order, agrees nearly with the
Limnus Teucerium Lasmann, which is likewise an Ajuga.
See Teucrium.
ANISOPOGON, from aniso, unequal, and pogon, a
beard, alluding to the inequality and diffmilarity of the
awns.—Brown Prod. Nov. Holl. v. 1. 176.—Cliffs and
Eff. Ch. Calyx of two linen, membranous, ribbed, equal
valves, single-flowered. Corolla filaked, of two valves;
outer cylindrically involute, three-awned at the top, the
middle awn twinned, the lateral ones bristle-shaped; inner
longer, unawned.
1. A. avenaceus. Ost-like Anisopogon.—Native of the
neighbourhood of Port Jackson, New South Wales. A
grafs three feet high, resembling an Avena. (See that
article.) Stems unbranched. Leaves involute, with a fringed
petiole. Panicule loose. Calyx-glumes large. The outer
valve of the corolla is silky, connected with its own by an
obedate joint. A small bristle, at the base of the inner valve,
indicates this genus to be more strictly allied to Danthonia,
(see that supplementarv article,) than to Aristida, which
latter the reader will find in its proper place.
ANNER. Add—An anker of brandy contains 10 gallons.
It is also a liquor measure not only at Amsterdam, but at
Copenhagen, Hamburg, and other places. (See Vat.)
At Copenhagen, a fuder of wine contains 2 pipes = 8 ox-
hofts = 6 ahms; the ahm or tierce being 4 ankers =
40 flushgens = 77½ kannes = 155 pots = 620 polec. A
fluckglas is 7½ ahms = 30 ankers = 32 pots hold the
weight of a Danish cubic foot of water, each being 6½
Danish inches high, 3½ ditto wide, and containing 64 cubic
inches: 55 Danish pots, or 27½ Danish kannes = 14 Eng-
lish gallons, and an ahm = 396 gallons nearly. The
ahm at Hamburg is the fith part of the fuder, and is 4
ankers = 5 emers = 20 viertels = 40 flushgens = 160
quarters = 320 eftelf. See Measure.
ANN, QUEEN, in Geography, a county of Marylvand,
containing 16,648 inhabitants, of whom 6381 are slaves.
ANNA, a money of account in India. See Rupee.
ANNAPOLIS Royal, l. 13, for item r. flera.
ANN-ARUNDEL, l. 4, r. 26,668; l. 5, r. 12,693.
ANONNA, in Botany, (see our former article,) is a
name of barbabarous origin, made into Latin by Linnaeus,
in allusion, as he tells us in Hort. Clff. 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 Bauhin's Pinax, Anona appears
to have full as authentic claims, on the score of priority, as
Anona. The latter is moreover a Portuguese corruption of the
original Amon, which Clufius taking from Oviedo, makes
Anon, Anon. Anona, a, is very incorrect. We trutt our
learned friends in France will not inful on such an inaccuracy,
any more than on their great countryman Plumer's
name, Guiananacs, which they have commendably rejected,
tough of older authority than Linnaeus or Joffieu.—Linn.
Vot. XXXIX.

(Guanabanus; Plum. Gen. 42. t. 10)—Cliffs and order,
Jutf. Anonaceae, De Cand.
Eff. Ch. Calyx in three, more or less deep, concave,
somewhat heart-shaped, frappinous lobes. Petals fix, thickish,
the three innermost smaller or wanting. Anthers numerous,
nearly free, covering the receptacle; angular and dilated
at the summit. Germans numerous, coalescing into a single
fleshy berry, whose coat is either tuberous, fcaly, or reticu-
lated, the internal substance pulpy, surronded with
numerous, fingle-seeded 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 reti-
culated, glansdular, and aromatic. Leaves undivided, some-
times besprinkled with pellucid dots. Flowers-stalks either
axillary, or oppofite to the leaves, often folitary, bearing
one or more flowers, sometimes accompanied by small
bractees.
Obf. Very rarely the calyx has four lobes. The inner
petals are occasionally imperfect.
Twenty-seven species are defined by De Candolle, but of
these five are marked as imperfectly known. They
are difposed in five fections, by the shape and confidence
of their petals.
Sect. 1. Petals concave, thick, rather coarifous, either
heart-shaped or ovate. Eleven species, subdivided as follows.
* Outer petals acute; inner ones obtuse, and rather
** Outer petals obtuse. Sp. 5.
*** Petals all acute; inner ones rather the smallest. Sp.
6—11.
A concise view of the species will be sufficient, following
the numbers of De Candolle.
1. A. muricata. (See Anon. n. 1.) Linn. Sp. Pl. 756.
Jacq. Obf. fac. t. 10. t. 5. (Zuurvack; Merian Surin.
t. 14.)—Leaves ovato-lanceolate, smooth, sometavt
thing. Stalks folitary, fingle-flowered. Outer petals hear-
shaped, pointed; inner obtuse. Fruit armed with fleshy
pointed tubercles.—Native of South America and the West
Indies. The flowers are large, yellow. Fruit as big as a
large pear, green or yellow, much eltement.
2. A. purpurea. "Dural Monogr. 64. t. 2."—Leaves
nearly fleshy, lanceolate; rather rufty beneath. Flowers
axillary, amolf fleshy. Outer petals heart-shaped, acute;
infen roundish.—Found in Mexico. Fruit unknown. Outer
petals yellow-brown; inner purple.
3. A. Humboldtii. "Ibid. 64. t. 3."—Leaves oblong,
poufed, smooth, slightly dotted. Stalks axillary, folitary,
short, fingle-flowered. Outer petals ovate, somewhat hear-
shaped, acute; inner bluntish.—Found by Humboldt
and Bonpland, in the South American province of Cumania.
A fbrub. Flowers yellowish, dotted with purple
and red.
Carol. v. 2. t. 67.)—Leaves ovato-lanceolate, smooth.
Stalks folitary, fingle-flowered, drooping. Outer petals
heart-shaped, acute; inner rounder. Fruit smooth, obovate.
—Native of South America, and some parts of the West
Indies. Outer petals large, green; inner white. Fruit green,
shaped like an inverted pear.
65."—Leaves oblong-lanceolate, wavy, pointed, copiously
ribbed; the young ones downy. Stalks axillary, fingle-
flowered.
ANNONA.

15. A. Forshihii. De Cand. n. 15. (A. glabra; Forst. \AEgypt.-Arab. 102. 1c. t. 15. A. a
tatica; Vahl Symb. v. 3. 73. "var. \sigma; Du
c Monogr. 71. A. squamosa; Delile \AEgypt. 17.\"")—Leaves ellip
tic-oblong, smooth, dotted; glaucous beneath. Outer pe
tals oblong, somewhat converging.—Gathered by For
khal and by Coquebert in Egypt. Scarcely, in De Candol
e's opinion, distinct from A. squamosa, but the leaves are
tinner and less pointed, more distinctly dotted.

16. A. cinerea. "Dunal Monogr. 71. t. 8.\"—Leaves
eelliptic-oblong, almost lanceolate, dotted; downy b
dneath. Outer petals somewhat converging. Fruit ovate,
nearly globular, fleshy.—Gathered by Ledru in the is
land of St. Thomas, but perhaps not really wild. The young
branches, leaves, stalks, and flowers, are clothed with grey
tish pubescence. Flowers flushed, two or three together. Fruit not unlike A. squamosa.

v. 2. 124. (A. tripetala; Aubl. n. 2. See Anno
n a n. 2. Guanabanus Pericex folio, flore in
to albo, &c.; Feuill. Peruv. v. 3. 24. t. 17. Trew Ehret, 16. t. 49.\)—Leaves ovate-lan
colate, without dots; very finely downy and fleshy
beneath. Outer petals slightly converging; externally
downy. Fruit nearly globular, somewhat fleshy.—Na
tive of Peru, or rather perhaps of some warmer country; for
Feuilles 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 Cherimolas 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.

757. Wild. n. 5; excluding the syn. of Rumphius
maram; Rheede Hort. Malab. v. 3. 23. t. 30. 31. Guanabanus
fructu purpureo; Plenn. Ic. 134. t. 143. f. 11; not 43. f. 2.\)
—Leaves oblong-lanceolate, acute, smooth, slightly dotted.
Outer petals oblong, rather converging. Fruit ovate, nearly
and dotted, fleshy. Outer petals oblong, rather con
cering. Petals green, nearly globular, fleshy. Petals three.
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,
ripe. Professor De Candolle suspects that several species
may be here confounded; and Dunal distinguishes the plant of
Jacquin, from that of Rheede, by the reticulations of the
fruit being somewhat pentagonal in the former, more
rounded in the latter. Plumier’s flesms still more different
from both, in having the intericles very convex, each armed
with a spine. Domby appears to have gathered and pre
served 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
can be cleared up by the acquisition of authentic fpecimens
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.

19. A. mucofa. (See Ann o n a n. 19.) Jacq. Obf
fac.
ANN f. 1. 16. Add. Guian. 618. (Manoa; Rumph. Amb. v. i. 136; t. 45.)—Leaves oblong-lanceolate, smooth. Outer petals spreading at the extremity. Fruit tesselated, with gibusous interstices.—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 interstices of the fruit tumid, (what then becomes of Plummer’s t. 143. f. 11) its pulp more yummy, and not agreeably flavoured. The leaves also are somewhat narrower.

Sect. 4. Outer petals elliptic-oblong, obtuse; inner smaller, lanceolate, bluntish. Calyx large, coriaceous, three-leafed, somewhat bell-shaped. Fruit conical, smooth? Three species.

22. A. glabra. (See Annona n. 8.) Linn. Sp. Pl. 718. Willd. n. 10. ("A. maxima, folis latis, fructu maximo, luteo, conoide, 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 Cateb. Cultivated perhaps in the West Indies. A tree sixteen feet high, with smooth leaves, much resembling those of a lemon-tree. Calyx red-dish externally, of three broad, very short, often abrupt lobes. Petals fix, nearly obovate, twice the length of the calyx.

21. A. grandiflora. Lamarck Dict. t. 2. 126. Willd. n. 17. "Dul. Monogr. 75. t. 6 and 6 a."—Leaves ovato-lanceolate, smooth; shining above. Stalks axillary, solitary, fruit. Leaf ovate, smooth, somewhat dotted.—Native of the Mauritius, and Madagascar. Leaves rather glaucous beneath. Calyx, and backs of the petals, finely downy. The inner petals are an inch long, being nearly equal to the outer. Fruit of a muddling hue, slightly rugose.

22. A. amplifolius. Lamarck Dict. t. 2. 127. Willd. n. 18. "Dul. Monogr. 76. t. 7."—Leaves oblong-heart-shaped, clapping the stem, acute, smooth. Stalks axillary, solitary, fagine-flowered.—Found by Commodon in the ifes of the Mauritius and Madagascar. The leaves are fefile; coriaceous or purplish beneath, at leaf when dry. Three inner petals rather the same.

Sect. 5. Annona not sufficiently known. Five species.

23. A. affatica. (See Annona n. 9.)—Linn. Sp. Pl. 735. Willd. n. 12. "Leaves oblong, pointed, without dots; downy when young.—Native of Ceylon. Annona. A species under this name is found in his herbarium, but there is no evidence of its being what he intended in his Pl. Zeyl. nor even in the first edition of Sp. Pl. There are neither flowers nor fruits, nor can we satisfy ourselves of this species being the same species as the botanists of Tranquebar fend us for A. affatica, which latter agrees better with Symp. mos. n. 14.

24. A. fealerufa. "Perf. Ench. v. 2. 95. Dul. Monogr. 75."—Leaves broadly ovate, somewhat heart-shaped, coriaceous, smooth; glaucous beneath. Footstalks finely downy. Flower-stalks two or three together, lateral, between the leaves.—Native of Senegal and Guinea. Flowers small. Three outer petals ovate, obtuse, thick, thrice the length of the calyx.

25. A. frutifera. "Dul. 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 sericeous. Flowers opposite to the uppermost leaf on each branch, with one or two orbicular leafy bracts. Calyx in three large, deep, ovate, coriaceous segments, externally hoary. The unexpanded petals appear similar thereto. A beautiful species, but the genus is doubtfulness. De Cand.

26. A. exsulca. "Dul. 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 professor De Candolle in Mr. Lambert’s herbarium. A handsome tree, with a small, entirely dry, fruit. Branches smooth from the first. 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. folis lanceolatis pubescentibus; Linn. Hort. Clift. 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 grofs and palpable slip of the pen, in the second edition of Sp. Pl. (it is Asstipodia 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 Organicum, Asimina, and Monodora.

ANOMALY. col. t. 17, for 122,441 r. 1,222,441.

ANOMATHECA, in Botany, from nymus, out of rule, and bege, a cafe; because the capsule is distinguished by its papillary roughnesses, from all the rest of the plants of the fame natural order, that have hitherto been examined.—


Gen. Ch. Calb. Sheath inferior, of two very small, elliptical, concave, leafy, nearly equal valves. Cor. of one petal, superior, falver-shaped; tube many times longer than the sheath, straight, nearly cylindrical, a little dilated at the mouth; limb not quite regular, in fix, nearly equal, obovate, deep segments. Stam. Filaments three, inserted into the tube, thread-shaped, erect, much shorter than the limb; anthers vertical, oblong, converging. Pyf. German roundish; flye thread-shaped, about the length of the flaments;figmas three, deeply divided, with linear, spreading segments. Peric. Capsule roundish-ovate, of three cells and three valves, its surface covered with small, papillary tubeles. Seeds numerous, round.


1. A. junca. Cut-leaved Anomatheca. Ker n. 1. Ait. n. 1. (Lapeyrroufa junca; Curt. Mag. t. 66b. Gladolus junca; Linn. Suppl. 94. Thumb. Glad. n. 18. Cap. v. i. 201, excluding the synonym of Jacobin! Redoutt. Lilac. t. 141. G. polyfrachus; Andr. Repof. t. 66.)—Found by Thumberg, 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 easily propagated by offsets and by seed. The bulb is ovate. Leaves radical, equitant, sword-shaped, acute, dark-green, many-rubbed, with a deep flopping notch at their outer edge, from the base about half way up. Stalk a foot high, being twice as tall as the leaves, round, rather slender, branched, smooth, bearing many solitary, unilateral, slightly zigzag, flices, of elegant, rose-coloured, sentient flowers; the irregularity of whose corolla is evinced by the three lower segments being each marked with a deep red spot, and the middle one being moreover

T 1 2

white
ANONACEÆ, the fourth natural order of the Dicotyledones, or Exogenæ, of De Candolle; separated from the Commelinæ by the Anona 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 fixed, in two rows, alternate with each other; the inner row sometimes wanting. Stamens indeterminate, unconnected. Gersmens indeterminate; very rarely foliary. Fruit compound, either separate or combined. Seed with internal processes, separating the portions of the albumen.

FRUCTIFICATION. Calyx inferior, short, permanent, more or less deeply three-angled, very rarely with four lobes. Petals fixed, inferior, in a double row, alternate with each other, more or less coriaceous, and somewhat reenabling an inner calyx, imbricated in the bud, though each row is valvular in that state; the inner one sometimes larger, sometimes smaller, rarely wanting. Stamens numerous, clove-prefixed, generally covering the hemispherical disk (or receptacle of the flower); filaments very short; anthers nearly fleshy, with glandular, quadrangular, occasionally excoriaceous points; their cells bursting longitudinally, externally, and downwards. Gersmens mostly numerous, crowded closely together, in some instances aggregate or combined, in others, though very rarely, and profusely from abortion, solitary. Styles one to each germer, short. Fruits as many as the gersmens, fleshy or fcelate, 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 crenaceae, having internal, sometimes plaited, processes, either flat or awl-shaped, infiltrating themselves into the chinks or perforations of the albumen. The latter is fleshy, hard, shaped like the feed, very often bordered with a depressed furrow, accompanied by transverse plats, 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 tworanked, branches, whose bark is mostly either reticulated, or warty; the young ones generally downy. Leaves alternate, connected with the stem by a joint, either fcelate or with short footstalks, fimple, almost always entire, or scarcely toothed, with pinnate veins; folded, and often downy, when young. Stipules none. Flower-stalks mostly axillary, sometimes lateral, or opposite to the leaves, solitary, generally furnished with small bracteas; they are shorter than the leaves, bearing one or many flowers, and not uncommonly twirled into a hook, some of the flowers being abortive.

QUALITIES. The roots, bark, leaves, and fruits, especially such as are capsular, are acrid, pungent, aromatic, and stimulating, often used for feasting. Those fruits which are of a fleshy nature are eatable, and esteemed in tropical climates.

HISTORY. The Anonaceæ, as being all strangers to Europe, were unknown to the ancient botanists. Cæsar Buebin has scarcely indicated two species, Linnæanus thirteen, Wildenow thirty-six, Peroon 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-seven of the tropical regions of the same quarter of the globe; eight of equinoctial Africa; three of the Mauritian isles; twenty-six of India or its islands; six of China and Japan; two of New Holland; and there are six whole native country is uncertain.

AFFINITIES. This order agrees with the Magnoliaceæ of the same learned author, in having the parts of the flower disposed in a ternary order, anthers united to the filaments, numerous petals and fillets; but differs very essentially (according to him) in having no fillets, and differently shaped anthers as well as seeds. Some few climbing species make an advance towards the Menispermae; but the indefinable filaments, and the structure of the fruit, afford a distinction. The Anonaceæ differ from all other polypetalous orders, with a superior germer, in the ternary structure of their flowers, as well as in the very peculiar insertion of the internal processes of the seed into its albumen. Such a structure was indeed found by Mr. Brown, in his Euonati (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, Kadipura of Jussieu; Anona of Linnæus; Monodora of Dunal; Afina of Adanson; Porcelia of Ruiz and Pavon; Uvaria, Xylopia, and Anona of Linnæus; and Quatteria of Ruiz and Pavon.

ANOPLOTHERIUM, in Natural History, an animal of an extinct genus, whose remains are found in a fossil clate 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 syllem, this animal should be placed between the horbe 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.

ANOPHELIUS, in Botany, owes that appellation to Labillardiere, who meant to express the situation of the wing, at the upper part of the feed, the word being formed from ανου, upwards, and ανω, a wing.—Labill. Nov. Holl. v. 1. 85. Brown Prodr. Nov. Holl. v. 1. 457.—Clams and order, Hæxandria Monogynia. Nat. Ord. Gentiana, Jufi, or perhaps Erices, according to Mr. Brown.

Gen. Ch. Cal. Perianth inferior, of one leaf, in six deep, acute, equal, spreading segments, permanent. Cor. of one petal, bell-shaped; tube very short; limb in six deep, equal, concave, obtuse, imbricated segments, much longer than the calyx. Stam. Filaments fixed, 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. Fil. Germer superior, ovate; style short, cylindrical, erect; stigma in two acute lobes. Peric. Capsule elliptic-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, twice its own length.

cloven. Capsule of one cell and two valves. Seeds imbricated, pendulous, winged.

1. A. glandulofila. Glandular Anopterus. Labill. Nov. Holl. v. 1. 186. 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, fiddle-shaped, coriaceous, about four inches long, rather bitter to the taste; tapering at the base; a black prominent gland on the inner edge of each fork. Clusters terminal, simple, half the length of the leaves, either solitary, or as many as four together. Corolla about the size and shape of Psyrota 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 flabby 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 compref pendulous, two-winged calyx, emarginate at the top and rounded at the base.

Climbing Anredera. (Fegopyrum scandens, feu Volubils nigra major, flore et fructu membranacei, subtomentis; Sloane Jan. v. 1. 138. t. 90. f. 1.)—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, compref pendulous, 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 parsiup-seed. Swartz feems not to have noticed this plant. Its habit is nearly that of Bafella.

ANTELOPE, col. 3, l. 7 from bottom, r. Buralis or Cervine Antelope.

ANTHERYLIUM, in Botany, so named, either by Vahl or Von Rohr, apparently from alpha, an antler, and ως, 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. Willd. Sp. Pl. v. 2. 980.—Clais and order, Iceniardia Monogynia. Nat. Ord. Hooperiæ, Linn. Myrti, Juff.

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, pointed and undulated, with short linear claws. Stam. Filaments numerous, from about thirteen to fifteen, capillary, inserted into the calyx, longer than the corolla, permanent; anthers incumbent, convoluted, furrowed. Pist. Gynem superior, globose; style thread-shaped, very long; stigma capitiate. Peric. Capsule globose, oblong, triangular, of one cell, and three, occasionally four, valves, burrifying at the top and deciduous. Recapit. globose, somewhat triangular, spongy, dotted with little hollows to receive the Seeds, which are numerous and minute.


1. A. Robur. Flowery Antherylium. Vahl as above, 212. t. 8. Symb. v. 3. 66. Willd. n. 1.—Native of the West Indian island of St. Thomas. Von Rohr, and Weigt. A tree, with round, grey, scattered, keeled branches; leafy, 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 filipendulous prickles, at the base of each footstalk, which disappear from the older branches. Flower-flasks axillary from the internode 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, fingle-flowered, naked, thread-shaped. Capsule downy, the size of a currant. 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 Lenticis of Swartz, to which genus he supposes this to be allied. He suspects also some affinity to Aublet’s Botrya. See that article.

ANTHEBOLUS, we preface from aor, a flower, and μαθις, or lamp, the flowers forming little dense tufts.


Female, Calyx of three deciduous leaves. Corolla none. Stigma sessile, three-lobed. Drupa with one seed. Embryo inverted, in the axis of the flichty albumen.

Akin to Exocarpus and Osyris. (See those articles.) The genus confines of smooth fubby shrubs, copiously branched, in habit resembling Ophrys, the principal as well as the ultimate branches jointed at their internation. Leaves scattered, fcelled, articulated with the branch, narrow, nearly thread-shaped, delilute of fipilalis. Flower-flasks 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 bracteas. Flowers small, yellowish.

1. A. filosus. Slender-leaved Anthobulus. 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, contracted 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 bafe of the tube, and not above half so long, awl-shaped, simple, smooth; anthers roundish, incumbent. Pist. Gynem superior, oblong; style cylindrical, the length of the tube; stigma capitare, notched. Peric. Capitale ovate-oblong, of two cells and two valves, with infolded edges, meeting the parallel partition. Seeds numerous, small, roundish, reticulated.

two cells and two valves, with infixed edges, and a parallel partition.

The shrubby smooth genus, whose habit announces an affinity to the Salicae, but whose regular, deep-cut, radiating corolla, is altogether fringe in the Linnæan class Didynamia. The leaves are alternate, tapering at the base, or somewhat stalked, articulated with the branch, thick, sometimes dotted with glands. Flowers axillary, nearly solitary, their stalks minutely bracteated, and mostly separating early at the joint. Corolla white or yellow, handsome; its tube internally triated; limb in from five to eight segments.


—Discovered by Labillardière in Lewin's land; and observed in the same neighbourhood by Mr. Brown, and Mr. Good.

The latter sent feeds to Kew in 1803. This is a greenhouse plant, flowering during mott part of the summer. Mr. Aiton favoured us with a specimen in May 1811, when it first began to produce flowers. These are an inch in diameter, indoros, pale lemon-coloured; the radiant segments of the limb narrow, taper-pointed; the tube triated internally with deep violet. Leaves about an inch long, abrupt or margined; nearly entire in our specimens. Labillardière says they are sometimes toothed, or serrated.

2. A. villosa. Glutinous Anthocereus. Br. n. 2.—

"Leaves obovate, marked with glandular dots; 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. 45. t. 74. f. b, to a plant referred by professor Vahl to his Tonsella; see that article, fp. 4th.

ANTHOLOMA. Labill. Voy. Engl. ed. v. 2. 245. t. 41. Nov. Holl. v. 2. 121, is certainly the same genus as Bassia. (See that article.) Whether Labillardière's plant may be the obovata of Forrer, or a new species, we have no certain means of knowing.

ANTHOTIUM, from abo, a flower, and thion, a little ear, expressive of the auricles accompanying the upper segments of the corolla.—Brown Prod. Nov. Holl. v. 1. 582.—Cliffs and order, Penentriada Monogynia. Nat. Ord. Campanaceae. Limn. Campanulaceae. Juff. Goodnow's, Brown. Gen. Ch. Cal. Perianth superior, in five deep equal segments, permanent. Cor. of one petal, longer than the calyx, irregular; tube flat at the back from top to bottom, and easily separable into five parts, with infixed edges; limb two-lipped; upper lip in two, lower in three, deep segments, those of the upper lip having an ear-like appendage at their inner margin. Stam. Filaments five, shorter than the tube; anthers closely united into a tubular form. Pjil. Germen inferior, oblong; style capillary, the length of the 1aneces; stigma large, obtuse, enveloped in a bivalve beardless cover, contrary to the lips of the corolla. Peric. Capsule of two cells. Seeds several.


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.

ANTHARIIS, in Botany, altered by Lefchenault from the name of the famous Poison-tree of Java, Upas Antiar, which botanists calls Antiaris toxicaria, and which Mr. Brown considers as of the same genus with what we are about to describe from his excellent General Remarks, Geographical and Systematical, on the Botany of Terra Australis, p. 70; published at the end of the account of captain Flinders's Voyage, 1814.—Cliffs and order, Monocolea Tetrandria. Nat. Ord. Scabridae, Limn. Urteas, or Urteas, Juff. Brown.


Female. Cal. Involucrum single-flowered, ovate, small, smooth, many-cleft at the summit, with lanceolate, fringed, converging, deciduous segments, some of them scattered over the body of the involucrum: perianth none. Cor. none. Stam. none. Pjil. Germen in the body of the involucrum, oblong, single-feaded; style divided almost to the bottom, its segments thread-shaped, parallel, smooth, diuretic, divaricated at the upper part; stigma simple, acute. Peric. 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 flowy 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 shrub, or very small tree, about six feet high, much branched, smooth, milky. Branches round. Leaves alternate, stalked, elliptic-oblong with a sharp point, entire, coriaceous, five 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 intracrenate, lanceolate, pointed, folded, leafy. Flower-stalks axillary, solitary, racemose, scarcely longer than the footstalks, each bearing six 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. toxicaria of Lefchenault, Annales du Mus. v. 16. 478. t. 22, is another species of the same genus; but
but we are not informed of the specific characters of either.  Of that celebrated Poitou-tree the first satisfactory account, according to Mr. Brown, is therein given, which differs from his description above, merely in some particulars relative to the male flowers.  He adds that Antirrhis should stand in the "Urticce," between Bromusum of Swarta; and Olmeda of the Flora Pervisiana, 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 Haiuy had been unable to ascertain its primitive crystalline form.  This indefatigable observer has at length, however, determined that the primitive form of its crystal is an octahedron, and that its integrant particles have the figure of tetrahedrons.  The specific gravity of antimony, according to Hatchett, is 6.712.  It melts at a low red heat, and has only 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 Thendard, Proult, Bucholz, and Berzelius.  According to Thendard, this metal forms no less than six oxides; according to Proult and Bucholz, it forms only two; while according to Berzelius, it forms four.  These differences arise from the great difficulty of the investigation.  The protoxyd of Berzelius is obtained by expelling 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 Proult and metallic antimony.  Hence Dr. Thomfion remarks it is only a mixture of the two.  The two oxides of Proult are easily obtained, and possess specific characters.  Berzelius has shewn 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. Thomfion, we know three oxides of antimony.  The grey protoxyd, the white antimonious acid, and the fluor-yellow antimonous acid.

The following is the composition of the protoxyd of antimony according to Proult, Berzelius, and Thomfion.

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<th>Proult</th>
<th>Berzelius</th>
<th>Thomfion</th>
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<td>Antimony</td>
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<tr>
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Antimonious acid is composed, according to the same chemists, of

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And antimonous acid of

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<th>Oxygen</th>
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<tbody>
<tr>
<td>Antimony</td>
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<td>100</td>
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<tr>
<td>Oxygen</td>
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<td>35.556</td>
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The above results of Berzelius and Thomfion 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 Thomfion, 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. Thomfion, however, it may be proper to state, considers it as 56.25.

The two oxides of antimony, denominated above the antimonious and antimonous acids, are capable, according to Berzelius, of combining with different bases and forming two}

The following is the method of preparing the antimonium tartaricum, or tartrate of antimony and potash, according to the last edition of the London Pharmacopoeia.  Take sulphuret of antimony, powdered, two ounces; nitrate of potash, one ounce; tartrate 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 glafs 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 tafflefs, and while the mass is yet moist mix it with the tartrate 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 

\[ \text{Eunomia,} \]

or a Collection of Metamorphoses, published at Bzfal, in 8vo., by Xylas, in 1570, at Leyden, in 12mo., by Berklblius, in 1674; by Munkkas, 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. Græc.

ANYCHIA, in Botany, so called by Michaux, on account of its affinity to PARONYCHIA.  (See that article.)  This plant therefore has as little concern with the finger nail, as, the other has with a whitlow.—Michaux Boreal-Amer. v. 1. 112. Pursh 176. St. Hilaire Paron. 98. (Queria; Gartn. t. 128.)—Clas and order, Pentandria Monogynia. Nat. Ord. Holerae, Linn. Amarantli. Juff. Paronychie, Juff. Ann. du Mu. St. Hilaire.

Gen. Ch. Cal. Ferianth 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 inserted into its base, bristle-shaped, erec, dilanti, without any intermediate processes; anthers nearly heart-shaped.  Peric. German superior, roundish; fylle one, very short; stigmas two, oblong, recurved. Peric. Capsule 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.

Eff. Ch. Calyx inferior, in five deep, converging segments, hooded at the summit. Stigmas two. Capsule membranous, of one valve. Seed foliary.

This is a genus of diminutive herbs, with opposite leaves, attended by fipulas. Flowers minute, in leafy tufts, each of them solitary, with bractes like the fipulas. Michaux.

1. A. dichotoma. Forked Anychia. Michaux n. 1. Pursh n. 1. (Queria canadensia; see that article, n. 2.) —Stem forked, much branched, spreading. Leaves elliptic-lanceolate, smooth, erec. Bractes about as long as the smooth calyx.—On dry lime-flone hills, from New York to Kentucky, flowering from June to August. Perennial. Flowers exceedingly small; very variable in the number of fipaments, generally from two to five. Pursh; who quotes Orthega's Dec. t. 15. 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 Gottingen.

2. A. berniaria. Rupture-wort Anychia. Michaux n. 2. Pursh n. 2.—* Stem diffuse, densely branched, downy all over. Leaves elliptic-oblong, fringed, bristle-pointed. Segments of the calyx awl-shaped, with bristly spreading points,
AORTA, in Surgery. As professor Scarpa observes, the whole body may be regarded as an anastomosis of vessels,—a vacular circle,—and the remark is too 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 flopped. Meckel met with two cafes 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 vicesa and lower extremities had been duly supplied with blood. This fluid, which would only pass from the heart with great difficulty, and in small quantities, had, by regurgitating, lacerated the femi-lunar valves. (Mém. de l'Acad. Royale de Berlin, 1756, obs. 17 and 18.) A like example is recorded by Stoerk. Ann. Med. vol. xi. p. 171.

We have a very interesting cafe of obstruéted aorta related by Monfieur Paris, formerly difcoffer for the Amphitheatre of the Hôtel-Dieu. He injected the body of a very lean old woman, about fifty years of age, whose arterial system was found to be singularly 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 affection by the unaccountable enlargement of the small arteries upon the forepart of the chief. The injection which was employed entered the mouth of the aorta fo readily, that, so far was he from fetting 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 meager, that, without difcoffing, M. Paris felt the thoracic arteries running down the sides of the chest tortuous and remarkably enlarged. On difcoffion, he found the aorta immediately beyond its arch contracted to the size of a writing quill; the coats of the artery were of their usal thicknesses, and its cavity of course extremely small; the arch of the aorta above this contraction was but very slightly dilated; the part below had lost nothing of its natural size.

The carotids were in the natural state; thearteria inno- minata and the left subclavian were enlarged to twice their natural diameter; all their smaller branches were increased in the same proportion, and had assumed a curled and zigzag course. The internal mammary and phrenic arteries were greatly enlarged, and very tortuous. The transverse arteries of the neck were of twice their natural size; their posterior branches were tortuous, extending to a great distance over the back, with long inflations, which were met from below by the branches of the upper intercostal arteries, which were also remarkably enlarged. The thoracic and scapular arteries which run along the side of the chest were twice their natural size.

Below the constricted part of the aorta the lower intercostal arteries were much enlarged, even to three or four times their natural size. 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 muscles 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 succeeding each other, that they resembled a necklace of beads; and their inflations with the branches of the transfemoral cervix were very remarkable. The lower phrenic artery was enlarged, forming considerable inflations with the superior phrenic. The epigastric artery was dilated to the size of the enlarged mammae, and was joined with it by very numerous and conspicous inflations. Default's Parian Chir. Journ. tom. ii. p. 107, &c.

In the body of a male subject, two reatomatous tumours were found by Stenzel, situated in the substance 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 ferè cor magnitudine aquabunt ut omne propemodum exuncti & finiffiri cordia thalamo fanguinii fpatium praecedentur." Diff. de Stenoma- matibus Aortae.

Dr. Graham, of Glasgow, has very recently published a full and remarkable case, in which the circulation was carried on for a considerable time through the anastomoses, notwithstanding a complete obftruction 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 expectoration, pain, and difficulty of respiration. The disease was supposed to be pneumonia in an advanced stage. Dyspepsia, 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 dissection, 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 observed. The aorta was unusually 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 con- tracted. It continued of this diminished size till after its union with the canalis arteriosus, when it became completely impervious. The coats were not thickened, nor in any way diseased, except that about half an inch below the fricture there was a smooth elevation on the inner surface, less raised, but having nearly the diameter of a split-pea. In other respects, the appearance was exactly such as would result from tying a ligature round the artery.

The artery then received three trunks, about as large as crow-quills, and near them three smaller ones, when it resumed its natural size along the vertebræ. The three trunks were evidently the uppermost of the inferior intercostals, the coats of which were remarkably thick, like those of veins. A probe passed from the pulmonary artery along the canalis arterio- usus to the obstruèted portion of the aorta; but from the thickened appearance of that canal, and the florid counte- nance of the boy during life, probably there had been little communication allowed by means of it between the aorta and pulmonary artery. Dr. Graham, it appears, did not inject the subjette, so as to demonstrate all the exact channels by which the circulation had been carried on; but he tells us, that the arteria innominata, the left subclavian, the superior intercostals, and the mammary arteries, were much enlarged. The epigastric was reported to be of its natural size. These facts, and the aorta acquiring at least very nearly its natural size immediately below the fricture, shew that the blood did not pass to the inferior extremities in any material quantity, as might perhaps have been expected by the inflations of the
AORTA.

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 diaphragm; 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 transmission in the mammary and epigastric, the superior and inferior meenteric, 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. 117.) 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 enlarged, so as to be the chief agents of the new circulation.

In those difeases causing obstruction of the thoracic aorta a little beyond its arch, to which we have referred the reader's attention, no doubt the change was the result 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 anastomosing, 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 was possible to tie the aneurismal 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 face 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 flushing the pulsation in the artery of the right groin. As I withdrew my finger, I put a doffil of lint by its side, and closed the opening which I had made into the face." Surgical Essays, part i. p. 118.

The only other chance of preservation 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 distinguished 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, states, that he made an incision three inches long into the linea alba, giving it a slight 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. He then 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 same 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 pinching 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 intima from it in drawing it into a noose. The operation being finished, the wound was closed with a quill-string and adhesive plaster.

During the operation the face was pallid 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 faces soon ceased. When the right thigh was touched, the patient thought it was the foot, so that the sensibility 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 sensibility continued yet insufficient. At eight o'clock, the right leg was warmer than the left, and the sensibility was returning. At noon, the temperature of the right limb was 94°; that of the left, or aneurismal limb, 87°. At five o'clock in the evening, the temperature of the right was 96°, that of the left 87°. At nine the evening, the pulse was 100 and feeble, with vomiting, red lips, and an involuntary discharge of faces. 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 finking. In fact, he died eighteen minutes after one in the afternoon, having survived the operation forty hours. On dissection, no appearance of peritoneal inflammation was found, except at the edges of the wound. The omentum 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 ascended the tumour,
tumour, the neck of the thigh-bone had been broken within
the capsule, and it was still in a disjunct state. Mr. A.
Cooper imputes the man's death not to inflammation, but to
the want of circulation in the aneurismatic limb, occasioned in
a great measure by the immense size of the tumour, and the
disturbed state of the osseous which it contained. He con-
ceives, therefore, that, in any future case of this kind, the
ligature should be applied before the swelling has become
very large. Surgical Essays, part 1.

One thing seems proved by this memorable case, viz., that
the circulation in the lower extremities may continue not-
withstanding a sudden ligature on the aorta. Here it did
so in the right leg, and probably would have done so in the
left, had it not been for the obstruction arising on that side
from the magnitude of the tumour.

AOTUS, in Botany, so named by the writer of this
article, from o, without, and otus, an ear; because it is
effectually distinguished from Pulexena, (see that article),
by the want of the two ear-like appendages to its calyx, not
to mention other marks hereafter indicated.—Sm. in Sims
Kew. v. 3. 14.—Cliffs and order, Desidria Monogyni.a.
Gen. Ch. Cal. Periandar inferior, of one leaf, bell-shaped,
two-lipped, without appendages; upper lip of two divari-
cated, acute segments; lower of three rather longer, more
direct ones. Cor. papilionaceous, of five petals; standard
inverted-heart-shaped, ascending, with a linear claw of its
own length; wings obvate-oblong, shorter than the stand-
ard, each with an abrupt angle at the upper edge where it
joins the claw; keel as long as the wings, obtuse, of two
obvate-oblong, ascending petals, each with a similar tooth.
Stam. Filaments ten, separate, awl-shaped, ascending, nearly
equal, smooth, deciduous; anthers oval, of two cells. Psil.
Germen roundish, with the rudiments of two seeds; style
thread-shaped, parallel to the stamens, but rather longer,
twisted after impregnation, stigma simple, bluntish. Peric.
Legume nearly orbicular, acute, of one cell and two concave
firm valves. Seeds two, elliptical, inserted into the middle
of the upper margin of each valve, without any crest or
appendage.

Eff. Ch. Calyx simple, five-cleft, two-lipped. Corolla
papilionaceous; wings shorter than the standard. Stamens
deciduous. Style thread-shaped. Stigma obtuse. Legume of
one cell, and two valves. Seeds two, without a crest.

Aotus is very nearly allied to Pulexena, and had previously
been confounded therewith; but besides the want of appendages
to the calyx, and of a styleodium, or crest, to the seeds,
which last difference was first noted by Mr. Brown, the style
is not awl-shaped, but almost capillary, variously twilled as
soon as the flower falls, rather swelling upwards, and the
stigma is obtuse. The habit of the plant is also very distinct,
having nothing like the chaffy aspect of a Pulexena; there
are neither bracteas nor lacinulas; the leaves are partly oppo-
site, and almost whorled. Mr. Brown, by giving a specific
character to this shrub in Hort. Kew, leads us to presume
that he has found other species of the same genus; for he
is not one of those botanists who make a distinction without
a difference. We are however acquainted with the following
only.

1. A. villufa. Hairy Aotus. Sm. n. 1. Tr. of Linn.
Soc. v. 9. 240. Ait. n. 1. Curt. Mag. t. 949. (A. fer-
ruginea; Labill. Nov. Holl. v. 1. 104. t. 132. Pulexena
villufa; Andr. Repof. t. 309, but not of Wildl. Sp. Pl.
v. 2. 507. P. eriocides; Venten. Malm. t. 35.)—Calyx
filky, with close hairs. Legume filkcd. Seeds rough

APH

Native of New Holland, and Van Diemen's island. Sent
by Mr. Banks, in 1792, to Kew garden, where it flowers
in the greenhouse, from April to June. The flern is three
feet high, with numerous, round, filky, leafy branches.
Leaves scattered, or imperfectly whorled, on short hairy
flanks, spreading, linear, revolute, entire, a half or three-
quartets of an inch long; channelled, and rough with minute
points, above; filky beneath. Flowers bright-yellow, axil-
ary, on short, filky, rufly flanks, two or three together,
numerously crowded about the tops of the branches, so as
to form leafy clusters. Legume very hairy, two lines long.
The standard of each flower is marked with radiating crim-
son lines, as in the Dillwynia.

1547. See Thrincia, at the end of which is given the
history of this genus.

APERTO, Ital., in Myfes, open, opposed to chiuso,
closed.

APHELANDRA, in Botany, a genus first proposed
by Mr. Brown, in a note to his Prodrorum, to be separated
from Justicia. (See that article.) The name he has given
it is composed of aperto, open, and mon, a male, expressing
the simple structure, or single cell, of the anthers, one of
the most distinguishing characters of this genus.—Brown

Gen. Ch. Cal. Periandar inferior, of one leaf, in five
deb, oblong, unequal, erect segments. Cor. of one petal,
ringent; tube much longer than the calyx, incurved, an-
gular, gradually swelling upwards; limb in two unequal
acute lips; the upper erect, cloven, lower revolute, undi-
vided. Stam. Filaments four, awl-shaped, simple, erect,
inferted into the tube of the corolla, and rather flunter than
its upper lip, parallel, slightly curved, two of them a little
the longest; anthers incumbent, attached by the back, ob-
long, acute at each end, hairy behind, of one cell. Puf.
Germen superior, ovate; style thread-shaped, the length of
the stamens; stigma simple. Peric. Capsule oblong, taper-
ning at the base, of two cells and two elastic compressed
valves, the partition contrary to, and fixed in the middle of
each. Seeds two in each cell, roundish, each subtended by
a fimbriate process.

Eff. Ch. Calyx in five deep unequal segments. Corolla
ringent; lower lip undivided. Anthers fingle-celled. Cap-
ule of two elastic valves and two cells; with contrary parti-
tions. Seed subtended by spinous.

1. A. cri1ata. Denfe-spiked Aphelandra. Brown in
Ait. n. 1. (Julicia cri1ata; Jacq. Hort. Schoenbr. v. 3.
38. t. 320. J. tetragona; Vahl Symb. v. 3. 5. Enum.
Repof. t. 505.)—Leaves elliptic-oblong, pointed, smooth
on both sides, with hairy veins beneath. Bracteas
ovate, entire. Corolla smooth.—Native of Cayenne and the
Caracas, flowering in the Iove throughout August and
September. It appears to have been first brought to Eng-
land by the late Earl of Seaford, and flowered at Mr. Lum-
born in Wiltshire. The flern is thrubby, three feet high,
or more, with opposite, round, smooth branches. Leave
opposite, tailed, broadly elliptical, acute at each end,
somewhat wavy, dark green, plant, five or six inches long,
and three broad; smooth above, with a reddish mid-rib, and
many fine veins; the rib and veins only, according to
Jacquin, downy beneath. Flowers scarlet, large, splendid,
and extremely numerous, forming dense quadrangular flakes,
about a fpan long, branched at the base, with clove, ovate,
green, or brownish, fringed, single-flowered bracteas. The
corolla

61
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 *Juticia cocineum*, Sm.
Ic. Dict. 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. pulcherima*. Downy-leaved Aphelandra. (*Juf-
ticia pulcherima*; Jacq. Amer. 6. t. 2. f. 4. Coll. v. 3.
(not v. 5) 252. Ic. Raf. t. 204. Linn. Suppl. 84, 
&. f. 7. J. putata; Loeff. I. 244.)—Leaves elliptic-oblong,
pointed; smooth above; finely downy beneath. Bracteas
ovate, entire. Corolla smooth.—Native of South America,
flowering in February. *Lecthout*. Von Toum appears to
have lent feeds to Miller, who cultivated this species before
the year 1733. Mutis communicated a specimen to Lin-
neus, which we see no reason to distinguish from Jacquin’s
plant, notwithstanding what is recorded in the *Supplementum*,
of the *flames* being two only; for we find four in the flower
we have examined, bearing the proper simple anthers of an
*Apbelandra*. How far the complete hairy downiness of the
backs of the leaves, and the smaller *spikes*, with less copious
flowers, may prove the present species distinct from the fore-
gone, we greatly doubt. Mr. Brown in Hort. Kew. unites
them, without marking this as even a variety of *criflata*.

fabra*; Vahl Enum. v. i. 120.)—“Leaves elliptic-oblong,
aicate; rough on the upper side. Bracteas oblong, acute,
haired.”—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
*Prodomus* as distinct, and does not subsequently unite more
than the two first together, we premise it must be different,
and that the *corolla* is not smooth, nor the *bracteas* entire,
both which characters he makes discriminative of the *criflata*,
and they certainly exist likewise in the *pulcherima*.

APHELIA, apparently so called from *aphelo*, simple, in
addition to the great simplicity of parts and structure in the
flower.—Brown Prodr. Nov. Holl. v. i. 324. Clarke and
order, *Monandria Monogynia*. Nat. Ord. Realflora,
Brown.

Gen. *Ch. Cat.* Calyx of several imbricated, two-
ranked, fingle-flowered, pointed, hispid scales; the lower
ones sometimes barren, and longer than the cor. Cor.
of one membranaceous valve, at the inner side of each flower.
*Stam.* Filament one, capillary; anther simple. *Pil.* Ger-
men superior, single-seeded; style one, thread-shaped;
 stigma solitary, undivided. *Perf.* Capsule membranous,
of one valve, and one cell, burrting longitudinally at one

*Eff. Ch.* Scales two-ranked, fingle-flowered. Corolla

*Obi.* This genus is closely allied to *Devaunia* of Mr.
Brown, which will be described in its proper place hereafter,
and from which *Apbelia* differs in having a simple *pilif*, two-
ranked *spikes*, and only one valve to the *corolla*, situated at
the inner side of the flower. The only known species is

1. *A. cyperoides*. Cyperus-spiked Aphelia.—Discovered
by Mr. Brown, in the southern part of New Holland. A
small, tufted, grassy herb, resembling some of the leffer
kinds of *Scirpus* and *Cyperus*. *Root* fibrous. Leaves radical,
thread-shaped, heathing at the base. *Stalks* leafless, thread-
shaped, undivided. *Spike* terminal, solitary.

APHRITE. See *Schaum* Earth.

APPARITION. Subjoin at the close of the article,
In the year 1805, Dr. Alderbon of Hull read to the
literary society of that place, and published in 1811, “An
Effay on Apparitions,” designed to prove, that the
immediate cause of these spectral visitations 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 Effay towards a Theory of
Apparitions,” similar in results to the anterior production of
Dr. Alderbon. Both admit the reality and universality of spectral
impressions, and both attribute them to partial affec-
tions of the brain, independent of any feeble and external
agency. Thse and other such writers, who consider the
appearances of ghosts, &c. as the immediate effect of certain
partial but morbid affections of the brain, confine themselves
to physical phenomena, professedly discarding the consider-
ation of any higher efficiency in the series of caufation, than
what appears to be the result of diseased organisation; so
that their discovery, though completely overthrowing the
common superition 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 “Shakpipe and
his Timings,” very reconcilable with the pneumatology 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 diseafe and
morbid impressions. (See Horley’s Nine Sermons on the
Nature of the Evidence by which the Fact of our Lord’s
Resurrection is faftablished.) 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 rifen,
but it was become that body which St. Paul describes in the
15th chapter of his 11 Epifole to the Corinthians; which,
having no sympathy with the grofs bodies of this earthly
sphere, nor any place among them, muft be indiscriminable
to human organs, till they shall have undergone the similar
refinrmennt. Accordingly it is alleged, that we are told by
St. John, that the body of our Saviour, after his resurrec-
tion, 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 manifestum fieri.” Vulgate.

APPRECIATION, i. 2. from bottom, r. abbé Peyton
for Feyer.

APRILE GUSEPPRE, in Biography. See TENDUCCI.

AQUILEGIA, in Botany, (see our former article.)
The history of this elegant genus is greatly enriched by pro-
feffor De Candolle, who reckons up thirteen species.
The following references require to be added.—Willd. Sp. Pl.
v. 2. 247. Lamarck Dict. v. i. 149. Illustr. t. 488.

Eff. Ch. Calyx none. Petals five, deciduous. Necta-
tories five, gaping and two-lipped at the funnitt; outer lip
large and flat; inner minute; each extended downwards
into a hollow spur, callous at the point, projecting between
the petals. Stamens numerous, diptod in five or ten par-
cels, the inner ones abortive, their filaments dilated, mem-
branous, and oblong; delinate of anthers. Germens five.
Capsules as many, erect, many-seeded, beaked with the
styles. *De Candolle*.

We here, of course, alter the phraseology of our author,
with respect to the parts of the flower, as in *Aconitum*.

U n 2

These
There 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; their leaves cut, or deeply divided, into linear lobes. Flowers terminal, blue, white, rosy-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 acrid, 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, seven in Siberia.

Obs. The leaflets, originating in the dilatation of the innermost filaments, and the abortion of their antlers, often surround the germens like bracteas, after the flower is passed. They are delineated in several of Barrelier's plates. Mr. Brown has remarked something analogous in the petal-like leaflets of his Eupomatia; see that article hereafter. The flowers in Aquilegia become double in four different ways. 1. Thole termed corniculi have accessory nectaries, originating from changed filaments, all spurred and pointing downwards. 2. Inversi have their spurs turned upwards, in consequence of a twist in the claws of those parts. 3. Stellati have accessory nectaries proceeding from enlarged filaments deprived of antlers; such being all flat, and without spurs. 4. Degeneres have all their flammis, pistils, 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 fections.


2. A. villosa. (See Aquilegia, n. 1.) Linn. Mant. 77. Willd. n. 11. Alt. n. 1. Gouan Illfr. 23. 1, 19. 1. De Cand. Fr. ed. 3. v. 912. t. 5. 640. (A. hisuta, flore vificofo; Magn. Monf. 26. Hort. 21. A. montana, flore parvo, thalici tri folio; Bauh. Pin. 144. Prodr. 75. Lachenal Att. Helvet. v. 8. 146. t. 5. Bauh. Illfr. v. 3. 484. Moris. feécr. 12. t. 1. f. 5, bad.) —Nectaries incurred. Capules hairy. Stem with very few flowers, almost naked, downy and viscid as well as the leaves and flowers. Styles not overtopping the flammis. —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 state, but the singular vis¬ousSculpture which covers the whole herb, especially the flowers, and is visible even in dried specimens, seems to indicate an essential difference. The flowers too are larger, 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 veficola, from Gouan himself, produced the vulgaris.

3. A. speciosa. Handflome-flowered Columbine. De Cand. n. 3, excluding the synonyms. (A. vulgaris, daurica; Willd. n. 2. 5.)—Nectaries incurred; spurr the length of the border. Capules hairy. Stem leafy, many-flowered. Flower-flats, footstalks, and backs of the leaves, downy. Styles taller than the flammis. —Native. Seen in a cultivated flate by De Candolle, flowering in May and June. He doubts whether his plant were different from A. vulgaris, as it differed only in the spur and limb of each nectaries being of equal length, the former generally yellow at the extremity, and the styles rising above the flammis during the flowering. Fisher and Perlofo, it seems, have mentioned a variety, in which the spurs are of the same colour as the limb. Whatever their plant may be, we are satisfied that the synonyms of Aiton and Ehrhart belong to the following.

4. A. ficilica. Siberian Party-coloured Columbine. Lamark n. 4. De Cand. n. 4. (A. vulgaris, speciosa; Ait. n. 2. 3. Willd. n. 2. n. A. bicolor; Ehrh. Beitr. v. 7. 146. A. hybrida; Sims in Curt. Mag. t. 1221? De Cand. n. 11?) —Nectaries incurred. Germens and capules perfectly smooth. Styles taller than the flammis. —Native of Siberia. Linnaeus cultivated this plant, and found it did not alter. We received it in 1796, from the garden of Meiffs. Lee and Kennedy, at Hammermith, who had the seeds from that country. Specimens of the fame, in the Linnaean herbarium, are marked as having been gathered near Irkutsk. M. De Candolle justly defcribes "the radical leaves on long flatstalks, smooth, except perhaps some downies on the footstalks; their segments obtuse, broadly notched. Stem hardly a foot high, mosty flingle-flowered, and entirely naked; sometimes bearing two or three flowers, with one or two leafy bracteas. Sepala (petals) blue, oval, obtuse. Nectaries white, half as long, very blunt. Capules quite smooth, by which character this species is readily distinguished from all the foregoing, and perhaps from all the rest." De Candolle. Our wild specimens have three or four flowers on each stem, and the garden ones are still more luxuriant. The flowers in both are pur¬plish-blue, the lips of the nectaries cream-coloured, as expressed in Ehrhart's name, and Dr. Sims's figure. We should have no hesitation about his synonym, were it not for the flight downies which he attributes to the herbage. The proportion of his flowers is right, but he does not say at any thing of the germens. We cannot but suspect the gar¬deners mixed seeds 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 less curved nectaries of the offspring seem an indica¬tion; the pale hue of their limb is exactly that of our sicilica. The downy leaves do not accord with either. If we are right, De Candolle's hybrida, n. 11, must be expunged. Respecting Gmelin's A. n. 16, Fl. Sib. v. 4. 185, we sup¬pose by its laft synonym, alluding to the party-coloured et nectaries,
natives, it must have been what we just described, taken by him for the Linnean alpina, though not without some doubt.

5. A. alpina. (See Aegilegia, n. 3.) Alpine Columbine. Lind. Sp. Pl. 752. Willd. n. 3. 

6. A. pyrenaica. Pyrenean Columbine. “De Cand. Fr. ed. 3. v. 5. 640.” (A. alpina; Lamark n. 3.)—


Aqua

ARA

Petals elliptic-oblong, shorter than the petals. Styles much longer. Petals elliptic-oblong, shorter than the petals. ——

Flowers downy, encompassed by membranous abortive flaments, after the perfect ones are gone.

9. A. daurica. Daurian Columbine. De Cand. n. 9. —Spurs straight, shorter than the limb of each petal, flaments scarcely prominent. Styles much longer. Petals acute, shorter than the petals. ——

The flowers are described as dark purple, or blue-violet; the limb of each petal greenish-blue; spur blue-violet.

10. A. atro-purpurea. Dark Violet Columbine. Willd. Enum. 577. De Cand. n. 10. (A. viridiflora; Willd. n. 5.) —Spurs straight, the length of the limb. Styles and flaments scarcely equal to the petals, which are the length of the limb of the petals.

—Veery frequent in woods about the river Lena. 

Gmelin. Herb entirely smooth, except the bristy germen. 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. 

—Veery frequent in woods about the river Lena. 

11. A. pumila. Small-flowered Columbine. De Cand. n. 12. (A. fylvanum humble; Gmel. Sib. v. 1. 186. n. 17. t. 72.)—Spurs straight, shorter nearly as long as the obtuse limb of each petal. Stamens and peltals recurved, the length of the petals. Stem smooth, as well as the leaves. —Veery frequent in woods about the river Lena. 

Gmelin. Herb entirely smooth, except the bristy germen. 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. 

—Veery frequent in woods about the river Lena. 


—Veery frequent in woods about the river Lena. 

Gmelin. Herb three inches high, smooth, resembling Anemone tricrenata. Leaves radical, divided in a three-ternate manner, with oblong segments, either entire, or two or three-lobed. 

Stalks fleshy, shorter than the leaves, accompanied by two linear-lanceolate bractes. Petals ovate, obtuse. 

—Veery frequent in woods about the river Lena. 

13. A. atro-purpurea. Dark Violet Columbine. Willd. Enum. 577. De Cand. n. 10. (A. viridiflora; Willd. n. 5.) —Spurs straight, the length of the limb. Styles and flaments scarcely equal to the petals, which are the length of the limb of the petals.

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—Veery frequent in woods about the river Lena.
ARA

flamens definite. Styles and stigmas several. Fruit pulpy, or rarely fleshy, of as many cells as there are styles, with a solitary seed in each. Stem either arboreous, or shrubby, or herbaceous. Leaves alternate, often compound, their footstalk theading in its lower part. Flowers umbellate, either with an involucrum, or, more rarely, naked.

The genera are, Gallonia of Commenr; Polyscias of Forster nearly related thereto; Aralia of all authors; Cauffania of Linnaeus in his Supplementum; and Panae. The Aralia 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 style. Jaff.

Araquy, in Geography, a river of Georgia, next in importance to the Cyrus, or Kur, which, rising near the gates of Caucasian, flows to the south, and after dividing into two equal parts, the southern range of mount Caucasian, falls into the Kur, at the town of Tigette, 25 miles above Teits.

Arasch, a rapid river of Mingredia, which has its source near the village of Kennes, 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 Phasis, flows through Letiguiani, divides Mingreha from Iberia, and enters the Phasis, near the Tedia.

Aratum, r. Aratrum.

Araucaria, in Botany, a barbarous name, given by Jullien to the Chili Pine, which Lamarck, Schreber, and Lambert, have called Dombeya. (See that article.) Willdenow 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 Araucaria has found its way into Mr. Aiton's Hortus Kewensis, where Willdenow is taken as the leading authority, and Dombey's ill fortune still pursues him. (See our biographical account of that eminent man, which we trust will be our sufficient justification in always maintaining the genus which he introduced, and which properly belongs to him: nor 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 Jullien'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 Jullien, in the choice he made, was far from concuring in the base periclosure of Dombey, 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 panicat: now received as Pentapetes. (See that article.) Araucaria 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.

Araujja, so named by professor Brotero, in honour of a Portuguese nobleman, Don Antonio de Araujo, an eminent patron of botanical science.—Erect. Tr. of Linn. Soc. v. 12. 62.—Clavs and order, Pentandria Digynia. Nat. Ord. Conoidea, Linn. Apetoneae. Jaff. Ajcilepides. Brown. 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 point; pollen of two obovate masses, projected upon five angles of the stigma. Pfl. Germens two, superior, ovate-oblong; styles 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, divaricated, large, oblong-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, sharply toothed ridges. Seeds very numerous, inserted into the teeth of the receptacle, imbricated downwards, ovate, clothed with papilary pubescence, and each crowned with a tuft of long silky hairs.


1. A. frcicofera. Silky Araujo.—Native of Peru. Cultivated in the green-house at Libren, 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 shaggy, weak, twining, three or four feet high, round, smooth, branched, leafy: the young branches rather downy. Leaves opposite, filched, 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 footstalk. Flowers three or four, or more, together, in short, lateral, drooping, smooth, somewhat coriaceous slaty, about half the length of the leaves, and inserted between the bases of the footstalks. Corolla yellowish-white, marked with purple lines; downy about the mouth. Follicles three or four inches long.

Arbela, l. 13, after Arbelitis, 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 5000 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 Moful, is fruitful but hilly, and very deficient in wood, there being hardly a tree or even shrub to be seen.


Arch. l. 23, fig. 43: 1. 23, fig. 43.

Arc of a Circle, l. 11, fig. 45.

Arch, 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 Arctotis, (see that article,) from which the genus we are about to describe has recently been separated, chiefly by the want of a seed-crown; for in habit there is no distinction.—Wendland Hort. Herrenhuf. 8. Willd. Sp. Pl. v. 3. 2565. Brown in Alt. Hort. Kew. v. 5. 141.—Clavs and order, Syngenea Polygonia-fruticans. Nat. Ord. Compositae, Linn. Corymbifera. Jaff.

Gen.
ARC

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-cleft, 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. Pill. Germen in all the florets; oblong; style in the flores of the disk only, thread-shaped; stigma prominent, cylindrical, erect. Peric. none, except the permanent, dry, curled calyx. Seeds in the disk only, obovate, without wing or down. Recept. flat, thickish, cellular.


1. A. repens. Creeping Arctotheca. Willd. n. 1. Ait. n. 1. (Arctotis repens; Jacq. Hort. Soc. Soc. v. 3. 31. t. 506. A. fascipaga; Thomb. Prod. 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 hack of the lyrate pinnatifid leaves, with fine white cottony down. Flower-flake radical, several together, tufted, 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, refting on the cup-like receptacle.

1. A.? leucophala. White-headed Arctotheca. Perf. n. 1. Hoffin. Germ. v. 2. 1. 6. f. 1. Trichia cinerea; Tronet. in Roth Catal. v. 1. 227.)—Aggregate. Head funnel-shaped below, reddish-brown. Net-work globe, meanly, snowy-white.—Found on dead leaves or flocks in autumn. Allo on mosses, or fragments of leaves, in rainy weather, very copiously, in June and July, according to Albertini and Schwiemz, Fung. Nénéans 160, who, like Perfoon himself hesitate whether to refer this elegant little species to this genus or to Physarum. See that article.

2. A. fleva. Yellow Arctotheca. Perf. n. 2. Obf. Mycol. 1. 58. Dips. Meth. 10. Albert. and Schw. Nénéans 279. (Trichia nutans; Bulliard Fung. v. 1. 122. t. 502. f. 3. Sowerb. Fung. t. 260. Stemotinis amena; Tronet. in Roth Catal. v. 1. 222.)—Aggregate. Yellow. Net-work cylindrical, elongated, drooping.—Found on rotten wood in summer, confiding of little tufts, of a pale or ochraceous yellow, each plant on a short stalk; the receptacle hemispherical; the cylindrical, rather tapering, net-work from half an inch to an inch long, reclining, abundant in powdery

3. A. cmeera. Ash-coloured Arctotheca. Perf. n. 1. Albert. and Schw. Nénéans 280. (A. alba; Perf. Dips. Meth. 10. t. 1. f. 2. Trichia cinerea; Bulliard Fung. v. 1. 122. t. 477. f. 3. Stemotinis glaucas; Tronet. in Roth Catal. v. 1. 221.)—Aggregate, greyish-white. Net-work cylindric-ovate, erect. Receptacle crenate.—Found in summer, in woods, on dead branches, flocks, &c. Smaller and shorter, as well as more obfute, but with a longer falk, in proportion, than the laft, from which also it is ditinctly distinguished by its dirty-white colour. They are puzzled, as well as the learned authors of the Fungus Nénéans, by Perfoon's allusion of the resemblance of this species to the fifth, hereafter described.


5. A. paniculata. Scarlet Arctotheca. Perf. n. 5. Dips. Meth. 10. Albert. and Schw. 282. (Clathrus dentatus; Linn. Sp. Pl. 1649. Jacq. Mice. Atur. v. 1. 136. t. 6. Trichia cinnabarina; Bull. Fung. v. 1. 121. t. 502. f. 1. T. dentata; Sowerb. Fung. t. 49. T. 2164. Hall. Hill. v. 3. 115. t. 48. f. 6. as Jacquin has it, rather than 4. as cited by Haller himfelf. Stemotinis coccata; Tronet. in Roth Catal. v. 1. 220.)—Crowded, ovate, orange-coloured.—Frequent throughout Europe on rotten wood, in fummer and autumn. When young it is white and foft, but advancing in fize, it affumes a confipuous orange-colour, with the dry rather firm texture of its genus. This fne colour chiefly reftes in the copious feminal powder, for the net-work itfelf is brownifh. The edge of the remaining base 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 reprefentation.

ARDELAN, in Geography, a province of the Persian empire, forming the eaftern division of Kurdtian, 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° 12', and E. long. 40°. The territories of Ardelen extend as far as Kella Shah Khanee, and are peopled by a tribe denominated Gheefkee, who are recorded by the Kurds as the moft expert and daring robbers of their nation; nor will torture induce them to betray their accomplices, being habituated to pain and severe chastifement from their earliest infancy. They are, however, liable to the moft abject fuperfition.

ARGOLASIA, in Botany, all a good name, contrired by Juffien, from opes, white, and oche, hairs, or foage, alluding to the white woolly clothing of the herb. But this name is superfeded by one of fimilar meaning, Lanaria, (fee that article,) given to the fame plant by Dr. Solander, and published in Ait. Hort. Kew. v. 1. 462, in 1789. This latter has been adopted by Schreber, and is now eftablifhed.

ARGUNNA, in Geography, a town of Armenia, in the pachalic of Diarbekir, distant 483 miles from Diarbekir; situated on the fide of a lofty mountain, from which torrents of water are discharged in courses through the streets fo as to render them impaffable. The town is populous, but wretchedly built, and is remarkable for the quantity of wine and brandy made in its vicinity.

ARJONA, in Botany, fo named by the late abbé Cavaller,
A R I

Niles, in honour of Mr. Francis Arjona, a celebrated lecturer on botany at Cadiz.—Cavan. 1. c. v. 4. 57.—Clafls and order, Pentandra Monogynia. Nat. Ord. Lythraceae, Julf. affine?

Gen. Ch. Cal. Perianth inferior, of two small, concave, permanent leaves, each with three terminal teeth. Cor. of one petal, funnel-shaped; tube thrice the length of the calyx, slightly dilated upward; limb in five deep, ovate, acute, equal segments. Stem. Filaments five, capillary, very short, inserted into the throat of the tube; anthers oblong, within the tube. Pijl. Genuen superior, ovate, crowned with five minute persistent scales; style simple, thread-shaped, the length of the tube; frigmas 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 Arjona. Cavan as above, t. 383. — Native of South America, in dry barren ground, near Port Defire, 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, awh-shaped, pinous-pointed, channelled, entire, rather spreading, clothed with soft woolly hairs. Flowers in a terminal, terminal, dense, corymbose head. Corolla about an inch long; externally yellowish and very downy; internally smooth, yellowish-white. Style reddish, with sometimes three frigmas. Berry small, smooth. Seeds not observed.

There is something in the characters and hue of this plant, that approaches the natural order of Verpecula, or Thymeleon, especially in the form and aspect of its corolla. Possibly the fruit may not really be of two cells. The two corydodes of a single drupa might, in an early state, mislead the author, who fays he did not see the seeds. The bark, however, does not appear to have those flaky fibres, 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 fays to the point of the leaf. Solander, the author of this name, appears rather to have alluded to the corydolea-like fringe of the sheaths, so remarkable in the original species. — Ker in Ann of Bot. v. i. 236. Dryand in Ait. Hort. Kew. ed. 2. v. i. 108. Vahl Enum. v. 2. 123.

Eff. Ch. Corolla superior, in fix 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. cynnea. Grafs-leaved Arjona. Ait. n. i. Andr. Repof. t. 10.—Flowers in terminal heads. Sheaths and bractes in many fine capillary marginal segments. — Native of the Cape of Good Hope, as well as in the following. See ARISTEIA, n. 1.

2. A. capitata. Tallerf Arjona. Ait. n. 2. Ker in Curt. Mag. t. 605. (A. major; Andr. Repof. t. 160. A. curvata; Vahl n. 3. Oloialis capitatus; Linn. Sp. Pl. 53. Morfea curvata; Thunb. Mor. n. 15. t. 2. f. 2. Prodr. i. 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 Hautiniques 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 broadish word-shaped leaves, and large handsome flowers, of a fine blue, composing a long faciculated cluster.


4. A. melaleuca. Mourning Arjona. Ait. n. 4. Ker in Curt. Mag. t. 1277. (Morsea melaleuca; Thunb. Mor. n. i. t. 1. f. 3. Prodr. 10. Fl. Cap. v. 1. 264. Willd. Sp. Pl. v. i. 240. Vahl Enum. v. 2. 153. M. jugens; Linn. Suppl. 99.)—Flowers alternate, foliary or in pairs. Three segments of the corolla not half the size of the reft. Leaves linear.—Found in several sandy bulby places, at the Cape of Good Hope, flowering in September and October. The root is fibrous. Leaves numerous, two-ranked, four to fix inches long, and not a quarter of an inch broad. Flowers few, somewhat racemose, larger than the leaf, and very hand- fome, 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.


ARISTOLOCHIE, is named from the leading genus, is the twenty-third natural order in Jullieu's system, being the only one in his fifth class. That class is defined as follows. Colyledons two. Petals none. Stamens inferted into the style. The Calyx is superior, of one leaf. Stamena none. German inferior; file either wanting, or single, or definitely multiplied; frigmas simple or divided. Fruit of one or many cells.

The order is thus characterized. Calyx superior, of one leaf, entire or divided. Stamens definite. German inferior; file one, or nearly wanting; frigmas divided. Fruit of many cells, with numerous seeds.

The only genera are, Ariftolochia, Ajarum, and Cyttisus. Linnaeus arranged them with his Sarmentaceae, but was subsequently inclined to refer them to his Rhoeadee. (See those articles.) We have already observed that they do not belong to the latter, nor have they any relationship to the Sarmentaceae, except something in the habit and foliage of Ariftolochia.

A R K A N S A S, in Geography, a river of Louisiana, which, next to the Missouri, is the most considerable tributary of the Missippii. 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 Missouli, 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 Arkansas itself, at certain seasons, 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 timbered. The Arkansas is a place situated 60 miles up the river, and contains 450 inhabitants. It has a few fires, and seems to be improving. There is a considerable trade with the Osages up the Arkansas, and with the Indians, who live in the White river country. This is also a French establishment, and has the fame proportion of Americans as the other towns. The territory of the Missouli contains about 874 Arkansas, whose settlements are principally in the neighbourhood of the Arkansas post, or extend up the river; and they are the least considerable of the territory. 

Brackenridge's Views of Louisiana.

ARAB, in Commerce, a weight in Portugal and Spain. At Oporto 1 arabo, or arrove, = 32 arrears, and 4 arrobas, or 128 lbs. = 1 quintal. The quintal at the India-house is 112 arrears. (See Quintal.) In Spain the arabo is also a liquid measure. A moyo of wine contains 16 arrobas, an arabo = 8 azumbres = 2 quartillos. The arabo of wine, or great arabo, is the fame all over Spain, regulated by the standard measure of Toledo, which contains 34 lbs. of river water (Cathilinian weight), and measures 1 237 1/2 Spanish or 981 English cubic inches; so that 4 such arrobas = 17 English wine gallons. The arabo of oil, or lesser arabo, regulated by the same standard measure, which weighs 25 lbs. of oil, or 26 lbs. 16 oz. of river water (Cathilinian weight), and measures 956 Spanish or 771 English cubic inches. Hence 3 such arrobas answer to 10 English gallons. The arabo is divided into 4 quartillos, or 100 quarterones or panillas. A Spanish bottle contains 30 arrobas of wine, or 33 3/4 of oil; a pipe is 27 arrobas of wine, or 34 1/4 of oil; so that the botta is 127 1/2 English gallons, and the pipe 114 3/4. Kelly's Cambist.

ARKSEEN, or AREKIN, a long measure in Russia. See Verschock.

VOL. III.

ARTICULATIONS. Diseas of. Arteries being composed of blood-vessels, nerves, and absorbents, are liable to the same morbid alterations, and endowed with the same powers of reparation, as soft parts in general; their coats inflame, and pass through the different stages of adhesion, suppuration, or gangrene, in the same manner as the skin, a gland, or a mucous membrane.

The internal coat of an artery, Mr. Hodgson observes, bears a striking analogy to serous membranes in its tendency to the adhesive inflammation; and this property is in the blood-vessels, as in all organs, the first agent of reparation in injuries from accident or disease. The inflammation which is excited by the wound or division of an artery produces an effusion of lymph, which fills the extremity of the vessel, and affecting also the external coat becomes the basis of adhesion and final obliteration. A punctured artery is united by the same adhesive processes which repairs wounds in general; and if irritation be excited in the coats of an artery by preasure, adhesive inflammation is the consequence, lymph is diffused into the cavity, and into the cellular substance, connecting the coats of the vessel; its sides coalesce; and it is rendered impervious. The same adhesive processes frequently prevents hemorrhage, where abscesses, or extensive ulcerations, exist in the neighbourhood of large vessels, the inflammation which precedes the suppuration having produced an effusion of lymph between the coats, and into the cavity of the arteries, whereby it is obliterated. But the most perfect demonstration of the effects of acute inflammation upon the internal coat of an artery, Mr. Hodgson thinks, is to be met with in the cases where the disease appears to have extended to the vessel from the contiguous parts. Thus, in a fatal instance of violent pneumonia, besides the usual appearances on dissection, the inflammation was found to have extended to the aorta, the internal coat of which was of a deep red colour, and a considerable effusion of lymph had taken place into its cavity. The effused lymph was very intimately connected with the internal coat of the vessel, and a plug of it had extended into the left subclavus artery, and nearly obliterated the cavity of that vessel. (Treatise on the Diseases of Arteries and Veins, p. 5.) Mr. Hodgson has observed a similar state of the great blood-vessels in a less degree from carditis, pneumonia, and bronchitis.
bronchitis. The granulations, or fungous growths, which are not frequently 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 effused upon the internal membrane. Mr. Hodgson also affures 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 subjucts. The internal coat of the vessel is soft, thickened, of a deep red colour, which is not uniform, but irregularly disposed 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 in 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 fac. 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 floughing 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 defined to prevent hemorrhage on the separation of the flough. 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 disease is confined to the internal coat, which having lost its elastic fometies cracks, and forms scales that hang into the cavity of the vessel. Calcareous deposits 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 infancies, 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 flabby appearance over the whole surface. This disease is confined to the internal coat, and is often found in aneurismal subjucts.

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 circumscribed, and having a pustular or tuberculated appearance. If punctured, matter may be pressed from underneath the internal coat, varying in confluency from that of cheese to that of common pus. Mr. Hodgson has seen the emolient and femoral arteries in the same subjuct 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 bicupid valves. They are of rare occurrence. Corvifart'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 calcareous 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 depositions 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 phosphat 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 mercerious consequences, than when it takes place in any other part of the arterial fyltem. The valves becoming rigid and fixed diminish the fires of the opening into the aorta. Whilst the pulse at the wrift is feebly, 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 wrift and that at the heart will, Mr. Hodgson conceives, in advanced cases, be sufficient to enable us to ascertain the existence of this incurable disease. A similar disproportion between the pulse at the heart and at the wrift 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 ossification of its valves.

Mr. Hodgson has given some interesting cases of ossification of the coronary arteries. In one, the heart was unusually small; its paries 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 case 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 sensation of numbness, palpitation, and irregularity in its action, with frequent syncope and difficult respiration, accompany almost all the organic diseases of that organ. (Hodgson, p. 36.) 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, 8vo. London, 1815.

Aneurism, 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 Aneurism and Aorta in this Addenda.


In habit, the generality of the species which constitute this genus are akin to Sphæroma and Opegrapha. (See those articles.) But Acharius originally included herein the Lichen croesus, and L. fascatus of Linnæus, which are now separated on account of their totally different habit, and leafy fronds, by the name of Solorina, Lichenogr. Univ. 25. t. 1. f. 5; 6; so that Arthonia is rendered much more natural. In the Synopsis of this writer, his latest publication, twelve species are defined.

Among them are,


A. hydropica, n. 7. (Opegrapha hydropica; Ach. Meth. 25. Engl. Bot. t. 1847.)—Crested limited, membranous, smooth, greenish-white, somewhat shining. Receptacles deferrated, flat, angular, irregularly flabby, 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, flattish, thin, elliptical or kidney-shaped, fleshy, 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 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 Acharius. A. lycena, n. 11. (Lichen lycena; Engl. Bot. t. 869.)—Crust white, thin, even, somewhat tartaceous. Receptacles numerous but distinct, flat, rather fleshy, oblong, blunted, 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. prunofusa, n. 12. (Lichen impolitus; Ehrh. Cr. ft Achar. Prodr. 56. Engl. Bot. t. 981.)—Crust whitish, thin, somewhat tartaceous, unequal, smooth. Receptacles flat, fleshy, 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 prunofusa is equally suitable to the last species. The present 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 his, tapering, densely bearded; anthers roundish, attached by the notch at their base. Pist. Germen superior, roundish, with three stigmas; style solitary, erect, cylindrical; stigma capitate, 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, somewhat angular, with a naked crest.

Eff. Ch. Corolla in six 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 Anthéricum, to which some of the species have been referred by other writers. Indeed we can discover no difference, (three of the filaments in Anthéricum, if not all of them, being bearded,) except the wavy or fringed inner segments of the corolla. Anthéricum 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 slight, 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 fasciculated roots, composed either of bulbs, occasionally flaked, or of thick fleshy fibres. Leaves linear, flaccid. Flower-flakes either aggregate or solitary, each with a joint in the middle. Flowers pendulous, either purpshire or white. Corolla closing after flowering, and long before the fruit ripens, falling off, leaving its permanent cup-like withered bale behind. The anthers are purple, or white. Thyssanotus of our learned friend, already described in our thirty-fifth volume, comes nearer to Arthropodium and Anthéricum than to the Alparicus tribe, to which it has been referred; the beautifully fringed inner segments of the corolla especially the present genus. But Thyssanotus has smooth filaments, unequal anthers, and a declining style, with a smaller stigma. The seeds moreover differ very essentially.


X 2 finely
finely crenate. Capule pendulous. Bulbs filiform. - Native of the neighbourhood of Port Jackson, New South Wales, from whence we received specimens, nearly thirty years ago, through the hands of Dr. White. Seeds were communicated by Mr. Geo. Caley to Sir J. Banks, for Kew garden, in 1800, and this elegant species is now to be seen in many green-houses, flowering in various summer months. The fruit is perennial. Stem erect, round, three or four feet high; slightly leafy in the lower part; much branched and panicle above. Leaves linear, pointed, channelled; sheathing at the base, a foot or more in length, chiefly radical. Branches of the panicle usually in pairs, spreading, racemose. Flowers drooping, three or four together, on undivided partial flasks. Corolla reflexed, half an inch in diameter, white variegated with lilac; three outer segments small, acute; three inner ovate, elegantly crisped at the margin. Beard of the stamens dense, yellow. Anthers and stigma purple.

2. A. triflum. Upright Arthropodium. Br. n. 2.—“Cluffter almost simple, many-flowered; flower-flasks solitary. Capsules erect.”—Gathered by Mr. Brown, in Van Diemen’s island, but after the flowers were full. 3. A. minus. Letter Arthropodium. Br. n. 3.—“Cluffter simple, with few flowers; flower-flasks solitary. Bulbs sessile.”—Found by Mr. Brown, near Port Jackson. 4. A. fimbriatum. Fringed Arthropodium. Br. n. 4.—“Cluffer simple; lower flower-flasks in pairs. Filaments naked in their lower part; tumid and smooth at the top. Anthers linear. Inner segments of the corolla fringed.”—Native of the neighbourhood of Port Jackson, where it was noticed by Mr. Brown, who observes that the structure of the stamens is so different from the reil, as to make him hesitate whether this species ought not to form a genus by itself. We are not sure whether we are possessed of any specimens.

ARISTOSTYLIS, from αριστος, a joint, and στυλ, the style, because of the articulation by which that part is joined to the germen.—Brown Prod. Nov. Holl. v. 1. 229. —Claws and order, Triandria Monogynia. Nat. Ord. Calamaria, Linn. Cyperaceae, Brown.

Eff. Ch. Spikelet single-flowered. Glumes chaffy, imbricated; the lower ones empty. No bristles around the germen. Styleawl-shaped, triangular, articulated with the germen, deciduous. Stigmas three. Nut triangular. 1. A. aphylla. Leaflets Aristrostylis. Br. n. 1.—Found by Sir Joseph Banks, in that part of New Holland which lies within the tropic. The stamens are slender, unbranched, without joints of the ovary; sheathed at the base; naked in the upper part. Head terminal, simple, turbinate, longer than its three or four-awned, awl-shaped involucrum. This genus differs from Abildgardia in its habitat, and single-flowered spikelet; from Rhynchospora in having a deciduous style, and no bristles surrounding the base of the germen; see thefe articles. Brown.

ARTUSI, l. 4. ferrut, he.

ARVE, for Rhine r. Rhone.

ARUNINARIA, in Botany, inadmissible as a generic name, being formed by an alteration of Aruna, already received, is applied by Michaux, Fl. Bore.-Am. v. 1. 133, to a genus now called Migeia, in Perf. Ench. v. 1. 102, according to Pursh. 59. This cannot, we presume, apply to Schreber’s Migeia, (see that article,) as the floras in Michaux’s plant are numerous; so that here is some confusion which we must leave the writers to question itself.

ASC, in Common, a small Dutch weight, used also at Hamburg, and in Sweden. At Amsterdam, 232 ares are = an ounce, and 8 ounces = a mark toy. (See MARK.)

In Sweden the smallest denomination of weight is the quarter, which is the same as the as of Amsterdam. The mark for weighing gold and silver, called “silver-mark,” is 48s. ares, or 3252 grains English troy weight. Hence 40 such marks are = 271 ounces toy. In apothecaries’ weight, the pound is 7416 ares, or 5400 grains toy; and hence 16 such pounds = 15 pounds English troy, or apothecaries’ weight.

As, l. 16. 23. 27, for Tullius r. Tullus.

ASAM, l. 2, after Bengal, infer—bordering on the country of the Grand Lama, or Botan—after Hindoostan, or separated from Decca, the N.E. quarter of Bengal, by a range of hills, intersected by the Garrows;—after Meckley, or Ava and Arracan.

L. 16, after journey, add.—It is understood to be about 200 miles in length, and its mean breadth above 70, though in some places, where the mountains recede, it greatly exceeds that proportion. Dr. Wadie thinks 6,000 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 Burnhaumpooter, but every where intersected by numerous rivers.

ASAPIH, Sr. l. 12, for Shipley r. Bzgot.

ASCHRAFF. Add—This place is seated on the shore of a bay, which is the only good harbour on the southern side of the Caspian sea.

ASCOBOLUS, in Botany, from ασκος, a skin, or cafe, and βολος, a cafe, or throw, because the seeds are thrown out with elasticity, several together, in oblong cafes.—Peri. Syn. Fung. 676. Obs. Mycol. f. c. 33. —Claws and order, Cryptogamia Fungi. Nat. Ord. Fungi.


2. A. carnox. Flesh-coloured Ascolobus. —Smooth, flesh-coloured.—Found rarely on dung, in woods. All over of a very pale red.


4. A. immeus. Sunk Ascolobus. Ibid. 35. t. 4. f. 7, d. —Scattered, immerge, irregular, somewhat conical, rather fuscous externally.—In the same situations, almost entirely sunk in the dung, so that the seed-cafes only are prominent, containing black seeds, floating in an evident fluid. Persoon.


Eff. Ch. Thread-shaped, terminating in an empty, slightly inflated, head.

Tode in Schrift. der Berl. Gesellschaft. Naturf. Fr. v. 3. 247. 4. f. 4—6.)—Found in autumn, either at the extremities of the branches, or on the trunks, of trees, such as Willows, &c. It may be preserved 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 subsequently besprinkled with snow-white powder, probably the seeds. This betrays some affinity to Stilbium; see that article.

ASCIDIA, l. ul., dele which see respectively, and infert, See VERMES.

ASCIDIUS, I. l., r. Pedianus; l. 54, dele Quincifilium and. See ASHY, in Geography, a county of North Carolina, containing 6,904 inhabitants, 147 being slaves.

ASHARIANS. See ASHARIAINS.

ASHBURNHAM, l. 4, r. 1036.

ASHBY, l. 3, r. 1103.

ASHFIELD, l. 4, r. 1809.

ASHFORD, a township of America, &c. add.—The number of inhabitants by the census in 1810 is 2532.

ASHFORD, New, &c., for 460 r. 411.

ASHTABELU, a township of the county of Georgia, in the district of Ohio, having 221 inhabitants.

ASHTON, a township of Pennsylvania, in the county of Delaware, having 765 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.

ASITUS, I. 16, dele which see respectively.

ASIMINA, in Botany, a barbarous name, employed by Adamson, 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 cafes of a similar kind. As far as we know, the word is defective of all meaning whatever; in which respect Michaux’s synonym, Orchidctearnum, would be preferable, were the idea it conveys unexceptionable, and the word not compounded of another generic name. All things considered, we prefer Porcelainia (see that article hereafter) as entirely free from objection; for we cannot follow our distinguished friend, De Candolle, in perpetrating this last-named genus from his Afinina. Our preceding articles Orchido-earnum and Porcelainia are now superferfed, in conformance of more accurate information, chiefly furnished by De Candolle.

ASPARGUS, the 12th natural order in Jussieu’s system, the second of his third classes; for the full characters of which class, see PAPAIS.

Jussieu thus defines the Aparagus, which are nearly equivalent to the Linnæan Sarmintaeceae. See that article.

Calyx in six divisions, regular, usually deeply divided and inferior, rarely superior. Stamina six, inserted into the lower part, rarely into the middle, of the calyx. Germin simple, mostly superior; styles either three, with as many stigmas, or the style is simple, with a three- or three-cleft stigma. Fruit 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 horned albumen.

The stem is frequently herbaceous, in some cafes shrubby. Leaves mostly alternate, seldom opposite or whorled, for the most part not sheathing, but merely clasping the stem. Flowers each with a separate flower; 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.

Sec. 1. Flowers perfect. Germin superior. Dracena of Linnæus; Dionella of Lamarck; Rigoneum of Forster; Flagellaria and Aparagus of Linnæus; Callixene and Philonis of Commerson; Medeola, Trillium, Paris, and Convallaria of Linnæus and others, constitute this section.

Sec. 2. Flowers dioecious. Germin superior. Rhus, Smilas, and Diospyros.

Sec. 3. Flowers dioecious. Germin inferior. Tamus of Linnæus, which Jussieu, following Tournefort, calls Tamus, and Ramea.

Mr. Brown, Prodr. Nov. Holl. v. 1, has greatly curtailed this order, referring some of its genera to the Assphodei or Assphodeles, and establishing out of it a new order, termed Smilaces, composed of Trillium, Paris, Medeola, (except its Cape species,) Convallaria, and Strepogurus, with his own Dryophosta, Rigoneum of Forster, and Smilas. The same author has also founded on the genera of Diospyros and Ramea another order called Diospyrea; but surely Tamus, by his own account, connects this with the Smilaces.

ASP, for Berne r. Bear; and for Switzerland r. France.

ASPER, in Commerce. Subjoin—See Piastré.

ASPERGILLUS, in Botany, a name first applied by Michelian, Nov. Gen. 212. 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 Perforon’s Monilia. See that article.

ASPERIFOLIA, the forty-first of the natural orders of Linnæus, is one of the most natural of these aggregations. It was first pointed out by Celsalinus, but obtained the above name from Ray, in allusion to the roughness of the foliage. To this character one or two species of Cynogloja and of Pulmonaria alone afford exceptions; which indeed are but partial, for even in these some br.1tly roughness is alono always to be discovered, either on the surface or branch. This order is analogous to Jussieu’s Borragines, and is so well defined that Linnæus has, contrary to his usual prachie, 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 scattered bristly hairs, or callous warts; convolute before they expand. Stipula wanting, as well as all other appendages in general. Flowers unitaler; 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 divisions. Corolla monopetalous, inferior, five-cleft, regular except in Ecbium; its mouth either closed with vaulted valves, or crowned with teeth, or naked and pervious. Stamina five, equal, except in Ecbium. Fruit superior. Germin four, except in some species of Cynoquilum, Tournefortia, and Nolana, to which Cernins should be added; but Nolana was properly removed by Linnæus afterwards to his Euritide, which are inserted into the receptacle by their base; hence the lower part of each cell becomes tapers, as if fifhished artificially. Pistil one; style not an elongation of the germens, but sunk between them in the centre, often divided into two equal parts. Seeds four, rarely combined into two.

The genera stand thus:

Sec. 1. Symphytum, Oenoma, Cerninthe, Borago, Aebium, Lycopsis,
Lycoctis, Asphodelus, Pullmonaria, Lithospermum, Cyanoglaucum, Anchusa, Myosotis, and Heliocereus.

Sec. 2. Tournfortia, Varronia, Ebrozia, Cordia, and Patagonia.

Sec. 3. Nolana, here placed by itself, is now removed.

In the Linnæan manuscript, Mufcerfchmidia is introducted between Echium and Lycoctis; Coldenia after Heliocereus; Hydrophyllum and Elflia after Tournfortia; and Ebrozia is removed to the end of all.

In the generic definitions 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 fructification of the Asphodeli, of the four-cleft fruit, with a five-cleft flower, is one of their striking characters, in which they indeed agree with the Linnæan Pteridium, Julleu’s Labintz, but the irregular corolla, unequally-divided style, opposite leaves, and square stems, of the latter, and especially their four stamens, two longer and two shorter, clearly distinguish them. Their qualities also greatly differ, being aromatic, not mucilaginous and scented. Their flowers are generally red or purple; those of the Asphodeli of a beautiful blue, though most of as beautiful a red before expansion.

Asphodeli, the sixteenth natural order in Jullieu’s method, the sixth of his third clafs, 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 Jullieu’s third clafs are detailed under Palmæ. He thus defines the Asphodeli.

Calx inferior, coloured, often in fix deep equal segments; rarely tubular, with fix less deep divisions. Stamens fix, inserted into the bottom or the middle of the calyx. German superior, simple; style simple; 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, feeding 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 scaly sheaths under each branch. Flowers each accompanied by a sheath, or spathe, spikèd, (in Allium umbellata,) terminal, or rarely axillary.

Sec. 1. Flowers spikèd. Root fibrous. Calyx tubular. Atelis and Aloe compose this section.

Sec. 2. Flowers spikèd. Root fibrous. Calyx in fix deep segments, bearing the stamina at its base. Anthericum of Linnaeus, comprehended under Asphodelus by Tournefort; Phalangium of Tournefort, partly comprehended by Linnaeus under Anthericum (and very improperly named, as Phalangium is an embellished genus of insects); with Asphodelus, of Tournefort and Linnaeus, constitute this section.

Sec. 3. Flowers spikèd. Root bulbous. Calyx tubular at the base. Bajus of Jullieu, now univerally called Eucnemis; Hypacitus of Tournefort and Linnaeus, including Mufcari of the former; Phormium of Forster; and Muscaria of Thunberg. Lachenalia of Jacquin ought also, as Jullieu supposes, to be placed here, being very distinct from Phormium, though once confounded with it.

Sec. 4. Flowers spikèd. Root bulbous. Calyx in fix deep segments, bearing the stamina at its base. Cynella, Albica. Scilla, and Ornithogalum.

Sec. 5. Flowers umbellete. Root bulbous. Calyx in fix 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 confedered as an order by itself, or as a fection 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, cruciferae, 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, Hypeoxis and Curculigo, as having a similar skin, though their germs is inferior; and for the same reason he removes Blundfordia from hence, not only on account of the hairy integument of its seed, but also because there is a difference in the burling of its capsule, to say nothing of other particulars. The same author notices a joint at the middle or summit of the flower-flanks, frequent in this family, and scarcely observable in the neighbouring orders, except in Sanseviera, and some of the Composita tribe. He is decided against separating the pulp-y fruited genera from the rest, either in this order, or the true Liliaceae. It is needless to point out, that what Jullieu 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 Asphodelae are thus arranged by Mr. Brown. Anthericum; Arthropodium, Br.; Chlorophyllum, Ker in Curt. Mag.; Cala, Tricoryne, and Styphandra, of Brown; Dionella, Lamarcè; Cordylina, Commerson; Alpharagis; Eurybaphus, Br.; Luxuriaga, Ruiz et Pavon Fl. Pern. Fl.; Thysanotus, Br.; Scouleria, Sm.; Lasmania, Br.; Borya, Labill. Nov. Holl.; Johnfania, Br.; and Xanthorrhiza, Sm. To which are subjoined genera intermediate between the Asphodelae and Amurralidæ; Hypeoxis; Curculigo; and Campynea, Labill. With Asfelia, intermediate between Asphodelae and Juneeae.

Aspidium, a genus of Filices (see that article), separated from the Linnæan Polypondium, on account of its being furnished with an involucrum, to each round dot, or mafs, of capsules, meaning a small shield, which is very descriptive of the shape of this involucrum. The propriety of subdividing the original Polypondium was doubtfully hinted by the writer of this article, in his Essay on the Genera of Doriforous Ferns, and Dr. Swartz adopted this measure. Mr. Brown has carried it ill further, by founding his genus Nephrodium; see that article and Polypondium. We need not here repeat our observations, already made in those places. We shall give a general view of Aspidium, according to our idea of this genus.—Swartz in Schrad. Journ. for 1800. v. 2. 29. Super Fil. 42. Sm. Fl. Brit. 1118. Wildl. Sp. Pl. v. 5. 211. Ait. Hort. Kew. v. 5. 507. Brown Prodr. Nov. Holl. v. 1. 147. Pursh 666. (Nephrodium; Michaux Boreal-Amér. 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. Inflorescence 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.
Frond simple. Two species in Swartz; three in Willdenow.

A. rodorum. Knotty Shield-fern. Wild. n. 1. (A. articulatum; Sprague Crypt. t. 27, copied from Pluk.)—Fronds simple, oblong, lanceolate, finely crenate and wavy, pointed. Dots scattered, solitary. Stalks jointed, scaly. Root creeping, chaffy and hairy. —Found by Plumier 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 fori being disposed in chain-like rows, and the frond having a thickened margin. Petiver's figure is copied from Plumier, as usual with the Feras of that author.

A. articulatum. Jointed Shield-fern. Swartz n. 1. Wild. n. 2. (Polypodium articulatum; Lamarrck Diet. 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 Commeron's specimens. The fronds are a foot long, not thickened at the edges, but very unequally and minutely wavy, as if crenate; the fall of each not one inch in length, instead of two, or more, as in the foregoing. Sorus in a simple, slightly undulating row, on each side the mid-rib, not half way between it and the margin, rather small. Involucre perfect petalate, but more or less notched at one side, dark brown; pale and undulated at the circumference.

Frond terna. One species in Swartz; four in Willdenow.

A. trifoliatum. Three-leaved Variable Shield-fern. Sw. n. 3. Wild. n. 5. Ait. n. 1. (Schkuhr Crypt. t. 23.) (Polypodium trifoliatum; Linn. Sp. Pl. 1547. Jacq. Coll. v. 3. 185. 1c. Rar. t. 638. Petiv. Fil. n. 18. a. 7. f. 3. Hemionitis maxima trifolia; Plum. Amer. t. 32. Fil. 127. t. 148. Hemionitidis affinis filix major, trifida, auriculata, pinnis lactifinis finatis; Sloane Jam. v. 1. 85. t. 42.)

ß. Polypodium Pica; Linn. fil. Suppl. 446.

Frond smooth-edged; either simple, heart-shaped at the base, and three-lobed; or ternate, partly pinnatifid; the middle lobe or leaflet largest; lateral ones auricled at the base. —Native of groves and shady places in the West Indies. A rather large, very variable species, of a fine grada-green, thin and pliant; either simple, in three deep taper-pointed lobes, laterally lobed or auricled, in which state it is, as Swartz rightly judged, Polypodium Pica of the younger Linnaeus; or perfectly and simply ternate, like Plumer's figure, copied by Petiver, and Phuk. Phyt. t. 291. f. 33 or the leaflets three-lobed, finated, occasionally pinnatifid, as in the plates of Jacquin and Sloane. The fori are numerous and scattered. Involucrum perfectly petalate, separating equally all round, without any lins, or notch. The margins of the all the segments or leaflets are sometimes only undulated, but more frequently toothed, in a blunt irregular manner.

A. cicutarium. Hemlock Shield-fern. Swartz n. 46. Wild. n. 7. Pursh n. 1. (Polypodium cicutarium; Linn. Sp. Pl. 1549, excluding both the bynomyns of Pluknet, and inserting the following. Filix jamaicensis, five Polypondium Cicutarium latifoliae foetidiissime foliis quodammodi convenienet. &c.; Pluk. Almang. 153. f. 286. f. 4.)—Frond ternate: leaflets pinnatifid, pointed, with rounded, obtuse, entire segments; the lowermost segments greatly elongated and subdivided. —Native of mountains in Georgia and Virginia. The Linnaean specimens come from Dr. Patrick Browne, and answer well to Pluknet's t. 289. f. 4, whatever his t. 296. f. 2, cited by authors, may be. The fronds are a span high, thin, delicate and smooth, with fine interbranching angular veins. We have seen no fructification. Neither Willdenow nor Pursh appear to have examined any specimens.

Frond pinata. Forty-four species in Swartz; seventy-four in Willdenow.

A. punctatum. Sickle-leaved Japanese Shield-fern. Swartz n. 7. Wild. n. 13. (Polypodium falcatum; Thunb. Jap. 336. t. 36, not 35. Linn. Suppl. 446. Filix chevranse, laitoni lonchitis ferrato folio, avera parte ferniginis punctulis refertissimo; Pluk. Amalth. 93. t. 405. f. 1.)—Frond pinata: leaflets ovate, coriaceous, bluntly ferrated, pointed, curved upwards; oblique and unequal at the base; strongly veined beneath; the odd one somewhat three-lobed. Stalk falcate.—Gathered in large, elongated, and frequently three-lobed fronds, beneath which we have examined forty-four species. Twelve or fifteen inches high, rigid; rather glaucous beneath. Involucre perfectly petalate and orbicular, with a central boss. The upper side of each leaf is smooth and even; the under very curiously reticulated, with flout, prominent, chain-like veins, meeting, but not strictly interbranching with, each other.

A. punctulatum. Dotted-bordered Shield-fern. Swartz n. 21. Wild. n. 17. (Lingua cervina dentata, punctulis nigris notata; Plum. Fil. 98. t. 112.)—Frond pinata: leaflets uniform, linear-lanceolate, pointed, ferrated; with a marginal row of minute imprefions on the upper side; downy beneath.—Gathered by Plumer in Martinico. We have it from Jamaica. Willdenow moreover mentions Guiana, as the native country of this species. Each frond is five or six feet high. Common flatish round at the back, furrowed in front, light brown, not smooth, but clothed with fine, soft, narrow, rufly scales. Leaflets very numerous, alternate, four or five inches long and wide, one broad, slightly stalked, bright green, rather thin and pliant, rounded, and sometimes doubly, ferrated; finely downy at the back; broadly wedge-shaped, and occasionally slightly auricled at the base; their upper side smooth, each vein terminating near the margin in a blueish, withered, minute spot, the foot, as it appears, of the flowers; for a similar mark is found over every masse of capfuales; but these being situated in a simple row, at some distance from the margin, the spots which mark their infection are much further from the edge than the abortive spots. Plumer represents a row of such 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 discovery of the flowers of ferns is so interlingel, that we are here tempted to be more particular than usual. The masses of capfuales are large, prominent, of a bright tawny-brown, each with an almost perfectly circular and umbilicated involucrum. It seems to us a curious question, how the spots above-mentioned which are attended by fertile capfuales, in large convex feri, come to be arrested at a considerable 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 disk of each ferrature.

A. Lon.
ASPIDIUM.

A. Lonchitis. Rough Alpine Shield-fern. Swartz n. 5. Wildi. n. 25. Fl. Zeyl. n. 1. Engl. Bot. t. 797. (Polypodium Lonchitis; Linn. Sp. Pl. 1548. Fl. Dan. t. 497. Lonchitis alpea major; Ger. Em. 1140. Matth. Valgr. v. 2. 273. — Camer. Epit. 664.)—Frond pinnate, chaffy: leaflets sickle-shaped, declining, acute, with fringe-like ferratures; 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 staved plants of *A. aculeatum* 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 green, about an inch long, the upper ones, about one-third of the whole, copiously fruтиfying; the rift barren; several of the lowermost gradually shortened, but not contracted in breadth. *Sori* in a simple row on each side of the rift, rather nearer to it than to the margin; pale; the *involutum* of each peltate and umbilicated, without any notch, completely on the margin.

A. acrophylleides. Crowded Shield-fern. Swartz n. 11. Wildi. n. 26. Purfii. n. 2. ("A. auriculatum; Schkuhr Crypt. 31. t. 30, excluding the synonyms." Wildi. Nephrodium acrophyllleides; Michaux Boreal.-Amer. v. 2. 267. Polypodium fronde pinnata lanceolata, foliosis humatitis, &c.; Gron. Vr. ed. 2. 167, excluding all the synonyms, except Clayton's.)—Frond pinnate, chaffy: leaflets sickle-shaped, acute, with fringe-like ferratures; auricled at the upper angle of their base: uppermost diminished, covered with confluent maffes of capules.—Native of rocks, in shady low places, from New England to Carolina, bearing capules in the summer. *Purfii.* This fern has long been cultivated in the more curious gardens of England, having been introduced, if we collect any, by Robert Barclay, et al. at Clapham. A taller plant than the last, and of a lighter green. The auricle of the uppermost *leaflets* sometimes becomes quite distinct and separate. The *sori* are found upon half, or one-third, of the upper leaflets, in a single or double row, at each side of the mid-rib, and are particularly crowded on the auricles. They become tumid as the *capules* ripen, and run into one mass, fladded, as it were, with the pale-brown *involution*, which are circular and peltate, though cloven at one side, the edges of the finus folding over each other. *Linnaeus* confounded this with *Asplenium ebenum*, as well as with his own *Polypodium auriculatum*, an East Indian species, hereafter described.

A. auriculatum. Auricled Shield-fern. Swartz n. 10. Wildi. n. 29. Aitn. n. 3? (Polypodium auriculatum; Linn. Sp. Pl. ed. 1. 1088. ed. 2. 1548. Felix zeylana, lonchitis facie; Burn. Zeyl. 98. t. 44. f. 2.)—Frond pinnate: leaflets lanceolate, falcate, ferrated, frilled; auricled at the upper angle of their base. *Maffes* of capules distinct, in simple rows.—Native of the rocky summits of mountains in Ceylon. *Keng. Brought to Kew garden, in 1793,* by admiral Bligh. *Aiton.* This species has no affinity or resemblance to the last, with which *Linnaeus*, and after him *Swartz*, confounded its synonyms and character. Even Willdenow, who corrected these errors, is mistaken in saying the *flask* is smooth. The *frond* is from fix to twelve inches high. *Stalk* flesy in front; roughish with minute points behind. *Leaflets* numerous, narrow, an inch and a quarter or an inch and a half long, tapering but not pointed, coriaceous, smooth, with fine, blunted, close, not fringed, ferratures; even above, frilled with transverse veins beneath; dilated at the base; the auricle broad, short, and bluntnish. *Sori* small, distinct, in an even row on each side the mid-rib of the *leaflet* and its auricle. We have not seen the *involution*. The ripe *capules* are inferted by fine capillary flasks into a convex knob. *Linnaeus* says in Fl. Zeyl. n. 383, where he originally defined his *Polypodium auriculatum*, that the plant is entirely smooth. The flaggins and flight rough arenches of the *flask* may therefore be variable. He there cites Plunetum, t. 30. f. 4: which is in no respect distinct from *Keng's* spects. Mr. M prezies gathered on the weft coat of North America a fern very like this, except that the ferratures are brilily, and the leaflets frilled. Its *flask* is very fea all the way up.

A. exaltatum. Lofty Shield-fern. Swartz n. 14. Wildi. n. 34: excluding the synonym of *Linnaeus*. Ait. n. 4. "Schkuhr Crypt. 33. t. 32, b." (Lonchitis glabra minor; Plun. Amer. 19. t. 28. Fil. 48. t. 63. *L. altifrons*, pinnis utrinque, feu ex utroque latere, auriculatis; Sloane Jam. v. 1. 77. t. 31.)—Frond pinnate: leaflets lanceolate, ferrated; with a row of minute white impressions on the upper side, towards the margin; unequally baltate at the base. Maffes of capules in a simple row, towards the margin. Stalk even, slightly fea.—Native of Jamaica, and other parts of the West Indies. Brought to the *flowers* at Kew, by admiral Bligh, in 1793. The *fronds* are usually three or four feet high, erect, straight, narrow, with a polished, pale-brown *flask* and mid-rib, occasionally somewhat fagggy. *Leaflets* numerous, parallel, close, nearly ftraight, two inches long at most, very smooth; rather rounded at the point, their shallow, blunt, unfringed ferratures most abundant in their upper half; the base dilated into two short broad *auricles*, defluifet of fruтиfication, of which the lower one is shorted, and most rounded. *Sori* numerous, disfrined, rather large. *Involution* not perfectly orbicular, nor finitely peltate, having a deep finus at the side towards the base of the leaflet, so as to resembfe a horfe-shoe. This fern is very frined from our *Davallia falcata*, though Dr. *Swartz* fupperfed the contrary. *Linnaeus* confounded its synonims with the following. The row of minute withermed specks, as far as we can see, only accompany the *sori*, there being, in our specimens, no barren ones as in *A. punctatum*.

A. blechnoides. Long-leaved Shield-fern. (Polypodium exaltatum; Linn. Syft. Nat. ed. 10. v. 2. 1326. Sp. Pl. ed. 2. 1549; excluding the synonyms, and substituting the following. Felix minor, in pinias tantum divisa, crebras non cennatas, inferiore laterae auriculata, et rotundis pulvulentis areolas avera parte notatas; Sloane Jam. v. 1. 86. t. 44. f. 1.)—Frond pinnate: leaflets linear-lanceolate, elongated, entire, with a rounded incured auricle at the base on the lower side, and a flight dilation on the upper. Maffes of capules in a double row.—Native of Jamaica, on the sides of hills. *Linnaeus* received his specimen in Browne's herbarium, with an erroneous reference to Sloane's t. 31, which belongs to our last-described. Hence there has always been a confusion respecting these two ferns, which even Dr. *Swartz* could not reconcile; see his Syn. Ficulum, 65, where he cites Sloane's t. 44, but ought to have added fig. 1; as fig. 2. is *Blechnum occidentalis*. The specific name of *Polypodium exaltatum*, being taken from Plumer'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 expressly called *blechnoides*. Its height is only eighteen or twenty inches. *Leaflets* from four to six inches long, taper-pointed; the lower auricle of each overlapping the main *flask*, and hooked.
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.

Sect. 4. erroneously marked 3 by Willdenow, as is often the case in other parts of his work. *Frand pinnae: leaves pinnatifid, *Involucrum* rounded, or kidney-shaped. Thirty-four species in Willdenow. Swartz does not separate this fection from the following.

A. Hippocrepis. Horse-shoe Shield-fern, *Swartz* n. 45. Willd. n. 46. (Polypodium Hippocrepis; Jacc. Col. v. 3. 186.) Ic. Rar. t. 64t. Hemionitis lacinis crispa incita; Plum. Fil. 119. t. 150. Petiv. Fil. t. 7. f. 7.)—Frand pinnae: leaves oblong, sinuated; the upper ones confluent and decurrent; lowermost flatked, pinnatifid; segments obtuse, somewhat crenate; veins downy. *Involucrum* crezenet-shaped. Native of South America, and of Hiftaniacs, 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 eight inches or two feet high, tufted, of a fine green, more or less downy, especially about the ribs and veins: their *leaffits* sinuated in the manner of some species of oak; the segments also sinuated, wavy, or crenate. Sori chiefly ranged on each side of the mid-rib of the segments, but not being uniformly perfected, they appear irregularly scattered. *Involucrum* like a horse-shoe, to which the specific name applies.

A. unium. United Shield-fern, *Swartz* n. 47. Willd. n. 57. Ait. n. 5. Schkuhr Crypt. 34. t. 33. b. (Polypodium unitium; Linn. Sp. Pl. 15.48; omitting the synonyms of Sloane and Pluckenet. Felix pyramidalis madraptana elegans, pinnalis ferratis; Pet. Muf. 10. n. 55. t. 1. F. zeylanica denticulata, non ramosa; Burm. Zeyl. 98. t. 44. f. 1.)—Frand pinnae: leaffets linear, pinnatifid; their very numerous segments ovate, acute, combined, hairy beneath. Stalk downy in the leafy part. *Involucrum* nearly circular, with a deep notch. Native of Transkeab and Ceylon. Frond two feet, or more, in height: Smooth and nearly naked in its lower half, except a few dimift small leaffets: finely downy and rufly in the upper half, and crowded with feftile, narrow, acute, linear leaffets from three to five inches long. These are composed of immeasurable little convex Segments, a quarter of an inch in length; smooth and veiny above; ribbed and downy beneath; appearing as if deeply separted, 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 capsifidis with glittering brown rings.

A. obfutum. Blunted Shield-fern, *Swartz* n. 30. defcr. 248. Willd. n. 58. (Pteris interrupta; Willd. Phyto(tr. 13. t. 10. f. 1.)—Frand pinnae: leaffets linear, pointed, slightly pinnatifid; segments obtuse, downy beneath. Stalk smooth. *Fructification* near the margin. Native of the East Indies. Very like the last, but the leaffets are more pointed, rather crenate than pinnatifid, and the rows of *fori* so near the margin that Willdenow actually took the plant for a *Pteris*.


Vol. XXXIX.

with refrinous glands beneath. *Fructification* near the margin, confluent. — Mountainous heathy ground, and dry woods, in various parts of Europe, from Denmark to Italy, produce this fern, bearing capsules in July. Our British botanists long overlooked it, as a variety of the common Felix mas, whilst others mislooked it for *Thelypterus*. The refrinous dots at the back of the frond exhale a fragrant fmmell, more or less perceptible at different times; which induces a suspicion that this species may have been taken by Mr. Hudson for *Polypodium fragans* of Linnaeus, never found in our island. In fize the present species vies with *A. Felix mas*, hereafter to be described, but the whole *frond* is rather narrower. The segments of the leaffets 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* fmall and thin, umbilicated, with a deep lateral fissus, and soon vanishing. *Root* large, scaly, tufted, not creeping.

A. Thelypteris. Marhi Shield-fern. *Swartz* n. 35. Willd. n. 74. Fl. Brit. n. 10. Engl. Bot. t. 1618. Pursh n. 4. "Schkuhr Crypt. 51. t. 52." (Polypodium Thelypteris; Linn. Mant. 505. Fl. Dan. t. 765. Aeroch- nium Thelypteris; Linn. Sp. Pl. 1528. Bolt. Fil. 76. t. 43. 44. Thelypteris non ramosa; Schmidel 15. t. 11. Felix tenuefimul et profundis denticulata Montbelgardica; Bauh. Hift. v. 3. 731. good. F. palnttis repens,摈inus non dentatis; Morif. flct. 14. t. 4. f. 17. 1.)—Frand pinnae: leaffets lanceolate, pinnatifid, somewhat crenate; dif tinét, but crofuing each other, at the base. *Fructification* scattered, confluent. *Root* thread-shaped, creeping. Native of rotten bogs, and turfy marshes on a fandy foil, in various parts of the north of Europe, as well as in North America. Mr. Pursh fays the *fructification* is very rare in the latter country; with us it is but sparingly produced, the plant increasing moll by the roots, which are long, fleaner, and creeping. The fronds are not half the fize of the leaf, and much more delicate; their height about a foot, their colour bright grafs-green. *Leaffets* generally smooth; almes a little hairy; the lower fode of each extended, as to fold over the oppofite one. *Fructification*, if prefent, abundant, confluent, blackifh.

A. criftatum. Leaffets Crested Shield-fern. *Swartz* n. 49. Willd. n. 79. Snc Compdenb. Fl. Brit. 10. Engl. Bot. t. 2125 not 1949. Pursh n. 5. "Schkuhr Crypt. 39. t. 37." (Polypodium criftatum; Linn. Sp. Pl. 1551. Aizel. in Stockh. Trans. for 1787. 248. t. 9. P. Calippiteris; Ehrh. Crypt. n. 53.)—Frand pinnae, nearly hipinnae; segments ovate, obtuse, crenate or pinnatifid, with sharp little terminal teeth. Stalk fcaly 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 Holf and Hemp- fhead, Norfolk. The root is tufted, as in *A. Oreopecris*, not creeping like that of *Thelypteris*, and the whole habit and texture of the fern more resembles the frift of these two species. Fronds pale green, from one to two feet high; the fertile ones remarkably ereét; their barren leaffets shorter and rather more diftant, than thofe which bear *fructification*, the latter compofing the upper half of the frond; all are very deeply pinnatifid, fometines to the very rib; their segments, or partial leaffets, close, broad, obtufe, with sharp, fearley pinnus, teeth. Rhis fomewhat zigzag. Capsifidis blackifh when fresh, with a white circular *involucrum* to each aflamble, having a deep fissus at the lower side; but the Y y

Y y dried
dried foci are tawny. Common stalk of the frond chiefly scaly at the base. Mr. Pursh considers Willdenow's lanceafringe, 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 idizum spirans; Amman. Rath. 174. n. 251.)—Frond pinnate; leaflets lanceolate, crowded, deeply pinnatifid; segments elliptic-oblong, bluntly and deeply toothed; flasks and mid-ribs scaly. Fructification crowded. Involuture 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 more shortened. Small 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. Sorus fo crowded about the lower half of each leaflet, that their expanded involucrum sometimes touch, or fold over each other, being moreover intermixed with rufy membranous scales.

Sec. 5, marked 4 by Willdenow. Frond doubly or triply pinnate. Involuture rounded or kidney-shaped. Forty species in Willdenow. The involucrum in this, as well as the preceding species, though, for the most part, laterally indented, is often nearly or completely orbicular, and it is even flicitly peltate in A. aculeatum and lebatum. Some of Prof. Willdenow’s species, adopted from Plummer’s plates only, appear to us fearely certain in genus,—such are A. nemorifum, Willd. n. 83, voluem, n. 84, and fynamaturn, n. 87.

A. aculeatum. Common Prickly Shield-fern. Swartz n. 53. Willd. n. 92. Brit. Fl. n. 5. Engl. Bot. t. 1562. Pursh n. 7. " Schkuhr Crypt. 41. t. 39." (Polypodium aculeatum; Linn. Sp. Pl. 1552. Willd. Illufr. t. 101. Bot. Fil. 48. t. 26.)—Frond doubly pinnate; leaflets ovate, somewhat falcate, flalked, with prickly ferratures; hairy beneath. Common flalks and ribs falky. Involuture peltate, entire.—Found in shady woods and hollows, throughout Europe, as well as in Africa, and North America, bearing feed 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 flalks remarkably falky. Partial leaflets about a quarter of an inch long, rigid or coriaceous, each tapering down into a small fhort footstalk; their pinnas and ferratures each tipped with a little fpinous bristle; their upper edge at the base dilated, more or less, in a broadbif fhoulder. Sorus plentiful on the upper part of the frond, but in fingle rows, and dilatet, brown. Involutum pales 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 diffent.

The late Mr. Rob. Teasedale, (see Teesdalea,) found in many parts of England, a variety of this, which he suspected might prove a distinct species. It is fottet, and more delicate in texture, than the common kind, with smaller, more numerous, partial leaflets, which are more remarkably flalked, and their auricles are larger, broader, and different in aspect. This lay in Mr. Rofe’s herbarium for A. lebatum, which it certainly is not, the partial leaflets being even less decurrent than in our common aculeatum. It may probably be the variety B. of Fl. Brit. figured in Philenect, t. 180. f. 1, which figures represents well enough the general appearance of the frond, and shape of the leaflets; but their partial flalks 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. lebatum. Clefe-leafed Prickly Shield-fern. Swartz n. 53. Willd. n. 95. Brit. Fl. n. 6. Engl. Bot. t. 1563. (Polypodium lebatum; Hudf. 450. Felix aculeata major, pinnaulis auriculatis cerebroribus, folis integris anguiiuribus; Raii Syn. 121. F. aculeata, Lonchitis fumula notfars; Pluk. Phyt. t. 180. f. 3.)—Frond doubly pinnate; leaflets elliptical, somewhat falcate, decurate, with prickly ferratures; hairy beneath; the forefoot of the lowest pair very large. Common flalks and ribs falky. Involuture peltate, entire.—Found in shady places, under hedges, in England; not unfrequent in the county of Eifex, where Fryr ffrif noticed this species, and from whence Mr. Edward Forster has fent 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 thining green. Leaflets rather elliptical than ovate, and Mr. Dawen Turner has well observed that they are decurrent, not flalked, which is perhaps one of the most certain means of distinguishing this species from A. aculeatum. The moft striking character, indicated by the specific name, conffits 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 flalk, 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. Ait. n. 11. Pursh n. 8. " Schkuhr Crypt. 195. t. 45. b." (Polypodium marginale; Linn. Sp. Pl. 1522. Nephrophorum marginale; Michelau Boreal.-Amer. v. 2. 267.)—Frond doubly pinnate; leaflets oblong, obtuse, decurrent, almost pinnatifid at the base. Maffes of capsules marginal. Involutum orbicular, with a lateral sinuos.—In rocky shady places, from Canada to Carolina, bearing capsules in July. This species has often been fuppofed a native of Britain, A. Oeopteris, whose fructification is likewise marginal, having been taken for it; but the American plant is very diffent, more resembing Felix mas than any other. The marginale however is a smaller plant, the upper half of whote 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 pinnatifid. Involutum tumid, corrugated, forming a complete circle, though not peltate.

ASPIDIUM.

fleshy, sharply ferrated without prickles, uniform. Malees of capsules crowded towards the rib and base of each leaflet. Involucrum orbicular, with a lateral sinus.—Very common throughout Europe, as well as in the northern parts of Asia, Africa, and America, in shady situations, under dry banks, bearing feed about July and August. The root is tufted and scaly, often very large. Fronds numerous, bright green, about a yard high, and a foot wide, their leaflets 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 great part of the frond, of a rich tawny-brown, crowded, not confluent. Involucrum tumid, umbilicated, with a lateral notch, which is rather more open than in A. marginale, but not quite so deep. The root is a celebrated cure for internal 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 piling 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. spinuliferum. Letter Crested Shield-fern. Fl. Brit. n. 8. Engl. Bot. t. 1462. Swartz n. 58. Willd. n. 99. Pursh n. 117; "Schkuhr Crypt. 48. t. 48." (Polypodium spinuliferum; Retz. Prod. 250. Fl. Dan. t. 707. P. n. 841; Mull. Freid. 193. t. 2. f. 2.) Felix patula laxitatis altera; Pluk. Phyt. t. 179. f. 5. —Frond doubly pinnate: leaflets deciduous, elliptical, confluent, with deep-cut prickly ferratures. Mid-rib smoothen. Nerves zigzag. Involucrum orbicular, with a lateral sinus.—Native of boggy shady 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. Frond broad, with a long stalk, which is scaly in the lower part only. Partial leaflets elliptic-oblong, of an elegant bright pellicul green, with wavy ribs; deciduous, so as to form a border to the partial stalk. Dots of capsules small, and rather distant. Involucrum small, soon pushed to one side. We fee nothing in it of a glanular nature, as mentioned by Willdenow.

A. dilatatum. Great Crested Shield-fern. Fl. Brit. n. 9. Engl. Bot. t. 1465. Willd. n. 100. Pursh n. 12. (Polypodium dilatatum; Hoffm. Germ. v. 2. 7. P. arifatium; Villars Dauph. v. 3. 844. Bellardi in Act. Taurin. v. 5. 255. P. cristaflata; Ehrh. Crypt. 81. Hud. 457. Bot. Fl. 42. t. 23. P. n. 845; Mull. Fl. Freid. 193. t. 2. f. 4.) Felix mas ramosa, pinnulis dentatis; Rallii Syn. 124. Pluk. Phyt. t. 181. f. 2. F. mas, pinnulis cristaatis; Morif. sect. 14. t. 3. f. 11.) —Frond doubly pinnate: leaflets deep pinnatifid, sharply cut, with prickly teeth and ferratures. Stalk and branches scaly. Involucrum kidney-shaped, foon orbicular, with a lateral sinus.—Native of shady watery places, sometimes on dry banks, in a sandy or gravelly soil, or in rocky moit woods, throughout Europe. Mr. Pursh met with this species in the sandy rocky woods of Pennsylvania and Virginia. The root is tuberous or tufted, fearemly creeping. Fronds generally two feet, or more, in height, though sometimes much smaller. Their broad, much compound, form and structure, and their bright-green colour, give them a very handsome aspect. They are often tripinately pinnate, or at leaft their ultimate subdivisions are so deeply sep-rated as to cause 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 lightly so. Shrillification copious all over the frond, rather crowded, not confluent, of a bright brown. Involucrum at first kidney-shaped, tumid, but soon becoming orbicular, the sinus closely closing, retaining only an umbilicated depression, and at length the membrane remains folded together vertically, in the centre of the mafs of capsules.

Sect. 5, marked 5 by Willdenow. Frond either doubly pinnate, or doubly or tripinately. Involucrum lateral. Twenty-six species in Willdenow: nineteen in Swartz. These are perhaps most entitled to constitute a distinct genus, but in several instances they too nearly approach the last section to admit of a clear generic definition.

A. fontanum. Smooth Rock Shield-fern. Swartz n. 74. Wildl. n. 122. Engl. Bot. t. 2024. (Polypodium fontanum; Linn. Sp. Pl. 1550; Fl. Brit. 1114. Hud. 456. Villars Dauph. v. 3. 849. P. n. 1706; Hall. Hift. v. 3. 15. Adiantum filicium duris cilium minimum; Barc. l. 175. f. 1.) Filicula faxatilis, omnium minima, elegantifima; Tourn. Init. 542. Pluk. Phyt. t. 89. f. 3. —Frond linear-lanceolate, smoothen, simply or doubly pinnate: leaflets alternate, rounded, their segments very sharply toothed. Stalks winged. Involucrum oblong.—Native of rocks in England, France, Switzerland, and other parts of Europe, but very rare in this country. Mr. Hudson, and the late Mr. Atton, to our certain knowledge, have gathered it on Amherst church, Buckinghamshire, where it is no longer, as we are told, to be met with. Limnæus confounded this fern with what is now named Woodia hyperboracea (see that article); nor has it been well understood by botanists in general, in being rare occurrence, obscure in its generic character, and very variable in luxuriance. This may be seen by comparing Plukett’s figure above cited, fig. 3, with his fig. 2, quoted by Willdenow, after Fl. Brit. With left 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 six inches high, rigid, smoothen, rather glaucous, of a narrow lanceolate figure, composed of numerous, alternate, pinnate or pinna-tud leaflets, whole partial leaflets, or lobes, are wedge-shaped, somewhat italked, with deep, very sharp, in some degree fiumous, teeth, and all the flarks are winged. Malees of capsules at the mid-rib of each lobe, round, or nearly fo, with a delicate white involucrum originating from the rib, by a straight lateral infection, and separating inwards, that is, towards some other more principal rib, not towards the margin. Perhaps this plant is truly an Asplenium. Professor Willdenow has an A. Halleri, n. 125, which he confiders abundantly different 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 Ficites will ever do his memory great honour, notwithstanding errors unavoidable incident to fo difficult an enterprise, has, after the example of Swartz, associated with this tribe some species which we refer to Cyathia. (See that article, written by the late Rev. Mr. Wood.) These are, C. dentata, fragilis, and regius 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. Bulbiferous Shield-fern. Swartz n. 52. Wild. n. 326. Art. n. 10. Purfl n. 13. "Schkuhr Crypt. 55. t. 57." (Nephrodium bulbiferum; Michaux Boréal.-Amer. v. 2. 266. Filix baccafera; Cornut. Canad. v. 4. Barrel. l. c. t. 1120. Morif. fett. l. c. t. 3. f. 10.)—Fronc doubly pinenate: leaflets ovate, obtuse, pinnatifid or deeply ferrated; upper ones connate. Ribc bulbiferous.—Found in shady woods, among rocks, from Canada to Pennsylvania. Purfl. 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 lacerated, small, round. The involucrum seems concave, almost hemispherical, turning to one side; but our specimens are not sufficient to ascertain its exact figure. Several of the secondary ribs bear fleesy bulbs, which fall off and become young plants, of which there are instances in Woodwardia, (see that article,) and some other ferns.

A. Filix foerina. Female Shield-fern. Swartz n. 83. Wild. n. 128. Fl. Brit. n. 7. Engl. Bot. t. 1459. "Schkuhr Crypt. 56. t. 58, 59." (Polypodium Filix forina; Linn. Sp. Pl. 1551.)—Bol. Fl. 46. t. 25, Filix mas non ramafa, pinnaufs angulis raris, profunde dentatis; Raff Syn. 81. 45, Pluk. Phyt. t. 180. f. 4. Morif. fett. l. c. f. 8.)—Fronc doubly pininate: leaflets pinnatifid, ferrated, pointed, oblong-lanceolate. Stalk smooth. Dots oblong. Involucrum somewhat kidney-shaped.—A common fern throughout Europe, in unhilly shady places, varying greatly in dimensions, but of a broadish-oblong figure, from one to two feet high, of a fine dark green, and very smooth. Stalk slender, pale, smooth, somewhat angular. Leaflets innumerable, tolerably uniform, delicately cut, bluntish, without any terminal bristles. Maffes of capfules covering the frond, one upon each segment of the leaflets, infected laterally into its minute mid-rib, oblong, the capfules dark brown. Involutum separating towards some larger adjoining rib, oblong, white, jagged or fringed, sometimes quite straight at the interference, sometimes kidney-shaped, but always finally assuming the latter form, as the capfules advance and cause it to turn back.


A. alpinum. Fine-cut Alpine Shield-fern. Swartz n. 89. Wild. n. 179. "Schkuhr Crypt. 60. t. 63, 6 b." (Polypodium alpinum; Jacq. Coll. v. 2. 171. Ic. Rar. t. 612. P. n. 1709; Hall. Hist. v. 3. 15. Filicula alpina cripta; Baut. Pin. 278. Segu. Veron. suppl. 55. t. 1. f. 3. Morif. fett. 14. t. 4. f. 27. Felle crepso tafatine; Pon. Bald. 224, with a figure.)—Fronc triply pinnate: leaflets linear-wedge-shaped, pinnatifid, connate; their segments linear, obtuse, emarginate.—Found on the alpine rocks of Carninha, Switzerland, France, and the north of Italy. A very slender delicate fern, from six to ten inches high, smooth, bright green, sometimes assuming a tawny hue. The frond is linear-lanceolate, the ultimate segments peculiarly narrow and linear, alternate, sharply cloven at the end, but otherwise entire; tapering down into the linear bordered stalk, quite smooth and naked, fiddle-ribbed. Every segment bears one small round mass composed of a very few capfules, rather large in proportion, each having a shining ring. The involucrum is very thin, white, and membranous, represented by Wulffen and Jacquin as perfectly peltate, without any notch, and attached by a fine central thread. This would make the plant a most indubitable Aspidium. But in our specimens, from Jacquin himself, the involucrum, turned aside by the ripe capfules, remains in the form of a thin concave or vauded scale, or scales, attached laterally beneath them, as in some of our British Cyrtens, without any peltate appearance. Unfortunately we have no fructification in a sufficiently early state to verify Wulffen's description or Jacquin's figure. We rely on Seguer and Haller for Pona's, and consequently Morifon's, synonym, though the figure suggests some idea of Cibetinches faucolona of Swartz and Willdenow, which Pona's account of the blackish or dark-coloured hue of the root, and upper part of the frond, rather conforms. Seguer's plant, though deficient of fructification, is sufficiently accurate, and cannot be disputed.

A. montanum. Chervil Shield-fern. Swartz n. 91. Wild. n. 147. "Schkuhr Crypt. 61. t. 63." (Polypodium montanum; Lamarc. Franc. v. 1. 23. Allion. Pedem. v. 2. 287. Hancke in Jacq. Coll. v. 2. 46. P. myrrhifolium; Villars Danp. v. 3. 811. t. 53, including Plukken's fynonym. P. n. 1710; Hall. Hist. v. 2. 16.)—Fronc ternate, pentagonal, triply pinnate: segments elliptic-oblong, obtuse, slightly toothed at the end, decurrent.—Native of the mountains of Aufriza, the Tyrol, Switzerland, Italy, and France. The name given by Villars is infinitely preferable to the unmeaning one which this elegant species has been suffered to retain. It differs from all we have hitherto described of this section, in the pentagonal outline of the frond. The colour is a light green. Ultimate leaflets, or segments, not linear, but rather elliptical, very small and delicate. Sori solitary on each segment or lobe, small, globose, of rather numerous brown capfules, entirely covered, while young, with a white, pellucid, hemipeltical involucrum, which turns gradually back, remaining attached, at one side, under the capfules, like half the cup of a true Cyrtens.

A. odoratum. Scented Shield-fern. Wild. n. 146.—"Fronc ternate, doubly pinnate: leaflets oblong, obtuse, hairy, deeply ferrated; ferratures blunt, with two teeth. Root chaffy."—Gathered by M. Bory de St. Vincent, on rocks in the isle of Mauritius. Root as thick as the thumb, springing from the fissues of rocks, denfely clothed with brown, oblong-lanceolate, very long-pointed, entire, brown, chaffy scales, 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 sides with short hairs; their lower ferratures mostly with four teeth. Willdenow. The composition of the frond seems to agree with the last, as being ternate, a character we have not observed in any others. This frustre gives the whole a pentagonal shape, very different from the oblong or lanceolate figure of the greater part of this genus.

ASSIUT, in Geography. See STOUT.

ASTELIA, in Botany, a name originally given by Dr Joseph Banks and Dr. Solander, formed from a, against, and elia, a little pillar, because of the want of a style, which distinguishes this genus from several of its natural allies.
AST


Gen. Ch. Cat. 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, along the length of each segment, and inferted into its base; anthers roundish, of two lobes. Pijü. Gernen superior, ovate, pointed; styles none; filigmas three, obtuse. Peric. Berry ovate, more or less perfectly three-celled. Seeds numerous, elliptic-oblong, somewhat triangular, polished. Receptacle three, attached longitudinally to the coat of the berry. Some flowers have imperfect flaments, and others, on a separate plant, an imperfect pistil.


The habit of the plants of this genus resembles *Tillandsia*, (see that article,) and they in like manner sometimes grow on the living or dead trunks of trees. The roots are fibrous. Radical leaves imbricated in three rows, either linear-lanceolate, or frowd-shaped, keeled, furnish, on one or both sides, with clofe, comprefsed, fagggy hairs; their base with fmyk wool. Stem very short or none, with few leaves. Flowers fmall, fmyk externally, racemose, or paniculured, rarely almost foltary; their partial fls without a joint, and having each a foltary bract at its base.

Mr. Brown finks *Aftelio* not nearly allied to any other genus, though somewhat approaching *Tillandsia*. The New Zealand plants, upon which Sir Joseph Banks and Dr. Solander founded this genus, differ from the foltary species which grows in Van Diemen’s ifland, in having a berry of three cells: two species moreover have a pitchet-shaped fix-cleft calyx, (corolla, as we term it,) which in another is pulpy. Should the genus therefore be divided? *Melan-thium pamum* (fee that article n. 9.) appears to be an *Aftelio*. Brown.

The learned author defines one species only.

A. *alpina*. Alpine *Aftelio*. Br. n. 1.—“Leaves flatth, fmyk on both fides. Clutter divided in the lower part; its branches bearing few flowers. Berries oval, fingle-celled. Flowers with fix deep segments.”—Gathered by Mr. Brown, on mountains in the ifland of Van Diemen.

To this we are enabled to add the following.

A. *Menzisifium*. Many-flowered *Aftelio*. —Leaves flatth; fmyk beneath. Stalk fagggy. Clutters panicled, many-flowered. Berry ovate, three-celled. Flowers in fix deep segments.—Gathered in the Sandwich iflands, by Mr. Menzies, to whom we are obliged for a fpecimen. The leaves are all nearly, or quite, radical, eighteen inches long, a half or three-quarters of an inch broad, taper-pointed, entire, frongly ribbed; smooth and green above; pale, and fmyk with fhinning clofe hairs, beneath. Stalk foltary, nearly as tall as the leaves, round, defeny fcloathed with pale, fagggy, fhinning wool; fmpie below; panicled at the top, with many hairy clutters, each two or three inches long. Segments of the corolla hairy at the back. Berries the fize of a currant, pointed, each containing feveral large, black, fhinning fets.

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 the above-mentioned *Melan-thium*.


Perennial, generally twining, plants, of southern Africa, with opposite leaves. Umbels lateral, between the footstalks. Flowers fmall.

This genus is founded on *Apocynum triflorum* and *lacera*, Linn. Suppl. 169, with two new species in the Bankian collection. *A. cordatum* and *lanceolatum*, Thumb. Prodr. 47, probably belong to it. The character is also modified so as to admit a very remarkable plant, found by Mr. Maffon in the fame country, whose *fem* is shrubby, with fpinefcent branches; leaves extremely minute, oppofite, diftant, and heart-shaped. *Corolla* rather urceolate than bell-shaped; the orifice of the tube furnishcd with defixed hairs. Maffes of pollen fixed by their tapering summits. *Stigma* blunt. *Pallides* nearly cylindrical, fmooh. The whole genus differs from *Microlofa* chiefly in the want of fcales within the tube. Mr. Brown finks they might be united, but this would lead to the junetion also of *Metafelmia*, which being of Weft India origin, he was unwilling to join it with Cape plants. We fhoild have thought the faff objection might have been overruled by fo near an agreement of character. See the two articles in question.

ASTERABAD, in Geography, a small province of the Perifian empire, sometimes included in Mazanderan, which it refembles in appearance, climate, and productions. It is the ancient Hyrcania; bounded on the W. by the Caffian fea; on the S. feparated by a lofty ridge of mountains from the diftricts of Damgan and Biftan; extending to the E. as far as longitude *58°*, and divided from Dafeftan by the river Afor. The capital of the fame name is fettled near the mouth of the river Afor, on a bay of the Caffian fea. E. of the capital, in which much treafure is faid to be defpoted, and 25 furlongs from Biftan, is the town of Jorjan, the ancient Hurkaun, from which the name Hyrcania may probably be derived. See ASTERABAD.


Gen. Ch. Cal. Perianth inferior, permanent, double; inner of five elliptic-lanceolate, acute, equal, erect leaves; outer of four or more, much shorter, concave, imbricated fcales. Cor. of one petal, tubular; tube twice the length of the calyx, infurted, furnished on the infide, near the base, with five tufts of soft hairs; limb in five deep, spreading, lanceolate, acute, hairy segments, shorter than the tube. Nectary a cup-shaped divided gland, surrounding the base of the germen. Stam. Filaments five, linear, inferted into the tube, and enclosed within it; anthers oblong, in the mouth of the tube. Pijü. Gernen superior, roundish, of five cells; style capillary, the length of the tube; fligma "globose, defeny downy." Cavan. Peric. Drupa glo- bular, slightly juicy. Sed. Nut of five cells, hard and folid, not burfting, with a pendulous oblong kernel in each cell.

Eff. Ch. Outer calyx of several imbricated leaves. Corolla tubular; tube swelling, twice as long as the calyx, with five internal tufts of hair at the base; tube shorter, spreading, bearded. Filaments linear, within the tube. Drupa almost dry, of five cells.

This
This genus is very closely related to *Stenanthera*, as well as to *Melichrus*. (See those articles.) We might perhaps safely unite them all to *Stryphila*. The opinion of Mr. Brown, however, who has examined the flowers in a fresh state, deferves all possible attention, and we have therefore followed his views of the subject. *Afroroma* 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. humifusum.* Diffuse Afroroma. (Vintenatia humifusum; Cavan. T. v. 4. 28 t. 348.)—Stem prostrate, much branched. Leaves linear-lanceolate, fringed with minute bristles; slightly convex on the upper side.—Found in various parts of New Holland, on the south-west coast, as well as at 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 *flema* are a foot, more or less, in length, round, spreading flat on the ground, and sending up numerous, crowded, erect, short, leafy branches. *Flowers* on the main stem and branches, axillary, solitary, sessile, an inch long, of a fine crimson, with a glaucous, somewhat rose-coloured, calyx. *Drupa* nearly the size of a pea, reddish, smooth, almost concealed in the permanent calyx. The abbé Cavanilles 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 Ventenatia, 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.

2. *A. prostratum.* Prostrate Afroroma.—Stem prostrate, much branched. Leaves linear-lanceolate, fringed; flat above; rather convex beneath.—Seen with unexpanded flowers only, by Mr. Brown.

3. *A. denticulatum.* Toothed Afroroma.—Stem procumbent, or somewhat erect. Leaves lanceolate, flat, fringed, with hairs dilated at the base.


5. *A. compadum.* Compact Afroroma.—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.

6. *A. tectum.* Upright Afroroma.—Stem erect, somewhat branched. Leaves lanceolate-oblong, flat, imbricated; rough-edged; their teeth minute, very short, obtuse.

**ATHENS, in Geography, i. 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.


**Gen. Ch. Cal.** Glume of two valves, two-flowered; floret neuter. *Car. Glume of two valves; in the perfect floret the outer valve has three awns, and the latter is crowded; in the neutral one the outer valve is membranous, cloven, awned below the point, the inner has two awns. *Stam.* in one floret only, filaments three; anthers scarlet. *Pilf.* in the same flower only, gamem oblong; *styles* two; *stigmas* feathered. *Seeds* solitary, oblong.

**Eff. Ch.** Calyx 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. aphideoides.* Reflexed Atheropogon. Willd. n. 1. Pursh n. 1. — 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 *flema* downy, crowned with a *fipula*. *Clas* simple, erect, of about twenty alternate, distant, pendulous *flowers*, each on a short partial *flalk*. *Anthers* of a vermilion hue. Willdenow attributes but one *valve* to the *calyx*, Muhlenberg two. Their decriptions are meagre. There is no reason for referring this genus to *Polygamy*, even according to the most ample ideas of that clafs, for the presence of a neutral *floral* does not confluence its character, nor is perhaps any genus of gramine in the *Triandria Digynia* quite exempt from it.


**Gen. Ch. Male.** Cal. Perianth of one leaf, bell-shaped, with eight obtuse marginal segmens; 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 scales; anthers elliptical, attached by 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 scales. *Cor.* none. *Pilf.* Germs numerous, ovate, hairy; styles solitary, thread-shaped, hairy; *stigmas* 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. mofibata.* Nutmeg Atherosperma. Labill. as above, t. 224.—Native of Cape Van Diemen, from whence we have specimens from the author; with others from A. B. 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 *fipulae*; elliptical-oblong, acute, either quite entire, or with a few sharp scattered teeth; smooth and bepressed with minute pubescent dots above; finely downy and hoary beneath, with a reddish mid-rib and slightly visible veins. *Flores* axillary, foliati, filiform, drooping, rather small. *Bract* two, (fructiculus of Labillardiere) close to each flower, ovate, acute, concave, downy, deciduous. *Calyx* finely hairy; that of the fruit much enlarged, half an inch broad, hemispherical, clothed with dense silky hairs, and filled like a bason with feathery-tailed *seeds*, whose downy remembrances of that of a syngeneous plant, and is not represented in the above figure. The dried *leaf,* like every other part, as far as we can examine, has 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 more important character, of the valvular *anthers,* borrowed from Mr. Brown, whose remarks in the following article will be found greatly to illuritate the present, and to render some future alterations necessary.
A T H E R O S P E R M E I, a new natural order, thus denominated from its leading genus. See the last article. Brown Bot. of Terra Auct. 21.

Flowers either separate or united. Calyx of one leaf; its margin divided into a generally double row of segments, the innermost, sometimes all of them, half petal-like (or internally 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 accessory scales; in the united flowers they are fewer, and inserted into the throat; anthers attached by the back, of two cells, each cell opening by a longitudinal valve, separating from the base upwards. Gynerra one or more, generally an indefinite number, with a single erect germ; filaments solitary, occasionally lateral, or from the base; stigmas simple. Seeds, (termed seed-like pericarps by Mr. Brown,) swelled with the feathery filyles, and enclosed in the enlarged tube of the calyx; embryo erect, short, in the bottom part of a soft fleshy albumen. The several species are trees, with simple, opposite leaves, defulte of stigmas. Stalks axillary, single-flowered.

Jussieu it seems, Ann. du Mus. v. 14. 116, has established an order termed Monimiae, in which Atherosperma is included, along with Pavonia of Ruiz and Pavon, its near ally, and the Ambora, (see Mithridates,) Monimia, and Ruiza, which three last Mr. Brown considers as constituting the genuine order of Monimiae, and therefore he has proposed the above, of which a most eminent distinction is their having the valvaruli 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 Monimiae. The place of Atherosperma, in a natural series, is difficult to fix. Though so widely different, in most parts of their structure, from Lauri, (now called Laurina,) they agree in anthers, and very remarkably with some of them in sensible qualities. Pavonia above-mentioned cannot, by Mr. Brown’s account, be separated from Atherosperma, differing merely in the oblong form, and regular buriting, of its female calyx! Its qualities are the same.

ATKINSON, 1. 3, r. in the year 1810, 556 inhabitants.

ATMOSPHERE, Weight, &c. of the. Col. 4. 1. 3 from the bottom, for half an inch r. .14 th 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, particularly under the articles Proportions, Definite, Simple 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 viii. of Thomson’s Annals of Philosophy.

The object of Dr. Prout in the above essay is to shew, it is, 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 2dly, that the specific gravities of bodies in their gaseous state are all multiples of the same unit, which unit is considered 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 Syllem 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 established 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 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 state 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 result of the combining, 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 indebted 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 result of the combining are formed when bodies unite in a gaseous state 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 ammoniacal gas, and form the same weight of the same compound, (muriate of ammonia,) as if 39.183 grains (the absolute weight of 100 cubic 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 : 5.920, 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 state of gas; and consequently that the theory of volumes and the theory of atoms is one and the same thing, different fets of numbers only being employed. Some apparent 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 ammoniacal gas, according to Sir Humphry Davy, is .59016, common air being 1.000; according to Biot and Arrago, it is a fraction greater: hence
ATOMIC THEORY.

Dr. Prout has fixed upon .5902 as the specific gravity of this gas. The sp. gr. of azote he aflames as .9722, common air being 1.000, for reasons stated below. Now, as ammonia is known to be composed of one volume of azote, and three volumes hydrogen, condensed into two volumes, the specific gravity of hydrogen, according to these data, must be .0694.

2. Atmospheric air is admitted to be univerally composed of about 21 per cent. of oxygen, and 79 per cent. of azote, which so 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 16, and that of the atom of azote 17.5, (Dr. Wollaston makes it 17.55,) the specific gravity of oxygen gas, according to these data, will be 1.1111, and of azote .9722. But these numbers are multiples of .0694 for 1.1111 ÷ .0694 = 16, and .9722 ÷ .0694 = 14.

Such are two of the leading circumstances stated in the above essay, 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 substances, and to have arranged 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 experimentalists, 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 substances, 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 assumed 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, 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 substances 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 circumstances 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 substances, 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 this 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. Wollaston, Dr. Thomson, &c., 16 or 17; and in the fourth, the same as obtained by experiment are stated to shew how nearly they coincide. The other columns will be sufficiently understood from inspection. The last column in the first table contains the numbers recently asigned by Mr. Brando to the elementary substances.
### ATOMIC THEORY.

#### Table I.—Elementary Substances.

<table>
<thead>
<tr>
<th>Name</th>
<th>Specific Gravity H₂O being 1.</th>
<th>Specific Gravity H₂ being 1.</th>
<th>Specific Gravity, Common Air being 1.000</th>
<th>Specific Gravity, Air Free being 1.000 from Vacuum</th>
<th>Specific Gravity, Air Free being 1.000 from Water</th>
<th>Weight of 100 Cubic Inches at Room Temp. Barometric Pressure 760.60</th>
<th>Weight of 100 Cubic Inches at Room Temp. Barometric Pressure 760.60 and Water being 1.000</th>
<th>Numbers lively of molecules in 1 Cubit of Hydrogen being 1.000</th>
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<td>7.5</td>
</tr>
<tr>
<td>Strontium</td>
<td>44</td>
<td>44</td>
<td>55.0</td>
<td>55.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Antimony</td>
<td>46</td>
<td>46</td>
<td>55.0</td>
<td>55.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Cerium</td>
<td>48</td>
<td>48</td>
<td>60.0</td>
<td>60.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Iridium</td>
<td>48</td>
<td>48</td>
<td>60.0</td>
<td>60.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>48</td>
<td>48</td>
<td>60.0</td>
<td>60.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Palladium</td>
<td>56</td>
<td>56</td>
<td>70.0</td>
<td>70.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Tin</td>
<td>59</td>
<td>59</td>
<td>73.75</td>
<td>73.75</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Copper</td>
<td>64</td>
<td>64</td>
<td>80.0</td>
<td>80.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Barium</td>
<td>70</td>
<td>70</td>
<td>87.5</td>
<td>87.5</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Bismuth</td>
<td>71</td>
<td>71</td>
<td>88.75</td>
<td>89.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Tungsten</td>
<td>96</td>
<td>96</td>
<td>120.0</td>
<td>120.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Lead</td>
<td>104</td>
<td>104</td>
<td>130.0</td>
<td>129.5</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Silver</td>
<td>110</td>
<td>110</td>
<td>137.5</td>
<td>135.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Rhodium</td>
<td>120</td>
<td>120</td>
<td>150.0</td>
<td>149.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Iodine</td>
<td>120</td>
<td>120</td>
<td>150.0</td>
<td>150.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Uranium</td>
<td>125</td>
<td>125</td>
<td>155.25</td>
<td>156.21</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Platinum</td>
<td>181</td>
<td>181</td>
<td>226.25</td>
<td>225.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Gold</td>
<td>198</td>
<td>198</td>
<td>248.75</td>
<td>249.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
<tr>
<td>Mercury</td>
<td>200</td>
<td>200</td>
<td>250.0</td>
<td>250.0</td>
<td>1.111</td>
<td>33.068</td>
<td>33.068</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Those substances marked thus * were contained in Dr. Prout's table. Those marked thus ? will probably hereafter be found different; or at least we are not certain if the numbers attached to them are accurate.
### Table II.—Combinations with Oxygen.

<table>
<thead>
<tr>
<th>Name</th>
<th>Specific Gravity, Hydrogen being 1.</th>
<th>Weight of Atom, Oxygen being 10.</th>
<th>Weight of Atom, Oxygen being 100.</th>
<th>Weight of Atom, Oxygen being 1000.</th>
<th>Specific Gravity, Oxygen being 1.000.</th>
<th>Specific Gravity, Oxygen being 10.000.</th>
<th>Elements by Volume.</th>
<th>No. of Vol. after Combination</th>
<th>Elements by Weight.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>9</td>
<td>11.25</td>
<td>11.32</td>
<td>.625</td>
<td>.6896</td>
<td>19.062</td>
<td>21.033</td>
<td>.5 ox. + 1 hyd.</td>
<td>1</td>
</tr>
<tr>
<td>Carbonic oxyd</td>
<td>14</td>
<td>17.54</td>
<td>17.54</td>
<td>.9722</td>
<td>.956</td>
<td>29.652</td>
<td>29.16</td>
<td>.5 ox. + 1 car.</td>
<td>1</td>
</tr>
<tr>
<td>Nitrous oxyd</td>
<td>22</td>
<td>27.5</td>
<td>27.54</td>
<td>1.5277</td>
<td>1.510</td>
<td>46.596</td>
<td>46.313</td>
<td>.5 ox. + 1 az.</td>
<td>2</td>
</tr>
<tr>
<td>Common air</td>
<td>4</td>
<td>45</td>
<td>45</td>
<td>1.000</td>
<td>1.000</td>
<td>30.5</td>
<td>30.5</td>
<td>.5 ox. + 2 az.</td>
<td>1</td>
</tr>
<tr>
<td>Euchlorine</td>
<td>4</td>
<td>55</td>
<td>55</td>
<td>3.0555</td>
<td>2.409</td>
<td>93.192</td>
<td>73.474</td>
<td>.5 ox. + 1 chl.</td>
<td>1</td>
</tr>
<tr>
<td>Lime, &amp;c.</td>
<td>28</td>
<td>35</td>
<td>35.46</td>
<td>1.9444</td>
<td>1.9444</td>
<td>59.304</td>
<td></td>
<td>.5 ox. + 1 cal.</td>
<td>1</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>22</td>
<td>27.54</td>
<td>27.54</td>
<td>1.5277</td>
<td>1.510</td>
<td>46.596</td>
<td>46.313</td>
<td>.5 ox. + 1 car.</td>
<td>1</td>
</tr>
<tr>
<td>Nitrous gas</td>
<td>15</td>
<td>37.5</td>
<td>37.5</td>
<td>1.0416</td>
<td>1.0388</td>
<td>31.77</td>
<td>31.684</td>
<td>1 ox. + 1 az.</td>
<td>2</td>
</tr>
<tr>
<td>Sulphureous acid, &amp;c.</td>
<td>32</td>
<td>40</td>
<td>40</td>
<td>2.2222</td>
<td>2.1930</td>
<td>67.777</td>
<td>66.89</td>
<td>1 ox. + 1 ful.</td>
<td>1</td>
</tr>
<tr>
<td>Nitrous acid</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>2.7777</td>
<td>2.7777</td>
<td>80.484</td>
<td>74.024</td>
<td>1.5 ox. + 1 az.</td>
<td>1</td>
</tr>
<tr>
<td>Sulphuric acid, &amp;c.</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>2.7777</td>
<td>2.7777</td>
<td>80.484</td>
<td>74.024</td>
<td>1.5 ox. + 1 ful.</td>
<td>1</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>54</td>
<td>67.5</td>
<td>67.54</td>
<td>3.75</td>
<td>3.75</td>
<td>114.372</td>
<td></td>
<td>2.5 ox. + 1 az.</td>
<td>1</td>
</tr>
<tr>
<td>Chloric acid</td>
<td>76</td>
<td>95</td>
<td>95</td>
<td>5.277</td>
<td>5.277</td>
<td>166.968</td>
<td></td>
<td>2.5 ox. + 1 chl.</td>
<td>1</td>
</tr>
<tr>
<td>Iodic acid, &amp;c.</td>
<td>160</td>
<td>200</td>
<td>200</td>
<td>11.111</td>
<td>11.111</td>
<td>338.888</td>
<td></td>
<td>2.5 ox. + 1 iod.</td>
<td>1</td>
</tr>
</tbody>
</table>

The subdivisions of the above Table include the different flates of oxydation of the different substances. A few only of the numbers of those felt 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>
<th>Name</th>
<th>Specific Gravity, Hydrogen being 1.</th>
<th>Weight of Atom, Oxygen being 10.</th>
<th>Weight of Atom, Oxygen being 100.</th>
<th>Weight of Atom, Oxygen being 1000.</th>
<th>Specific Gravity, Common Air, being 1.000.</th>
<th>Specific Gravity, Common Air, being 10.000.</th>
<th>Elements by Volume.</th>
<th>No. of Vol. after Combination</th>
<th>Elements by Weight.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carburetted hydrogen</td>
<td>8</td>
<td>5</td>
<td>5.09</td>
<td>.5555</td>
<td>.5555</td>
<td>.5555</td>
<td></td>
<td>2 hyd. + 1 car.</td>
<td>1</td>
</tr>
<tr>
<td>Olefiant hydrogen</td>
<td>14</td>
<td>8.75</td>
<td>8.86</td>
<td>.9722</td>
<td>.9740</td>
<td>29.652</td>
<td></td>
<td>2 hyd. + 1 car.</td>
<td>1</td>
</tr>
<tr>
<td>Sulphureous hydrogen</td>
<td>17</td>
<td>21.25</td>
<td>21.32</td>
<td>1.1805</td>
<td>1.177</td>
<td>36.006</td>
<td></td>
<td>1 hyd. + 1 ful.</td>
<td>1</td>
</tr>
<tr>
<td>Muratic acid</td>
<td>18.5</td>
<td>46.25</td>
<td>45.41</td>
<td>1.284</td>
<td>1.278</td>
<td>39.183</td>
<td></td>
<td>1 hyd. + 1 az.</td>
<td>2</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>62.5</td>
<td>156.25</td>
<td>157.52</td>
<td>4.3422</td>
<td>4.3463</td>
<td>132.375</td>
<td></td>
<td>1 hyd. + 1 iod.</td>
<td>2</td>
</tr>
<tr>
<td>Ammonia</td>
<td>8.5</td>
<td>21.25</td>
<td>21.5</td>
<td>.5902</td>
<td>.5900</td>
<td>18.003</td>
<td></td>
<td>3 hyd. + 1 az.</td>
<td>3</td>
</tr>
<tr>
<td>Phosphureous hydrogen</td>
<td>13</td>
<td>16.25</td>
<td>16.25</td>
<td>.9027</td>
<td>.9027</td>
<td>37.534</td>
<td></td>
<td>1 hyd. + 1 phos.</td>
<td>1</td>
</tr>
<tr>
<td>Cyanogen</td>
<td>26</td>
<td>32.5</td>
<td>32.52</td>
<td>1.8055</td>
<td>1.8064</td>
<td>55.068</td>
<td></td>
<td>2 car. + 1 az.</td>
<td>2</td>
</tr>
<tr>
<td>Hydro-cyanic acid</td>
<td>13.5</td>
<td>33.75</td>
<td>33.846</td>
<td>.9374</td>
<td>.9362</td>
<td>28.593</td>
<td></td>
<td>1 cya. + 1 hyd.</td>
<td>2</td>
</tr>
<tr>
<td>Chloro-cyanic acid</td>
<td>31</td>
<td>77.5</td>
<td>77.5</td>
<td>2.1527</td>
<td>2.1111</td>
<td>65.059</td>
<td></td>
<td>1 cya. + 1 chl.</td>
<td>2</td>
</tr>
</tbody>
</table>

ATRAGENE.
ATRAGENE, in Botany, (see our former article,) a name adopted from Theophrastus, whose Atraphaxis, 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. caprifolius and tenuifolia to Anemone. (See that article.) The only remaining species is A. seylanica, which De Candolle retains as a genus by itself, under the new name of Naravelia, taken from Narravel 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 Roth. Coromand. v. 2, t. 188.

ATRIPLEDES, the twenty-ninth natural order in Jussieu's system, the sixth of his sixth classes, whose characters are given under LAURI. Mr. Brown, Prodr. Nov. Holl. v. 1. 425, adopts, from De Candolle, the appellation of Chenopoda 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. Gernion 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 Phytolacca, two in Galeniis,) either naked, or covered by the calyx, which thus becomes, in a manner, superior; or inclosed in a pulpy, or a capular, pericarp. Corculum surrounding a firmaceous mass. Stem in numerous instances herbaceous, in some fleshy. Leaves mostly alternate, sometimes opposite.

Stamens occasionally in separate flowers from the pithil.

Sec. 1. Fruit pulpy.

Phytolacca, Rivina, Salvadoria, and Bofca; the last supposed to be more akin to the Rhamni.

Sec. 2. Fruit capular.

Petiveria; Polycnemon; Camphorofa; and Galenia: not without some doubts respecting the two last.

Sec. 3. Seed covered by the calyx. Stamens five.

Bafella; Ancredera, Julif. which is Fegopyrum scandens, &c., Sloane Jam. v. 1. 138. t. 90. f. 1; Anabasis; Coraxylum, Thunb.; Sal向东; Spinacia; Acida; Beta; Chenopodium; and Atriplex.

Sec. 4. Seed covered by the calyx. Stamens fewer than five.

Crucita; Axysis; Blitum; Ceratoecarpus; and Salicornia.

Sec. 5. Seed not covered by the calyx.

Cardipermon 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 Chenopodes are not distinguishable by any character from the Amaranthi, (see that article,) though different in habit, and differing from the Ipecacuan, (by which is meant Jussieu's third section of Amaranthi,) in the want of stipulas. The infection of the stamens into the calyx, according to this accurate observer, is not absolutely constant, nor are the Amaranthi all free from that infection. Yet on this mark the distinction is founded, not merely between these two neighbouring orders, but between the fifth 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 fallibility, and recom mend patient investigation, with mutual assistance, in the place of dogmatical assumption and invidious criticism.

ATTELABUS, col. 2, l. 1, for arc r. is; l. 23, dele which fee respectively, and add—One of the principal species is A. Coryli, a smallish insect found in hazel-trees, black with red wing-sheaths, usually measuring about a quarter of an inch in length. A much smaller species is the A. Betyale, altogether black, and remarkable for gnawing the leaves of that tree in the early part of spring; so that she appear notched on the edges. The A. Apiarius is an elegant species, deriving its name from the injury which its larva does in bee-hives by destroying the young. See APIARIUS.

AUFENREICH, See Use of Roses.

ATTLEBOROUGH. Add—It contains 2716 inhabitants.

ATTRACTION of Mountains, col. 2, l. 50, r. 4364; 1. 51, for 43° r. 42°.04.

AVA, l. 1, r. Aungawa.

AUBENAS, l. 3, for Coiron r. Privas.

AVERILL, in Geography, a township of America, in Vermont and county of Essex, having nine inhabitants.

AUGUST, a gold coin of Saxony, of which are double, single, and half August d'ors, reckoned at 10, 5, and 2.88 rix dollars: 35 single Augusts weigh a Cologne mark of gold 21 carats 8 grains fine.

AUGUSTA, in Geography, a town of the district of Maine, in the county of Kennebec, containing 1805 inhabitants.


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, scattered, 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 dense solitary head.


Leaves linear-liliate, flat.—Native of hills at the Cape of Good Hope. A frub two or three feet high, with bright-green, bluntish, smooth leaves. Flowers yellowish, terminal; the male in shortish blunt clusters; female in a solitary whitish head, encompassed with long, narrow, yellow, radiating bracts.

Both these are green-house plants in England, flowering in the latter part of summer. The second is said to be the most hardy.
AVORA, a township of Ohio, in the county of Trumbull, containing 440 inhabitants.

AUTOGRAPHUM. See WRITING-MACHINE.

AUTOMALITE. See RUBY and MINERALOGY, Addenda.


Gen. Ch. Col. Peranthes superior, of three short, acute, unequal, deciduous leaves. Cor. of one petal, bell-shaped, var. small, its border in ten to twenty, short, rounded, equal segments. Stam. Filaments thinnest, capillary, the length of the corolla; anthers of two globular lobes. Pist. Germen inferior, ovate, furrowed; hylo thread-shaped, the length of the ilamens; stigma thickish. Peric. none. Seed solitary, ovate, furrowed, hairy.


AXY-PANA, a South American plant of the genus EUPATORIUM, (see that article,) of which an account is given in the Bulletin des Sciences, n. 67. 147. as peculiarly efficacious against the poison of serpents, on which account it is much cultivated in the island of Mauritius, and in Cayenne. The bruised leaves are said to cure the sting of a scorpion, and that of a poisonous fish, named lef. An infusion of the herb has proved useful in droppers, as well as in syphilitic disorders. This plant has been cultivated in the flowers at Paris, but we have heard nothing of it in England.

AYMOUTH. See EYMOUTH, dele.


Gen. Ch. Male, in pairs, enclosed in a single-leaved, membranaceous, close involucrum, (occasionally foliary under the female,) ovate, of two cells, their outer covering bursing tranversely; upper cell containing nine or six angular bodies, inserted around a tubular axis, which finally opens at the summit; lower cell spherical, closed by a double membrane, and filled with a fluid, which may perhaps change to a powder.

Female, axillary, on the same plant, foliary (sometimes accompanied underneath by a foliary male). Involucrum double, both closed, membranous; the outer like that of the male flowers; inner ovate, without valves, containing numerous capules, without valves, attached by capillary stalks to a common receptacle, originating from the base of the involucrum. Seeds from five to nine, angular, with exterior radicles.

Eff. Ch. Male, ovate, of two cells, separating transversely; the upper containing several angular, thallic bodies.

Female on the same plant, capules numerous, thallic, globose,
globose, of one cell and one valve, in an ovate, close involucrem. Seeds several, angular.

1. A. filiculoides. South-American Azolla. Lamarck n. t. 1863. (A. magellania; Willd. n. t. Mufcus squamosus aquaticus elegantissimum; Feuill. Voy. v. 3. 43—t. 35. Dill. Mufc. 335. t. 43. f. 72.)—Frond pinnate. Leaflets all papillary. Roots smooth. Found by Feuillée in Peru; by Mr. Menzies in Chili; in watery places; and at the tracts of Magellan by Commerson. This is a little floating mossy plant, resembling a Jungermannia, an inch or two long, alternately pinnate, with small, imbricated, ovate, scaly leaves, clothed externally with papillary hairs, and membranous at the edges. The roots are long, slender, smooth and naked, dark brown. No fructification has been discovered in this species.

2. A. pinnaeata. Triangular Pinnate Azolla. Br. n. t. Bot. of Terra Wint. 79. t. 10.—Frond pinnate, triangular. Upper leaflets papillary. Roots longitudinally feathered.—Gathered by Mr. Brown, in lakes and ponds, at Port Jackson, New South Wales. A little floating plant like the foregoing. Roots axillary, solitary, perpendicular, unbranched, pellucid, hooded at the point when young, at first light quite simple, but under a magnifier they appear feathered about the middle part. Frond half an inch long. Branches two-ranked, alternate, crowded. Leaves alternate, imbricated every way; those on the upper side of each branch ovate, somewhat angular, cellular, thick, often reddish, rough on the upper surface with papillary tubercles, those on the under side thinner, smooth, and lefs angular. Flowers on the under side of the frond, sessile, solitary at the base of each branch.

Mr. Brown seems 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 discharged through the tube above, whose angular appendages, once suspected to be anthers, (see his Prudr.) may by pressure facilitate its ejection, whether in a watery or powdery state.

3. A. rubra. Red Orbicular Azolla. Br. n. t.—Frond orbicular; lobes palmate; their subdivisions undivided or cloven. Upper leaves smooth. Roots feathery beyond the middle.—Gathered by Mr. Brown, at Port Jackson, as well as in Van Diemen's Island. The fructification has essentially the same structure of that of A. pinnaeata, except the angular bodies of the upper cell being only five, not nine. Brown.

4. A. caroliniana. Carolina Azolla. Willd. n. t. Purt. n. 1.—"Leaves imbricated, ovate-oblong, obtuse, spreading; red underneath."—Found by Richard, in Carolina; by Purt. floating on the waters of lake Ontario. We know nothing more of this species; and as those who have described it were unacquainted with the fructification, as well as with Mr. Brown's specific definitions, the above character requires revision.


AZOTE, in Chemistry. The specific gravity of azote, according to the most recent determinations, is 0.9722, and 100 cubic inches of it will weigh, at a mean temperature and pressure, 29.652 grains. Biot and Arrago make its specific gravity 0.9691, and Lavoisier 0.978. See Atomic Theory.

A new compound of chlorine and azote was discovered a few years ago, which, from its remarkable properties, deserves to be described here.

This compound seems to have been first noticed by M. Dulon in 1812; but this chemist, on account of two severe accidents which happened to him in the course of his experiments, did not complete the investigation of its properties, nor publish anything on the subject. Sir H. Davy was informed of the discovery of the substance soon after, but not by the method of preparing it. Chancing, however, to hear from Mr. Children, that Mr. Burton of Cambridge had procured an oily substance by passing a current of chlorine through a solution 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 solution 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 vessel, which is the substance in question. Care must be taken not to collect at one time more than a globule or two, as it explodes with prodigious violence from the slightest cause. Its colour closely resembles that of olive-oil. It is transparent: its smell is strong and peculiar, though it is not so disagreeable 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 diffused over without danger, but is partially decomposed. The temperature of 200° only occasions it to evaporate faster, but when heated to 212° it explodes with amazing force. In a vacuum it is converted into vapour, but again assumes the liquid form when the pressure of the air is restored. This vapour, if heated sufficiently, explodes with as much violence as the liquid itself. The fp. gr. of the chloride of azote is 1.953. It does not become solid on exposure to cold. When left in water it speedily disappears, and azotic gas escapes. In strong muriatic acid, chlorine escapes, and muriate of ammonia remains in solution. When brought in contact with phosphorus, oils, and many other substances, it explodes with very great violence. Metals, refining, sugar, and most of the gases, do not cause it to explode. The experiments of Sir H. Davy on the composition of this curious substance render it probable, in Dr. Thomson's opinion, that it is composed of one volume or atom of azote, and four volumes or atoms of chlorine.

Azote has likewise the property of forming an analogous compound with iodine. (See Iodine, and Simple Bodies.) The celebrated chemist Berzelius still, we believe, maintains the opinion, that azote is a compound of oxygen and an unknown substance, which he denominates nitricum; and a laborious series of experiments was some time ago published by Mr. Miers, to shew that this unknown substance is nothing but hydrogen. Chemists in general, however, do not at present acquiesce in either of these opinions, but consider azote as an elementary substance.

For the combinations of azote with oxygen, see Atomic Theory, Nitric Acid, &c. and Proportions, Definite.

AZUMBRE, a liquid measure in Spain. See ARROBA, Addenda.

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 fpatha; limb shorter than the tube, in fix 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. Pfj. Germe roundish; style thread-shaped, rather longer than the tube; flogmas three, spreading, obtuse, undivided. Petir. Capule roundish-ovate, coriaceous, unequally tumid, of three cells and three valves. Seeds numerous, globose, pulpy, tapering at the base, at length corrugated, and d-formed by mutual prefluence.


1. B. Tbunbergii. Many-spiked Babiana. Ker n. 2. Ait. n. 1. (Antholyza plicata; Thunb. Prodr. 7. Fl. Cap. v. 1. 169. Linn. Suppl. 96. Willd. Sp. Pl. v. 1. 223.)—Leaves many-ribbed, finely divided into the fathas and sheaths. Corolla ringent. —Native of sandy plains near the sea, below Verloren Valley, at the Cape of Good Hope, flowering in October. Tbunberg. Mr. Maffon fent 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 intermediate 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 hair, and divided into about half a dozen alternate, spiked, many-flowered branches. Flowers crimson, two inches long, crowded, erect.

2. B. ringens. Gaping Babiana. Ker n. 1. Ait. n. 2. (Antholyza ringens; Linn. Sp. Pl. 54. Willd. Sp. Pl. v. 1. 223. Thunb. Prodr. 7. Fl. Cap. v. 1. 167. Gladiolo ethiopico similis; Comm. Hort. v. 1. 81. t. 41. Rudb. Ely. v. 2. 237.)—Leaves many-ribbed, smooth. Stalk downy. Corolla ringent. —Found in low sandy fields, often by the way side, in many places about the Cape of Good Hope, flowering from July to September. Not at present in the gardens, as far as we could ever learn; or at least we never heard of its flowering. Not so tall as the preceding, nor so much branched, but the flowers are larger and more handfome, remarkably widely ringent, with one faden 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 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 yellow, elevated ribs, erect, about a foot high. Stalk as tall as the leaves. Flowers flesh-coloured, drooping, crowded into an ovate, rather abrupt, spike; their lower lip rather the shortfert, reflexed. There can freely be no doubt respecting the gender of this plant.


flender. Limb pale bluish purple, with elliptic-oblong, nearly equal segments, an inch long; three alternate ones bluish, with a point; three lowermost marked with white and violet.


7. B. sulphurea. Pale Babiana. Ker n. 5. Ait. n. 6. Ker in Curt. Mag. t. 1053. (Gladiolus sulphureus; Jacq. Ic. Iar. t. 239. Vahl Enum. v. 2. 99. G. plicatus; Andr. Repol. v. 2. 268.)—Leaves downy; shorter than the ascending downy flalk. Tube shorter than the spathe, and but one-third as long as the nearly uniform 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-fowted Babiana. Ker n. 13. Ait. n. 7. Ker in Curt. Mag. t. 576. (Gladiolus plicatus; Thunb. Diff. n. 24. Fl. Cap. v. 1. 211, with many wrong synonyms. G. fragrans; Jacq. Hort. Schoenbr. v. 1. t. 14.)—Leaves elliptic-lanceolate, loofly 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 fower texture. Flowers fragrant, pale lilac, or bluish-white, marked with violet at the base of their three lower segments. Stament ascending.

9. B. fricta. Upright Babiana. Ker n. 6. Ait. n. 8. Ker in Curt. Mag. t. 621. 637. (Gladiolus frictus; Ait. ed. 1. v. 1. 63. G. plicatus; Linn. Sp. Pl. 53. Ixia; Mill. Ic. 103. t. 155. f. 1.)—Leaves elliptic-lanceolate, 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 obovate, pointed, equal segments, either all blue, or pale grey, or alternately white and purplish, each hardly an inch long. Spathe small, linear-lanceolate, downy.

In the *Methodus* of Acharius, this genus is so characterized as to include all the *Lichenes pyxidatis*, as well as the *Gleditsia* of other authors. At present it is restricted to the first section of the original *Basmyces*, consisting of four species only. The characters and synonyms of these are correctly given by our learned friend, except that of *Lichen ericetorum* of Linnæus, which we remove from this genus, on the authority of original specimens.


—Found on mountainous heaths, in broad uninterrupted patches on the ground, of a greenish or glaucous grey when fresh and moist, conforming to all the inequalities of the foil; the surface finely granulated. Tubercles from one to two or three lines in diameter, of a bright and moft elegant rose colour, convex, more or less lobed, or irregularly tumid, each supported by a thick, round, folid fubftance, as high as the diameter of the head, white tinged with a buff-bred. This is by far the moft elegant, as well as the moft rare, of our British species. Dr. Acharius here cites Engl. Bot. t. 372, which is his *Lecidea Ismodaiphila*, Syn. 45, the true *Lichen ericetorum* of Linn. Sp. Pl. 1608. *Fl. Suec. 458. and Herb. Linn. Fl. Dan. t. 472. f. 4. Lichen Ismodaiphila; Linn. Suppl. 450. Ehrh. Phyt. n. 49. L. æruginofofa; Jacq. Auffr. t. 275.

2. *B. fungoides*. Pale Mushroom-Lichen. Ach. n. 2. ("B. helveloides; Bory Voy. 3." Lichen fungoides; Swartz Ind. Occ. 1886.)—Crufť white. Stalks thrie as tall as the diameter of the more fihn-coltured tubercules.

—Gathered by Dr. Swartz on the gravelly foil of high mountains, in the southern part of Jamaica. Bory de St. Vincent found the fame in the ifle of Bourbon. We have fpecimens from Dr. Acharius. The crufť is thin, hard, of a dirty white. Stalks white, thrie as tall as the foregoing; tumid at the bafe. Heads of a lighter fihn-coloured, with a white powdery effibrence.


4. *B. lignorum*. Achar. (B. rufetfis γ; Ach. Meth. 322.)

Cruft greenish-white. Stalks fhort, somewhat comprefled. Tubercles nearly globular, reddish-brown; fometimes aggregate.—Common on heathy ground, or on rocks, rarely on rotten wood; in which latl fuation the tubercles assume a darker brown. They are much smaller than in *B. rufus*, rounder and fefs lobed, though often cluftered together; their colour is a dirty brick-red.

The variety β of Engl. Bot. figured in Rail Syn. t. 1. f. 5, not f. 4.4 and in Dill. Mufc. t. 14. f. 5, is now effemed a fungus. See Oxygeva.

5. *B. placenthullus*. Broad-leaved Mufhroom-Mufhroom. "Wahlenb. Lapp. 449." Ach. n. 4. Meth. 323. t. 7. f. 4.—Cruft orbicular, rugged, somewhat lobed and imbricated, glaucous-white. Stalks elevated, comprefled. Tubercles convex, fimple, reddish-brown.—Found by Wahlenberg, on the flerie landy foil of Lower Lapland. We are obliged to Dr. Acharius for a specimen of this very curious species, whose cruft approaches that of the true Cup Lichens, its circumference almoft being lobed and almoft leafy, though of a thick fulidente. The tubercles are altogether thole of a *Basmyces*.

BAGDAD, col. 4, t. 1, after terraces. Bagdad is fill a plate of great trade, and the refort 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, Damascus, and the western parts of Peruia. The chief imports from India are, gold brocade, cloths, fugar, pepper, tin, fandalwood, iron, china-ware, fpice, cutlery, arms, and broad-cloth; in return for which they fend bullion, copper, gall-nuts, tamarick, leather, and otto of rofes. From Aleppo are imported European filk-flufs, broad-cloths, fteel, cochinile, gold, filver thread, and several other European articles, which are brought in Greek veftlces to Scanderbon. The imports from Peria are, fhauls, carpets, filk, cotton, white cloths, leather, and faffron; and thole from Conflantinope, are bullion, furs, gold and filver thread, jewels, broad-cloth, velvets, and otto of rofes. The principal manufacture at this place is that of red and yellow leather, which is much efteemed; but filk and cotton flufs are likewise made. The climate, notwithstanding its exceflive heat, is allowed to be very healthy. But the natives are fubjeft to a cutaneous diforder, 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 fubjeft to this difeafe. The military government of Bagdad is, &c.

BAKERSFIELD. Add.—The bahar of Acheen, in Sumatra, contains 800 cattees, and is equal to 450 lbs. avoirdupois. The bahar of Belfteckee, in Arabia, containing 40 paracles, is 8154 lbs. avoirdupois. The bahar of Bencooone = 560 lbs. avoirdupois. The bahar of Junkeflyon of 8 capins = 485 lbs. 5 oz. 53 dr. The bahar of Malacca, of 3 peculs = 405 lbs. avoirdupois. The bahar of Mocha, of 15 franks = 445 lbs. avoirdupois.

BAIREN, N. lat. 28° 13'.

BAJOCCO. Add.—Rome exchanges with Amsterdam 42 bajocchi, more or less, for 1 florin banc; with Leghorn, 95 bajocchi, more or less, for 1 pessa of 8 real. Rome keeps accounts in fudi. See SCUDO.

BAIRDSOWN, L. 5, N. 221, 202 being fquares. See BAIRDS. Add.—See CLIPPER, Ablea.

BAKERSFIELD. Add.—It contains 812 inhabitants.

BAKU, Inferit, and BADUK. N. lat. 42° 22'. Add.—Baku is defended by a double wall and deep ditch, con- ftructed during the reign of Peter the Great. This was once a celebrated city of the ancient worhippers of fire, and before the conquest of the Saracens was annually visited by thousands of pilgrims.

BALDIVIA, L. 7, W. long. 74°.

BALDWIN, in Geography, a town of America, in the diftrift of Maine, and county of Cumberland, containing 546 inhabitants.
inhabitants.—Allo, a county of Georgia, which, together with its town Milledgeville, contains 6356 inhabitants; the
falves in the county being 2324, and in the town 226.—
Allo, a county in the territory of Mississippi, having 1427
inhabitants, including 717 falves.

BALFOURIA, in Botany, received its name from the pen of Mr. Brown, in honour of his illustrious countryman
for Andrew Balfour, knight, founder of the Botanic Garden,
as well as of the Public Museum, at Edinburgh. His friend,
for Robert Sibbald, has embalmed his memory in the Memo-
ria Balfouriana; nor could any one be more competent to
this tribut. These distinguished men first laid the founda-
tion of the study of natural history in Scotland.—Brown
467.—Clas. and order, Pentodnia Monogynia. Nat. Ord.

Eff. Ch. Corolla funnel-shaped; throat crowned with a
small cranate tube; segments of the limb straight, equi-
lateral. Stamens inserted into the throat; anthers arrow-
shaped, pointed, cohering with the stigmas about the middle.
Germen of two cells; hy stigmat with thread-shaped, dilated
at the top; stigmas angular. Scales ten at the base of the
calyx, on the outside of the corolla; none under the germen.

Follicles......

1. B. falina. Willow-leaved Balfouria. Br. n. 1.—
Difcover'd by Mr. Brown; in the tropical part of New
Holland. A tree, about twenty feet high, smooth. Leaves
opposite, linear-lanceolate, falcate, with little teeth between
the incision of their foottails. Gyms lateral as well as ter-
minal, three-cref.

BALK. Infert—or Bulkh. Col. 1, l. 3, after Buc-
triana, infert.—It was formerly included in Khorafian, and is
hounded on the C. E. by the Oxus, E. by Khoondeel,
W. by Khorafian, and S. W. by the mountains of Huzara,
and the independent state of Mymuna. Col. 2, l. 17, after
Perfians, add.—The Tanjets, or the race of people who in-
habit this country, besides the Afghans and Ulbeeks, are
corrupt and dissolute, and addicted to the most unnatural
vices. The Ulbeeks are simple, honest, and humane.
Col. 2, l. 60, after Hindosta, add.—It is laid 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
town is well cultivated, and corn and provisions are abundant.

BALLABUAN, r. BALLAMBAUN, and remove to next
column.

BALLISTIC PENDULUM, a pendulum used in acfer-
taining the velocity, &c. of balls, the strength of gunpowder,
&c. &c. See GUNNERY, PENDULUM, and PENDULUM.

BALKISTAN, l. 10, r. Mekran. At the clofe,
add.—Ballogiftan, or, as it is otherwise called, Balouchiftan,
the country of the Balouches, is confidered by some as
a province diftinét from Mekran or Mervr; and as fuch
properly commences at Kohineen (the hilly road) 25 miles N.E.
of Bayla, or in N. lat. 26° 33', from which it extends to
Noolkhy, 79 miles N.W. of Kelat, or in N. lat. 30°. It
is faid to be a confused mass of tremendous mountains,
through which the road generally leads in water-courfes.
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-
loochiftan, comprehend all the countries lying between
26° 30' and 30° N. lat., and from 65° to 69° E. long. It
is divided into two montaneous provinces of Ihalawan
and Sarawan, the low county of Cutch Gandava to the E.,
and the provinces of Zufirce and Amund Dajal; to which
may be added the small districts of Shat and Muftung, lying
N. of Kelat. See SARAWAN and MECRAN.

BALKOTADE, l. 5, r. thefe airs, &c.; l. 8, r.
horfman.

BALLS, Chain. For chain-balls r. chain-bullets.
BALLS, Stung, деле.

BALLOUGHISTAN. See BALLOGISTAN.

BALSAMITA, in Botany, an old name, used by Dodon-
eus and others, alluding to the balsamic odour of the
flowers and herbage, and their reputed stimulating health-
ful qualities. It is revived by Persoon Desfontaines, who,
after the example of Vaillant, has recently parted the
several species of this genus from Cotula, Chrysanthenum,
and Tanacetum, into which they had been forced, though de-
situte of radiant, or female, florets, as well as of a crown to

Clafs and order, Symenewa Polygamia-equalis. Nat. Ord.
Compoite didecoides, Linn. Corymbifera, Juff.

Gen. Ch. Common Calyx flattyflied, imbricate; fcales nu-
erous, linear, convex, acute, the inner ones with a mem-
branous margin. Cor. compound, uniform, tubular, longer
than the calyx. Florets all perfect, numerous, funnelf-shaped,
equal; their limb in five regular, acute, spreading segments.
Stam. in each floclet, Filaments five, capillary; anthers
united into a five-toothed tube, hardly longer than the tube
of the corolla. Pist. Germin rounded, ftyle thread-shaped,
longer than the corolla; ffigmas two, revolute. Peris. none,
except the permanent calyf. Seeds ftylist to each floret,
small, oblong, fhrunk, sometimes bordered with a narrow
longitudinal membrane at one fide, but abrupt at the fummit,
without any crown or wing. Recept. fightly convex, naked.

Eff. Ch. Recapitb late. Seed-down none. Calyx
imbricate.

(Cotula grandis; Linn. Sp. Pl. 1257.)—Stem heraceous,
hairy, fimple and single-flowered. Leaves ferrated; radical
ones obovate; thef of the flume lanceolate; dilated and
deeply toothed at their base. Found by Desfontaines
in corn-fields at Alger, flowering in May. Limnus had it
from thence. A handfome biennial plant, conpofitious for
its large, yellow, effhine-like flores, about two inches broad,
compofed of immemorable crowded flores. The flum is two
or three feet high, unbranched, lefly, and hairy. Leaves
numerous, smooth; the radical ones flanked, two or three
inches long.

2. B. virgata. Wand-branched Colurnbary. Desf. as
above, 2. Willd. n. 2. Ait. n. 1. (Cotula grandis;
Jacq. Obf. fufe. 4. 4. t. 81. Chrysanthenum discoideum;
Allion. Pedem. v. 1. 190. t. 11. f. 1.)—Stem heraceous,
smooth; branched at the base; branches single-flowered.
Leaves linear-lanceolate, ferrated, nearly fefile; upper ones
linear, entire.—Native of Italy. This is the plant men-
tioned under his Cotula grandis by Limnus; as having been
fent by Allion. It is however, as he fuppofed, very diftinét
from that plant; being much smaller in every part; the
flum smooth and branched; leaves none of them fpatulate,
nor dilated and deeply cut at the base. Flowers similar, but
scarce and half fo large, especially thofe of the lateral branches.

3. B. ageratifolia. Sharp-toothed Colurnbary. Desf. as
above, 2. Willd. n. 3. Ait. n. 2. (Chrysanthenum flo-
culiorem; Linn. Sp. Pl. 1255. Bellis spinofa; Alpin. 
Exot. 327. t. 326. B. major spinofa. petalis carenis;
Morif. feet. 6. t. 9. f. 16.)—Stem shrubby, branched at the
base. Leaves obovate, sharply ferrated, crowded. Flowers
corymbose.—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, whose numerous teeth are sharp, and even spiny. Several deep-yellow convex flowers compose a corymbous cluster at the extremity of the stem or branch.


Baltimore, 1. 12, after contains, add—by the census of 1810, 29,255; and for 1877 r. 6697.

Baltimore, col. 1. l. 9 from the bottom, add—By the census of 1810, the number of inhabitants in the city of Baltimore was 35,583, including 3713 slaves; in the eastern precincts 4050, comprising 262 slaves; and in the western precincts 6522, including 6073 slaves.

Baltimore, a town of Vermont, in the county of Windfor, having 207 inhabitants.

Bamberg, col. 1. l. 19, add—Before it was secularized in 1813, it contained a surface of 65 German miles, with a population of 120,000 souls, and a revenue of 556,000 dollars. Col. 1. l. 24, after populous, add—containing about 2030 houses, and 16,500 inhabitants.

Bamff, col. 2. l. 31, insert—The burgh and parish contained, in 1811, 3603 persons; 1540 males, and 2063 females.

Bamffshire, col. 2. l. 4. r. in 1811, was 36,668 persons; 10,456 males, and 20,203 females; 3815 families being employed in agriculture, and 2105 in trade, manufactures, and handicraft.

Bampton, l. 19. r. 1061 houses, and 5864 inhabitants.

Banbury, l. ult. r. and the borough and parish, by the returns of 1811, contained 582 houses, and 2841 persons; 1331 males, and 1510 females.

Band, a weight used on the Gold Coast for weighing gold dust, and equal to two ounces troy.

Band-fifth. See Cepola.

Bandér-arassi, r. Gambronn.

Bangor, col. 2. l. 37, r. the city and parish, in 1811, contained 456 houses, and 2383 inhabitants, viz. 1094 males, and 1289 females.

Bangor, in America, add—It contains 850 inhabitants.

Bank, Million. Add to dittoisation—1796.

Banksia, in Botany, one of the most magnificent and peculiar genera among the native plants of New Holland, was with great propriety dedicated to the honour of the illustrious discoverer of this genus, by the younger Linnæus. (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 Xylomelum.) 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 solitary flowers, at the end of that article. It may have had some foundation which has escaped the memory of the writer of this. 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. Schrèb. Gen. 79. Murra in Linn. Syst. Veg. ed. 14. 161. Wild. Sp. Pl. v. l. 335. Mart. Mill. Dict. v. 1. Att. Hort. Kew. v. 1. 213. Brown Tr. of Linn. Soc. v. 10. 202. Pros. Nov. Holl. v. 1. 451. Juff. 79. Lamarell Illusr. t. 54. f. 1. 2. Gært. t. 48.—Chas. and order, Tetrandria Menzogynia. Nat. Ord. Aggregate, Linn. Proteacee, Juff. Brown.

Gen. Ch. Cal. 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 deep four linear segments, at length separating entirely, somewhat dilated and concave at the summit, their points long cohering, till forced aunder by the growing style. Nectary four scales at the base of the germen. Stam. Filaments four, very short, inserted into the base of the cavity of each petal; anthers oblong. Fil. Germen superior, of two single-seeded cells, very small; style cylindrical or angular, furred, 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, elastic, cloven by a deep transverse fissure 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-leaflet, bearing the flowers in the hollows of its segments. Nectary four scales at the base of the germen. Follicle woody, of two single-seeded cells, with a cloven moveable partition. Catkin with three scales to each pair of flowers.

Ob. 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 Linnaean language the term is "determinately branched," as in Erica and other Bicorne. 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 frond when full grown. (Brown.) Catkin solitary, terminal, rarely lateral, cylindrical, in some cates very short. Bractes 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 bases of the follicles, the surface briefly with remains of the flowers, and especially with the unipinnated styles of the greater part, intermixed with the large, hard, usually downy or hairy, follicles. Seeds black, with a brown, shining, oblique wings, the convex side of each filling a depression in the corresponding side of the thin wooden partition.

Sec. 1. Style longer than the corolla, projecting laterally, in a curved position, between its segments, the stigma being held fast, for some time longer, between their points. Catkin, when in flower, cylindrical; when in fruit, laden with numerous transverse follicles. Thefe 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 Bankiia. Art. n. 1.—Leaves accrofe, entire, pointles. Tube of the corolla woolly;
woolly; limb smooth. Stigma capitate, depreffed.—Native of dry heaths, near the fea-shore in Lewin's land, on the southern 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 acerofe, entire, pointed. Catkins drooping. Follicles silky. Follicles dilated at the summit, depreffed.—On dry heaths near the shore of Lewin's land, where, like the two former, it was gathered by Mr. Brown.

4. B. rieifolia. Heath-leaved Bankia. Linn. Suppl. 127. Willd. n. 7. Ait. n. 4. Banks Lc. Ined. spad Bibl. Linn. t. 4. Andr. Repof. t. 156. Curt. Mag. t. 738. Cavan. Ic. v. 6. 27. t. 538. (Bankia; White's Voy. 225. t. 22. t. 1.)—Leaves acerofe, emarginate, 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 fent by Dr. White, among the first botanical communications from that country, and is now in several green-houfes, flowering at various times of the year. This species was however firft discovered by Sir Joseph Banks and Dr. Solander, in their celebrated voyage. The flen is three or four feet high. Leaves very numerous, the length of the nail, evergreen, smooth, revolute. Flowers bright yellow. Catina five or flx inches long. Follicles abrupt, rough with rusty, deciduous hairs.


7. B. occidentalis. West-cofl Bankia. Ait. n. 6.—Leaves linear, with fparcaneous teeth beyond the middle; veinfet beneath. Scales of the catkin smooth at the extremity. Corolla withering; bearded internally at the bafe. Follicles tumid, downy; rather compressed and naked at the summit. Stem shrubby. Young branches smooth.—Found by Mr. Brown, in heathy ground, at Lewin's land.

8. B. littoralis. Sea-fide Bankia. Ait. n. 7.—Leaves linear, elongated, with fparcaneous teeth; veinfet beneath; tapering at the bafe. Corolla deciduous. Follicles compressed, downy at the summit, as well as the scales of the catkin. Stem arborescent. Young branches downy.—Found by Mr. Brown on the sandy shores of creeks in Lewin's land. The flowers were pale.


10. B. microlepsa. Cavan. Ic. v. 6. 28. t. 541. excluding the reference to B. dentata of Linkius!
Mr. Brown, but not in fruit, by the sea-side at Keppel Bay, on the east coast of New Holland. He signifies 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, abrupt, ribbed, reticulated with veins; transverse at the base. Scales of the catkin awl-shaped. Corolla woolly. Stigma pyramidal.—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-oblong, somewhat abrupt; tapering at the base; slightly revolute; coarsely serrated beyond the middle; ribbed and 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. Ic. v. 6. 28. t. 342. Ait. n. 13. (B. fallax; Cavan. Ic. v. 6. 31.) — Leaves scattered, narrow-oblong, abruptly, narrowly serrated; rather acute at the base; ribbed, and reticulated with veins beneath. Footstalks and young branches reticulated. Larger scales of the catkin pointed. Corolla silky. Stem shrubby.—Observed 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. 20. Ait. n. 14. (B. robur; Cavan. Ic. v. 6. 29. t. 343.) — Leaves obovate-oblong, with pinacious furrows; 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 five feet. Louis Née, from whom Cavanilles had his information, appears to have accidentally confounded his specimens of this species, with his memoranda relating to B. ferrata, and hence it is described of the fize of an Oak, to which the name robur alluding, was necessarily obliged to be changed.

21. B. marcescens. Short-leaved Bankia. Br. n. 21. Ait. n. 15. (B. prorsorsa; Andr. Repof. t. 258.) — Leaves wedge-shaped, flat, scattered, abrupt, narrowly serrated more than half way down; rather acute at the base. Branches downy. Corolla permanent, smooth as well as the follicles. — Native of the southerly coast of New Holland; at Lewin's land, 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 six or seven feet high in the green-house. Leaves so abrupt, that we could almost have allowed the name prorsorsa to remain. Flowers purple, in large handomie catkins; infide 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 interlaces, 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. Wild. n. 1. Ait. n. 17. Banks Ic. Ind. t. 2. White's Voy. 222. t. 18, 19, 20. Andr. Repof. t. 82. Cavan. Ic. v. 6. 27. t. 540. (B. conchifera; Garret. 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 arborescent.—Native of the east coast of New Holland, at Port Jackson, in fields near the sea, from whence specimens were brought by Sir Joseph Banks; but the plant was first raised in England, by Melfla. Lee and Kennedy, in 1786. This is described as the most flatly of its genus, rising to the height of thirty feet, with a hard reddish 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 bluntish notches. Catkins large, thick and heavy, of innumerable downy flowers, whole corolla purplish, and style crimson. Cone ten inches long, very heavy. Follicles downy, an inch in diameter. Gartner's figure is from a poor diminutive cone.

25. B. amala. Large-fruited Bankia. Br. n. 25. — Leaves linear-oblong, abrupt, deeply and sharply serrated; reticulated and nearly smooth beneath. Corolla silky. Stigma capitate, poliished, pyramidal, not furrowed, twice as thick as the Style. Stem shrubby.—Native of heaths, and sandy fields, near Port Jackson, from whence we have long ago received specimens, 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 ramifications 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 ferratas in Mr. Andrews's plate of ferrata most nearly approach our present plant. The shape and proportion of the calyx 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 Arnhem'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, shallow, spine-pointed teeth. *Caxina* fixes inches long, more slender than usual; their scales downy, the larger one to each pair of flowers spinous-pointed.

27. B. querulenta. Oak-leaved Bankia. *Ait.* n. 18.—Leaves oblong-wedge-shaped, rather abrupt, smooth, deeply serrated, pointed. Segments of the corolla awned. Flowers nearly smooth.—Found by Mr. Brown, in fields near the fiery 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 lightly 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, with the leaf, 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 aludes, 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, coriaceous, entire, rather spinous-pointed; roughish to the touch on the upper side; paler underneath, furnished with five principal ribs, and many intermediate vein reticulations; 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; leaves fruticose or toothed. Stem prostrate.—Found by Labillardiere, 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 *hem* is clothed with rusty down. Leaves a span long, falked, 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. *Caxina* ovate, nearly fiddle, erect, dense, many-flowered, about three inches long. *Corolla* and *german* hairy.

Sec. 2. Points of the corolla more freely separating; the narrow part of their segments coloring longitudinally, and as long as the style. *Caxina* short and level-topped, perfecting fearemly more than one vertical follicle.

31. B. ilexifolia. Holly-leaved Bankia. *Br.* n. 31.—Leaves wedge-shaped, deeply serrated; nearly smooth beneath. *Caxina* very short.—Gathered by Mr. Brown, in fields and hilly ground near the seas-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 *Ixiylolis*. He remarks that it forms a connecting link between *Bankia* and *Dynandra*; see the latter hereafter.

BANNUM, in *Ancient Geography*, a Roman station, called Gaer, or Caer Bannau, situated about three miles above the town of Brecon, in South Wales, near the confluence of the rivers Yakin and Ufs. 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 situation there is a caledum, supposed to have been a branch of the great Roman caledum leading from Caerleon, in Monmouthshire, through the vale of Usk, and the eastern part of Brecknockshire to Ariconium, which is the 12th Iter in Antonine's Itinerary.
flouring in July. The whole plant is very smooth, fearlessly glaucous, two or three feet high, distingued by its perfoliate, almost orbicular leaves, about two inches broad, accompanied by lemon-coloured flowers, on short simple stalks. *Leuca* nearly globular.

2. B. *australis*. Downy Single-flowered Wild Indigo. (Podalyria uniflora; Michaux Boreal.-Am. v. 1. 263. Pursh n. 2. Sophora lanceolata; Walt. Carol. 135.)—Leaves ternate, feville, downy; leaflets lanceolate, obtuse. Stipulas bristle-shaped, minute. Flowers axillary, solitary. —Observed by Michaux in Carolina and Georgia. The whole herbage is downy, as well as the *calyx*. Flowers yellow. *Michaux*.


5. B. *alba*. White-flowered Wild Indigo. Ait. n. 4. (Podalyria alba; Wildl. Sp. Pl. v. 2. 503. Mich. ibid. 264. Pursh n. 5. Curt. Mag. t. 1177. Sophora alba; Linn. Syll. Veg. ed. 13. 325. Crotalaria alba; Linn. Sp. Pl. 1806. Anonis caroliniana perennis; non linnaeus, &c. Mart. Cent. t. 44.)—Leaves ternate, flanked, smooth; leaflets elliptic-oblong. *Stipulas* awl-shaped, shorter than the *footstalk*, deciduous. *Germes* smooth. —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. Cateby first introduced it in 1724. The habit of this species, its smoothness, and rather glaucous hue, agree with the leaf, to which it is certainly most nearly allied; but the leaflets are elliptical, the flowers white, more oblong, in confinement of the greater length of the wings and keel, the *sepals* smaller and deciduous. *Podalyria* 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 *cluster* an interrupted form, like that of a Lupine, the aspect of which genus is otherwise visible in these plants.


7. B. *tintoria*. Common Wild Indigo. Ait. n. 3. (Podalyria tintoria; Wildl. Sp. Pl. v. 2. 503. Mich. ibid. 265. Pursh n. 7. Lamarck f. 1. Curt. Mag. t. 1099. Sophora tinctoria; Linn. Sp. Pl. 524. Cytisus procumbens americana, flore luteo, ramofofolium, qui Anil luppeditat apud Barbadianum colonos; Pluk. Phyf. t. 86. f. 2.)—Leaves ternate, somewhat flanked, smooth; leaflets roundish-ovate. Stipulas petaceous, obfolete. 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, whole numerous branches are each terminated by a simple cluster of yellow flowers, about half the size of *B. auffratis*. The pods are ovate, on flanks 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 CASENS.

BARAQUICIMITO, del. lat. and long., and—See BARGESMETO.

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 *Podalyria* (see that article) till Mr. Brown raised it to the rank of a separate genus, under the abope appellation, in *Ait. Hort. Kew.* v. 3. 109.—Clafs and order, *Tetradaemia Silicius*. Nat. Ord. Silicrices, Linn. Cruifereae, Jull. Eff. Ch. Pod quadrangular, comprofet. Cytaldeons acumbent. Seeds in a single row. *Calyx* erect. Glands between the shorter flaments and the germen.

Two species only are described.


2. B. *praecoxyx*. See the same article, n. 3.

Mr. Brown thus defines Erysimum.


We have explained the terms *acumbent* and *incumbent*, as thus technically used, under the article *Tetradaemia*, where a more particular account is given of our ingenious friend'aarduous undertaking, of reforming the genera of the natural order in question.

BARBAREEN. See CALTURA.

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 fringes of the *capsules*. See Tortula.

BARDSTOWN. Add—See BARDSTOWN.

BARETTI, col. 2, l. 27, for Burke r. Bowle.

BARIERA. Add—See CARBONATE OF SODS.

BARIUM, in Chemistry, the metallic bafe of barytes. (See Barytes, infra.) Dr. Clarke has lately proposed the name of Plutonium 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 1566 inhabitants.

BARKWAY, l. ub. r. Its houses in 1811 amounted to 99, and its inhabitants to 886.

BARLEY, CAUSTIC, &c. See.

BARNARD, in Geography, l. 2, for 673 r. 1648.

BARD-CASTLES, l. ub. for 310 r. 450; and for 2966 r. 2986; add—1312 being males, and 1674 females.

BARNET,
BAR

BARNET, l. ult. r. parish are 259 houses, inhabited by 1579 persons; 755 males, and 824 females.

BARNET, in America, for 477 r. 1301.

BARNSTAPLE. At the close r. in the borough and parish is flated by the return in 1811 to be 628, and of persons 4019, viz. 1633 males, and 2386 females.

BARNSTAPLE, or Barnstable, American county, l. 6, r. 22, 211. Do. col. 2, l. 25, for 2610 r. 3646.

BARNWELL, a district of South Carolina, containing 12,280 inhabitants, including 4153 slaves.

BAROMETER, col. 7, l. 17, r. 68-hundredth part of, &c. Col. 14, l. 40, add—We observe, however, that it is merely a floating manometer, and as much 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. Minerva.

BARQUISIMETO, in Geography, a city of America, in the government of Caraccas, 40 leagues W.S.W. of Caraccas, 150 leagues N.N.E. of Santa Fé, and 15 leagues from Tocuyo. N. lat. 9° 45'. The exellent heat is rendered intolerable by the cooling breeze arising from its elevated situation. The adjacent plains are covered with excellent pasturage favourable for rearing every marketable animal. The sugar-cane and the bell 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 11,300 persons; its houses are well built, and the streets are so laid out as to afford a free circulation of air. It has a parish-church and two officiating priests, a monastery of Franciscans, and a hospital badly attended.

BARRE', a township of America, l. 2, r. 1671; l. 11, add—having 1553 inhabitants.—Algo, a town of Vermont, in Orange county, having 1606 inhabitants.

BARREL. 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 excise, shall be reckoned by the gauger or other officer of excise for a barrel of beer or ale.

Barrel, a weight by which corn is sold in Ireland. The barrel of wheat, peas, beans, and rye, is 20 flask; of barley, bere, and rape-seed, 16 flask; of oats 14, and in some places 12 flask; of malt, 12 flask; the flask being 14 lbs. avoid any poison weight. A barrel of good wheat anwers to about four Winchester butheus.

BARREN FLOWERS, in Botany and Vegetable Physiology, Florea aestivata in Linnean terminology, are such as are not provided with organs for the formation of fruit or seed, but only with flaments for its impregnation. See Fecundation of Plants.

BARRIER, in Fortification. Add—See Cheval de Frise, Herndon, Klinksets, and Turnstile.

BARRILE, or Barrill, a liquor measure in Italy.

BARRIN, in Geography, a county of the district of Kentucky, containing 11,642 inhabitants, of whom 1565 are slaves. The town, Glodgart, 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 1773 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 hogsheads = 50 fleskins in Amsterdam, 250 flotten in Hamburg, or 243 English gallons; and weighs with the wood about 2000 lbs. of Bourdeaux. The barrique contains 110 pots, or 32 vels.

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 110 miles, falls into Ouachita, 3 miles below the Derbain, on the contrary side.

BARTHOLINA, 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 phytopholist, Thomas Bartholin, whose life is already given in its proper place, and whose various writings relating to plants, in the old Copenhagen Transact, entitle us to add the history of our science with his truly illustrious name.—Brown in Ait. Hort. Kew. v. 5. 194.—Clasfs and order, Gynandria Monotypiina. Nat. Ord. Orchides.

Gen. Ch. Col. Perianth superior, 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, thrice 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 obovate, rather dilatate, parallel cells, opening in front, attached to the two margins of the style; masses of pollen each supported on a long, membranous-bordered stalk, to which their cells are laterally attached, "their glands distinct, half covered by the exterior lobe." Pip. Germen inferior, elliptic-oblong, curved, very hairy; style flattened, much shorter than the calyx; stigma a cavity between the lobes of the author. Peric. Capsule... Enl. Ch. Calyx tubular at the base. Petals united to the base of the lip, whose spur is shorter than the germen. Stalks of the pollen elongated; their cells laterally fixed; glands distinct, half covered by the exterior lobe.

O. pedicata. Fringed Bartholina. Ait. n. 1. (Orchis Barlanamiann.) Linn. Sp. Pl. 1354. Am. Acad. v. 6. 108. "Swartz in Web. and Mohr Archiv. v. 1. 55. t. 3." O. pedicata; Thumb. Prod. 4. Fl. Cap. v. 14. 453. Willd. Sp. Pl. v. 4. 11. Arethusa ciliaris; Linn. Suppl. 405.—Gathered by Thunberg and Sparmann, on the hills of hills at the Cape of Good Hope, in Roode Sand, as well as near Cape Town, flowering from October to December. The root consists of two ovate hairy knobs, the size of a liofe-bean. Leaf solitary, radical, orbicular, clasping the flower-flask, an inch broad, horizontal, festu; smooth, and of a fine green, on the upper side; paler and veiny beneath; the margin reflexed, and very densely fringed. Flower-flask solitary, simple, single-flowered, five or six inches high, erect, hairy, with a solitary, tubular, fringed, hairy bracteal, half an inch long, near the top. Flower large, of a very flagellate aspect. Calyx green, converging, strongly ribbed, and externally hairy, near an inch long, its tube included. Petals white, with a blue mid-rib, and a thread of the same colour in their lower part. Lip two inches in length and breadth, spreading, finely cut; its segments white above, blue underneath, the throat dotted and minutely fringed with
We have seen no specimens, and have scarce sufficient materials for drawing up a full generic character.


Eight species are described in Engl. Bot. and Compend. Fl. Brit., and there are several of exotic growth.

**sect. 1. Fruit-flalks shorter than the flm.**

1. B. Hallertana. Lateral Bartramia. Hedw. Crypt. v. 2. 111. t. 40. Engl. Bot. t. 997. Hook. and Tayl. n. 5. t. 23. (Bryum laterale; Hedl. 483. Ehrh. Crypt. 33. B. n. 1802; Hall. Hist. v. 5. 45. t. 46. f. 5.)—Fruit-flalks curved, shorter than the linear-awl-shaped, fingle-ribbed, rough-edged leaves.—Native of moit rocky mountainous woods, in Switzerland, Germany, Scotland, Wales, and the north of England. The flavem are, as Mr. Hooker observes, perennial, and repeatedly profliferous, so that, although the flowers are, like every Bartramia, originally terminal, the fruit soon becomes lateral, and remaining two or three years, is found numerousy ranged along the main stem, among the denfe, flever leaves. When ripe it becomes strongly furrowed, though originally smooth or even.

2. B. arcuata. Curve-flalked Bartramia. Engl. Bot. t. 1257. Fl. Brit. n. 5. Hook. and Tayl. n. 6. t. 23. (Munium arcuatum; Dickf. Crypt. falc. 3. t. 7. f. 3. M. chrylocomum; Hedw. Sp. Mufc. 74. Hypnum palfiurem, comà luteà, bafi nigricante; Dill. Mufc. 362. t. 39. f. 36.)—Fruit-flalks recurved. Leaves lanceolate, fingle-ribbed, furrowed, finely ferrated. Branches frondently 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 capfule is as decidedly furrowed as in any other species. The more branched and tufted habit of this mof, and the broader, shorter, rigid, yellowish, more spreading leaves, at once diftinguifh it from the foregoing. The fruit-flalks soon become lateral, and are very rather than recurved, longer than in the preceding. Mouth of the capfule small, with a red outer fringe; whole teeth are lined, as it were, with the fixteen oppofite teeth of the inner one.

**sect. 2. Fruit-flalks rising above the flm.**


with blue. Spur greenish-white. Mufles of pollen, (which Linneaus in the Supplement has described as a pair of ftyles,) inferted into the bafe of the ftyle, yellowish, prominent, very conflpicious even in dried specimens.

**Bartlet,** a town of America, in Coos, &c. r. 436.

**Barton,** in Orleans county, &c. add—It contains 447 inhabitants.

**Barton-upon-Humber,** l. ult. for 412 r. 191—for 1709 r. 1129. The parish of Barton, St. Mary, has 209 houses and 976 ferefs; and the parish of St. Peter has 266 houses, and 1228 ferefs.

**Baronia,** in Botany, received that name from Dr. Sims, in 1812, in juft commoration of the scientific merits and zeal of Dr. Benjamin Smith Barton, at that time professor of botany and natural history, in the university of Pennsylvania, who after many exertions, and several publications, in the service of national science, died of hydrophobia, at Philadelphia, on the 19th of December 1815, in the fiftteenth year of his age. His nephew, Dr. William Barton, in an animated and interesting "Biographical Sketch" of his charafter and pursuits, has preferved some account of the plants which compofe this genus, written by the late professor, three or four days before his death, and accompanied by many particulars, relative to Mr. Pursh and Mr. Nuttall, through whose means it has come to the knowledge of European botanists; all which evince a love of science, that the molt painful bodily fufferings could not repreft.—Sims in Curt. Mag. 1487. Purh. 327. Ait. Epit. 364.—Clasfs and order, Iofandria Monogynia. Nat. Ord. Lofeae, Juff. Ann. du Muf. d'Hift. Nat. v. 5. 18. Sims.

Eff. Ch. Calyx superior, in five deep segments. Corolla of many petals, with claws. Stamens uniform. Capfule cylindrical, of one cell, with a lid of three or five valves, and as many parietal receptacles. Seeds numerous, flat, and numerous, in double rows.

1. B. ornata. Large-flowered Bartramia. Purh. n. 1. Ait. n. 1. (B. decapetala; Sims as above, t. 1487.)—Germem leafy. Seeds without a wing.—Found by governor Lewis, in 1804, on chalky foil on the borders of the Mifouri, flowering in July and August. Purfth. Professor Barton records that Mr. Nuttall firft made this fine plant known to him in 1811, having found it growing all the way from the river Platte to the Andes, on broken hills and in the clefts of rocks. Mr. Purth by miftake, as the professor 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 they were not known what might be concealed in the herbarium of any deceafed traveller. The figure in the Magazine, though taken from a dried specimen, is unexceptionable, as far as it goes. The herb is biennial, downy, glaucous, about three feet high. Leaves alternate, fefile, oblong, pinnatifid. Flowers terminal, enveloped in leaves, three inches broad, with about ten elliptical, acute, white petals, and numerous flamas, half as long, whose anthers are elliptical, yellowish. These flowers expand suddenly in an evening, diffusing a moft agreeable odour, and rivef the fome of one of the fine species of Caftus in elegance.

2. B. nuda. Small-flowered Bartramia. Purh. n. 2. Ait. n. 2.—Germem naked. Seeds winged.—Found by Mr. Nuttall, on gravelly hills near the Grand Detour of the Mififiippi, flowering in August. Root perennai. Petals more numerous. Barton. Mr. Purth obferves that this has smaller flowers than the foregoing, and leaff glutenous leaves.

The petals vary in number, from ten to fifteen.
BARTRAMIA.

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 ferrated towards the point; somewhat twisted and curbed by drying. Fruit-flasks near the tops of the stems, about an inch long, bright orange-red, thinly wavy. Capsule globose, green and smooth while young; more elliptical when ripe, often brown. In six funnies. Lid rather convex, bored. Fringe short, red. Vell conical, curved, split half way up on one side.

4. B. cripta. Frizzled Bartramia. Swartz Mefc. Suec. 73. Turn. in Ann. of Bot. v. 1. 527. Winch Guide v. 2. 16. "Bridel. Mufc. v. 2. 3. t. 1. f. 4. Schwagr. Suppl. t. 59." Sm. Compend. n. 3. Engl. Bot. t. 1526. (B. poniformis $; Turn. in Ann. of Bot. v. 1. 527. Hook. and Tayl. n. 1. B.)—Fruit-flasks erect. Leaves brittle-shaped; dilated at the base; incurved and curled when dry. Lid slightly conical. Native of mountainous situations in Britain, 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 curled, twisted, and involute, as to give the plant a very different aspect. The intelligent authors of the Muscolgia Britannica therefore judge this to be but a variety of the poniformis, and they unite it with Mr. Turner's supposed variety of that species, which he distinguishes from cripta, and which he has thought to be figured for cripta, in Engl. Bot. t. 1526. We acknowledged that figure to be not a very happy one, except the lid, which seems to us always rather more conical than in poniformis.

5. B. ityphylla. Straight-leaved Bartramia. Bridel. Mufc. v. 4. 132. 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-flasks 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 ferrated at the very point, and are remarkable for remaining always straight when dry, which Mr. Hooker has well attributed to the whole sufflacence of the mid-rib being dilated and lost in the upper half of the leaf, to which it consequently gives firmness. The capsule is much curved; their flutes longer than in the foregoing. The dilated base of each leaf is singularly membranous and thinning.

6. B. gracilis. Tall Slender Bartramia. Flörke in Schrad. Journ. v. 2. 171. Fl. Brit. n. 3. Engl. Bot. t. 1826. Hook. and Tayl. n. 3. (B. Oederi; Schwagr. Suppl. t. 59, as also, according to Mr. Hooker, B. grandiflora, t. 58. Bryum Oederi; Retz. Prodr. 261. Fl. Dan. t. 478.)—Fruit-flasks from lateral branches, taller than the stems. Leaves lanceolate, ferrated towards the point; recurved and twirled when dry.—Native of the lofty Scotch mountains, as well as of the north of Europe. The stems are two or three inches high. Leaf 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 curled inwards. Their colour is a darkish grafs-green. Capsule small, from short lateral floutes.

7. B. jiluvnna. Spreading-leaved Bartramia. Turn. in Ann. of Bot. v. 1. 528. t. 11. f. 2.—Fruit-flasks lateral, taller than the stems. Leaves awl-shaped, entire; single-ribbed at the base; spreading and straight when dry.—Received from Java by Mr. Dickfon. Gathered by Conmerton, at the straits of Magellan. The tufted leafy

fleins, shaggy with ruffy fibres, and scarcely branched, are two or three inches high. Leaves slender, yellowish-green, longer than any of the preceding, except perhaps B. Helvetiana, and always quite straight, probably from the same cause as in ityphylla, the rib being soon lost in the sufflacence of the leaf. Fruit-flasks straight, erect. Capsule curved, strongly furrowed. Lid convex, blunt.

8. B. Menziesi. Tall Forked Bartramia. Turn. ibid. 525. t. 11. f. 1.—Fruit-flaks slightly elevated above the tall forked stems. Leaves lanceolate, single-ribbed, taper-pointed, entire; close-preferred when dry. Capsule nearly globular, with shallow furrows.—Gathered on the north-west coast of America, by Mr. Menzies. The tall slender stems, covered with close-preferred, 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. fberocarpa. Globose Bartramia. Hedw. Crypt. v. 3. 93. t. 38 A. Turn. as above, 525. (Minium sphacarianon; Swartz Prodr. 139, from the author.)—Fruit-flaks taller than the slender clustered branches. Leaves lanceolate-awhitched, close-preferred, finely ferrated. Native of Jamaica. Swartz. The slender stems are determinately branched, as in the following, to which this species is very nearly allied; though smaller, with longer branches. In the leaves, though ufuallu narrower, we scarcely find a permanent difference. Hedwigs figure erroneously omits the furrows of the capsule.

10. B. marlhor. Narrow-leaved Bolg 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. Minium marlehor; Hedw. Crypt. v. 108. t. 39.)—Fruit-flaks elongated, much taller than the clustered branches. Leaves lanceolate, finely ferrated at the point, close-preferred. Native of wet situations in Germany, the Highlands of Scotland, and the mountains of Nepal, for Mr. Hooker affires us his B. fontana, Tr. of Linn. Soc. v. 9. 317, is this plant. He is also of opinion that B. marlhor is merely a lanceolate-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. (Minium fontanaum; Linn. Sp. Pl. 1574. Hedw. Sp. Mufc. 193. Bryum fontanaum; Engl. Bot. t. 390. B. palafcre, foacis terretivs flittis, capulis magnis subrotundis; Dill. Mufc. 340. t. 44. f. 2.)—Fruit-flaks elongated, much taller than the clustered branches. Leaves ovate, finely ferrated at the point, close-preferred. Native of pongo bios throughout Europe, and perhaps in other parts of the world. It is one of our handfomefl and largefl mosses, bearing capsules in fpring and summer. The barren flowers form terminal leafy flars, on a separate plant from the capsule, whose flarks are two or three inches long, rifing high above the tuft of leafy branches, which have overtopped the originally terminal fufflacence of their flowers. Capsule brown, with a minute sharp braek to the lid. Leaves ufuallu direct, broadly ovate, entire at the edges, the point only being ferrated. They appear at first light very different from the lanceolate narrow shape of the leaf, and still more from the curved taper-points of Mr. Hooker's B. falvata, Tr. of Linn. Soc. v. 9. 317. t. 27. f. 4, which he is difposed to reduce to the fontana, having found the latter in Switzerland with leaves as decidedly curved. We cannot diptute his accuracy of obervation and judgment in this point; nor are we much disposed to question his further opinion, that Hedwigs fberocarpa, our n. 9, as well as ffabrida
BAR

fabriu.s Mublusbegii, (of which we have specimens from its
finder,) and radicans of Schwgrichen’s Supplement, may
possibly be likewise varieties of B. fontana.

BARYTES, in Chemistry, one of the earthy substances
termed alkalis. We stated that this earth was considered
by Bergman, Lavoisier, and other eminent chemists, as a
refractory metallic oxyd; 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 since verified by Sir H. Davy and other
chemists. To this metallic basis, Davy gave the name of
barium. 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 propor-
tions to form water. To the metal thus obtained, he
proposed to give the name of platonium. Many chemists, how-
ever, think, that Dr. Clarke from some cause or other per-
mitted himself to be deceived in these experiments, and that
instead of a metal he only obtained a flag with a pseudo-
metallic surface.

Barium 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-glass; but at that temperature it acts violently on
the glass, probably by decomposing the alkali of the glass,
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
barium is converted into barytes. Barium seems to be
both ductile and malleable.

Barium, 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

| Sulphuric acid | - | - | 100 |
| Barytes | - | - | 194 |

and carbonate of barytes of

| Carbonic acid | - | - | 100 |
| Barytes | - | - | 354-54 |

Hence it may be easily ascertained by calculation, that
the equivalent number for barytes is 97-5; oxygen being 10;
and if we consider this earth as a protoxyd, the number
for barium will of course be 97-5 - 10 = 87-5. Hence
one hundred parts of barytes consist of

| Barium | - | - | 89-74 |
| Oxygen | - | - | 10-26 |

Gay Lussac and Thenard found, that when dry barium,
from nitrate of barytes, or from the carbonate of barytes
decomposed by charcoal, was heated in oxygen gas, it
absorbed that gas with great rapidity. The peroxoxyd
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 facts 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 febrile and cancerous cases. Although
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 drachms to do mischief.
Barytes is capable of making a very tenacious cement,
but it has been yet much used in the arts, except by
limeers, 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 Ba-
ytes.

BASALT, in Mineralogy and Geology, a compact dark-
coloured rock, clasped by geologists with trap-rocks. (See
TRAP.) It has received the name of whin-stone 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, basalt is considered
as a compact green-stone, which latter rock is composed
of felspar and hornblende; but green-stone being more crys-
talline, the constituent parts are distinctly separated. Green-
stone and basalt often pass into each other. (See GREEN-
Stone, Addenda.) Basalt has generally been clasped with
simple minerals; and a short account of its characters and
concurrent parts are given under the article BASALT
(which see). More correct analyses of this rock have since
been made, in which fosa is found to be a concurrent part.
We greatly doubt the propriety of calling basalt with
simple minerals; for it has been ascertained, that most ba-
ftaltic 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 basalt ref-
embles in its constituent parts, as it does in other characters,
dark compaét lava. (See VOLCANIC Products.) Before
the observations of the French mineralogist Cordier, both
basalt and compact dark lava were supposed to be formed
of hornblende and felspar.

Before the blow-pipe, basalt melts easily, without addition,
into an opaque black-coloured glass. It melts at a com-
parative low degree of temperature from 38° to 45° of
Wedgwood. If it be cooled rapidly, the mass is vitrified;
if cooled slowly, it is fleshy, 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 basalt, as given by Klapproth
and Dr. Kennedy, are as follow:

Basalt
RASALT.

Bafalt exists abundantly in the northern parts of England and in Scotland. It occurs at the Clea 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. Bafalt forms the well-known columnar ranges at the Giant's Caufeway in the county of Antrim, and at Staffa. See Giant's Caufeway 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 bafalt, 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, Bafalt.

The mountain of Aifa, called La Coupe, or the Col d'Aifa, of which a view is given, is situated near the village Entraigue, 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 caufeway 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 characterized crater in all the Viverais.

All the base 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 resembling that of Vesuvius. 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 puzzolani, and mixed with great masses of black and sharp fumarites, which makes the defunct difficult. At the foot of this inverted cone is a magnificent plantation of chefmont-trees, which have flourished astonishingly in this ancient mouth of a volcano, having no other foil than the dry and friable puzziolani. It may be noticed, that the crater of Vesuvius 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 houles of the Collet d'Aifa; 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 flood of lava coming from the interior, and taking its course down the mountain, it descends in a waving 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 blistered, 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 defunct, and before it had reached the level ground, has affected a prismatic form; 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 Jaugay. The general resemblance of the latter is so similar to that of La Collet d'Aifa, 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 Jaugay. On its banks are immense ranges of basaltic columns, the most elevated of any in the Viverais. They incline the borders of the river on each side for more than a league.

Some of the prisms rife in one shaft to the height of fifty feet; in other parts, the articulated columns form a kind of regular caufeway. In some places the columns are bent, and above we see immense rams 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 Ardeche, where the great current of lava joins the streams that have flowed from the volcanoes of Theyuys and Neyrac. Faujas St. Fond fur les Volcans eteint du Viverais et du Velay.

Plate II. Mineralogy, Bafalt, 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

3 B 2

has
BASALTIC HORNBLende. See MINERALOGY, Addenda.

BASMAN, in Geography, an island of the Persian gulf, situated 11°12' leagues N.N.W. from Shorga, 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 1688, add—subject to various revolutions. L. 11, after Porto, insert—The muscumel, or governor, has ever since the year 1787, when it was recovered from the Monte-lidge Arabs, by Solyma Pacha, been lent from Bagdad, and is generally an officer of high rank. Full liberty is allowed, &c. Col. 2, l. 12, after 56,000, add—or 60,000, consisting of persons of almost every nation in the East. L. 29, N. lat. 31° 30'. E. long. 48° 30'.

BAT. HORSE, in Artillery, are baggage-horses belonging to the officers when on actual duty; and bat-men were originally servants hired in time of war to take care of the horses belonging to the train of artillery, baggage, &c., and who, during their service, generally wear the king's livery. Those who are executed regimental duty, for the specific purpose of attending to the horses belonging to their officers, are called bat-men. Horses and men of the preceding description are sometimes called bow-horses and bow-men.

BATAARIA, in Botany, so named by Pursh, in honour of his learned predecessor in the study of the Fungus tribe, Antonio Battarra, professor of philosophy in the Lyceum at Rimini, author of Historia Fungorum Agri Romani, 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 Planus, or Giovanni Bianchi, the conchoologist, and died in 1789, according to Dryander in Bibl. Banki. He was, however, an original observer, and delineated the figures himself.—Perf. Syn. Fung. 139.—Clas and order, Cryptogamia Fungi. Nat. Ord. Fungi.

Eff. Ch. Stalk burling from a wrapper, and elevating the bell-shaped, downy, powdery head, capped with a portion thereof.

1. B. phalloides. Tall Brown Batarrea. Perf. n. n. 1. t. 3. f. 1. (Lycoperdon phalloides; Dickf. Crypt. falc. t. 24. Woodward in Phil. Trans. v. 74—423. t. 16. Sm. Spellic. 11. t. 12. Sowerb. Fung. t. 395.)—Found on sandy banks about Norwich, by Mr. William Humphrey, and about Bangay in Suffolk, by T. J. Woodward, esq. 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 present article, he had seen this singular production on heaths in Kent, but passed it by as a blighted or abortive Agaricus procusus. We have not heard of this very curious fungus in any other part of the world. The volva, or wrapper, is about the shape and size of a hen's egg, originally of three slightly coriaceous layers, hollow internally, where a spongey flalk is formed, which riles very suddenly (in a few hours) to its full height of about twelve inches. This flalk is hollow, soon becoming dry, and externally filamentous, and carries up, on its summit, full half the innermost layer of the volva, which is white and smooth within, covered externally with copious brown powdery cells, 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 post-township 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 28 miles wide; bounded N. by lake Ontario, E. by Murray and Caledonia, S. by Warwick, Attica, and Sheldon, and W. by Niagara county. The whole population of this town, in 1810, was 3645, with 1046 feratary electors, and 464,216 dollars of taxable property.

BATH. Add—The city of Bath, by the return of 1811, contained 3933 inhabi tants, and 31,496 per sons; viz. 12,373 males, and 19,123 females.

BATH, a county of Virginia, &c. Add—The total number of inhabitants, in 1810, was 4877, including 382 slaves.

BATH, a township, &c. l. 2, for 949 r. 2491.

BATH, in Grafton county, &c. l. 2, for 493 r. 1316.

BATH, a post-township, the capital of Steuben county, 245 miles W. of Albany. The whole population, in 1810, was 1036, with 97 electors.

BATH, a township of the district of Ohio, in the county of Greene, having 913 inhabitants.

BATSCHIA, in Botany, so named by professor Gmelin, the compiler of the 13th edition of the whole Systema Nature of Linnaeus, in honour of professor Batsch of Jena, known particularly by his Elhenchus Fungorum, published at Halle in 1783 and 1784, in 4to., with coloured plates, and his Annals Fungorum, a work of a similar description, which appeared in 1790. Gmelin however adopted this genus, like many others, entirely from the Flore Caroliniana of Mr. Thomas Walter, who had modestly left such genera without names, because, though he supposed them to be new, he had not the advantage of books, or other helps, to confirm his opinion. In the present inference we apprehend his Anonymous, n. 78. Fl. Carol. 91, cannot be supported, but we shall give its character and synonymy.


Gen. Ch. Col. Perianth in five deep, linear, acute, erect segments. Cor. of one petal, falver-shaped; tube straight, longer than the calyx, surrounding at the base, internally, with a ring of hairs; throat pervious; limb orbicular, in five deep rounded segments. Stam. Filaments five, very short, inserted into the tube; anthers erect, ovate, concealed within the tube. Pfll. Germen superior, roundish, with four prominences; style capillary, the length of the filaments, stigma minute, slightly cloncy. Peric. none. Seeds four, ovate, hard, polished.

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 Lithospermum. (See that article.) The only mark of distinction is the hairy ring in the bottom of the tube, which surely is not sufficient. The form of the corolla is as much funnel-shaped as in that genus, and the seeds are acknowledged to be precisely the same. Michaux adds, (perhaps on account of the yellow flowers,) 'whether L. orientale of Linnaeus be not a Batschia?" We find no traces there of the hairy ring, nor was any such character detected by Mr. Bauer, when he made the drawing for Dr. Sibthorp's Fl. Graeca, t. 160. This circumstance does away the presumption of a generic difference here indicated by colour. The following are the only reputed species of Batschia.


Walter.

2. B. canescens. True Puccoon. Mich. n. 2. t. 14. Pursh n. 2. (Anchusa hirta; Mich. n. 19. A. virginiana; Linn. Sp. Pl. 191. A. floribus fparis, caule glabro; Cron. Virg. ed. 2. 24. Lithospermum virginianum, flore luteo dupliciti; Morit. fct. x. t. 28. f. 4.)—Downy and hoary. Leaves all oblanceolate. Calyx very short. Segments of the corolla entire. On dry sunny hills on a family soil, in Virginia, Tennessee, &c. perennial, flowering in June and July. Flowers of a deep golden-yellow. The root is covered with a red fulness, which is the true Puccoon of the Indians, and paints a beautiful red. Purf. 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 Siberian 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.

3. B. longiflora. Long-flowered Puccoon. Pursh n. 3. —“Downy and feto. Leaves linear. Calyx long and linear. Segments of the corolla notched; tube elongated.” —Found by Mr. Nuttall, on the banks of the Millouri. Perennial, flowering in July. Flowers yellow. Purf. We should premise that all these species belong rather to Lithospermum than to Anchusa, but we have only seen the second, communicate in a dried flake, from Pennsylvania, by the late Rev. Dr. Muhlenberg.

BATTAM, the Bahia of Strabo, in Geography, a town of Armenia, in the pachalic of Erzeroum, on the Euxine. This is a commercial place; and between it and Akifila are the towns of Ifchoetchelou, Gartziemie, Schwaghaewal, and Kuettajeac.

Vol. IV.

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, 1. ult. r. and in 1811 had 361 houses, and 2531 persons; 1232 being males, and 1299 females. BATTLE, Order of, Col. 6. 1. 19, to 1. 41. detl. BATZ. Add.—The florer at Augsburg is divided into 15 batazes, (or batzen,) or 20 kayfergrochen. A thaler, or rix-dollar, is worth 13 florin, 22½ batazes, or 90 creutzers. At Baffl, the thaler, or rix-dollar, is worth 3 livres, 27 good batazes, or 30 Swiss batazes; the florin, 15 good batazes, or 16½ Swiss batazes; the livre, 9 good batazes, or 10 Swiss dito. A good bataze is 4 creutzers; a Swiss bataze, 2 fous, or 3½ creutzers. At Bern, accounts are kept in livres of 20 fous, the sou of 12 deniers; also in livres, or francs, of 10 batazes, or 40 creutzers; and in crowns of 25 batazes, or 100 creutzers. A rix-dollar, or ecu blanc, is worth 30 batazes; a crown, 25 batazes; a florin, 15 batazes; a livre, or franc, 10 batazes; a pfund, 7½ batazes, or 15 fous; a bataze, 2 fous, or 4 creutzers.

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. Sibthorpe 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. 198. Ait. Hort. Kew. v. 3. 317. Salib. in Ann. of Bot. v. 1. 514. t. 10. —Cliffs and order, Poly-andria Digitata. Nat. Ord. Saxifrage Juf. Salib. Cono-nieves, Brown, Bot. of Terra Aulfr. 16.

Gen. Ch. Cal. Perianth 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, bursting at the summit. Pist. German superior, somewhat pyramidal, obtuse; styles two, thread-shaped, longer than the filaments, recurved; stigmas simple, obtuse. Peric. Capula roundish, tumid, somewhat compressed, with two short, divericated, pointed lobes, of two cells and two valves, bursting 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. Capula inflated, of two cells, with many seeds.

1. B. rubiesfola. Madder-leaved Bauera. Salib. as above. Ait. n. 1. (B. ruiboides; Andr. Repof. t. 198. Curt. Mag. t. 715. Venten. Malmaif. t. 96.) —Native of New South Wales. First discovered in that country by Sir Joseph Banks. We received specimens and seeds from Dr. White, among the first communications from the settlement there, and this beautiful shrub was raised by the late marchioness 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 fiddle, evergreen, widely spreading; leaflets three-quarters of an inch long, lanceolate, daintily ferrated, their ribs a little hairy beneath; their upper surface convex, of a deep shining green; under paler. Flowers axillary, on simple hairy flanks, longer than the leaves, a little drooping, scarcely an inch broad, of a beautiful rich rofe-colour, with yellow anthers, inodorous. The parts of the flower vary occasionally in number, from seven to nine or ten. The bractlets, 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, formosa, had been retained for a plant which so well deserves that appellation.

Another species is mentioned, by the name of B. humilis, 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 Erzeroum, 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 Karu Killefca 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 pacha of two tails, archbishop of Mardin. M. Kinner's Perfé.

BAYLA, the capital of Lus, a district of the Perlian empire, in the province of Mekran, and country of the ancient Orizat, is built on the N.E. bank of the river Poorsalee, and contains 1500 houses, and 6000 inhabitants, of whom 400 are Hindoos. 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.

BEAN-Goose. 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 Allas; and l. 19, dele affinit to the; l. 24, for 1760 r. 1761; l. 41, infert—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, infert.—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 curvy 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.

BEAUCAIRE, l. 7, dele The part of the Rhine is well constructed.

BEAVER, in Geography, a county of Pennsylvania, containing 12,168 inhabitants, in which are several towns 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.—Also, a township of Pennsylvania, in Northumberland county, having 502 inhabitants.—Also, a township of Crawford county, with 236 inhabitants.—Also, a township of Cambria county, in the district of Ohio, having 433 inhabitants.—Also, 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 KILL, a township of the district of Maine, in the county of Kennebec, containing 354 inhabitants.

BEAUFORT, in South Carolina, l. 4, r. 25,887, including 20,914 slaves.

BEAUFORT, (col. 2, after l. 14,) a county of North Carolina, containing 7204 inhabitants, of whom 2568, are slaves.

BEAUFORTIA, in Botany, a truly noble genus, consecrated, by Mr. Brown, to the memory of Mary duches of Beaufort, who died January 7th, 1714, in the 85th year of her age. Her grace cultivated a number of rare plants in the flowers 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 garden 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, Psalephodia Leofardia. Nat. Ord. Helpisides, Linn. Myrii, Jurf.

Gen. Ch. Col. Perianth half superior, of one leaf, turbinate; limb in five deep, awl-shaped, deciduous segments. Cor. Petals five, elliptical, sessile, inserted into the rim of the calyx, between its segments, and of equal length. Stam. Filaments very numerous, in five sets, inserted into the calyx, opposite to the petals, the claw of each set regular, hairy at the base internally, much longer than the petals, divided at the top into seven, eight, or more, capillary spreading segments about a quarter the length of the claw; anthers terminal, inserted by the base, of two divericated, conical, deciduous, single-celled lobes. Pet. Germen in the bottom of the calyx, small, roundish, hairy at the funnun; style thread-shaped, shorter than the stamens, variously 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. Stamens 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.

Obst. Many of the flowers are said to want the style. We are not clear, from the account of the author of this genus, whether more than one seed is perfect in each fruit. The capitula remain in maffes 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 anthers seem to afford the most essential character of Beaufortia, and distinguish 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-rubbed, crossing 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. Branches are angular. Flowers small, crowded, half or three-quarters of an inch long, recurved, smooth, rigid, entire, full of pellucid dots; paler beneath. Flowers in dense tufts, surrounding the branches here and there, most conspicuous for their copious spreading tufts of flamma, 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. florib. Alternate-leaved Beaufortia. Br. in Ait. n. 2.—Leaves scattered, elliptical, many-rubbed.—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 presume Mr. Brown's Prodromus, when completed, will make us acquainted with more species of this genus.

BEAUMARIS, col. 2, l. 9, for 1275 r. 125. 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 Shaftall in Shropshire, and born in 1760. Indicating at an early age peculiar talents, and dispelled to cultivate them by diligent
diligent application, he was destined for a learned profession. With this view, after the requisite previous education, he was entered, in the year 1776, 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
tertations, 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
tented to the public an analytical account of the writings of Mayow, well known for his early discoveries in the depart
tment of pneumatic chemistry. (See his article in the Cyclo
depedia.) 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 fylems which then prevailed with regard both to church and state, he found it expedient to resign his professorship in 1792. He was adverse, however, to that detestable spirit which blended itself in France with their struggles for liberty. Among other publications which issued from the press about this time, our limits will only allow the mention of his “Observ
tations on the Nature of Demonstrative Evidence, with Refle
ctions on Language,” intended to facilitate the study of geometry to youthful minds, by shewing, in opposition to the doctrine of the author of Hermes, that geometry is founded in experiment, and that its elements may be ren
dered palpable to the fentes. The most popular of his publica
tions 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 (abi infra) says, that if the au
tor had left no other monument of his ingenuity and benevolence, he would not have lived in vain. Without adventing to his other writings, we shall proceed to mention his pneumatic establishment in the vicinity of the Britol hot-wells, undertaken and for some time liberally supported for the purpose of curing diseafes by the judicious applica
tion of different kinds of faticitious air. For the con
cvenience of superintending this institution he resided at Clifton, and in 1794 formed a matrimonial connection with a lady of the jufly 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
tulced by persons in distant parts, who are paid to have derived great benefit from his precriptions. Although his pneumatic infituation failed with respect to the degree of lucness which he might augur, and proved of temporary duration, it Served to bring into notice the preifent for Hum
phry Davy, one of the most eminent philosophers of our time, whose talents, restricted in their exercise to a remote town in Cornwall, caufed 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 difafe in the chelf 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 poffefled kind and tender feelings; and in the relations of domelic and private life his conduct was unexceptionable. 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 4625 perfon; 2057 being males, and 2568 females.
BEDFORD, a township of America, &c. l. 2, for 898 r.
BEDFORD, in Middlesex county, &c. l. 2, for 523 r. 592.
BEDFORD, New. l. 2, for 3313 r. 5651.
BEDFORD, in New York, l. 2, for 2470 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-house and prison, a Pref
byterian church, an academy, and a small number of houfes.
BEDFORD, a county of Pennsylvania, l. 4, for 13,124,
including 46 fables, r. 15,766; fubfifing after 1795—it con
ains 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. 16,149, and for 2754 r. 6147.
BEDFORDSHIRE, col. 2, l. 8 and 9, r. The county, in 1811, contained 13,286 houfes, and 70,213 perfon;
33,171 being males, and 37,042 females; 9431 families em
ployed in agriculture, and 4155 in trade and manufactures.
BEDLIS, or BERTLIS, a large town, situated at the opening of the ftrongeft of the paffes in the road from Diar
bekir to Van and Tabriz. The river of Bedlis (the Cen
trites of Xenophon) is conducted by Haji Kalifa through the plain to the southward of Sahert, Sard or Sared (the ancient Tigranocerta). Bélis is one of the moft ancient cities of that part of the kingdom called Kurdítan; the cattle 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 confiderable portion of liberty, have four churches and four monaftries. The lands around Bélis are highly cultivated, and produce grain of several kinds, cotton, hemp, rice, olives, honey, truffles, and muftrooms. The neigh
bourhood abounds with game, and the mountains are infefed by lions, wolves, and bears. In the vicinity are quaries of red and white marble. See BERTLIS.
BEDMINSTER, a township of Bucks county, in Pennsylvamia, having 1190 inhabitants.
BEDR, a town of the Perijn empire, in the pachi
of Bagdad, 13 leagues from Mendel, and four from the foot of the mountains; is the frontier town, in this quarter, of the Turkif empire. It is surrounded with a number of fine gardens; but its districts are damp and marfhly, inter
pered 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, fee Ale.
BEERING”S STRAITS, l. 7, after Cook, infer—He
afterwards affered, that Cape Prince of Wales was the western extremity of the whole continent of America; and
another cape was obferved to the northward of this, lying
in lat. 69° 45', and long. 194° 51'. To this cape, captain Cook gave the name of Point Mulgrave.

BEES' BREAD. See PAIN DES ATELLES.

BEBA, a land measure in Bengal, equal to about the third part of an acre.

BEGARMEE, col. 2, l. 9, for matured r. weakened.

BEBHANAN, in Geography, the capital of the mountainous district of Khogloea, in the province of Fars, in the Persian empire, which district extends from the valley of Ram Hormuz to the vicinity of Kazeroon. The town is pleasantly situated in the middle of an extensive valley, three miles E. of the ruins of the ancient city of Aragian, which may be seen on the banks of the river Jerahi. It is the residence of a beglerbeg, who has a palace in the N.E. corner of the town. The walls are about three miles in circumference, and the population is said to amount to nearly 10,000 souls. The plain of Behbanan is of considerable extent, and highly cultivated. The rivers Tab and Jerahi flow through it. Behbanan is 153 miles from Shiraz, separated from it by a mountainous country, almost wholly uninhabited, and infested by banditti.

BEHRING. See BEERING.

BELCHER, l. 2, for 1485 r. 2270.

BELenus. See BEL-TEJN, and BELUS.

BELFAST, in America, l. 5 r. 1274. Add—Alto, a township of Bedford county, in Pennsylvania, having 758 inhabitants.

BELGRADE, in America, l. 2, for Lincoln r. Kennebec; adds—It contains 956 inhabitants.

BELINUS. See BELUS.

BEL, col. 4, l. 40, r. 7th; l. 42, r. 616.

BELIS, Electrical, l. 4, r. Plate V., fig. 38.

BELLEFONTE, a township of Centre county, in Pennsylvania, having 303 inhabitants.


1. B. montana. Mountain Bellenden.—The only species, found by Mr. Brown on the summits of mountains in the island of Van Diemen, but as yet unknown in our gardens. This is a perfectly smooth shrub. The leaves are scattered, flat; three-nerved at the extremity. Spike terminal, raceme. Flowers scattered, rarely in pairs. Corolla white, foar falling. Germen connected by a joint with its stalk. Seed-souffl in colour, furrowed along one edge. Brown. Theification of the flaments into the receptacle, and not into the petals, is an unique influence in this natural order.

BELLMINGHAM, in America, l. 2, for 735 r. 766.

BELMONT, in Geography, a county of the district of Ohio, containing 11,097 inhabitants.

BELPRE, a township of Ohio, in the county of Washington, having 494 inhabitants.

BELVEDIER, a town of Vermont, in Franklin county, having 217 inhabitants.

BELV BEGUE. See BOGUE, BELV.

BEMINSTER, l. 32, r. the town and parish contain

445 houses, and 2290 persons; 1077 being males, and 1213 females.

BEMOL, l. 11, for F r. G; and for G r. B b. —l. 15, for Feyton r. Feyton.

BENDER-ABRAHS. See CAMBRON.

BENDER-DELEM, or Bender-Delem. Add—This is a small town, containing about 700 inhabitants, who trade with the merchants of Bahrein and Buffora.

BENDER-RIG, or Bender-Reig, (the port of Sand,) a city of Peria, in the province of Fars, or Faribian, (according to McKinno,) 32 miles N.W. of Bushire or Butheer.

BENEDICT, abbots of Peterborough, &c. l. 5, r. Richard I.

BENIN, l. 8, r. Ardrah.

BENNET, col. 1, l. alt. for 1696 r. 1646 or 1656.

BENNINGTON, l. 6, for 12,254 r. 15,983, and dele 16 flaves.

BENNINGTON, l. alt. for 2400 r. 2524.

BENSALUN, in Geography, a township of Bucks county, in Pennsylvania, having 1434 inhabitants.

BENSON, or BENNINGTON, a village of Oxfordshire, on the road between Henley and Oxford. The parish contains 183 houses, and 825 persons; 414 being males, and 411 females.

BENTON, l. 4, for 698 r. 1561.

BENTOT. See CULTURA.

BER. See BOELE-COMBA.

BERARDI, l. 8, for Orcani, &c. r. Arcani Muscula Dialogo, &c.

BERBERIDES, in Botany, the 78th natural order of Jussiff’s system; the 18th of his 15th class: for whose characters, see GERANIA. This order is defined as follows.

Calyx of a determinate number of leaves, or deep seg- ments. Petals definite also, agreeing in number with the divisions of the calyx, and often opposite to them; sometimes simple; sometimes charged at the base with an inner petal. Stamens definite, as many as the petals, and opposite to them; anthers fixed, burting by a valve from the base upwards. Germin simple; style solitary or wanting; stigma often simple. Berry or capsule of one cell, often with several seeds, inserted into its base. Corollum decid- ing, flat, surrounded by a fleshy albumen. Stem either thorny or herbaceous. Leaves generally alternate, with flipulas, or more frequently without, simple or compound.

The genera are, Berberis, Leontice, Epimedium; with Rinorea and Conoria, two shrubs in Aublet’s work, little known. To these are subjoined the following, as related to the order in question, viz. Riana of Aublet; Corynocarpus of Forster, and Linn. Suppl.; Paragisstreus of Aublet, which is Bazzera of Schrebier’s Gen. 179; Hamamete of Linnæus; Othera of Thunberg; and Rapania of Aublet. These genera, says Jussiff, are in some of their characters akin, in others foreign, to the Berberides.

BERGEN, a county of America, &c. l. 9, for 12,601 r. 16,603; and for 2401 r. 2180.

BERG. Subjoin—Their number is 2690, of whom 390 are flaves.

BERGMANITE. See MINERALOGY, Addeado.

BERKELEY, col. 5 l. 52, to him, infert—the lefion in the bircher-service, taken from 1 Cor. xv.; and he was com- menting upon it, &c. Col. 6, l. 43, generally, infert—but not truly.

BERKHEYA, in Botany, (Berkheya is an error,) a genus of compound flowers, suitly dedicated to the honour of Dr. John le France van Berkhey, whose inaugural dis- dertation, published at Leyden, in 1760, is an elaborate and ample illustration of this difficult tribe, accompanied by es-

Gen. Ch. corrected by Mr. Brown. Common *Calyx* of one leaf, clothed with many lanceolate, imbricated leaves, with spinous teeth, and spreading points; the lower ones short-tubular, compound, radiant. Florets of the disk numerous, perfect, tubular, funnel-shaped, deeply five-leafed, glandular below; of the radius fewer, ligulate, lanceolate, four-toothed; glandular below, imperfect. *Stam.* in the florets of the disk, bilocular, with filaments very short; anthers forming a tube with five teeth; in thofe of the radius the anthers are short and incomplete. *Pist.* in the florets of the disk, Gemen turbinate, short, hairy; style thread-shaped, longer than the stamens; stigmas two, revolute; in thofe of the radius, Gemen small, with hardly any style, and no stigmas. *Peric.* none, except the permanent calyx. Seeds of the disk foliarly, turbinate, hairy, crowned with from ten to fifteen chaffy, lanceolate, finely ferrated, or fringed, scales; of the radius none. *Recept.* 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 compose 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, Atracytis,* or even *Xeranthemum.* None has yet appeared in any of our English periodical works. We select a few examples.


* B. obtusata.* Smooth Shrubby Berkheya. Wildl. n. 2. Ait. n. 2. (*Gorteria spinosa;* Linn. Suppl. 381. "Bat-teria aculeata;" Houit. Nat. Hift. v. 6. 158. t. 34. f. 2.) *Arr.*—Leaves alternate, wedge-shaped-lanceolate, spinous-toothed, smooth on both sides. *Calyx*-scales with spinous 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.


* B. cynaroides.* Artichoke Berkheya. Willd. n. 19. Ait. n. 1. (Rohria cynaroides; Thunn. Prodr. 140.) *Gorteria herbacea;* Linn. Suppl. 381.—Stem-leaves alternate, clafping, fringed with prickles; radical ones elongated, entire, unarmed; downy beneath. *Calyx*-scales ovate, frail, spinous, nearly entire.—Sent to Kew, from the Cape, in 1789, by Mr. Maffon. The *flam* are herbaceous, a foot or more in height, angular, nearly smooth. *Leaves* rigid, or drooping, but not entire; *calyx* ovate, smooth, fringed, or ferrated, three or four inches long, tapering at the base. *Calyx* ovate, smooth, fringed, or ferrated, three or four inches long, tapering at the base. *Calyx* ovate, smooth, fringed, or ferrated, three or four inches long, tapering at the base. *Calyx* ovate, smooth, fringed, or ferrated, three or four inches long, tapering at the base. *Calyx* ovate, smooth, fringed, or ferrated, three or four inches long, tapering at the base.


BERKLEY, in Virginia, l. 5, r. 11,497, of whom 1529 are flaves.

BERKLEY, in Massachusetts, r. 1,014.

BERKLEY, col. 3, l. 16, for township r. parish; for 90 r. 124; and for 659 r. 616, 296 being males, and 320 females. l. 18, infer after act, in 1811; for 3490 r. 3608; for 9148 r. 10,144; for 10,074 r. 11,248. Add—1711 families employed in agriculture, and 2215 in trade and manufactures; and for 19,242 in r. 21, 21,362.

BERKS, l. 9, r. 13,466, of whom four are flaves.

BERKSHIRE, in Massachusetts, l. 6, r. 35,907.

BERKSHIRE. After Vermont, add—containing 918 inhabitants.

BERKSHIRE, col. 2, l. 20, r. This county contains 22,104 houles, and 118,597 persons; 57,480 being males, and 60,917 females; 13,409 families employed in agriculture, and 7584 in trade and manufactures.

BERKSHIRE, a township of Delaware county, in the district of Ohio, containing 284 inhabitants.

BERLIN, in Vermont, for 134 r. 1997.—In Con-necticut, add—the number of inhabitants, in 1810, was 2798.—In Worcester county, for 512 r. 591.—In So-merfield county, infert—the number of inhabitants, in 1810, was 330.

BERNACCHI, l. 13, r. when he was past his meridian.

BERNARD, ST., a parish of the territory of Orleans, in the county of Orleans, containing 1020 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.

BERNARDIA, in *Botany,* to name by professor Wildenow, in honour of Dr. John James Bernhardi, 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. Pursh 655. (See *Psilotum,* under which name we have treated of this genus in due order.) We know not whether any other genus be already dedicated to Dr. Bernhardi, but it is to be pre-sumed that this act of justice will not long be delayed.

BERTLE, l. 5, r. 11,218; l. 6, r. 659.

Berville, l. 1, r. The burghe and parish contain 193 3 C. 421.
houses, and 927 persons; 415 being males, and 512 females.

BERWICK, North. Add—The burgh and parish contain 208 houses, and 1727 persons; 759 being males, and 968 females.

BERWICK, col. 3, l. 26, infert—in cruces. Add—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 17990 inhabitants.

BERWICK, in Maine, l. 2, r. 1455 for 3894.

BESANCON, l. 2 and 3, r. capital of Franche Compte, now of the department, &c.

BESANT, l. nd. r. under Henry.

BESITTOON, a long range of barren mountains, in the province of Irak, in the Persian empire, bounding the plain of Kermanshaw 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 fittoon, 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 apers.

BESSARABIA, col. 2, l. 9, for south-east r. south-west.

BESTIAN, or BOSTANA, a cape of Laritfan, in Persia, which forms one of the most secure roadsteads in the gulf of Persia, at the town of Moguo. The extremity is about N. lat. 26° 30′, bearing from Polbor N.N.E. 3°, and W, from the S. end of Khima. Shinaaz and Botaana are small towns that lie between Lunga and Cape Boitaana.

BETHEL, 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 1093 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. 15, r. 1738; l. 15, add—having 1118 inhabitants; l. 26, add—but by the census of 1810, they are listed to be 1436.

BETHLEHEM, E. and W., two townships of Pennsylvania, in Washington county; the former has 1826, and the latter 1849 inhabitants.

BETLIS. Subjoin—See BEDLIS.


BEVERLEY, l. ult. In 1811, the borough and liberties of Beverley contained 1457 houses, and 6731 persons; 3024 being males, and 3707 females.

BEVERLEY, l. 5, r. 4608.

BEVERSTONE, l. 7, r. Edward.

BEWCASTLE. Add—The township contains 35 houses, and 198 persons; 103 being males, and 95 females.

BEWDLEY, l. ult. r. The borough contained, in 1811, 632 houses, and 3454 persons; 1583 being males, and 1871 females.

BEZOZZI, col. 2, l. 8, r. The eldest, &c.; l. 12, composition; l. 26, do.; l. 27, for the r. their, after delicacy, infert—there was; l. 40, infert—a labour exquisite in performance.

BIBIEN, FERDINANDO-GALLI, l. 12, r. Alexander; l. 14, r. generofi.

BIBLES, LATIN. See ITALIAN VERSION.

BICE. Add—See CAST.

BIDDEFORD, in America, l. 5, r. 1563.

BIDDEFORD, col. 3, l. 2, r. 634 houses, and 3244 persons; 1415 being males, and 1829 females.

BIGNELVIA, in Botany, a genus which we here dedicate to our highly intelligent and scientific correspondent, Jacob Bigelow, M.D. of Boston in New England, Rumford professor of Materia Medica and Botany in Harvard university, author of the Florula Bozianera, published in 1814; and of the American Medical Botany, with coloured plates, now publishing periodically; works which, we are confident, will be but 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 indistinct 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 Boreal.-Am. v. 2. 223. Browne Jan. 561, but not of Linnaeus.)—Clafs and order, Diactia Dianthera. Nat. Ord. Spermato, Linna. J. f. M. Cluff.


Female, on a separate plant. Col. Perianth in four deep, oblong, slightly spreading, deciduous segments; two opposite ones very minute, and sometimes wanting. Cor. none. Pilt. German superior, roundish-ovate, of two cells: style short, cylindrical, thickish; stigma capitate, depressed, obliquely crenate. Peric. Berry oval-oblong, of one cell, its internal surface cartilaginous and rugged. Seed almost always solitary, oblong, tapering at each end, furrowed and ribbed longitudinally, with a membranous skin; its embryo straight, in a horny albumen.

Eff. Ch. Male; Calyx deeply four-cleft. Corolla none. Stamens two or three.

Female. Calyx deeply four-cleft; two opposite segments smallest. Corolla none. Stigma capitate. Berry with one seed.

Ophi. The description of Michaux, and his hint of the affinity of this genus to Chionanthus, have helped us to form, we truth, a correct idea of its characters. Wildenow had seen specimens of Browne's Adelia, and he probably had the function of the able M. Richard for uniting it with that of Michaux, the latter having already so 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, bracted, flowers. The fruit is probably not eatable.

1. B. caffinoides. Elliptical Bigelovia. (Borya caffinoides; Willd. n. 1. Adelia n. 1; Browne Jam. 361. t. 36. f. 3.)—Leaves flattened, oblongate, obtuse, coriaceous, revolute; reticulated with veins beneath.—Native of the W. 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. porulosa. Pierced Bigelovia. (Borya porulosa; Willd. n. 2. Pursh n. 1. Ait. n. 1. Adelia porulosa; Mich. Bor.-Amer. v. 2. 224.)—Leaves flexible, oblong-lanceolate, obtuse, coriaceous, revolute; dotted beneath. —On the coasts of Georgia and Florida. The leaves are rusty, and as if pierced with little dots, beneath. Michaux.
3. B. liguliflora. Prick-leaved Bigelovia. (Borya liguliflora; Willd. n. 3. Pursh n. 2. Ait. n. 3. Adelia liguliflora; Mich. Bor.-Amer. v. 2. 224.)—Leaves oblong-lanceolate, somewhats membranous, entire, on short stalks. Berry roundish-ovate.—Native of thickets and woods along rivers, in the countries of the Illinois, Tennessee, &c. flowering in July and August. This has the habit and foliage of our Privet. Michaux.
4. B. acuminata. Pointed Bigelovia. (Borya acuminata; Willd. n. 4. Pursh n. 3. Ait. n. 3. Adelia acuminata; Mich. Bor.-Amer. v. 2. 225. t. 48.)—Leaves ovato-lanceolate, membranous, flaked, 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 flexible tufts, encompassed with several ovate bracteae; female ones flaked, very small. Berries pendulous, elliptic-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 porulosa in 1826, the two others in 1812. They are hardy shrubs, but do not appear to have yet flowered.

BIGNONIA, the 45th order in Jussieu's flora; the 12th of his 8th class, whose characters are given at Gentianae. 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 feed-bearing partition opposite or parallel to the valves, and separable therefrom: sometimes coriaceous or woody, bursling at the top only, with but few seeds, the feed-bearing partition a continuation of the valves, not separable, and often ending out a flight wing, dividing each cell into two. Coriaceous, two, often. Stem herbaceous, shrubby, or arboreous. Leaves opposite, rarely alternate.

Sec. 1. Fruit capular, bivalve. Stem herbaceous. Clove and Sassafras, with Jussieu's Incavella, Lamarck. Illusr. t. 527, compose this section.

Sec. 2. Fruit capular, bivalve. Stem arboreous or shrubby. Millingtonia of Linnaeus; Jucarand, Catalpa, and Tecom of Juff. with Bignonia of Linnaeus.

Sec. 3. Fruit coriaceous, almost woody, opening at the top. Stem herbaceous. Tourretia of Dombey and Juff. ; Martynia, Cramiaria, and Pedalium of Linnaeus.

Mr. Brown, Prodr. Nov. Holl. v. 1. 475, retains the second section only, under the name of Bignoniaceae, to which he adds the genus SPATHODEA. See that article.

BIGONICA, in Cronwisses, a liquid measure in Venice. See AMPHORA.

BILE, Chemical properties of. Bile has been lately denied by Berzelius to contain a refruous or adipocorous matter, as had been maintained by former chemists. The substance peculiar to bile, or, as it is denominated by him, the biliary principle, has an exceedingly bitter taste, followed by some sweetish. 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 not in the least promoted by the alkali of the bile, since when the alkali is neutralized by any acid, the peculiar matter does not separate. It likewise diffuses 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 the 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 refins, since it poisons the external characters of a refins, melts when heated, diffuses in alcohol, and is again partly precipitated by water. The alcaliee, alcaline earths, and alcaline acetates, decompose and diffuse 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 poissified 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 six hours, and afterwards decant the fluid part, and thoroughly wash the green mass left. This green refrinous-like mass reddens litmus, 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 insoluble in ether, which converts it into an adipocorous 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>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>967.4</td>
</tr>
<tr>
<td>Biliary principle</td>
<td></td>
</tr>
<tr>
<td>Mucus of the gall-bladder, &amp;c. dissolved in</td>
<td>80.0</td>
</tr>
<tr>
<td>the bile</td>
<td>3.0</td>
</tr>
<tr>
<td>Alkalies and salts, common to all secreted fluids</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
</tr>
</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 la Billardiere, (or, as it is now written, Labillardiere,) M.D. author of Icones Plantarum Syriae Rarioeum, the fruits of his journey to the Levant, in 1786; and since much better known by his valuable Novæ Hollandiae Plantarum Specimen, in two volumes folio, with many plates. An account of his voyage to New Holland, in search of the unfortunate Lapeyrouse, contains...
contains also much botanical matter, and has been published in English, at London, in 1802, with plates. M. Labillardiere has also distinguished himself as a classical botanist, of the Linnaean school, preferring the interests of science to those of system, and following no leader but what he conceives to be the truth.—Smith Bot. of New Holl. 1. Labill. Nov. Holl. v. t. 64. Willd. Sp. Pl. v. t. 1150. Ait. Hort. Kew. v. 2. 39.—Clafs and order, Pentandria Monogynia. Nat. Ord. uncertain. Akin to Pâteporum, and therefore to the Rhamni of Jussieu, as they stand at present. Salsify.

Gen. Ch. Cal. Perianth inferior, of five lanceolate, 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, burling lengthwise, internally. Fil. Germen superior, elliptic-oblong; style awl-shaped, the length of the flamen; stigma obtuse. Pedio. Berry roundish-oblong, of two cells. Sèeds 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 fibrous, with scattered, simple, undivided, nearly entire, more or less downy, leaves, on short footstalks. Flowers and fruit pendulous, on terminal stalks.

1. B. scandens. Climbing Billardiera, or Apple-berry. Sm. Bot. of New Holl. t. 1. Wildl. Sp. Pl. v. t. 801. Calyx-lanceolate. Berry cyllindric, 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 feeds, or plants, to Kew, in 1750, and we have since seen flowers and ripe fruit in many conservatories. A low fibrous, with various twisted and climbing branches. Leaves an inch and a half or two inches long, elliptic-oblong, of a dull but not dark green; paler and matt downy beneath; their edges somewhat wavy and reflexed, scarcely notched. Flowers on hairy stalks, pale lemon-coloured, an inch long, with a hairy yellowish calyx. Germen 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 insipid in this country, though famed, 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 contral the only known species of a genus, with all that may hereafter be found, and it happens that all the Billardiera are chimers. The appellation above, therefore, serves to throw the present to have been the originally described species. There are several such instances in the history of Linnean genera, nor would it be allowable to alter the original specific name on this account.

2. B. multibr. Changeable-flowered Billardiera. Salsify. Parad. t. 48. Ait. n. 2. Curt. Mag. t. 1313. Leaves linear-lanceolate. Berry cyllindric, 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 germen and fruit are said to be always smooth, the form of the latter agreeing with B. scandens. Flowerstalks smooth.

3. B. sulphurea. Spindle-shaped Billardiera. Labill. Nov. Holl. v. t. 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 flamen is generally climbing. Leaves somewhat hairy, larger than in the last. Flowers from two to fix 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. Anthers converging. Berry small and tapering, of a membranous texture, silky, delusive of pulp.

4. B. longiflora. Blue-berried Billardiera. Labill. Nov. Holl. v. t. 64. t. 89. Curt. Mag. t. 1507. Ait. Epit. 564. Leaves lanceolate. Petals converging. Berry nearly globular, lobed, smooth.—Native of the same country as the last. Raised here by Meffrs. Lodigis. The flowers are solitary, pale yellow, longer and more tubular than in any of the rest. 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-Bill.

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, Virtutalising. See Navy and Virtuallising Bills.

BILLYMEAD, a town of Vermont, in the county of Caledonia, containing 433 inhabitants.

BILSTON, l. ult. for 1305 r. 1818; and for 6914 r. 9646.

BILSTON, l. ult. for 121 r. 110; and for 744 r. 762.

BIR. Add.—According to M. d'Anville this place represents the ancient Birtha. 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 130 yards broad.

BIRDS, Anatomy of. The references to the plates to be expunged. Col. 7, l. 33, after another, insert—a good instance of which is found in, &c. ending heron; l. 35, r. The bulbus in the orbiculus is a long narrow band lying on the front of the flomach. The structure, &c.; l. 53, dele like other, &c. to secretion. Col. 9, l. 34, for superficial view r. flight examination. Col. 11, l. 20, after intelle of dele to ventricle, l. 34; and infect.—If the cavity of the flomach in the heron be diffused with any transparent fluid and held up to the light, the zone of galenic glands will be plainly seen through its coats. If Spallanziani had employed this expedient, he could not have denied a distinct glandular structure to the heron. The inferior part of the flomach is chiefly composed of muscular fibres, spreading in a radiated manner from a lateral aponeurosis, which supplies the place of the great tendons of the digastric muscle. The second cavity or flomach in the heron is a small round bag, furnished only with circular muscular fibres; l. 35, for straight r. contracted. Col. 13, l. 14, dele to 5; 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, infect—some of. Col. 19, l. 25 from the bottom, infect after by—one of the ablêt.
ablest chemists, &c. Col. 20, l. 26 from the bottom, dele as in mammalia, &c. Col. 31, l. 22 from the bottom, dele bronchitis, &c., to cells, and infert—and the branches of the air-tubes. Col. 32, l. 28, for the, *facs.* Col. 35, l. 11, for of r. off. Col. 36, l. 7 from the bottom, r. like the air contained in the swimming bladder of fishes, with respect to the water. Col. 47, l. 17, r. quadrupeds. The trunk, &c. Col. 51, l. 13 from the bottom, dele from urine to the end of the paragraph.

BIRD, in Geography, a township of Adams county, in the district of Ohio, containing 1442 inhabitants.

BIRMINGHAM. Add—In 1811, the town of Birmingham contained 16,653 houses, and 85,755 persons; 46,518 being males, and 45,235 females. 589 families employed in agriculture, and 17,294 in trade and manufactures.

BIRMINGHAM, a township of Delaware county, in Pennsylvania, having 586 inhabitants.—Also, a township in Chester county, of the same state, having 200 inhabitants.

BISHOP'S CASTLE, l. ult. r. The borough, in 1811, contained 288 houses, and 1367 persons; 651 being males, and 716 females.

BISHOP'S STORTFORD, col. 2, l. 36, r. The parish contains 479 houses, and 2630 persons; 1255 being males, and 1375 females.

BISLEY, l. ult. for 922 r. 1022; and for 4227 r. 4752.

BISMUTH, in Chemistry. There seems to be but one oxyd of this metal. What was formerly termed the magisfery of bismuth, and confidered as a peroxys, has been demonstrated by Bucholz to be a compound of the oxyd of bismuth and nitric acid.

Dr. Thomson has determined 88.75 to be the combining weight or weight of the atom of bismuth. According to this determination, the oxyd of bismuth will confift of

Bismuth 100

Oxygen 1112672

per cent. of 189.87

of 16.13

From the above number, and from the known weights of the different acids, the composition of all the falls of bismuth can be accurately ascertained. See PROPORTIONS, Definite, and Atomic Theory, Addenda.

BISON, in Zoology. See Bos and Ursus.

Bissippi, infert.—See SUMNUM and SMARTUS.

BISTINEAU, in Geography, a lake of Louisiana, formed by the agency of Red river, which has raised a bank of earth and sand across the lower extremity of a valley that serves to confine the waters between the hills at all seasons, and to produce this lake. The land along its banks rises into hills from 100 to 200 feet of elevation, clothed with pine, oak, and various other trees, that afford agreeable prospects. The eastern range, more broken than the western, abounds more with petrifications; and along the margin of the water, are found the white-thorn, hawthorn, and other dwarf trees, which form an elegant natural border. Many small prairies, eight or ten acres in extent, spread themselves over the projecting banks, and diversify this wild, uncultivated, but romantic scene. This lake furnishes evidence of the continual change effected in these alluvial regions, by the flow but unceasing action of water. The average depth of the water is from fifteen to twenty feet; and in the deep part of the lake presents to view cypresses-trees of various sizes that are dead, and the remains of which, refiting the action of air and water, attest the ancient situation of the country. Darby's Louisiana.

BIT, in Commerce. Add—1 bit being worth 5½ flettling, as 10 bits and 5d. currency make a dollar.

BITTER PRINCIPLE, Natural and Artificial, in Chemistry. This name has been given by chemists, and especially by Dr. Thomson, to different principles, extracted from various vegetables, particularly from quassia, cocculus indicus, ficubis, and some others. Though the characteristic property of these substances be their bitter taste, yet this appears to be almost the only particular in which they all agree. The bitter principle of quassia, according to Dr. Thomson, is of a brownish-yellow colour, somewhat transparent, of an intensely bitter taste, soluble in water and alcohol, has no effect on vegetable blues, and is little affected by re-agents; the nitrate of silver, and acetate of lead, being the only ones that precipitate it from its solution. It may be obtained by digelling quassia for some time in water, and evaporating the solution formed to dryness.

The bitter principles extracted from colosyn, bronbia alba, and from wheat-flour, seem to possess properties analogous to the above. The bitter principle from cocculus indicus, which has been named Picrotoxin, is described under that article.

The bitter principle of ficubis is white and transparent. It is soluble in water and alcohol, and rapidly attracts moisture from the atmosphere. Its taste is intensely bitter; though it usually retains a little from marine matter with great oblivignty. It was obtained by Vogel by evaporating the juice to dryness, and heating it with alcohol; the tannin taken up by the alcohol was separated by the acetate of lead, and thus the bitter principle, obtained in the state above described, combined with a little sugar, from which it was found impossible to entirely free it. The bitter principle of coffee principally differs from the preceding by the property it possesses of striking a green colour with iron, and of precipitating that metal from concentrated solutions.

According to the experiments of Bouillon la Grange, a sub stance not much unlike the above exists in the flowers of the arnica montana, obfinthum vulgare, juniperus sabina, ruta graveolens, anthemia nobilis, and achillea millefolium.

The artificial bitter principle seems to have been first formed by Hauflinian from indigo, though he millock its nature. Wecker afterwards obtained it from blue, ascertained its properties, and gave it the name of yellow bitter principle. It was afterwards obtained by Bartholdi from the white willow. Mr. Hatchett formed it, during his experiments upon artificial tannin, by heating indigo with nitric acid; and about the same time Courcy and Vanquelin procured it by the same means, and examined its properties. M. Chevreul supposes it to be a compound of nitric acid and a vegetable sub stance, probably of an oily nature. Its colour is deep yellow, and its taste intensely bitter. It is soluble in water and alcohol. It crystallizes in elongated plates, and possesses many of the properties of an acid, combining with alkaline substances, and forming crystallizable salts possessing peculiar properties.

The artificial tannin itself is by some chemists considered as little better than a variety of the bitter principle. See TANNIN, Artificial.

BITTERN. See WAtEr.

BITUMINOUS Marble Slates. See MINERALOGY, Addenda.

BIVOUACK, Bhouac, or Bigvac, Fr. formed from the German um-wach, a double watch or guard, denotes a night-guard, or a detachment of the whole army, which, during a siege, or in the presence of an enemy, marches out every night in squadrons or battalions, to line the circumvallations, or to take post in front of the camp, for
BLATTA, l. 1017

and anthers nor inferted

George duke of Marlborough, at that time marquis of Blandford, an honorary member of the Linnaean Society, and one of the mott ardent botanists and cultivators that this country ever policed 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 be more distinct, few more beautiful.—Sm. Exot. Bot. v. 1. 5.


Gen. Ch. Cal. none. Cor. of one petal, inferior, tubular, straight, with fix marginal lobes, regular, withering. Stem. Filaments fix, thread-shaped, inserted into the middle of the tube, decorator, shorter than the limb; anthers ovate, two-lobed, incumbent, attached by a hood at the base. Pfl. German superior, falked, oblong, with three angles, and three intermediate furrows; style vertical, awl-shaped; stigma simple. Peric. Capsule falked, prismatic, of three cells, burfting at their inner angles. Seeds numerous, oval, fent along the margins of each cell, imbricated, clothed with dense ftraily hairs.


B. grandiflora. Large-flowered Blandfordia. Br. n. 2. (Altesia punicea; Labill. Nov. Holl. v. 1. 85. t. 111.)—Brae teas nearly as long as the partial falks 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 fearly have thought the latter could be diftinguished even from B. nobilis.

Blandfordia cordata, Andr. Repof. t. 343. See Galax.

BLATTA, col. 2, l. 29, after gigantea, add—called in the Wilt Indies drummer, from the noise it makes, like a fmart knocking with the knockle upon the wainscot; l. 36, dele which fce repectively.

BLAYNEY, Benjamin, D.D. in Biography, an eminent Hebrew fcholar and critic, was educated at Oxford, and graduated M.A. in 1753, at Worecefter 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 proffor of Hebrew. As a Scripture commentator and translator, he acquired very con- siderable reputation. The publications by which he was diftinguished were, "A Difertation on Daniel's Prophecy of Seventy Weeks," &c. 1775. 4to.; "A New Translation of
BLEACHING, col. 10, l. 19, r. For an account of the progress of discoveries in the new method of bleaching by the oxygenated mariaic acid, see Oxysmurtic Acid Gas.

BLEACHINGLEY, col. 2, l. 11, r. By the returns in 1811, the borough and parish contained 184 houses, and 1116 persons; 575 being males, and 541 females.


These characters exclude Jussieu's B. anisophyllum, which, with Ruellia imbricata of Forckloll, and several East Indian as well as tropical African species, compose Mr. Brown's new genus of Aistolema, as yet, we believe, merely indicated in his Prose. Nov. Holl. v. 1, 478. The following are the only species of Blechnum there mentioned.


BLETIA, so named by the authors of the Flora Peruviana, after Louis Blet, a Spanish apothecary, whose botanical merits ought to be very great, to entitle him to so fine, if really distinct, a genus. — "Ruiz et Pavon Prodr. 119." Brown in Ait. Hort. Kew. v. 5. 265. (Phaius; Loureir. Cochinch. 529.)—Clais and order, Gynandra Monandra. Nat. Ord. Orchidceae.

Eff. Ch. Calyx and petals distinct. Lip fimbriate, hooded. Style unconnected. Anther a terminal deciduous lid. Males of pollen eight or four, two-lobed.


2. B. versicula. Tall Bletia. Ait. n. 2. (Cymbidium versiculum; Willd. Sp. Pl. v. 4. 105. Limodorum altum; Jacq. l. Rar. t. 602. Curt. Mag. t. 930.)—Petals converging. Lip without a spur; the ribs of its disk brichted; middle lobe broader than long; lateral ones contracted upwards. Stalk more or less branched.—Native of the West Indies, long known in our foues. Stalk three feet high, with spreading branches. Flowers crimson, an inch broad. Petals forming a hood over the styles. Furrows of the lip yellow.

3. B. floridu. Purple Bletia. Ait. n. 2. (Cymbidium floridum; Salib. Prodr. 9. Limodorum purpureum; Redout. Liliac. t. 83.)—Petals spreading. Lip without a spur; the ribs of its disk simple; middle lobe somewhat wedge-shaped; lateral ones dilated at the summit. Stalk somewhat branched.—Native of the warmest parts of the West Indies. Twelve or eighteen inches high. Flowers larger than the leaf, with more oblong, and more uniform, petals and calyx-leaves. Disk of the lip yellow.


5. B. capitata. Capitate Bletia. Ait. n. 5. — "Lip without a spur; callos internally near the base. Stem leafy. Flowers capitate."—Native of the West Indies, from whence it was procured by Dr Joseph Banks, in 1795. In flowers in the rose in June and July. We have seen no specimen nor figure.

Besides these garden species, and the original Peruvian ones, whatever they may be, there are doubtless several remaining latent in every good herbarium. We have some Nepaul Orchidceae from Dr. Buchanan, which may probably be referable to this genus.

BLETERIERE, l. 21, after Guyon, add.—He also edited Macler's Hebrew Grammar, vindicating his method in his "Vindicia Methodi Maclerianus," annexed to his edition of the Grammar in 1731.

BLIGHTIA, in Botany, so named in honour of admiral William Bligh, whose services rendered to botanical science, in the transportation of rare plants from remote countries, have procured him this compliment, in common with the great Captain Cook. — König in Ann. of Bot. v. 2. 369. Ait. Hort. Kew. v. 2. 350.—Clais and order, Olidnandra Monogynia. Nat. Ord. Trisholate, Linn. Sapindi, Juss.


1. B. sapida. Akee-tree. Ait. n. 1. König as above, 571. t. 16, 17. (Akee; Broughton Hort. Ealt. 1792. 10. "Akeia africana; Tussac Antill. 66. t. 3").—Native of Africa, between the tropics, from whence it was transported to the West Indies in 1788. The fleshy tunic, or support, of the seed is said to be a delicate article of cookery, resembling the white flesh of a chicken or frog, like which it serves to make fricassées for West Indian epicsion. The tree
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 flaments, others an abortive germen. Nebthya a glandular notched ring, surrounding the base of the germen or its rudiment. Cappule elliptic-oblong, three-lobed, fleshy, variegated with red and yellow, about the size of a goose egg. Seeds globular, as big as cherries, dark brown, polished, each half funk in a white, turbinate, lobed and corru-gated tunica, of the substance of firm fruit, larger than the feed, and attached laterally to the central partition of each valve.

BLIGHT, l. 25, add—See Aphids.

BLISTERS, Fluid of, in Chemistry. See Fluids, Animal. 

BLOOD, Chemical Properties of. The chemical properties of the blood have been lately investigated with considerable success by Drs. Marcet and Berzelius, 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 given as erroneous by Dr. Boitock in this country, and about the same time by Berzelius in Sweden. The principle formerly termed gelatine has been variously represented and named by different chemists. Thus Dr. Boitock 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 mucous-extractive matter, Dr. Pearson an animal oxid; the French chemists ozma, ozmae, &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 confided of a yellowish yellowish gelatinous mass, resembling amber. Of this mass, says he, "I digested 10 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 earthy phosphate by subsequent 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 mass, weighing .92 grammes. This confided of fda holding albumen in solution, of muriate of fda and muriate of potash, of lactate of fda, 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 sure 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 gelatinize, and did not contain the smallest quantity of gelatine. Besides the alkali, it contained an animal matter, easily precipitated by tannin and by oxy-muriate of mercury, and which appeared to me to be extracted from the albumen by boiling the water, and to be analogous to the subfiance obtained by boiling fibrin in water." See Fibrin.

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>Grammes</th>
</tr>
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<tbody>
<tr>
<td>Water</td>
<td>905.0</td>
</tr>
<tr>
<td>Albumen</td>
<td>86.8</td>
</tr>
<tr>
<td>Muriate of potash and fda</td>
<td>6.6</td>
</tr>
<tr>
<td>Muco-extractive matter</td>
<td>4.0</td>
</tr>
<tr>
<td>Sodium carbonate of fda</td>
<td>1.65</td>
</tr>
<tr>
<td>Sulphate of potash</td>
<td>.35</td>
</tr>
<tr>
<td>Earthy phosphates</td>
<td>.60</td>
</tr>
</tbody>
</table>

One thousand parts of the serum of human blood consist of

According to Berzelius:

<table>
<thead>
<tr>
<th>Substance</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>905.0</td>
</tr>
<tr>
<td>Albumen</td>
<td>86.8</td>
</tr>
<tr>
<td>Muriate of potash and fda</td>
<td>6.6</td>
</tr>
<tr>
<td>Lactate of fda and animal matter</td>
<td>4.1</td>
</tr>
<tr>
<td>Substances soluble in water, viz. fda phospate of fda, and a little animal matter</td>
<td>9.9</td>
</tr>
</tbody>
</table>

According to Marcet:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Grammes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>905.0</td>
</tr>
<tr>
<td>Albumen</td>
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</tr>
<tr>
<td>Muriate of potash and fda</td>
<td>6.6</td>
</tr>
<tr>
<td>Muco-extractive matter</td>
<td>4.0</td>
</tr>
<tr>
<td>Subcarbonate of fda</td>
<td>1.65</td>
</tr>
<tr>
<td>Sulphate of potash</td>
<td>.35</td>
</tr>
<tr>
<td>Earthy phosphates</td>
<td>.60</td>
</tr>
</tbody>
</table>

According to Berzelius, "A more perfect agreement cannot be expected in the analysis of substances so 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 fda; and I must also observe, that the sulphate of potash and earthy phosphates found by him in the ahas of serum are probably, for the reasons above-mentioned, formed by the processes of coagulation." See Albumen.

Of the colouring matter or red particles of the blood.—An opinion long prevailed 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 Menghim, 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 Vaquotin, who succeeded, denied this, and asserted that it depended upon the phosphophate of that metal. Dr. Wells, however, so long ago as the year 1797, called this opinion in question, and asserted that the most delicate tells of iron did not indicate the presence of that metal in the blood; that other red substances do not all contain iron; and that, on the other hand, other facts indicated that some iron were not red. Hence he supposed, that the red part of the blood was an organized animal substance. This opinion has been lately revived by an eminent modern chemist, Mr. Brando; who affirms, contrary 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, however, though he denies the opinion of Fourcroy and Vaquotin, that the red colour depends upon a salt of iron, agrees with most preceding chemists, that its ashes contain much more of this metal than those of either of its other constituents, that is to say, that they contain go per cent. of oxygen of iron, while the ashes of albumen are 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 principle 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 soluble also in dilute acetic acid, and precipitated by the prussiate of potash, like that principle; and hence Berzelius is inclined to consider it as a modification of albumen. Vaquotin 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 difficult task; we do not think, however, that he has been successful.

Mr. Brando tried to form a lake, by precipitating its acid solution by means of different earthy and metallic salts. Neither alumina nor oxv 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,

\[
\begin{array}{ccc}
\text{The particles of bull's blood from} & \text{in inch} \\
\text{beef measured} & \frac{1}{4}^\text{\textsuperscript{4}} & \frac{1}{4}^\text{\textsuperscript{4}} \\
\text{Ditto of a mule} & \frac{1}{4} & \frac{1}{4} \\
\text{Do. of human blood} & \frac{1}{4}^\text{\textsuperscript{2}} & \frac{1}{4}^\text{\textsuperscript{2}} \\
\text{Do. of blood recently diluted from} & \frac{1}{4} & \frac{1}{4}^\text{\textsuperscript{2}} \\
\text{fow} & - & - \\
\text{Do. of the skate, about} & \frac{1}{4}^\text{\textsuperscript{2}} & \frac{1}{4}^\text{\textsuperscript{2}} \\
\end{array}
\]

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 thing on the subject here, but refer our readers to the article Albumen. The physical properties of fibrin have been already deferred under Blood in the Cyclopaedia. Ac-Vol. XXXIX.

according to the experiments of Gay Lussac and Thenard, fibrin is composed of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mass (grams)</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>19.085</td>
</tr>
<tr>
<td>Azote</td>
<td>19.934</td>
</tr>
<tr>
<td>---</td>
<td>100</td>
</tr>
</tbody>
</table>

The bloody coat of blood is fibrin.

Of the Secretary.—This term has been generally applied to the salt and animal matters existing in the forum of the blood, with the albuminous principle. See the description of forum 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 shewn, 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 perfous labouring under different diseases, have been but little examined; 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. Also, a township of the county of Fairfield, in the district of Ohio, having 829 inhabitants.

BLOOMFIELD. Add—Allo, a township of Pennsylvania, in Crawford county, having 114 inhabitants.

BLOUNT, J. 1, infra—Cain Tenneslee. Add—containing 8839 inhabitants, of whom 85 are slaves. Also, a county of the same state, having 3259 inhabitants, including 206 slaves.

BLOW-PIPE. We think it proper to notice here the important modification of this useful instrument, lately contrived by Mr. Brooke, and which, by the intensity of the heat it excites, has produced such interesting results in the hands of different experimentalists, 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 fyringe and jet-pipe, furnished with a fitchock. When used, the box is to be filled with condened air by means of the fyringe; the fitchock is then to be turned, and the condened air permitted to escape through the jet. From the smallness of the aperture of the jet, a conflant and uniform blast is thus kept up for a considerable time, and by the occasional use of the fyringe, 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 founded 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
BÖE

the instrument has been rendered quite safe; and, in this
state, may be obtained of any of the philosophical instru-
ment 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 com-
ound above-mentioned, he had succeeded in reducing some
of the most refractory metals; and thus the accuracy of many of Dr. C.'s results has indeed been once
called in question; but they nevertheles demonstrate the
extraordinary powers and valuable properties of this modi-
cation 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 em-
ties into the Tennessee.

BLUFF, a term ufed 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 surro-
unding 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 affluent from this
valley into the country is precipitous, and is called
"the bluff" and may conflict of rock or clay. Be-
twixt these bluffs, the river runs in a very crooked chro-
nel, and is perpetually changing its bed, and the permanent
beds are called the bluffs.

BOA, col. 3, l. 57, for CONSTRUCTOR 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 ufed both in the Levant and on the
N. coast of South America, on the Spanish Main, for a
mouth or channel 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. ult. r. In 1811, the parish and borough
contained 315 houses, and 2383 persons; 158 in the parish
and 1008 in the borough being males, and in the former
175 and in the latter 1042 females.

BÖBERA, in Botany, formerly ufed by Willd., now, in
compliment to a Russian botanist, of the equitorial order.

——Willd. Sp. Pl. v. 3, 5126. Pursh 159.—Clafs and order,
_Symphoea Polygania-superflua._ Nat. Ord. Composit._ Linn.

Corymbifera, Jaff.


Calyx double; the inner of eight leaves, outer of many.


Pursh n. 1. (Tagetes papposa; Michaux Boreal.-Amr.
v. 2. 132. Vent. Hort. Celf. t. 36. _Dysoobia glandulosa_;
Cavan. Leccion. 602.)—Native of the overflowed banks of the
Missouri and Mississippi, annual, flowering in August
and September. _Pursh._ A branched herb, twelve or eighteen
inches high, with the habit of an Autumn, bebrinkled
with glandular pellucid dots, full of a fettid bitter fluid.
_Flowers_ of a golden yellow, with eight small rays. _Leaves_
pinnate, toothed, narrow. _Cavanilles_ says this plant grows
in every part of America, but especially in the kingdom of
South Fe., where it is commonly called _Rúyá_, on account
of its offensive smell. _Cavanilles_ speaks of it as a verminfuge,
and as affording a tolerably durable yellow dye.

BOERO, _del._

BŒUS, Rivière aus, or Os River, in Geography, is
the left and largest branch of Ouachita. It rises in the
angle formed between the Missouri and Arkansas, and pur-
cures 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 short distance, crosses the N.E. line of
Baltimore's grant, pursues a S.W. course, and then refines
its direction to the southward, and after running about 65
miles enters Ouachita, above the well point of the island
of Sicily. The Basin, 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 Mar Rouge.
A strong brace of cane skirts the Basin 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 procefs, add—Under
the ordinary pressure of the atmosphere, with due allowance
for its variable density, water does not boil till it is heated
for 212° Fahrenheit. However far 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°; ful-
phoric acid at 546°; phosphorus at 554°; and mercury
and linseed-oil at 600°. From the experiments of Dr. Black
upon several liquids in vacuum, it appears that, in general,
they all boiled with about 140 degrees of heat less than
when sublimating 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.

BOISSEAU, a meafeur for corn, according to the old
system in France, which varies much in different parts of
the country.

BOLAX, in Botany, a name of Commerson's adopted
by Jussieu. _Bolax_ means a clod, or lump of earth, which this
dwarf umbelliferous genus does not ill-resemble.—Juss. Gen.
(See Chamitis.)—The species, though not numerous, are
far from being, as yet, accurately determined, either with
refect to their permanent differences, or their synonyms.

BOLINGBROKE, l. ult. for 72 r. 741; and for 283 r.
361.

BOLINGBROKE, Lord. See ST. JOHN.

BOLIN-GREEN, in Geography, a town of Kentucky,
in Warren county, containing 154 inhabitants, of whom
51 are females.

BOLL, a corn meafeur in Scotland, containing 4 firlots,
each firlot being = 4 pecks; and 16 bolls = 1 chaler.

BOLOGNINO, a copper coin at Bologna and its neigh-
bourhood.

BOLSOVER, l. ult. for 435 r. 224; and for 1091 r.
1043.

BOLTON, in America, l. 3, r. 249; l. 6, add—contain-
ing 700 inhabitants; l. 8, for 861 r. 1037.

BOLTON-le-MOORS, l. 30, add—In 1811, the township
of Great Bolton contained 3120 houses, and 17,070 persons;
7988 being males, and 9082 females. Little Bolton town-
ship 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 com-
pany of 50l. and 100l. each, bearing interell of 5 per cent. per
Bor per annum, which interest is paid at the India-house in London.

Bond, Post-Ohio, 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, and will be found under Teeth, contralisted with the analysis of the teeth.

Vol. V.

Boone, in Geography, a county of Kentucky, containing 3668 inhabitants, of whom 666 are slaves.

Boonsborough, l. 2, r. Madison; and at the clofe add.—It contains 68 inhabitants, 15 being slaves.

Booroojird, a flourishing city of Persia, in the province of Irak, the capital of a wealthy district, subject to the prince, Mahomed Tukker Mirza, and containing a population of 12,000 souls. The district attached to its government is peopled by the tribe of Lock, 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, l. 5, r. 1582.

Boracite. See Mineralogy, Addenda.

Borax, in Chemistry. See Boron, infra.

Bord, or Burn, in Commerce, a copper coin in Egypt, 8 bori being = 6 fori = 3 aspers = a medino, and 40 medini = a piastra current.

Borelli, col. 2, l. 6, r. 1670.

Boron, or Boracium, in Chemistry, the peculiar elementary basis 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 first seen 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 500° 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 taint or smell. In close 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 mord of the neutral salts, deprives their acids of the oxygen which they contain; thus, when heated in close 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 substance coats the vessel in which the experiment is made, and the boron is also covered with a white substance, 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 fluoboric acid. (See Fluoboracic Acid.) It also appears, according to the experiments of Gmelin, to combine with hydrogen. Defocils has likewise shown that it combines with iron, and Davy with potash; but, as far as it is known, it combines with no other metal. With respect to the nature of this singular substance it may be proper to mention, that some consider the boron described above to be an oxyd of a metallic bafis, to which the name of boracium has been given.

Boronia, in Botany. (See Rutaceæ.) 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, 15, proposed to remove the 1st division, under the appellation of Zygophylleæ, naming the remainder Disfmes, the genus Ruta not being a good type of the order, so limited. This learned Australian botanist informs us that near 75 species have been observed, the greater part of them referable to our Boronia, Correa, Erioselemon, and Zieria, (as also we presume to Crowea,) and to Phebalium of Ventenat. "Of these genera Boronia is both the most extensive and the most widely diffused, existing 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, l. 19 from the bottom, after London, r. by a writ bearing date the 12th of December, 1264, in the 40th 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.

Borragineæ, in Botany, the 42d order in Jussieu's system, the 9th of his 5th class; for whose characters, see Gentianæ.

This order, equivalent to the Linnaean Asperifolium, (see that article,) is thus characterized.

Calyx in five deep segments, permanent. Corolla mostly regular. Stamina generally five. Germin either simple or four-lobed; style one; stigma either cloven, or furrowed, or simple. Seeds generally four; sometimes enclosed in a capular or pulpy test-vefsel; sometimes naked, obliquely attached to the bottom of the style, and for the most part surrounded by the permanent calyx. Corollum without albumen. Stem in the greater number herbaceous; in a few
BOR

few shrubby or arborescent. Leaves alternate, often harsh or rough.

Seet. 1. Fruit pulpy. Stem shrubby or arborescent.

Patagonula, Cordia, Ebreia, Menai, Varronia, and Teu-nsfoxia.

Seet. 2. Fruit of one or two capsules.

Hydrophyllum, Phacelia of Jullieu, Elisia, Dichondra, 
Müllerhermitia, and Cerinoe. Dichondra (see that article) 
is erroneously placed here.

Seet. 3. Fruit of four naked seeds. Throat of the corolla 
naked. Plants mostly herbaceous and rough.

Cordonia, Lichonestum, Echinum, Lipobernum, Pulmonaria, 
and Chymoxina.

Seet. 4. Fruit of four naked seeds. Throat of the corolla 
furrowed with five scales, hollow like flukes, slightly projecting 
out of the corolla, at the base of its segments, gaping above. 

Germs generally with rough leaves.

Spermatium, Lycopsis, Myosotis, Anchoia, Borago, Alse-
rugo, and Gymnoglossum.

Seet. 5. Genera allied to the Borragineae.

Nolana, Sphenanthes, and Falkia.

Borrera, is dedicated by professor Acharias, 
to the honour of Mr. William Borrer, 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 verfed, as well as singularly accurate, 
in every department of British botany.—Achar. Lich- 
Græc. Siith. v. 2. 313.—Clafs and order, Cryptogamia 

Eff. Ch. Shelves fchoked, coloured, with an elevated, 
infixed border, of the substance of the leafy, cartilaginous, 
elevated, linear froid.

This genus is very natural in habit, comprising the well-
known Lichen ciliatus of Linneus and its allies. Acharias 
defines seventeen species, among which several are very 
elegant, such as B. Trulla from Peru, figured in Ach. 
Meth. t. 4. f. 6; leconaoma, (see Engl. Bot. t. 254;) and 
ebsphylathyrum, t. 1088.

We have ventured in Prod. Fl. Græc. to remove hither 
the Evernia prunifolia, Ach. Syn. 245; Lichen prunifoli of 
Linneus; and feel much inclined to allocate the whole of 
that genus with Borrera, there being only two species 
besides, which are Lichen divaricatus and vulpinus of Linneus.

We re ally cannot perceive any diffusive character to keep 
Evernia separato.

Borrowstonness. —Add.—The parish contains 
352 houses, and 2704 inhabitants; 1102 being males, and 
1602 females.

Bory, in Botany, a New Holland genus, thus named 
by M. Labillardière, in honour of the distinguished bot-
anical traveller, M. Bory de St. Vincent. This genius 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 Prodromus, 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 pre-
judice of the rightful Domenea. (See those articles.) 
However that may be, we feel it incumbent on us to 
administer 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. 

and order, Alexandria Monogyna. Nat. Ord. Alphadaceæ, 
Brown.

Eff. Ch. Spatha of two unequal, sheathing, permanent 
valves. Corolla of one petal, funnel-shaped, withering; 
limb in five deep equal segments. Stamens inserted into 
it contracted throat. Style thread-shaped. Stigma ob-
late. Capsule superior, of three cells, and three valves, 
with central partitions. Seeds several.

Mr. Brown conceives the present genus to be not very 
-nearly related to any, except perhaps Xanthorrhoea, 
(see that article,) and the genus Johnsonia. In habit it 
approaches some of the Junceæ, but differs in the black 
coarsely integument of the seed, and in the soft, fleshy, 
white or yellow, albumen.

It consists of perennial herbs, of a harsh dry texture. 

Grass composed of long, tough, somewhat fibrous fibres. 

Stem either simple, or divided and creeping, clothed with 
very crowded, acerose, pointed leaves; dilated and half-

sheathing at their base. 


Flower-flaks solitary, terminal, simple. 

Head nearly globular, encompassed with a few short leafy bracteae. 

Calys smooth, membranous, the outer one sheathing the inner, which is narrower, 

and embraces the tube of the corolla.

81. t. 107. Br. n. 1.—Stem much branched, taking root 
below, with simple piliferous fibres. Flower-flacks shorter 
than the ascending branches. Head ovate.—Gathered 
by both the differentialed botanists above cited, on the south 
coasts of New Holland, and the adjacent islands, in sandy 
ground. The plant is about a foot high, and, except the 
want of downy radicles, seems calculated to confine the 
blowing sands of its dreary country, like our Carex ace-
vario, Elymus arenarius, &c.


"—Stem simple, nearly erect, shorter than the flower-


flaks. 

Head globose."—Gathered by Mr. Brown, in 
the fame neighbourhood.

Bos, in Zoology, l. 13. after ferus, inferf.—See 
Urus.

Boscawen, l. 4. r. 1829.

Bos Rilla, in Botany, a fine papilionaceæ genus, con-
secrated by Ventenat, to the memory of his countryman 
M. Boillieu-Lamartinière, who accompanied La Pérouse 
in his voyage round the world, of which which, published 
at Paris, attests the merit of this unfortunate botanist, 
v. 4. 266.—Clafs and order, Diadaphia Decandria. Nat. 
Eff. Ch. Calyx two-lipped; upper lip largest, cleft, obtuse. Stamens all connected. Legume flaked, compressed, thickened at each edge, with many seeds.

1. B. flocculenta. Yellow Flat Boffizia, or Plank-plant. Sm. as above n. 2. Sims in Curt. Mag. t. 1255. (B. Scolopendrum; Ait. n. 1. Platylobium scolopendrum; Andr. Repof. t. 191. P. scolopendrum; Ven. Malmaif. t. 59.)—Branches compressed, winged, toothed, leaflets; flowering at the teeth. Stem erect. Keel naked. Upper bracteas permanent, imbricated, equal to the footstalk. 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 branches, in a manner prolific, 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 legume of this species, (and perhaps the following), is said by Dr. Sims to want that internal sponging, which, in those shrubs described by botanists, seemed to yield a good generic character. The texture of the legume, its thick edges, and the want of a dorfal membranous wing, are still abundantly sufficient to keep the genus distinct from Platylobium. (See that order referred to the species name, we must beg leave, like Ventenat and Sims, to consider it as an adjective, comparing this strangel plant’s branches to the infect called a Scodelium, or Centipede. It has no connection with the vegetable genus Scolopendria, and still less has it ever been so called.


3. B. heterophylla. Various leaved Boffizia. Venten. Jard. de Ceb. 7. Willd. n. 1. Sm. n. 1. Br. in Ait. n. 3. (B. lanceolata; Curt. Mag. t. 1444. Platylobium lanceolatum; Andr. Repof. t. 205. P. ovatum; ibid. t. 266, not 256) according to Mr. Brown.—Branches leafy, compressed. Leaves elliptical, obovate, or linear, flat. Legume of many cells, with spongy partitions. Native of New Holland. Imported by Lee and Kennedy in 1792. A branched 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 denudated. The leaves are variable in figure, but on full grown plants usually linear, alternate, on short stalks. Flowers axillary, solitary, italked, large, yellow with a crimson keel, very ornamental.

4. B. longifolia. Narrow-leaved Boffizia. Br. in Ait. n. 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.

5. B. profusa. Proornent Boffizia. Br. in Ait. n. 5. (B. ovata; Sm. n. 3, excluding the synonymy.)—Branches round, leafy, Stem procumbent. Leaves oval, smooth. Stipulas 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 flowers 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 Platylobium ovatum of Andrews, t. 266, but Mr. Brown has convinced us of our error.

6. B. cineraria. Downy Sharp-leaved Boffizia. Br. in Ait. n. 6.—“Branches round, leafy. Stem erect, much branched. Leaves ovate-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 Boffizia. Sm. n. 5. Dr. in Ait. n. 7. (Platylobium microphyllum; Sims in Curt. Mag. t. 863.)—Branches round, leafy, spine-pointed. Leaves inerely-heartshaped, or wedge-shaped.—Native of New South Wales, from whence Dr. White sent us specimens in 1793. Mr. Caley sent seeds to Sir Joseph Banks in 1805. This species is said to have flowered at the present duke 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 spinous.

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 Bostian.

BOSTON. At the close, r. the parish of Bolton, in 1811, contained 1772 houses, and 8180 persons; 3805 being males, and 4375 females.

Bostoon, in Massachusett's, l. 17. after augmented, infert.—By the census of 1810, Bolton, Chelsea, and the islands within and without the jurisdiction of Bolton, 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 are, Greene, Thompson's, Rainford's, George's, Great Brewter, Outer Brewter, Lighthouse, and Calfland. Bolton itself is stated as containing 33,250 inhabitants.

BOSTON, a town of the district of Ohio, in the county of Champaign, having 616 inhabitants.


1. B. glabra. Smooth Boswellia. Roxb. as above, t. 207. (Canarium odoriferum: Rumph. Amboin. v. 2. 156. t. 50. Guggulapootickthoo of the Telingas.)—Leaflets smooth, with shallow ferratures.—Native of the highest mountains on the coast of Coromandel, flowering in the cool seaon, and calling 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 fort of pitch. Leaves crowded at the ends of the branches, a span long, pinnate with an odd one; leaflets all uniform, opposite, ovate-oblong, an inch and a quarter in length. Flowers white, in aggregate, terminal, interrupted, spreading clusters, shorter than the leaves, and coming before them. In Nectary red. Anthers oblong, yellow. Capsule oval, about half an inch long.

2. B. kirtiata. Hairy Boswellia. (Canarium odoriferum)
B O T

terum bifurcatum; Rumph. Ambaun. v. 2. 157. t. 51, according to Dr. Roxburgh; but the leaflets are represented entire.}—Leaflets downy, deeply serrated. On the Ballagaut mountains. The flaves of this are inserted on the exterior margin of the petiole. Roxburgh.

BOTETOURT. Add.—By the census of 1810, it contained 13,301 inhabitants, of which 2,273 are laves.


Eff. Ch. Capsules nearly globose, naked, smooth, without a ring, united to the stalk of a compound spike, distinct, each of one cell, and two valves connected behind, burfling transversely in front.

We have already alluded to this genus under Osmunda, from which it was first separated by professor Swartz. Ten species are described in Wildenow, to which we have two to add.


B. Lunaria minor; Camer. Epit. 614. Frond finely pinnate; leaflets crenate-serrate. Native of dry hillocks, or open heaths, throughout the cooler parts of Europe, bearing capsules in June. Root perennial, with many fleshy fibres. Frond foliata, from a torn mem- branous sheath, erect, three to six inches high, smooth, pale green, confiting of a finely pinnate leaf, two inches long, with fix or few pair of oblique imbricated, fan-shaped, entire or notched, leaflets. From the base of the leaf springs a stout stalk, about the same length, bearing a twice or thrice compound, unilaterial, smooth spike of capsules, each about half the size of a mustard-seed; all firmly united, in two fejile rows, with the linear flat rib, or common receptacle.

2. B. rutaceum. Rue-leaved Moonwort. Sw. n. 2. Wild. n. 2. (O. Lunaria; Fl. Dan. t. 18. f. 3. Fl. Brit. 1875. Lunaria racemosa minor, matricaria folio; Breyn. Cent. 184. t. 93. Morif. fec. 14. t. 5. f. 5.)—Frond doubly pinnatifid; segments ovate, notched at the extremity. Fruitstalk from the base of the leaf.—Native of dry open situations, in several parts of Europe. We are not sure of having seen a British specimen; nor is it impossible that a jagged variety of B. Lunaria, such as is represented in Breyn. Cent. t. 193, and in Morison as above, f. 2, may have been confused herewith. B. rutaceum is certainly near akin to the Lu- naria, differing only in the compound division of its leaf, and sometimes of its spike.

3. B. maticariunum. Feverfew-leaved Moonwort. (B. maticarioides; Wild. n. 3. Lunaria racemosa, multifido folio; Bauh. Pin. 355. Breyn. Cent. t. 95. Fl. Dan. t. 18. f. 2, media. Morif. fec. 14. t. 5. f. 26.)—Frond doubly pinnatifid; segments oblong, obtuse, toothed. Fruitstalk from the base of the footstalk.—Native of shady situations in Pfriifen, Denmark, and Bavaria. Willdenow. Extremely abundant about Peterburgh, according to the Linnean herbarium, where are three specifions from thence. The more compound leaf, not always foliata, and especially the insertion of the fruitstalk near the root, not at the top of the leafstalk, surely mark this as a distinct species; which is confirmed by the plant not being of occasional occurrence, amongst the Lunaria, as might be expected of any variety, but plentiful in the countries where it grows at all. We have not heard of this species in Britain. The specific name in Willdenow is a barbarous compound of Greek and Latin, such as we with botanists, not altogether illiterate, would avoid.

4. B. fumarianum. Tumitory-leaved Moonwort. (B. fumaroides; Wild. n. 4. Ait. n. 1. Pursh n. 1. Lunaria; Sw. n. 5. „ Schkuhr Crypt. 158. t. 157.„ Botrypus lunariae; Mich. Bor.-Amer. v. 2. 274. O'fumba bitementa; Lamarc. Dict. v. 4. 650.)—Frond ternate; doubly pinnate; leaflets crenate-serrate, crenate. Fruitstalk radical.—In pastures and open woods, from New York to Carolina, bearing capsules in June. Pursh. Like the leaf, especially in the insertion of its fruitstalk, at or near the root, but the leaflets exactly resemble those of B. Lunaria, which, with professor Willdenow's leaf, are by no means uniformly entire.

5. B. obliquum. Oblique-leaved Moonwort. Wild. t. 5. Muhlenb. Cat. 98.—Frond nearly twice ternate; leaflets oblong-lanceolate, finely serrated, unequally heart-shaped at the base. Fruitstalk towards the base of the footstalk.—In open woods of Pennsylvania and Virginia, in June and July. Refemblles the preceding very much, and is probably only a variety. Pursh. This author describes the spikes as doubly pinate; those of the leaf only pinate.

6. B. asperula. Southern Moonwort. Brown n. 1.—Frond ternate; doubly pinnate; leaflets conjunct, cut. Fruitstalk from the base of the footstalk.—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 sparn high, being thrice as tall as the leaf, into whose dark-coloured footstalk it is inserted, a little above the root. The spike is twice or thrice compound, spreading; the flaks pale. Capsules dark brown.

7. B. tennatum. Ternate Japan Moonwort. Sw. n. 6. Wild. n. 6. (Ofunda ternata; Thom. Jap. 329. t. 32.)—Fronds in pairs, tripinnate; leaflets notched and ferrated. Fruitstalk from the middle of the common footstalk. Spike pinate.—Gathered by Thunberg once only, near Nagasaki in Japan, in November. A foot high, with two large, opposite, spreading, ternate, then twice pinate, leaves, half the height of the fruitstalk.

8. B. dithecum. Cut-leaved Moonwort. Wild. n. 7. Muhlenb. Cat. 98. Ait. n. 3. Pursh n. 3. Sprengel Crypt. angl. ed. 187. „Schkuhr Crypt. 159. t. 158.„ (Lunaria botrytes rotata, geranioli molochati folis, floribus; Pluk. Amalthe. 324. t. 427. f. 5.)—Frond ternate, thrice pinate; 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 speci- mens from the late Dr. Muhlenberg, very much like Plu- kett's figure, but we can discover no essential difference between this plant and the following.

9. B. virginianum. Virginian Moonwort. Sw. n. 3. Wild. n. 8. Ait. n. 4. Pursh n. 4. „Schkuhr Crypt. 157. t. 156.„ (Ofunda virginiana; Linn. Sp. Pl. 1519, excluding Plumier's synonym. Lunaria americana, folis cicutariis modo eleganter divisis; Morif. fec. 14. t. 4. f. 7. L. multifido folio oblongo, &c.; Pluk. Mant. 120. t. 427. f. 8.)—Frond somewhat ternate, twice pinate; 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 Carolizina, in June and July.
July. *Pursh.* 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 those 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 is 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. gracile.* Slender Moonwort. *Pursh.* n. 5. Frond ternate, doubly pinnatifid, falcate; segments acute, spikes slender, pinnate, erect.—In shady fertile woods of Virginia, in June. This species approaches nearly, at first sight, to the preceding, but is much smaller and more slender, besides the other differences. *Pursh.* We have from Dr. Muhlenberg what answers to the above account, but should scarcely have thought it distinct. The inflorescence indeed is smooth, and simply pinnate, but this corresponds with the smallest size of every part.

11. *B. circiatum.* Hemlock Moonwort. *Sw. n.* 4. Willd. n. 9. (Osmunda circiatia; Lam. Dict. v. 4. 650.) O. afpocladi radice; Plum. Fil. 156. t. 159. Petiv. Fil. n. 156. t. 9. f. 2.)—Frond triplicate; leaflets pinnatifid; terminal one pointed. Fruitstalk from near the base of the footstalk.—Gathered by Plumier in the forests of Hispaniola. The roots confistles of oblong tapering fleshy knobs. Frond much larger than either of the three half, and essentially different in the nearly radical inflorescence of the fruitstalk. The spike is twice pinnate. Plumier records, that the Indians give the name of Serpent-herb to this, and to the *Anemia decadentifolia*, thinking them useful applications for the bite of a serpent. This may account for the appellation of Rattle-snake Fern given to it.

12. *B. zeylanicum.* Great Ceylon Moonwort. *Sw. n.* 7. Willd. n. 10. (Osmunda zeylanica; Linn. Sp. Pl. 319. O. n. 373; Linn. Zeyl. 178. Ophioglossum lacinatum; Rumph. Amboin. v. 6. 153. t. 68. f. 3.)—Frond ternate; leaflets pinnate or somewhat pinnate, lanceolate, pointed, finely crenate. Spike cylindrical, dense; spikelets capitate. —Native of Ceylon and Amboyna, on the sides 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-flattled 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, riling rather above the leaflets, the caryophylls about three together, capitate, at the end of each short branch partial.

BOTRYOLITE. See Mineralogy, Addenda.


2. *B. ramosa.* Croft-headed Cluster-mould. *Pursh.* n. 2. (B. ramosa cinerea, fæminus rotundus; Mich. n. 3. f. 2. 11.) B. alba. (B. non ramosa alba, fæminus rotundus; Mich. n. 2. f. 3.)—Ash-coloured, branching, with four-rayed spikes. Very common in all kinds of corrupting substances. *Micheli.* The minute stems are more or less branched and forked, each branch terminating in a composit of four dense ovate maffes of globulles, on short horizontal falks.

3. *B. simplex.* Simple Cluster-mould. *Pursh.* n. 3. (B. comata grisea, canile fimplici caffraio, fæminus rotundus; Mich. n. 1. f. 4.)—Grey, simple. Spikes radiating.—On half-rotten wood, or wheat-draw, in winter, not infrequent. *Micheli.* Each plait consists of a simple, rather firm, falk, a line or two in height, crowned with from three to six ovate maffes of globulles, on horizontal radiating falks.


5. *B. diffusa.* Great White Cluster-mould. Albert. and Schwein. Fung. Nat. 352.—White, with extensive diffuse branches, and terminal clusters, of about four globulles each.—Found once only on half-rotten stalks of potatoes in November, composing dense, white, cottony, fagaceous maffes, two inches or more in diameter. The globule discharge abundance of powdery seeds like smoke.

BOTTOMRY, col. 4, l. 23, for course r. courts.

BOUSSAKTA, in *Botany*, a name of barbarous origin, being formed by Dilleni from the German *Buch*.


Eff. Ch. Cafe smooth, femail, burting irregularly at the top; its white external coat (or wrapper?) at length separating in fragments. (Powder or feed brownish-purple.)

*Perforo.*

The author defines four species.

1. *B. nigrescens*, which is *Lycoperon globosum*, Bolt. Fung. t. 118. With. v. 4. 382, and *L. arrhizon* of *Batch*, t. 29.

2. *B. plumbea*, figured in Sowerby's Fungi, t. 331, as *L. Bovisia*, and judged by that author to be but a variety of the former.

3. *B. papilla, " Batch, t. 41. f. 228," akin to the five, but only three lines in diameter.

4. *B. furfuracea*, 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. *Perforo* is doubtful of the genus of this leaf, and we should suspect it to belong possibly to *Tuber*.

*Bovisia* differs from *Lycoperon* in not being elongated at the base into a sort of stalk; but hardly 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. 3, r. 2507.

BOURN, col. 2, l. 21. In 1811, the parih of Bourn contained 308 houses, and 1551 persons; 779 being males, and 812 females.

BOURSIPPA, in Geography, a town of Babylonia, according to Strabo; to which Alexander retired when warned by the Chaldeans not to enter Babylon. This is supposed to be the present village of Bouris, two leagues to
to the S.E. of Hilleh, the cite, as it is conjectured, of 
ancient Babylon. On the road from hence to Meked Ali, 
or Ncjatt, is the tomb of the prophet Ezekiel, where they 
pretend to saw the fiery furnace of Shadrach, Meshach, 
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.

BOUVARDIA, in Botany, so named by Mr. Salib- 
burry, in memory of Charles Bouvard, M.D., formerly 
superintendent of the garden at Paris.—Salib. Parad. 88.

AI. Hort. Kew. v. 1. 245.—Clafs and order, Tetrandria 

Eff. Ch. Calyx in four deep segments, with inter-
mediate teeth. Corolla tubular. Anthers within the tube. 
Caplile of two separable cells, with numerous bordered 
seeds.

Salib. Parad. t. 88. (Houttonia coccinea; Andr. Repof.
t. 106. Ixora americana; Jacq. Hort. Schoenbr. v. 3.
t. 357. I. ternifolia; Cav. Ic. v. 4. t. 265.)— 
Native of Mexico. Introduced by fr Joseph Banks 
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, thunbry, branched, down when young. Leaves 
usually three in a whorl, ovato-lanceolate, varying in 
breadth, entire, rough-edged, nearly felfile. Flowers an 
inch long, bright scarlet, in dense, terminal, forked panicles, 
very abundant, and extremely showy, though ditinct of 
scents.

BOW, l. ubi., r. The parish contains 414 houses, and 727 
perons; 329 being males, and 398 females.

Bow, in America, 1. 4. r. 729.

BOWDOIN, l. ulti., for 638 r. 1649.

BOWDOINHAM, l. ulti., for 455 r. 1412.

BOWLESIA, in Botany, so named by the authors of the 
Flora Peruviana, 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 460 
volume of 529 pages, in the Spanish language. This work 
has been translated into French and Italian. The author 
Umbell. 13.—Clafs and order, Perandria Digynia. Nat. 
Ord. Umbellifere.

Eff. Ch. Fruit ovate, quadrangular, briskly; concave 
at the back. Umbel fimple.

The author enumerates three certain species in his Pro-
 dronum.

1. B. palma, of Ruiz and Pavon, of which he gives 
no character or description.

2. B. lobata, of the fame, "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, markedly folty. 
Tendrills none.—Native of the loftiest mountains of Peru. 
Herb tender, green, with some scattered hairiness. 
Leaves opposite, an inch broad, half an inch long, five-
ribbed, on fender zigzag footflakes about a finger's length. 
Stipulae membranous, linear, in pairs. Footflakes about 
two lines long, reflexed after flowering, the stipular serving 
as an involucrum. Petals live cream-coloured. Fruit in 
pairs, solid, ribbed at the back, clothed with hairy hairs.

3. B. incana, of the fame, "Fl. Peruv. v. 3. t. 268, A." 
Spreng. Spec. Umb. 13. t. 5. f. 10.—Hoary. Leaves 
kidney-shaped, lobed, notched; heart-shaped at the bafe.

Flower-flakes axillary, aggregate. Tendrils axillary. — 
Native of Peru and Brazil. Our specimen was gathered 
in the last-mentioned country, by Commeron, 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 tendrils in our specimen.

(Perecundum geniculatum; Forst. Prodr. 22. Willd. 
Sp. Pl. v. 1. 1408.)—Smooth. Leaves nearly orbicular, 
crenate; wedge-shaped and entire at the bafe. Umbels 
terminal, many-fowered.—Native of New Zealand. Stem 
prostrate, branched. Leaves not half an inch broad. 
Umbel compound. Fruit unknown. This seems to us a 
very doubtful Bouvardia, and is referred hither merely on 
account of some resemblance of habit.

BOWLING-Green, in Geography. Add—Alto, a town-
ship of Ohio, in the county of Licking, having 379 inhabi-
ants.

BOXBOROUGH, l. 2., for 412 r. 388.

BOXFORD, l. ubi., for 925 r. 885.

BOYLSTON, l. ubi., for 839 r. 802.

BOYSTON, Wft., a town of the fame flate and county, 
having 612 inhabitants.

BOZRAH. Add—It contains 950 inhabitants.

BRACClO, plur. Bracti, a measure for cloth in Italy.

BRACHIONIUS, Add—See VERMES and Wheel-
Animals.

BRACHYSEMA, in Botany, so named by Mr. Brown, 
from BCR
c, short, and ?wvq, a flanderd, alluding to 
a striking part of the generic character.—Brown in Ait. 
Hort. Kew. v. 3. t. 30.—Clafs and order, Decandria Mon-

Eff. Ch. Calyx nearly equally five-ceil; with a fwell-
ing tube. Corolla papilionaceous; flandard shorter than 
the compressed keel, which is equal to the wings. Stalk 
of the germen minutely fheathed. Style thread-shaped, 
elongated. Legume tumid, with many feds.

Curt. Mag. t. 2008.—"Leaves ovate, flat. Standard 
oblong-obovate."—Sent by Mr. Good, in 1803, from the 
flans of this coast of New Holland, where it was alfo 
gathered by Mr. Brown. A hardly green-house procemcnt 
or pendulous flurb, eafily propagated by cuttings, and 
flowering in the spring. Flowers fcarlet, very handfome, 
flandise, nearly felife, folty, fometimes two or three 
together, their small acute flandard yellow at the bafe; 
wing and fell full an inch fmall.

There appear to be other species, not yet introduced 
into the gardens.

BRACKEN, in Geography, a county of Kentucky, 
having 3451 inhabitants, of whom 295 are flavcs.

BRADFORD, col. 2, l. 11, r. In 1811, the houses in the 
hundred of Bradford were 1756, and the number of 
perons was 9435; 4260 being males, and 5166 females. 
The parish of Great Bradford contained 548 houses, and 
2989 perons.

BRADFORD, in Yorkshire, l. 12. The parish of Bradford 
contains 13 townships, and in 1811 the township of East 
and West Bradford contained 1574 houses, and 7767 perons. 
East Bradford having 725 houses, and 3559 perons; 
1603 being males, and 1865 females; and West Bradford 
having 849 houses, and 4208 perons; 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. 1034; l. 12, r. 
1302.

BRADYPUS,
BRA

BRADYPUS, l. 16, for cloth r. bear; l. 20, after megatherium, add—(which see).

BRAIN, Chemical Analysis of. For ADIPOCIRE 1. ADI-
POIRE.

A new and elaborate analysis of the brain has been lately
made by Vauquelin; but it must be confessed that his results
throw no light whatever upon the manner in which its
costituents are combined, or to what its peculiar appear-
ance is owing. The following are the results: 100 parts
contain,

<table>
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<tr>
<td>Acids, salts, and sulphur</td>
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100

BRAINTREE, in Geography. In 1811, the parish of
Braintree contained 508 houses, and 2298 persons; 1082
being males, and 1216 females. The parish of Bucking
containing 573 houses, and 2544 persons; 1134 being males,
and 1410 females.

BRAINTREE, in America, l. 4, r. 870; l. 12, The in-
habitants, in 1810, were 1351.

BRAMPTON, l. 20, r. In 1811, the number of houses
was rated 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. ult. r. In 1811, Brandon parish contained
206 houses, and 1360 persons; 646 being males, and 714
females.

BRANDON, in America, l. 2, r. 1355.

BRANDYWINE. Add—containing 1257 inhabitants.

ALTO, a hundred in the district of Delaware, and county
of New-Caflle, containing 2577 inhabitants.

BRANFORD. Add—It contains 1532 inhabitants.

BRANTRIM, a township of Luzerne county, in Penn-
sylvania, containing 904 inhabitants.

BRASAVOLA, in Botany, has received its name from
Mr. Brown, in memory of Antonius Mufa Brasavolus, or
Brafavolo, an Italian physician and botanist, born at Fer-
rara in 1500. Haller, who inaccurately spells his name
BraSavoluS, 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 Alt. Hort. Kew. v. 5. 216.—Cliffs

Eff. Ch. Calyx and petals diffusely spreading. Lip
dilated, undivided, nearly flat. Column simple. Anther
a movable lid. Malles of pollen two; divided behind;
attached by their middle to a common process of the
stigma.

1. B. maculata. Spotted-flowered Braflia.—Native of the
West Indies. Imported by sir Joseph Banks in 1806. A
large and very handsome plant, with broad sheathing cori-
aceous leaves, and a cluster of large flowers, whole calyx
and petals green, the broad lip white; all beautifully
and variously spotted with purple.

BREATTLEBOROUGH, l. 3, r. 1891.

BREADED BREAD. See Pain des Abîtres.

Breathe. See Wood.

BREAST, Inflammation of, in Surgery. The diagnosis of
this disorder is sufficiently obvious, from the preface of
such symptoms as are characteristic of inflammation in gen-
eral, and which are detailed in our account of this subject in
a former volume. Inflammation may be confined to the
skin and cellular substance of the breast; or it may affect
more particularly the glandular part of this organ. Accord-
ing to usually-received opinions, either of these cases may
originate from a suppurition or obtruction of the secretion
of milk, rough handling of the breast, external violence,
stoppage of the menes, impediment to the discharge of the
lochia, &c. When the inflammation is moderate, it gen-
ernally terminates in resolution; but when more severe, or
improperly treated, an abcess is the consequence. Though
considerable indurations are often produced in the breast by
attacks of common inflammation, it is but in a limited pro-
portion of cases that such hardness partsakes of the true
fibrous or cancerous nature.

The treatment of inflammation of the breast is to be re-
gulated in a great measure by the kind of caufe that has given
origin to the complaint; a subject which cannot be duly
understood without advertizing to what has been said in the
various medical and surgical articles of this work on the
different species of inflammation. Inflammation of the breast
is most frequent in women within the first three months
after delivery; and the best means of preventing the disorder
consists in having the milk drawn or sucked out of the
nipple some weeks previously to delivery. But when the
inflammation already exists, or threatens to begin, the same
plan of drawing or sucking the breast should be pursued;
and, together with general antiphlogistic remedies, the sur-
genian may have recourse to emollient applications, leeches,
foetomations, and when the acute stage of the inflammation
is over, to gentle friction with liniments, or to the employ-
ment.
ment of roselvent platters. Abbeesses are to be treated on the principles explained in the article Supputation.

BRECHIN, in Geography. In 1811, the burgh and parish of Brechin contained 769 houses, and 5559 persons; 2514 being males, and 3045 females.

BRECKENRIDGE, a county of Kentucky, containing 3450 inhabitants, of whom 505 are slaves.

BRECKNOCK, l. 1, for Laurellar r. Berks; and add—containing 725 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.

BRECKNOCKSHIRE, l. 17, r. There, with the hamlets, were peopled in 1811 by 377,735 persons, and contained 7555 houses; 4667 families being employed in agriculture, and 2293 in trade and manufactures. — L. 35. The other rivers are, the Irvon, which falls into the Wye above the town of Buitb; the Tawe, which discharges its waters into the Bristol Channel at Swansea; the Taft; the Llŷn, which passes through Langorfe Mere or Llynfawdaddan, and runs into the Wye at Glabury; the Dulas or Islie, remarkable for its subterraneous passage in one part of its course; the Hapse, celebrated for its beautiful cascade; and the Honddy at Brecknock. The principal lake in this county is Llynfawdaddan; which see. — L. 41. The iron-works of this county are objects of great importance, in connection with its commerce and prosperity. The birth of thee is at Llangwyne, in the parish of Llangenua, now forming an appendage to the works at Sihrowy 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 Penderg, at the southern extremity of the county.

BRENT, in Commerc., 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 279 houses, and 1793 inhabitants; 809 being males, and 924 females.

BRENTWOOD. In 1811, Brentwood contained 218 houses, and 1228 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 fuch licence l. 10s., and within ten days after the 4th of July, after taking out fuch licence, shall have a further additional sum as with the said l. 10s., and 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 l., to be renewed annually. By 42 Geo. III. c. 38, no person not being a common brewer shall be allowed to retail beer at any higher price than 3s. 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 altering or altering any implements for this purpose, on pain of 20l. By 5 Geo. III. c. 43, the portion of any tun, cooler, copper, &c. shall not be altered without notice, under penalty of 20l. The officer of excise shall enter and examine suspected places; and if any person oppose 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-houfe, &c. on pain of 200l. 8 & 9 W. c. 19. 42 Geo. III. c. 38. Search shall be made by the officer, and the penalty of opposing him is 50l. No common brewer, innkeeper, victualler, or other retailer of beer or ale, shall keep any private florehouse or cellar for laying any beer or ale, or worts in cach, on pain of 50l. 15 C. II. c. 11. 1 W. l. i. 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 every such offence forfeit 100l. Persons inhabiting a market-town, or town corporate, or parts adjoining to a city or town corporate, in which there is a common brew-houfe, who shall suffer liquors to be brewed in their houses, otherwife than for their own families or for purposes of charity or hospitality, and who shall lend out brewing vessels, shall forfeit 32 & 23 C. II. c. 5. Gaugers shall take an account, and obstructing 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 brine the gauger to make a false return he shall forfeit 10l., and the officer so 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 felling such liquors, is 200l. and forfeiture of liquor and utensils; and the penalty on a brewer's receiving stale 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 perfon in whose custody they are found shall forfeit 100l. No common brewer shall carry about 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 five in the evening from September 29 to March 25, on pain of 200l. 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 wai te 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 excisegar, 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 felling beer, ale, or worts in any lefs quantity than a whole cask containing 4£ gallons, whether within or without the said limits, for wai te 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 les quantity; 43 Geo. III. c. 69. A common brewer who shall fell beer, ale, or worts in any lefs quantity than in a whole cask containing 4£ gallons, shall forfeit 50l. for every such
fuch offence. And if any perfon, not being a common brewer, shall retail beer at a higher price than after the rate of 14d. the quart, ale-house measure, without obtaining a licence as a common ale-house 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-house keepers, victuallers, and other retailers, shall do the same on penalty of 20s. 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 Wilts 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.


Eff. Ch. Calyx in five deep segments. Corolla funnel-shaped, plaited. Style deeply divided. Stigmas capitate. Capsule of two cells, valvarl, surrounded by the permanent calyx. Seeds two in each cell. These are diffuete hers, not milky; their leaves undivided; flowers axillary, narrowly solitary. The genus appears most akin to Porana, 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.

BREWSTER, in Geography, a town of Barnstable county, in the Masachusetts, containing 1812 inhabitants.

BRIBIESCA, delc.


Eff. Ch. Calyx inferior, in five deep segments. Petals five, inserted into the calyx. Stamens with a tubular, columnar bafe. Styles two, divided. Berry with two seeds. Some flowers want the lamens, some others the germs.

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 ereced, without thorns. Leaves obvate-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 Teligas calls Panigya. 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 stalks. Flowers small, crowded, axillary. Berry purple, globular, succulent, the size of a pea.

2. B. scandens. Climbing Bridelia. Wild. n. 2. Ait. n. 1. (Cluytia scandens; Roxb. Corom. v. 2. 39. t. 173.)—Stem shrubby, climbing, without thorns. Leaves oblong-ovate, 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 Teligas Donkyboosa. Roxb. Stem climbing; its branches leafy, flowering at their pendulous extremities. Leaves three inches long; thole which accompany some of the flowers diminished almost to bracteas. Berry oval, of a rusdy black, the size of a horse-bean. This species was first to Kew in 1804, by colonel Hardwicke, F.L.S., so well known by his various communications, illustrative of the natural history of India.

3. B. spinosa. Thorny Bridelia. Wild. n. 3. (Cluytia spinosa; Roxb. Corom. v. 2. 38. t. 172.)—Stem arbores, erect, thorny. Leaves ovate, acute, entire, smooth.—A tree of considerable size found on the mountains along with the frict species, and called by the Teligas Coro-maun. 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 flukes. Berry black, the size of a pea.

BRIDGE, l. ult. r. The parish of Newcastle, higher and lower, contains 157 houses, the former having 49, and the latter 117, and 640 inhabitants, the former including 174, and the latter 469. In the higher, the males are 84, and females 87; in the lower, the males are 210, and females 259.

BRIDGE NORTH, col. 2, l. 9, add.—In 1811 the borough of Bridgenorth contained 978 houses, and 4386 persons; 2006 being males, and 2380 females; 81 families employed in agriculture, and 870 in trade and manufactures.

BRIDGEPORT, a township of Pennsylvania, in Fayette county, having 280 inhabitants.

BRIDGESTON, a town of the distriet of Maine, in the county of Kennebeck, containing 214 inhabitants.

BRIDGE-TOWN, l. 5, r. 882.

BRIDGEWATER, col. 2, l. 26, add.—In 1811 the borough of Bridgewater contained 857 houses, and 4911 persons; 2241 being males, and 2670 females; 87 families employed in agriculture, and 570 in trade and manufactures.

BRIDGEPORT, a township of Pennsylvania, in Fayette county, having 280 inhabitants.

BRIDGTON, l. ult. r. In 1811 Bridgton contained 849 houses, and 3741 inhabitants; 1706 being males, and 2035 females.

BRIDPORT, l. 39, add.—In 1811 the borough of Bridport contained 512 houses, and 3507 persons; 1532 being males, and 2035 females; 20 families employed in agriculture, and 620 in trade and manufactures.

BRIDPORT, in America, l. 3, r. 1520.

BRIGHTHELMSTON, l. ult. r. In 1811 Brighten contained 2577 houses, and 12,012 persons; 5069 being males, and 6043 females.
B R O

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. 8, r. 37,168; l. 13, r. 5072; l. 23, r. 2693; l. 29, add.—It contains 1428 inhabitants; l. 33, after houses, add.—The number of inhabitants, by the census of 1810, was 628; l. 36, after county—having 965 inhabitants; l. 59, r. 1179, add.—Allo, a township of Pennsylvania, in Berks county, having 1608 inhabitants.

—Allo, 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 404 inhabitants.

BROAD CREEK, a hundred of Delaware, in the county of Sussex, having 3789 inhabitants.

BROOKESBY, l. 10, after Ballytore, add.—(which see,) and dele the remaining part of the sentence.

BRODIEA, in Botany, so named by the writer of the present article, after James Brodie, esq., 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 inscribed.—Sm. Tr. of Linn. Soc. v. 10. l. 14. Phila. 223. (Hookera; Salif. Parad. 98.)—Cliffs and order, Triandria Monegynia. Nat. Ord. Spatanae, Linn. Narr. Juff.

Gen. Ch. Cal. none, unless the bracteas be fo called. Cor. of one petal, bull-shaped, cut half way down into fix nearly equal, oblong, rather spreading segments; throat crowned with three cedal scales, shorter than the limb, opposite to three alternate segments. Stam. Filaments three, inserted into the tube between the scales, and opposite to the other three segments, awl-shaped, cedal; anthers vertical, linear, shorter than the scales, cloven at each end. Pét. Germen superior, elliptic-oblong, triangular; style cylindrical, nearly the length of the itamens; 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 itamens. Capsule of three cells, with numerous seeds.

1. B. grandiflora. Large-flowered Brodiaea, or Millouri Hyacinth. Sm. n. 1. Pursh n. 1. (Hookera coronaria; Salif. Parad. t. 98.)—Scales of the corolla undivided. Partial flaks 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 Millouri rivers, flowering in April and May. It is reported to have bloomed in Mr. Salibury's garden, but is not admitted into Hort. Kew. or the Addenda to that work. The root is bulbous, folioid. Leave two, radical, linear, channelled, near a foot long. Flower-spike solitary, bearing an unequal, bracteated umbel, of upright, handfonse, blue flowers, each near an inch long, with yellowish fekke, and yellow anthers.

2. B. engelii. Crowded Brodiaea. Sm. n. 2, t. 1.—Scales of the corolla close. Partial flaks much shorter than the flowers.—Brought by Mr. Menzies, with 2 coloured drawing, from New Georgia. The flowers are rather numerous, smaller than the foregoing, and form a dense head, subtended by pointed bracteas.

BROKENSTRAW, a township of Warren county, in Pennsylvania, having 379 inhabitants.

BROMELIÆ, in Botany, the 15th order in Jussieu's system, the 5th of his third clas. See Junce.

The Bromeliae are thus defined. Calyx (Corolla of Linneas) in fix, more or less deep, segments, either superior or inferior, equal, or moftly 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 gemens. Germen simple, superior or inferior; ftyle one; stigma threeleft. Fruit of three cells, either pulpy and not burfting, or capfular and of three valves; each cell containing one or many feeds. The leaves are fhewing, all for the most part radical. Flowers spiked, panicled, or more rarely corymbose, each accompanied by a foath.


Seef. 2. Germen inferior. Xerophyta, Bromelina, and Aovee. BRÖMSGROVE, in Geography. In 1811, the parish of Bromsgrove contained 1378 houses, and 6932 persons; 3349 being males, and 3583 females: 357 families employed in agriculture, and 1085 in trade and manufactures.

BRÖNTZE. See Mineralogy, Addenda.

BROOK, Honey, in Geography, a township of Pennsylvania, in Chester county, with 1073 inhabitants.

BROOKE, a county of Virginia, containing 5843 inhabitants, including 3212 slaves.

BROOKFIELD, l. 3, r. 370; l. 11, for 421 r. 1384; l. ult., add.—containing 1037 inhabitants.

BROOKLINE, a town of New Hampshire, in Hillsborough county, having 538 inhabitants.—Allo, a town of Vermont, in Windham county, having 43 habitants.—Allo, a town in Strafford county, in New Hampshire, with 677 inhabitants.—Allo, 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 1025 houses, and 4850 persons; 2414 being males, and 2426 females: 48 families employed in agriculture, and 850 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 Lusitana, and several other learned works. The Broker of the late professor Willdenow, Sp. Pl. v. 3. 2399, Carthamus corymbosus of Linneas, 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 Broker is published by professor Sprengel, in Tr. of Linn. Soc. v. 6. 151. Its only species is B. perfica, brought by Olivier and Bruguere from Perou. We regret to observe that this is manifestly a Hypefs (see the article); and we lament that it was, from full confidence in its learned and distinguished author, too incursively admitted into the Linnean Tranfactions, for which
which the writer of this acknowledges himself cuttled to a fear of the blame.

BROTHERS' VALLEY, in Geography, a township of Pennsylvania, in Somerft county, having 3114 inhabitants.

BROUGH. In 1811 this township contained 131 houses, and 758 persons: 369 being males, and 389 females.


Eff. Ch. Calyx and petals spreading, Column unconnected, or attached at the base only to the stalked lip. Anther a moveable lid. Male of pollen four, parallel, divided by complete permanent partitions, and extending at the base into an ecalmic granulated thread. Obf. In some instances the base of the lip is elongated into a little tube, attached to the gemin.

1. B. fanguinea. Blood-red Broughtonia. Ait. n. 1. (Dendrobiun fanguiineum; Swartz Nov. Ait. Upf. v. 6. 82. Ind. Occ. 1529. Wild. Sp. Pl. v. 4. 132. Vicium radice bulbosa minus, delphinii flore rubro specioso; Sloane Jam. v. 1. 250. t. 121. f. 2.)—Leaves obovate, in pairs from the top of a bulb. Flower-stalk divided. This grows on trees and palisades in the woods of Jamaica, forming tufts of leaf-bearing bulbs, the leaves light green, two inches long. Stalks radical, a foot high, with a few handifome, corymbose, dark crimson flowers. This is the only species yet known in our fstones, nor have we an account of any other.

BOUSSONETIA, in Botany, (see PAPYRUS), where the history and description of this curious tree are given.

BROWN SPAR, or Bitter Spar. See Mineralogy, Alkendra.

BROWNFIELD, l. 2, for York r. Oxford; l. 3, r. 398.

BROWNINGTON, a town of Vermont, in Orleans county, having 236 inhabitants.

BROWNSVILLE. Add.—It contains 698 inhabitants.

BRUCHUS, l. 8, de keyree successively, and inftert—the infites of this genas are, in general, of a small kind. The B. granarius is found among leaves, vetches, and other feeds, the lohes of which it devours. It is about two lines long, of a black colour, and its wing-shells are freckled with white specks; the two fore-legs are reddish, and the thighs of the hind-legs armed with a tooth and forcepts. The B. humilis is rather smaller than the preceding, but like it, without the denticle of the hinder thighs. The exotic species are chiefly natives of America.

BRUNNERSTOWN, in Geography, a town of Kentucky, in Jefferson county, with 92 inhabitants, of whom four are fables.

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 lefs eminent for acutenes of observation, than for deep botanical science, whole discoveries in New Holland have to often been brought before our readers, and who met with this new and singular genus in that country. The memory of Dr. Patrick Brown, the natural-philosopher of Jamaica, being already preferred in the Brown, (see that article,) it has been found necessaary to adopt the above construction, authorized by prece-

Gen. Ch. Cal. Perianth double, both inferior; outer of four membranous, nearly equal, creft, concave, obtuse leaves; inner of one leaf, rather the longest, turbinate, permanent, with five fheath teeth. Cor. of one petal, funnel-shaped, longer than the calyx; limb in five deep, spreading, nearly equal segments, the two upper ones most deeply divided; tube separable into five narrow claws. Stam. Filaments five, capillary, weak, inserted into the receptacle; anthers linear, united into a cylinder, the length of the tube of the corolla. Pith. Germen inferior, roundish; ryle club-shaped, about twice the length of the lamens; fligma turbinate, obtuse, concealed by two vertical, equal, orbicular, concave, membranous, converging valves. Peric. none, except the inner perianth, fused with the membranous base of the corolla, both together enlarged and hardened, and crowned with the five fheath teeth elongated and diversificated, so as to form a crown-crown. Seed solitary, covered, ovate, destitute of albumen, with an erect embryo.


The generic distinction of Brunonia are abundantly cally; 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 Horace's imaginary feathered monfter, 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-fite, Tr. of Linn. Soc. v. 12. 132, has pointed out Brunonia as a connecting link between that family and the Goodnovia; nor are various other links between these very different tribes wanting. With great candour he nevertheless admits whatever favours our idea of its relationship to Dipsaceo and Glandularia, and moreover adverts to circumstances approximating it to the Styloideae, near allies of Goodnovia. Two species only have been detected.

1. B. auraitis. 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 fandy coasts of the south part of New Holland. Abondant in Van Diemen's island, and observed also on the opposite fhoat of New Holland, at Port Phillip, flowering in January 1804. Mr. Brown. Herb apparently annual, without a ftem, hairy all over, much rembending in habit, colour, and pubefcence, the Linnean Sefiabof cretica. Root fimpfe, tender. Leaves radical, numerous, ifpathulate, pointed, fingle-ribbed, entire, tapering at the base, two or three inches long, very hairy. Flower-stalks radical, soli- tary, fimple, hairy, efpecially the lower part, a foot high, each bearing a head of numerous blue flowers, not unlike the Sheep's Scabious, Jasione montana, but rather larger, and loofely hairy. The head is subtended by numerous, nearly equal, spreading, permanent, hairy bracteas, shorter than the flowers; the inner ones small, solitary under each flower.

2. B. ficosa. Silky Brunonia. Sm. as above, 367. t. 29. Br. n. 1.—Leaves fily with clofe-prefted hairs. Segments of the calyx with naked coloured tips.—Gathered by Mr. Brown, on the fandy fca-face at Pine Port, on the eft coast of New Holland, juft within the tropic, flowering in August 1802. The afpect and pubefcence of this species
species exactly answer to Scabiosa granifolia. It differs from the foregoing in having narrower, more numerous, silky leaves, and the flowers differ remarkably in the blust, coloured, naked points of their inner calyx.

BRUNSVIGIA, so named in 1753, by Heifl, in compliment to his patron Charles duke of BrunsvicL Luneburg. What were his ferene higness's claims to this honour, we know not, nor is Heifier any authority in such a cafe (see his biographical article); but we hope all Englishmen will ever have reafon to hail the name of BrunsvicL, wherever it appears, and the genus in question, long confounded with Amaryllis, being now restored, the name of Brunsvigia appears with peculiar propriety in the royal garden of England.—Heifl. Brunsv. 2. Ait. Hort. Kew. v. 2. 230. Ker in Curt. Mag. under p. 923*.—Clafs and order, Hexaentia Monogynia. Nat. Ord. Spathaceae. Linn. Nativ. Jull.

Gen. Ch. Cal. an oblong, obtuse, comprefTed, leafy sheath, of two valves, withering. Cor. superior, in fix deep, lanceolate, recurved, nearly equal segments. Stam. Filaments fix, awl-shaped, about the length of the corolla; anthers oblong, incumbent. Pjfr. Germen inferior, ovo- 

vate, with three furrows and as many rounded angles; fyle thread-shaped, the length and position of the flaments; stigma blunted. Peric. Capule turbinate, abrupt, with three rounded wings, membranous, somewhat transparent, of three cells and three valves. Seeds feral, ovate, acute; curved and comprefTed at the point.

Eff. Ch. Corolla superior, in fix deep segments. Cap- 

tule turbinate, membranous, with three wings. Seeds feral, pointed.

1. B. multiflora. Broad-leaved Brunsvigia. Ait. n. 1. (Brunsvigia; Heifl. as above, t. 1—3. Amaryllis orientalis; Linn. Sp. Pl. 422. Willd. Sp. Pl. v. 2. 58. Jacq. Hort. Schoenbr. v. 1. 38. t. 74. Narcissus indicus sphenicus; Morif. fct. 4. t. 10. f. 35. N. indicus, flore lilaceo, sphenicus; Ferrar. Fl. 125. t. 129. 131. 133.)—Leaves tongue-shaped, defempt, smooth. Flowers somewhat irregular, with ascending flaments and fyle. Native of the Cape of Good Hope. The bulb is not uncommon in our floves, but we never heard of its flowering. That defirable event however happened in the imperial garden at Schoenbrui, 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 moft flately of its flately tribe. The large fcaly bulb bears five or fix obvolute-oblong, dark green leaves, lying over each other in two ranks, and usually a foot long, near three inches broad. Flower-flalk earlier than the leaves, erect, round, a foot high, crowned with a broad fpuria, of two coloured valves, unequal in breadth, accompanying a very large umbel, of about thirty-five rays, fpuading in all directions, each fix inches long, bearing a solitary erect flower. All the flalls are more or lefs of a blood red. Corolla richly varied with cinfion and a kind of orange fcarlet; its segments an inch and a half long, acute, converging into a tubular form at the bafe, fpuading in the upper part, and reflexed. Capule two to four inches long, and one broad, pale brown, finning; tapering very much at the bafe.


3. B. Radula. Rapf-leaved Brunsvigia. Ait. n. 3. (Amaryllis Radula; Jacq. Hort. Schoenbr. v. 1. 35. t. 68. Willd. Sp. Pl. v. 2. 61.)—Leaves ellipiticl, defempt, rough with brillite tubercles. Flowers ringent, with declining flaments and fyle.—From the fame country, introuduced by Mr. Maffon, in 1790. Leaves two, leafine more, three inches long, rough-edged, covered on the upper side with brillite-pointed warts. Umbel three or four inches high, sometimes in pairs. Umbel of only four or five pink and white flowers, five of white fegments are directed upwards, the fifth defempt, along with the flaments and fyle.

4. B. friata. Striplon Brunsvigia. Ait. n. 4. (Amaryllis friata; Jacq. Hort. Schoenbr. v. 1. 36. t. 70. Willd. Sp. Pl. v. 2. 61.)—Leaves ellipitic-ovate, erect; densely fpuaded. Flowers nearly regular, with declining flaments and fyle. From the fame country as the ref, introduced by Mr. Maffon in 1795. Larger than the left, and diftinguifhed by its upright red-edged leaves. Umbel of many flowers, whose outside is rofe-coloured, inner paler, or whithe, the segments narrow, nearly or quite regular.

BRUNSWICK, in Virginia, l. 3. r. 15, 411 inhabitants, including 9368 females; l. 5. r. 4378; l. 6. r. 2254; l. 19. add—containing 143 inhabitants.

BRUNSWICK, North, contains 3980 inhabitants.

BRUNSWICK, South, contains 2332 inhabitants.

BRUNSWICK, in Maine, l. 5. r. 2682.

BRUNSWICK, a township in Brinks 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 Brunt contained 353 houses, and 1536 perfonns; 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 64 E. and W. The foil is rich and fertile, and well watered: it contains about 330 families, and 182 fenatorial 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 females.

BUBALIS, See Antelope.

BABASTUS, dele fee Didima.

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 brillite; tail-feathers generally ten. They are a folitary flupid race, living in fequeftered forests, and bifbiting principally on insects.

BUCEROS. Add—Several other species are mentioned by Dr. Shaw.

BUCANAN, l. 7, infer—l. 1520. Col. 3, l. 9, infer—in 1532; l. 10, r. Cellitus; l. 15, r. 1533; l. 18—this happened probably in the year 1537; l. 43, after said (but without sufficient evidence); l. uli. but one, infer after admired.—The next in merit is the 1537th, in elegiac verse. Col. 3, l. 19, after country, infer—In 1562, he officiated as classical 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. Aboot the year 1566, &c.: l. 30, after York, infer—in 1568; l. 55, after VI, infer—
— in 1570, when the young prince was only four years of age; 1. 43, after reading, infert—when the countess of Mar, hearing him wailing, 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 antithesis relative to the part which had received the châtiment. 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. 26th of September; l. 23, after Edinburgh—in the cemetery of the Grey Friars. Col. 5, l. 10, after unequal, add—although he maintains the unfeudalistic notion that the earth does not revolve round the sun, he supports 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 him the grave of a monument of a public man. Subjoin—See Irvine’s Life of Buchanan.

BUCKENHAM. In 1811, the parish of New Buckenham contained 127 houses, and 656 inhabitants; 315 being males, and 341 females. The parish of Old Buckenham contained 200 houses, and 1024 persons; 491 being males, and 533 females.

BUCKINGHAM. In 1811, the borough of Buckingham 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 1792 r. 1810; for 9779 r. 20,559; for 4168 r. 11,675. Also, a township of Bucks county, in Pennsylvania, having 1715 inhabitants. Also, a township in Wayne county, in the same state, having 1713 inhabitants.

BUCKINGHAMSHIRE, l. 19 and 20, r. In 1811, this county contained 21,929 houses, and 117,650 persons; 13,933 families employed in agriculture, and 8424 in trade and manufactures.

BUCKLAND, l. 2, for 718 r. 1097.

BUCKS, l. 5, for 25,401 r. 32,571; for 114 r. 11; l. 7, for 27 r. 29.

BUCKSTOWN, a township of Rofis county, in the district 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. Cofno Bueno, an eminent writer on the natural history and topography of Peru. There is no certain proof of this genus being distinct from what Ruiz and Pavon had already called Gonzalagonia. We are equally unacquainted with both.

BUFFALOE. Add—East Buffaloe contains 2869, and West Buffaloe 2373 inhabitants. Also, a township of Pennsylvania, in Washington county, having 1416 inhabitants. Also, a township in Armstrong county, in the same state, having 1150 inhabitants. Also, a township of Butler county, having 375 inhabitants. Also, a township of Ohio, in the county of Guernsey, having 285 inhabitants. Also, a township in Ohio, in the county of Jefferson, having 696 inhabitants.

BUFFY Coat of the Blood. Chemical Properties of. See Blood, fibrin

BUILDING, col. 10, l. 47, for 42d r. 14th.

BUILDTH, or BULIT, derived from Bu, an ox, and all, 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 431 females. The hundred of Bulth included 1686 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 RENAN.

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.

BUPRESTIS. At the close, dele which see respectively, 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 species of this genus fall 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 he founded the principles of botany are developed; the exclusive importance of the parts of fruitification, in forming characters, are especially insisted on, and the classification of Linnaeus, by the flaminis and pittis, is anticipated. Heitler published this letter, for the first time, in 1750, probably to depreciate the honour of Linnaeus. 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 shew the high estimation in which his performance was held. Heitler has named a plant Burdardia, but this is Callicarpa of Linnaeus, so called many years before.—Brown Prodr. Nov. Holl. v. 1. 272.—Cliff and order, Hexandra Trigymia. Nat. Ord. Melanthesae, Br.


BURGH upon the Sands, l. 4, as he was preparing for an expedition against the Scots. Hume.

BURICH. For BUDERICH r. BADELICH.

BURKE, in Geography, l. 2, r. 11,607; l. 3, r. 1433; l. 5, r. 10,747, and 4691: l. 9, add—containing 460 inhabitants.

BURKESVILLE, a town of Kentucky, in Cumberland county, containing 106 inhabitants, of whom 20 are slaves.

BURLINGTON, l. 6 and 7, for 18,695 r. 24,979, and for 227 r. 93; add—It contains 12 townships; l. 13, r. 24,19, and 4 slaves.

BURLETON, a township of America, &c. l. 3, add—This township is well watered, and abounds 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 $78,783 dollars. It has two Baptist meeting-houses, one for Congregationalists, and one for Quakers. The inhabitants are principally farmers.

BURLINGTON, a town of Massachusetts, in Middlesex county, containing 471 inhabitants.—Alto, a town of Hartford county, in Connecticut, having 1457 inhabitants.—Alto, a township of Lycoming county, in Pennsylvania, having 661 inhabitants.

BURNTING, Extraordinary Cafe of. Col. 3, p. 111, 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 2239 females.

BURLINGTON, a town of Rhode island, in the county of Providence, containing 1834 inhabitants.


Eff. Ch. Petals five, inserted into the receptacle. Capsule superior, compressed, of one cell, with four valves. Seeds two, winged.

1. B. Ipomoea. Thorny Burfaria. Cavan. Ic. v. 4. 30. t. 350. Ait. n. 1. (Itaca Ipomoea; Andr. Repof. t. 314.) —Native of New South Wales; first raised in 1793, by the late marchioness of Rockingham. This is a thorny, bushy, green-house shrub, flowering from August to December. The leaves are scattered, serrate, 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 3979 persons; 1844 being males, and 2135 females.

BURTON, l. 1, for Grafton r. Stafford; for 143 r. 194. Add—Alto, a township of Ohio, in the county of Geauga, having 517 inhabitants.

BURTON, 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. Salibury's original Burtonia proved an Hibbertia. (See that article.)—Brown in Ait. Hort. Kew. v. 3. 12. —Clafs and order, Decandra Monogynia. Nat. Ord. Papilionaceae, Linn. Loguminosae, Juff.


1. B. fcabra. Rough-leaved Burtonia. Ait. n. 1. (Gompholobium 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-house shrub, flowering from May to July. The leaves are ternate, sessile, 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 Gompholobium (see that article); but the unpublished species may be more distinct.

BURY, l. 10, after Peele, add—created a baronet in 1800, 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 Yorkshire r. Bolton-le-Moors 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 woolen manufactures, confisting 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; 4216 being males, and 4543 females. The parish of Bury includes six towns, viz. Bury, Elton, Heap, Higher and Lower Tottington, and Walmerley.

BURY ST. EDMUNDS, col. 3, l. 31, r. In 1811 this borough had 1474 houses, and 7986 inhabitants; 3559 being males, and 4447 females; 164 families employed in agriculture, and 966 in trade and manufactures.

BUSHHEL. Add—See Coal-Bushel and Weight.

Bute. The shire 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. BUTLER, WILLIAM.

BUTLER, in Geography, a county of Pennsylvania, containing 7346 inhabitants.—Alto, a township of this county, having 458 inhabitants.—Alto, a township of Ohio, in the county of Columbiana, having 316 inhabitants.—Alto, 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.
CABAL, l. m., after Shaffbury, infat—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 1003 inhabitants.

CABOS, in Geography, a town of Caledonia, in the district of Vermont, having 886 inhabitants.

CACHOLONG. See Mineralogy, Addenda.

CADIZ, in Geography, a town of Jefferson county, in Ohio, with 1374 inhabitants.

CADMIUM, in Chemistry, the name of a metal. This metal was discovered by M. Stromeyer in the autumn of 1807, while he was officially examining the apothecaries' shops in Hanover.

Cadmium resembles tin in its colour, lustre, softness, ductility, and the found it produces when bent. Its fp. gr. is 8.6359. It melts and volatilizes at a temperature a little lower than zinc. It preserves its splendour in the air, but by heat it changes into a yellow oxide, which is not volatile, and which is very easily reduced. This oxide does not colour borax; it dissolves very readily in acids, and forms colourless salts, from which it is precipitated white by alkalis. The hydrochloric acid (solution of sulphurated hydrogen) precipitates it yellow, like arsenic. Zinc precipitates it in the metallic state.

This all which at present we know of this metal, except that it was first obtained from the sublimates 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 Eglwyfian parish was 196, 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 595 inhabitants.

CAERMARTHEN, col. 3, l. 17, after it contains, add,—by the parliamentary returns in 1811, 1189 houses, and 7257 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 aman. The other rivers, not above enumerated, are, the Loughor, Llologh, or Llwyf, which separates this county for some distance from Glamorganshire, receiving in its course the Amman, which united streams discharge themelves into Caeramrthen bay, by a wide expanse called the Bury river, navigable for small vessels as high as the town of Llologh. Another river, denominated Gwendraeth 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 Gwendraeth vach, or the left. Other rivers are the Pycottor, which falls into the Dethia, and the Camdwer, which augment the Towy. The river Bran unites with the Towy below Llandover; the other tributary streams are, the Sawdwy, proceeding from a lake in the Black mountain, and the Cennen, which join the Towy, as well as the Cotthy and Gwilly, already mentioned. The Corwen and the Taf unites at the village of St. Clears, and run into the Caermetheen bay at Laugharne. The lakes of this county are Lllyn Tegwyn, or pwall yr Esgob, 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 Caermetheen 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 strait, and appear like one, situated on the banks of the river Cotthy, and near the ruins of the abbey of Talley. The mountains are part of Plynlimmon, and on the E. the long chain called the Black mountain, the summit of which, called y Fan, or Ban Sir Gaer, the Caermathenshire 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 chain from another eminence, of superior altitude, in Breconshire. Both are denominated Bannau Sir Gaer, or Caermathenshire beacons, in the plural, to distinguish them from those called Bannau Breconiego, or the Breconshire beacons. Another mountain lies on the borders of Glamorganshire, called Bettws mountain; it is a chain diverging from the Black mountain, at the upper end of the valley of Tawe, and stretching along the easterly 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 85, and others at 78, besides 12 chapelleries. The number of market towns is stated at eight. This county, by the last return in 1811, contained 14,856 houses, and 77,217 inhabitants; 9878 families employed in agriculture, and 5250 in trade and manufactures.

CAERNARVON. Add.—In 1811 the parish of Llan-

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**CÆS**

Lebbig, in which it is situated, contained 1,000 houses, and 4,595 persons; viz. 1,982 males, and 2,613 females.

**CAERNARVON,** a township of America, &c. l. 2.,-add—containing 1684 inhabitants.—**Allo,** a township of Berks county, in Pennsylvania, having 723 inhabitants.

**CAERNARVONSHIRE,** l. 17. r. In 1811 this county contained 9369 houses, and 49,436 persons; viz. 23,379 males, and 25,957 females: 6667 families employed in agriculture, and 2087 in trade and manufactures.

**CAERWENT.**-Add—The parish of Caerwent, in 1811, contained 60 houses, and 375 persons; viz. 206 males, and 169 females.

**CAERWYN.**-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 Caesar, a young Roman nobleman, illustrious for the patronage and cultivation of science, especially of natural history, who opened the academy of the Lynæsi at Rome in 1653. 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 fix deep, equal, spreading segments, deciduous. Filaments beadless, contracted at each end. Anthers attached by their cloven base. Germen of three cells, with two feeds in each. Style thread-shaped. Stigma one. Capsule scarcely valvular; tumid and lobed at the summit; or club-shaped. Seeds tumid, with an appendage to the scar.

Herbs generally annual, smooth. Root of clustered, thick fibres, or oblong knobs. Leaves grasy. Clusters either divided or simple, with aggregate or solitary flower-stalks, jointed under the corolla. Flowers whitish, or blue, erect, rarely drooping. Corolla becoming spiral after flowering, and soon falling off entire. Anthers yellow.

This genus approaches the Phalangium of Julius, but differs abundantly in the structure of the germen and seeds.


**CAFFISE,** or **Cahir,** in Commerce, a measure for corn in Spain, containing 12 fanegas. See Fanega.

**CAFFISIO,** a measure for oil in Sicily, weighing 12½ 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-leuca, a tree, &c.

**CAITNESS,** By the parliamentary returns of 1811, the shire of Caithness contained 4301 houses, and 23,419 persons; viz. 10,608 males, and 12,811 females: 3270 families employed in agriculture, and 838 in trade and manufactures.

**CAKILE,** in Botany, an Arabic name, used by Serapio.


Eff. Ch. Pouch of two single-seeded joints; feed of the uppermost erect, sessile; of the lower pendulous. Obv. The lower joint is occasionally abortive.

This genus is the real Bunius of Linnaeus, nor can we see why that name should be changed for the barbarous Cakile, though we agree with Mr. Brown in removing hither several species of Myagrum, as in the Prodr. Fl. Græc.

**CALABOSO,** in Geography, a town of South America, in Venezuela, situated between two rivers, viz. Guarico to the W. and Orituco 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° 45', 52 leagues S. of Caracas, and at about the same distance N. of the Orokonoko, and in the year 1804 its population amounted to 4900 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 filiform, with rows of glands on its díke. Style winged. Anther a moveable lid. Pollen powdery.

An elegant tribe of small herbaceous plants, clothed with glandular, intermixed withimple, hairs. Bulbs undivided, terminating the deflexing base of the item, inclosed in a falcate coat. Leaf solitary, nearly radial, mostly linear, enclosed by a sheath at the base. Stalk bearing one bracteà, besides those immediately accompanying the one, two, or three inodorous, variously-coloured, flowers. Anther most frequently pointed.

Mr. Brown defines thirteen gym-nine species, from various parts of New Holland. Their, 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 confines 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 Lptoceras is given.

Of the true Caladenia, the first only, C. alba, has been brought alive to England, by Mr. Geo. Caley in 1810, and is marked by Mr. Aiton as a green-house plant, flowering in July and August. — The fifth species, C. alocia, is probably Arathufa cistena, Sm. Exot. Bot. v. 2. 89. t. 104.

**CALADIUM,** a name used by Rumphius, for some kinds

Eff. en. Sheath of one leaf; convolute at the base. Spadix covered at the summit with peltate many-celled anthers; glandular in the middle; covered with germines at the base. Stigma umbilicated. Berries of one cell, with many seeds.

This genus, differing from Arum chiefly in the spadix being covered in all its upper part with flowers, except in some inflorescences, 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 Martinico and the Caraccas. The flowers are greenish-white, on radical flakels. Leaves a foot in breadth, of eleven elliptic, acute leaflets.

Sect. 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 seffile; blood-red in their lower half; white, like the spadix, above. The spadix.

3. C. ovatum. Ovate Caladium. (Arum ovatum; see our n. 22. Linn. Sp. Pl. 1371. Karin pola; Rheed H. Mal. v. 11. t. 23.)


5. C. sympbiloferum. Water-lily-leaved Caladium. Willd. n. 5. Ait. n. 3. (Wellisia; Rheed H. Mal. v. 11. t. 43. t. 22.)—Stem none. Leaves peltate, ovate-arrowshaped. Shoot cylindrical, with a lanceolate point, shorter than the spadix. —Native of the East Indies.


7. C. acer. Acid Caladium. Br. n. 1.—Stem none. Leaves peltate, heart-shaped. Spadix obtuse, with a very short, occasional, naked point. Shoot 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 anthers at the summit of the spadix, from the last, which has a manifest acute naked point, and he does not see how the latter is distinguished from Arum Colocasia.


Sect. 3. With leafy flarks. Eight species.


Parasitical on trees at the Caraccas. Sent by Jacquin, under the same name, to Willdenow.


—From the Caraccas.


CALDAIR, L. 3, for 43 r. 41. to a town of Washington county, in the district of Maine, which by the census of 1810 contained 372 inhabitants.—Alto, a town of Caledonia county, in Vermont, containing 844 inhabitants.

CALCIUM, in Chemifs, the metallic basis of lime. See Lime.

CALDARA DA CARAVAGGIO, Polidoro, in Biography, an eminent painter, was born in the Miknes, 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 bas-reliefs, which he executed in chiaro-occurso. His style was in so peculiar a fenre 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, fays his biographer, into the times of which he represented, the transfigurement, 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 fable of Niobe, left in ruins by time and the rage of barbarians. For these loaves we are compensated merely by the prints of Cherubino Alberti, and Henry Golzuers, who engraved his gods, the Niobe, and the Brennus; and also by the etchings of Santes Bartoli and Gallefruzi. On occasion of the pilgrimage 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-occurso 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 finished 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. His death in 1543, at the age of 51 years. Pilkington's Dict. of Painters by Fufeli.

Caldwell, in Geography, a town of Effex county, in New Jersey, containing 2235 inhabitants, of whom 54 are slaves.—Alto, a county of Kentucky, with 4268 inhabitants, including 2770 slaves.

Calectasia, in Botany, from nuxis, beautiful, and calea, an extension, or dilatation, alluding to the elegant flaring expansion of the corolla. —Brown Prodr. Nov. Holl. v. 1.
CAL


1. C. cyanus. Blue Calceopsis. Br. n. 1. Bot. of Terra Aufr. 77. 1. 9. —Found by Mr. Brown, on the southern coast of New Holland. —A little shrub, flowering in December, very much branched, clothed with acero remaining leaves. Flowers solitary, at the ends of the short branches. Tube of the calyx covered by the flaes of the leaves; the limb prominent, like a bright blue star, of fix equal rays, the three outermost downy underneath. This pretty genus is not very nearly allied to any other, though something like *Aphylla*; but very different in structure, and rather approaching *Dasyphoe*, hereafter to be described.

CALEDONIA, a county of Vermont, l. 2., r. 23.

add.—In 1810, it contained 18,750 inhabitants.

CALEIDOSCOPE, or KALEIDOSCOPE, from καλείδος, beautiful, ὄπως, a form, and σακτος, 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-crytal, from which the light scatters all reflection. The plate 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 the distance of vision is obtained at one end, by placing at the other end an eye-glaf, 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 increaf be 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 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 interlacement of the two planes, it will perceival a circular field of view, composed of as many luminaries as the number of times the angle formed by the reflectors is contained in 360°.

These edges, 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 refractions between the inclined reflectors. The images formed by each 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 caleidoscope 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 contruct a multiplying-glas 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 caleidoscope, 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 single 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 substanences places 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 irregular masses 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 succeffively 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 field 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 superceded; 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 instrumt, 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 caleidoscope is of great use in the ornamental arts, particularly to carpet and lace manufacturers, calico-printing, paper-drawing, 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 while
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 exhibited to many persons at once, on the principles of the solar microscope, or magic lantern. The instrument for scientific purposes is occasionally so constructed as to admit of the inclination of the reflectors being varied at pleasure. Under the authority of Dr. Brewster, calidoscopes 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, professing none of the properties which are essentially necessary to the production of beautiful and symmetrical forms; and in order to justify 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 supposed 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 calidoscope in giving the propositions alluded to. The next supposed anticipation was an instrument proposed and made by Mr. Bradley in 1717, which consisted of two pieces of silvered looking-glasses, 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 amusement by the creation of beautiful forms: indeed, from its construction, it is quite incapable of producing any of the singular effects of the calidoscope. 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 due, we give the following statement of the differences between the two instruments, upon the supposition 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 figure consists of elliptical, and consequently unequal sectors.
5. In Bradley’s instrument, the unequal sectors do not unite, but are all separated from one another by a space equal to the thickness of the mirror-glass.
6. In Bradley’s instrument, the images reflected from the first surface interfere with those reflected from the second, and produce a confusion and overlapping of images entirely inconsistent with symmetry.
7. In Bradley’s instrument, the defects in the junction of the plates are all rendered visible by the erroneous 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 calidoscope.

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, 1806.

CALEYA, in Botany, a very distinct and elegant genus, thus named by Mr. Brown, in jubilee 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. 214. (Caleana; Br. Prod. Nov. Holl. v. 1. 329.)—Clafs and order, Gymnandria. Nat. Ord. Orchidae.


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 few, brownish-green; the lip and column red. The lip is moveable, reflexed; but during rain it becomes inflated over the column, which Mr. Brown is doubtful whether to attribute to the diminution of light, or to the irritation of the rain.


Eff. Ch. Fruit uninterrupted, uniform. Receptacles cup-shaped, cartilaginous, stalked, more or less elevated, containing a compact powdery mass of seeds, forming an even disk.

Acharius defines twenty-five species of this curious and beautiful, though minute and inoffensive genus of the Lichen tribe. They form grey, white, or yellow patches, of various extent, on old wrought wood, or boards, exposed to the
CALNE. The borough and parish of Calne, in 1811, contained 750 houses, and 3547 persons; vis. 1621 males, and 1926 females: 535 families employed in agriculture, and 432 in trade and manufactures.


Eff. Ch. Calyx perish, two lower leaves under the lip. Petals small, yellow, and red. Lip longer than the calyx, fertile, pointed; beard at the margin and on the disk. Anther parallel to the stigma, permanent.


Eff. Ch. Petals five. Nectary with twelve segments, bearing the stamens. Berry globose, with one or two seeds.

Di stinguished from Pancratium, as Mr. Brown observes, chiefly by the structure of the single-celled stamens 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-tallk 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, tubinate; 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. Stam. Filaments very numerous, in four or five sets, opposite to the petals, the claw of each set 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. Pillo. Germe in the bottom of the calyx, small, roundish; style thread-shaped, erect, shorter than the stamens; stigma acute. Peric. Capsule clothed with the base of the calyx, and firmly united to the branch, roundish, of three cells. Seeds numeros, small, oblong.
CAL

Eff. Ch. Calyx in four or five segments. Petals four or five. Stamens numerous, very long, in several various fts, opposite to the petals; anthers linear, undivided, vertical. Capsule coated by the calyx, three-celled, permanent. Seeds numerous.

Obf. The flamen in fome species confift of uniform fets, answerable to the number of the petals; in others, two or more of thofe fets are partially combined laterally, the remainder being diminished to fimple threads, without anthers, and this is the character of the genus as M. Labillardiere underftood it and defcribed it. But Mr. Brown has, in conformity to nature and analogy, not limited it fo strictly. We adopt his views of the genus, only begging leave to conftruct the effential character without exceptions, such paraphology being left avoided. The genus before us comes next to Beaufortia, (fee that article,) and is fuch as fplendid, differing from it effentially in the ftucture of the anthers, and in having numerous feeds. From Mr. Lalaeuca, (fee that article in vol. xxiii.) the difference is ftriking, but we believe very effential, conflating in the vertical, not incumbent, anthers. To this Mr. Brown adds that the inflorefcence is unilateral.

1. C. fanguinea. Blood-red Unequal Calothamnus. Labill. Nov. Holl. v. 2. 25. t. 164.—Flowers four-cleft. Sets of flaments combined; two of them imperfect, diftinâ. Adult leaves linear-awlshaped, compressed, smooth.—Native of Lemon's land, flowering in December. A flabulif, six feet high, with round, scarred branches. Leaves scattered, flender, acute, entire, rather above an inch long; hairy when young. Flowers in small lateral fefile tufts, about the length of the leaves, confpicuous for their blood-red flaments, two fets of which unite to form a broad, wedge-shaped, concave body, divided at the top into numerous, vertical, parallel flaments, each bearing an upright linear anther; the two remaining fets diminished to fimple, awl-shaped threads, without any anthers. Capsule small, globose.

2. C. quadrifida. Four-cleft Equal Calothamnus. Br. in Eff. Ch. n. 1. Sims in Curt. Mag. t. 1506.—Flowers four-cleft. Sets of flaments equal and diftinâ, 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 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 inconufpicuous. The leaves are linear-chavate, or somewhat fpatulate, but extremely narrow, hardly more than an inch in length.

3. C. vilicâ. Hairy Five-cleft Calothamnus. Br. in Eff. Ch. n. 2.—Flowers five-cleft. Sets of flaments equal and diftinâ, 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-flabulif, flowering at Kew, from July to September.

4. C. gracilis. Slender-leaved Calothamnus. Br. in Eff. Ch. n. 3.—Flowers five-cleft. Sets of flaments equal and diftinâ, with only three anthers to each. Leaves elongated, smooth, as well as the prominent calyx. Stem branched.' Native of the fame country as the last.

No other species have been hitherto defcribed.


Eff. Ch. Corolla. Crown of the flaments fimple, of five keeled fakes, attached lengthwise to the tube of the flaments; recurved at the base. Maffes of pollen, smooth, pendulous. Stigma pointif, smooth. Foliages tumid, smooth. Erect smooth milky flubs, with broad opposite leaves, and handsome large flowers, in lateral corymbofe panicles, inferted between the footstalks. Only two species are defcribed.

1. C. procrea. Bell-flowered Auricula-tree. Ait. n. 1. (Afclepias procrea; Ait. ed. 1. v. 1. 305. Willd. Sp. Pl. v. 1. 1265. Schenev. 1. c. 18. (See Afclepias, n. 29.) A. gigantea; Andr. Repof. t. 271. "Z/ga-rack; LeBrun Voy. v. 155. t. 184."—Segments of the corolla spreading.—Native of the Florid fhrub impatinent of damp and cold, flowering from July to September. The whole plant is glaucous, fix or seven feet high, with broad, fefile, entire leaves. Flowers irregularly corymbofe, numerous, larger than in most of this tribe, an inch or more in width, of a rich brownif-purple, powdered like an Auricula; pale beneath.

2. C. gigantea. Curled-flowered Auricula-tree. Ait. n. 2. (Afclepias gigantea; Linn. Sp. Pl. 312, excluding the synonmys of Plukenet and Alpinus. Willd. Sp. Pl. v. 1. 1264. (See Afclepias, n. 6.) Ericu; Rheed Hort. Mal. v. 2. 53. t. 31.)—Segments of the corolla reflexed, with twifted points.—Native of fandy ground on the coaft of Malabar. Very like the foregoing, but the corolla is differently flaped, as exprefsed in the character, and is laid to be variegated with white and purphili-red, fmmelling like a lily. We beg leave to obferve, that if priority of date were to determine generic names, without regard to the found regulations of Linnæus, Mr. Brown's elegant Calotropis must give way to Rheed's Ericu, 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, 8005 inhabitants, including 3937 flaves.

CALYPSO, in Botany, an elegant clafical name of Mr. Salibury's, from kalypso, to cover or conceal, not merely alluding to the covering of the ifmaga, but preferring a poetical analogy between this botanical beauty, to difficult of access, and the fecluded goddess, whose ife was fabled to be protected miraculously from the obervation of navigators.—Salib. Parad. 89. Brown in Ait. Hort. Kew. v. 5. 308. Purfii 593.—Clafs and order, Gynandria Monandria, Nat. Ord. Orchidées.


CALYSTEGIA, a genus feparated by Mr. Brown, Proor. Nov. Holl. v. 1. 483, from Convulvus, and chiefly diftinguifhod by the great fize of the two leafy bracteas, including
inclining the calyx, whence the name, from καλύξ, and τεσσ. io cover. Convulvulus fünum and C. Solidmela of Linnaëus, with several others, confluence this genus, which appears to us better omitted. CALYX-YUC, denotes, according to the chronology of the Hindoos, the present or fourth age of the world.

CANALODUNUM, l. 3. Tr. Trinomaites.

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 11,109 persons; viz. 4854 males, and 6255 females; but since that time much increased in buildings and inhabitants.

CAMBIUM, l. 3, for CORTICAL LAYERS r. Cortex; l. 39, for PITH and MEDULLARY CANAL r. MEDULLA. Col. 2, l. 5, r. Monocotyledones.

Cambio, in Geography, a county of Pennsylvania, containing 2117 inhabitants.—Alto, a township of the same county, having 868 inhabitants.

CABRIDGE, col. 4, l. 7, add.—By the return in 1811, the borough and university of Cambridge contained 1999 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, 6730 inhabitants, and 650 senatorial electors; l. 10, for 2115 r. t. 3233; l. 38, r. 990.

Cambridge, a town of Guernsey county, in Ohio, having 474 inhabitants.

Cambridge, West, a township of Middlesex county, Maffachusettts, 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 50,333 females; 12,831 families employed in agriculture, and 3383 in trade, manufactures, and handicraft.

CAMPDEN, a county of North America, l. 3, for 4033 r. 347.

Camden, a county in Georgia, &c. l. 3, r. containing 3241 inhabitants, of whom 2681 are slaves.

Camden, in the district of Maine, contains 1607 inhabitants.

Camden, a poft-township of Oneida county, in the state of New York, watered by the W. branch of Fith creek, containing about 1100 inhabitants, principally farmers from Connecticut.


Mr. Brown finds this genus on the Myagrum fimilem of Linnaeus, and the M. (not Altham) auffricum of Jacq. Aútr. 1. 111. The first is the only Camelina of Crantz above cited, who distinguishes it from ALTHAM, (see that article) by the connection between the style and the valves of the pouch, the style of Altham being connected with the position only. Mr. Brown's distinction depends chiefly on the position of the cotyledons; for every Altham has not toothed filaments. Of Myagrum auffricum we do not feel competent to judge, but we are disposed to keep the furwum an Altham, as in Fl. Brit. and Engl. Bot. t. 1254, unless it could be set apart along with Altham urticulatum of Linn.
equilibrium would be lost, and all counterbalance when the criffin had entered to such depth as to allow its contained vessel to go out.

For Harlepool Canal r. Hartley Canal; for Durham r. Northumberland; and for Harlepool r. Hartley.

CanaL, Bafing flake, col. 2, l. 3, after commences in, infert.—Cooper’s meadow, adjoining to the town of Bafing flake, and enters the river Wey about two miles above Weybridge; dle, l. 3, 4, 5, from Wey to Bafing flake; l. 18, after Lodden, add—The proprietors are prohibited from touching the Lodden, or any of the springs or freams that feed it.

Canandaigua, or Canandaigua, l. 11, r. In 1810, this township had 415 families, 206 featalional electors, and 2592 inhabitants.

Candarine, a money of account in China, where 1 tale is = 10 marcs = 100 candarins = 1000 catt.

Candles, Laurus relating, col. 2, l. 2, add—By 40 Geo. III. c. 98. duties of culsoms are likewise imposed; l. 8, r. c. 6.

Candy, a weight in the East Indies. At Madras the candy is 500 lbs. avoidupois, = 20 maunds. See MAUND.

Canfield, in Geography, a township of Trumbull county, in Ohio, having 454 inhabitants.

Canhada, a liquid measure in Portugal, 6 canhadas being = 1 port, r. See Almuda.

Canicular Year, c. 2, l. 16, for in r. on.

Canne, or Canne, a measure for cloth in Italy, and the south of France, Spain, &c. each canna at Barcelona being = 61.4 English inches; at Florence, = 93.1 English inches for woollen and 91.7 for silk; at Genoa, = 116.7 English inches; at Majorca, 67.5; at Malta, 81.9; at Marseille, 79; at Montpellier, 79.8; at Morocco, 101.4; at Naples, 83; at Palermo, 76.2; at Saragossa, 81.5; at Toulouf, 71.7.

Caniquaquanasing, in Geography, a townfsip of Butler county, in Pennsylvania, having 1284 inhabitants.

Cano, l. 3, r. 1601; l. 7, after Sevilla, and under Juan Martinez Montanes; l. 26, infert.—In 1643 he removed to Toledo; and upon, &c.

Cantbrbury. This city, by the return of 1811, contained 2093 homens, and 10,500 inhabitants; viz. 4603 males, and 5597 females: 508 families being employed in agriculture, and 1194 in trade and manufactures.

CANDARIUS, l. ult. 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. bipululata is a beautiful insect, somewhat smaller than the preceding, of a very dark but elegant gilded green, with the tips of the wings, shells, red, and on each side of the thorax a triple vehicle 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, —The caufes of the apparent, &c.

Canton, in America, add—and containing 1353 inhabitants.—Alfo, a town of Hartford county, in Connecticut, having 1374 inhabitants.—Alfo, a town of Luzerne county, in Pennsylvania, having 472 inhabitants.—Alfo, a township of Washington county, in the same state, containing 1415 inhabitants.—Alfo, a town of Stark county, in Ohio, having 846 inhabitants.

Canton, in China, l. 17, after houses, infert—built of brick. Col. 2, l. 1, add—Thofe fampanes, as they are called, accommodate, at the very lowef 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. Du Halde estimates it at a million; and Sonnerat, 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 suburbs may probably contain about 150,000.

Cadutchou, in Chemiftry. In addition to what has been said of this Singular Substancy, we may observe that it has been lately flated to exist in a great variety of plants, though it has been hitherto unfily confounded with other Substancies. It may be separated from the defcriptions of mifeletto by water, with which it readily combines, and then in alcohol, till all the Substances soluble in these liquids may be extracted. The residuum is then to be dried and digefled in four times its weight of rectified petroleum. Express the liquid part by fqueezing the Substancy in a linen cloth. The liquid is then to be put by for some days to fettle, and after the clear part has been poured off, the remainder is to be mixed with a third part of water, and diluted. The caoutchouc remains behind.

According to Bachofel, a considerable proportion of caoutchouc is contained in opium. Mallic alio is flated to contain a Subftancy very similar to caoutchouc.

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Cape, or Cape, a name sometimes given by farris to a swelling of a weney kind, which grows on the hock of a horfe, and on the point of its elbow. It often arises from bruises, and in this cafe should be bathed with hot vinegar and alum; but when they grow gradually on both hees and elbow, blood is extravafated. When this happens, fuppuration should be promoted by rubbing the part with infimum unguents; and when matter is formed, the skin should be opened with a lancet, in more dependent

3 G parts
parts towards one side, for avoiding a fear. The subsequent
dressings may be turpentine, honey, and tincture of myrrh.

CAPEMAY, in Geography, a county of New Jersey, con-
taining 36,342 inhabitants, of whom 81 are slaves.

CARAGE of Lime, denotes the quantity of sixty-four
bushels.

CARALLIA, in Botany, Carallia 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. Coromand.

v. 3. 8.—Clavis and order, Jaffandria Monogynia. Nat. Ord.

Hesperide, Linn. Myrti, Jiff.

Eff. Ch. Calyx in six or seven segments, superior. Petals
fix 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 Circar mountains. A
small, handsome, evergreen tree, flowering in March and
April. Leaves on short stalks, opposite, elliptical, acute,
finely serrated, smooth, four or five inches long, and two
or two and a half broad. Flowers small, yellow, in little,
aggregate, axillary, flaked heads. Berry the size of a pea,
reddish. Seed large, with a strongly curved embryo. No-
thing 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 flate, with greater accuracy and
precision, the nature of some of the compounds of carbon,
than at the period when this article in the Cyclopedia was
written.

Carbonic Oxid.—It has been shown 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

<p>| Oxygen   | -       | 57.14 |</p>
<table>
<thead>
<tr>
<th>Carbon</th>
<th>-</th>
<th>42.86</th>
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<tr>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

And its true specific gravity must be .9722, and 100 cubic
inches of it will weigh, at a mean temperature and pressure,
29.652 grains. Carbonic oxide has the property of com-
bining 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 oxy-
gen suffers no change. Hence it is obvious, that, by sub-
tracting the specific gravity of oxygen from that of car-
bonic acid gas, we shall obtain the quantity of carbon existing
in it. The specific gravity of oxygen gas is 1.111, and that
of carbonic acid 1.52. Hence 100 parts, by weight, of
carbonic acid will consist of

<p>| Oxygen   | -       | 72.73 |</p>
<table>
<thead>
<tr>
<th>Carbon</th>
<th>-</th>
<th>27.27</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

which correspond with two atoms of oxygen and one of
carbon. See Atomic Theory.

Carburized Hydrogen.—The specific gravity of carburetted
hydrogen, according to Dr. Thomson, is .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

<p>| Carbon   | -       | 75    |</p>
<table>
<thead>
<tr>
<th>Hydrogen</th>
<th>-</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

which correspond with one atom of carbon and two of oxygen.

Olefant Gas.—The specific gravity of this gas, according
to Dr. Thomson’s experiments, is .974, and 100 cubic inches
of it weigh 29.72 grains. It requires for its complete com-
bustion three times its volume of oxygen gas, and produces,
when burnt, twice its volume of carbonic acid gas, and a cer-
tain proportion of water. Hence 100 parts, by weight, of
this gas are composed of

<p>| Carbon   | -       | 85.71 |</p>
<table>
<thead>
<tr>
<th>Hydrogen</th>
<th>-</th>
<th>14.29</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.00</td>
<td></td>
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</tbody>
</table>

This oily liquid, which Dr. Thomson considers as a fort
of ether, and hence names it chloric ether, burns with a green
flame, and at the same time gives out copious fumes of
muratic acid and much foot. Its specific gravity at 45° is
1.2201, water being 1.000. It boils at 152°. At the
temperature of 49°, 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 puffed through a red-hot porcelain
tube it is decomposed and converted into muratic 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 puffed through red-hot oxyd of
copper.

With respect to the carburettes, 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.

CARDONIC Acid Gas, col. 2, l. 5, add.—According
to the accurate experiments of Meiffers. Allen and Pepys,
recorded in the Phil. Trans. the weight of a cubic inch of
this gas is .464 of a grain. Col. 3, l. 46, r. milkins.

CARDAMOM, l. 2, infert after Cardamom, angylifec-
ium, grana Paradisia, &c.

CARDIFF, col. 2, l. 9, infert after canal.—The town-
hall of Cardiff is a respectable modern building, and near it
C A R

is the county gaol, built upon Mr. Howard's plan; l. 14—
By the parliamentary return in 1811, the number of inha-
bilants is stated at 2457. The only manufactury 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 Merthyr, Melin
Gruydydd, &c., the produce of which is conveyed here by
the canal for exportation, and which creates a large import
trade from Bristol, &c., in ship goods to supply the con-
sumption of the interior country. There are regular paffage-
boats twice a week from this place to Bristol.

Cardiff is a borough-town, and in conjunction with the
contributory boroughs of Cowbridge, Llantrant, Keaf^g,
Aberavon, Neath, Swansea, and Loughor, sends one mem-
ber to parliament.

CAREX, col. 4. l. 11, r. banata.
CAREY, in Botany, named by Dr. Roxburgh, "after its
discoverer Mr. William Carey, a good botanist, and a pro-
moter of natural history in general."—Roxb. Coromand.
v. 3. 13. Ait. Hort. Kew. v. 4. 236.—Clafs and order,
Myrti. Juif.

Eff. Ch. Calyx superior, four-cleft. Petals four. Style
one. Germen of four cells. Berry with numerous seeds,
imbbed in pulp.

1. C. herbacea. Herbaceous Careya. Roxb. as above, l.
2.17. Ait. n. 1.—Herbaceous. Flowers flaked. Outer
filaments long and without anthers.—Native of Runghope,
in Bengal, flowering in February. Rot woody, perennial.
Stems a tap root, annual, round, smooth. Leaves opposite,
obovate, 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 flaments crin- 
forn, capillary, two inches long, recurved, without anthers, about
twice the length of the obvate petals. Berry brown, the
size and texture of a medlar.

2. C. arbores. Tree Careya. Roxb. as above, l.
(Pelou ; Rheed Hort. Malab. v. 3. 35. t. 36.)—Arbo-
reous. Flowers sessile. Inner filaments short, and without
anthers.—Native of the valleys, in various mountainous parts
of India. A large tree, with obovate, slightly ferratated, smooth,
deciduous leaves, from fix to twelve inches long. Flowers
crowded, pale yellow, appeaing with the young leaves in
March. Fruit the size of a small orange, felnid and nafenous
till quite ripe, when the pulp becomes ferratated; but Rheed
reports it to be poisonous, which, considering its affinity to
Pfludum, is not credible. Dr. Roxburgh gives no account
of this matter, but describes the wood as the colour of ma-
hogany, though lefs hard and clofe. The fibrous bark
makes tough and durable ropes.

CARGA, a measure for wine and oil at Barcelon^,
equal to 2 1 quaters.

CARGADOR, in Portugal and Holland, denotes a
ship-broker.

CARGILIA, in Botany, is dedicated to the memory of
Dr. James Carell of Aberdeen, a contemporary of Capar
Baun, in whole Prodrornus, p. 154, 155; (Mr. Brown by
mistake refers to his Theatrum,) several descriptions of Puci,
communicated by Dr. Cargill in 1603, may be seen.—Brown
Prodr. Nov. Holl. v. 1. 230.—Clafs and order, Polygama
Juif. 671.

Eff. Ch. Calyx inferior, half-four-cleft. Limb of the
corolla four-cleft. Stamens inserted into the base 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, flaments; others only the rudiment of a pistill.

This genus is intermediate between Diospyros and Ma^a.
See those articles.

1. C. laxa.—Leaves oblong, rather wavy, smooth. Calyx
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. alpina.—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.

CARMELITES. Add.—See Taro.

CARN, or Cahn. See Carnedde.

CARNESVILLE. Add.—See Franklin.

CAROLIN d'Or, or CAROLIN, a gold coin of Bavaria,
Hefle Darmfitat, and Wurtemberg, valued at 11 florins.
See Coin.

CAROLINA, N. and S. See United States.

CAROLINE, l. 4. r. 17544; l. 5. r. 10764; l. 8, r.
9453; l. 10. r. 1520.

CARORA, l. 2, infer.—15 leagues E. of Maracaybo,
in N. lat. 1°. The town is tolerably well built: the
streets are large and on a line; the air is fabulous, though
the foil is parched; the inhabitants, amounting to about
6200, live on the produce of their flocks and herds, and em-
ploy themselves in tanning and dreeing the hides and skins,
which are used in the city for boots, shoes, saddles, bridles,
and curriage. The surplus of the local consumption is spread
over the produce, or is conveyed to Maracaybo, Cartha-
gen, and the island of Cuba. They also make, with a
kind of fibre (abejlofticha,) very good hammocks, which
furnish an article of commerce. Depons.

CARPATHIAN MOUNTAINS, l. 22, r. Zemnit.

CARPHA, in Botany, so named by Sir Joseph Banks
and Dr. Solander, from xag, dry shrub or chaff, in allusion
to the habit of this genus.—Brown Prodr. Nov. Holl. v. 1.
Camarineae, Linn. Cyperaceae, Juif. Dr.

Eff. Ch. Spikelets single-flowered; scales imperfectly
two-ranked, the lower ones empty. Brilles three to six,
beneath the germen, as long as the fertile scale. Style
awl-shaped, without a joint, crowning the prismatic nut.
Stigmas two or three.

Sect. 1. Spikelets two-ranked. Stigmas three. Nut trian-
gular. Brilles feathery.

1. C. alpina.—Spikelets in a corymbose cluster. Brilles
fixed, feathered nearly to the top. Stem leafy, smooth,
Leaves rough.—Native of Van Diemen's island.

2. C. dehiscens.—Tuft terminal. Involucrum of two don-
gated
gated leaves; dilated and membranous at the base. Brilles three, feathery at the base. Stem leaflets. Leaves radical, almost bristle-shaped. —Native of Port Jackson.

These, with a non-descript species from Terra del Fuego, constitute, in Mr. Brown's opinion, the genuine genus of Carpho, the following being perhaps entitled to form one by themselves.


CARRICK. See Trankey.

CARTER, l. 1. infert E. Tenebros. Add.—It contains 1l. 4s. 6d. See Tax.

CARTERET, in Carolina, &c., l. 3. r. 4823; l. 4. r. 4190 inhabitants, 202 being claves.

CARTS, Laws relating to, col. 3. l. 49, for 1l. 4s. r. 1122.

CARTHAMUS, Chemical Properties of. Many experiments have been made on the colouring matter extracted from this plant. The last 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 expelling the carthamus wrap up in a piece of linen to the action of a stream of water. To separate the red colouring matter, he macerated for an hour the carthamus, after it had been thus 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 left 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, and was allowed to separate the red colouring matter. This alkali separated the colouring matter from the cotton. This alkali after being removed, and also having 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 diffuse it, but destroy its colour. When diffused, it yields a little water, scarcely any gas, a little oil, and a portion of char-
coal, 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 substances according to Dufour, many of which, such as alumina, fand, &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. papuanum. —Found by Mr. Brown in the tropical part of New Holland. Root perennial, tuberculous below the fibres. Herb clothed with lax hairs, much resembling Philodium in appearance. Stem leafy, simple, or slightly branched. Leaves linear, clasping, elongated. Spike terminal, of many yellow flowers, each with two unequal, leafy, permanent bracteas. The habit, as well as the permanent flamen and style, lead Mr. Brown to suspect some affinity to Philodium. Hence perhaps the true place of that puzzling genus may be discovered.

CARVER, in Geography. Add.—It contains 358 inhabitants.

CASEIN, infert.—Or CAUSEEN, l. 11, after broad, add —it may still, 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 237 are claves.

CASH, a small coin in China, and India beyond the Ganges. See Tale.

CASHERING, 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 TAPICA, Chemical Properties of. This is prepared from the roots of the Jatropha manubot, an American plant. (See Jatropha.) These are peeled and subjected to pressure in a bag made of rushes. The ex- pressed juice is a virulent poison, and is employed by the Indians for poisoning 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 nutritive. What remains in the bag also confits chiefly of the same starch. It is dried in smoke, and afterwards pressed through a kind of sieve. Of this substance, the cassava bread, to much employed in the West Indies, is made.


1. C. aerea. Yellow Cassinia.—Native of the south coast of New Holland. Br. Seeds were sent to Kew, by Mr. Good, in 1803. The plant is marked as a green-houe perennial herb, flowering in July and August, but we have no account of its habit or appearance.

CAST, for BRAHMS, r. BRACHMANS.

CASTELLANO, a weight for gold in Spain, 50 castel-
lanos.
CAV

Lucas being = 400 tomises or 4500 grains. Silver is weighed by the same mark of 50 obellinos, divided into 8 ounces, 65 obellinos, 128 adanneau, 384 tomises, 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 1405 inhabitants; 650 being males, and 756 females.

CASTLE-RISING, By the returns of 1811, the borough and parish contained 48 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.

Vol. VII.

CASWELL, l. 3, r. 11,575 and 4299.

CATAHULA, a parish of the territory of Orleans, having 1164 inhabitants.


1. C. syringifolia. Common Catalpa. Sims in Curt. Mag. t. 1094; and
2. C. longiflora. Wave-leaved Catalpa. (Bignonia longiflora; Willd. Sp. Pl. v. 2. 292.) 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 so unauthorized a name as Catalpa, was very desirous of having it called Solandra.

CAVVAWESSY. Add—It contains 1934 inhabitants.

CATHARINE II., col. 3, l. 140, for Persia r. Prussian.

CAT'S-EYE. See Mineralogy, Addenda.

CATTIE, a weight at Canton, in China, and in some parts of India. The catty or gin of 16 lyangs or tales weighs 19 oz. 6 dwts. 4 grs. English troy, so that 10 tales would weigh 5752 English grains. See 'Tale.'

CAVALLO, TIBERIUS, F. R. S., in Biography, the son of an eminent physician of Naples, who was born in 1759. Deined for commerce, he came to England for the purpose of acquiring himself with the principles of commerce in 1771; but literature and philosophy diverted his attention and enjoyed his preference. To those who were engaged in pursuits similar to his own, and to the editor of this Cyclopaedia, 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 eleftoned, 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 unctouch term we have the following account in Gordon's Hill of the Amer. Rev. London 1788. "About the year 1730, the father of Samuel Adams, and twenty others who lived in the north or shipping part of Boston, 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 Boston, caucus might have probably been a corruption of Cauker's meeting." See Pickering's American Vocabulary.

CAVENDONA, l. 1st. r. 80.

CAVEER, or CAREER, a money of account at Moche, in Arabia, where accounts are kept in piastras 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 reclusive 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 unfrequent accumulation of property, he died very rich. His library was very valuable; and capful 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, Sir 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 alchemy. 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 nearly 1,300,000 pounds, which he left entirely among his relations.

CAVENDISH, in Geography, a town of Windor county, in Vermont, having 1295 inhabitants.

CAUK, l. 1st. add— and Barytes.


This genus is founded on Zophora oceanica of Limneus, see Cavol, Monogr. translated in Ann. of Bot. v. 2. 77. t. 6. To this Mr. Brown adds a New Holland species, C. formata, with three doubtful ones, among which is Ruppià antarctica, Labill. Nov. Holl. v. 2. 116. t. 284. We are not informed why this genus supersedes the CAULINIA we have already described; see that article.

CAULO-
CAULOPHYLLUM, Michaux Bor.-Amer. v. 1. 204. Pursh 218. See Leontice.

CAUSTIC, Lunar. l. 18. r. revised.

CAUSTIS, in Botany, xerox, forced hay or corn, alluding to the dry heads of the stem, which appear as if burnt.—Brown Prodr. Nov. Holl. v. 1. 239.—Clawed and order, Triandria Monogynia. Nat. Ord. Calamaria, Linn.

Eff. Ch. Spikelets nearly single-flowered. Scales fasciculated, the empty ones numerous. No bristles beneath the germen. Style dilated at the base. Stigmas three or four. Nut tumid, crowned with the bulbous base of the style.

Obf. One species has five fermen, a circumstance marked by Mr. Brown as very extraordinary.

These are rigid rushy plants, growing on dry heaths in New Holland. Their fermen are leaflets; round and undivided in the lower part; panicled and semi-cylindrical above; the ultimate branches awl-shaped and leaf-like. The fermen are clothed with entire withered theaths, 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. C. Flexuosa.

2. C. depressa.—Panicles zigzag, rather denf; ultimate branches rough-edged. Scales of the spikelets downy.—Native of the south coast of New Holland.

3. C. pentandra.—Principal and partial branches stiff. Stamens five.—Found near Port Jackson.

CAYUGA, in Geography, a county of New York, containing 29,843 inhabitants, of whom 75 are slaves.

CECIL, l. 3; add—1816, 13,656 inhabitants, of whom 2,499 are slaves. Add at the close—containing 1,107 inhabitants.

CEDAR CREEK, a hundred of Sufh county, in Delaware, having 3,874 inhabitants, of whom 310 are slaves.

CELEMINA, a corn measurer in Spain. See Caffise.

CELESTINE Sulphate of Strontian. See Strontian.

CELIUS, Andrew, in Biography, an eminent Swedish astronomer, was born at Upal in 1701, and distinguished by his knowledge of mathematics, and more especially of astronomy, 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-

C Eph. Calyx in five segments, coloured. Petals none. Stamens in the rim of the calyx. Anthers glan-
dular at the back. German single-seeded. Styles vertical. New Holland Pitcher-plant. Labill. as above, 7. 1. 145. Br. 1. 4.—In marshy ground, near King George's sound and Prince of Wales Royal harbour, on the south-west coast of New Holland, flowering in December and January. Herb perennial, with scarcely any stem. Leaves at the top of each division of the crown of the root, numerous, crowded, fleshy, elliptic-lanceolate, acute, entire, smooth, or slightly hairy, an inch and a half long, intermixed with numerous, fleshy, deflexed, inflated, pitcherlike leaves, larger than the leaves; double-winged, and fringed, at the front and sides; tumid and creane at the margin; more or less closed by a convex ribbed lid. Each is half full of a sweetish watery fluid, in which ants are generally found drowned, as in Nepenthes (see that article); but these remarkable plants have no other character in common. Flower-flanks central, solitary, nearly round, hairy, leafless, twelve or eighteen inches high, each terminating in a denue, compound, obtuse calyx, of small white flowers. The fruit is unknown.

CEPHALUS, a genus of the cartilaginous order of fishes, the species of which have been united with those of the genera Diodon and Tetrodon; 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 tetrodon mola of Linnaeus; \( C. \) oblongus, or Tetrodon trunculus, an oblong diadon of Pennant; \( C. \) varius, with body variegated by white undulations and spots; \( C. \) Papilus, the diadon mola of Gmel. Linnaeus.

CERASI, in Chemistry, a name given by Dr. John to a peculiar vegetable substance, which has always been hitherto considered as a variety of gum. Its properties are the following.

It is a solid substance, 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 liquid soluble, a property by which it is distinguished from gum. It dissolves 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 paste together pieces of paper, &c. It is insoluble in alcohol and ether; but cold water, acidulated with either of the mineral acids, dissolves 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-tasted substance.

Tragacanth gum may be considered as an example of pure ceratin. (See TRAGACANTHS.) Ceratin also constitutes a portion of the gummy matter that exudes from the prunus cerasus, (hence the name,) prunus avium, prunus domestica, xanthera halibii, &c.


Female, Calyx none. Corolla none. Stigma in many unequal segments. Berry with two seeds.

1. C. erinoides. Heath-like Ceratiola. Wild. n. 1. Pursh n. 1.—Native of Georgia and Florida, in dry gravelly soil, plentiful on the islands in the mouth of St. Mary's river. Pursh. A small shrub, determinately branched, resembling a heath; young branches finely woody. Leaves four in a whorl, fleshy, deflexed, rigid, smooth, about half an inch long. Flowers from small lateral buds, with concaev, fringed scales. Anthers large, of two cells, bursting lengthwise. Segments of the stigma often combined into two little horn-like bodies. Berry globular, red, half the size of a pea. Perhaps this might be considered as an EMPETRUM, or calyx and corolla; see that article. It forms however a better artificial genus than many daily published. We have specimens from Mr. Frazer.

CERIUM, in Chemistry, the name of a metal. This metal, or rather its oxides, is extracted from a Swedish mineral formerly confounded with tungsten, and was first obtained separately by Klaproth, who considered it as a new earth, to which
which he gave the name of ochroite. (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, then lately 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 metal.

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 affinity 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 dissolved 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 tartarate of potash added to the solution. The precipitate thus formed was then heated to redness, 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 peroxoxyd reddish-brown. The peroxoxyd contains \( \frac{11}{8} \) times as much oxygen as the protoxyd. The protoxyd, according to Hifinger, is composed of

\[
\begin{align*}
\text{Cerium} & : 100 \\
\text{Oxygen} & : 17.41
\end{align*}
\]

The peroxoxyd of Cerium is

\[
\begin{align*}
\text{Cerium} & : 100 \\
\text{Oxygen} & : 26.115
\end{align*}
\]

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 peroxoxyd to be a compound of two atoms of cerium and three of oxygen, the weight of the atom of peroxoxyd will be 145.

No compound of this metal with hydrogen, azote, chlorine, nor 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 flamed in the dark, and took fire when heated.

Hydrophosphate of ammonia throws down cerium at first of a brown colour, but it becomes deep green if the re-agent be added in larger quantity. When dry, the hydrophosphate 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 dissolved 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 most readily. The solution is colourless, crystallizes with difficulty, retains an excess of acid, and has a sweet astringent taste. The red oxyd dissolves 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 deliquescient 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 deliquesc on exposure to the air. When exposed to heat they are decomposed.

Sulphate of Cerium.—Sulphuric acid dissolves 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 perphosphate 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 colourless, and readily crystallizes. There is a triple sulphate of potash and cerium.

Phosphatc of Cerium.—This is a white powder insoluble in water, but soluble in the nitric and muriatic acids.

Arsenite of Cerium.—This salt is insoluble. There is a soluble superarseniate which does not crystallize.

Boratic 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 peroxoxyd 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 alkalies.

Citrate of Cerium.—The citrate of cerium is insoluble, with 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 hydrophosphate 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.

CERN, or CERNE-ABEAN, l. 36, add.—In 1811 the parish contained 145 houses, and 795 persons; viz. 358 males, and 427 females.

CERUMEN, or Ear-Wax, Chemical Properties of. This substance is nearly insoluble in water. Alcohol, when diluted by heat, diffuses five-eighths of the cerumen; the remainder is fixed by Vaquelin to polish the properties of albumen mixed with a little oily matter; when the alcohol solution is evaporated, it leaves a deep orange-residuum 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 larch.
but Albumen, An infilipated oil, A colouring matter, Soda and phophate 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 fayingonifying fpermaceti. It may be procured by adding an acid to a fopm compofed of fpermaceti and pothaf. Cetic acid is a folid fubftance, without tafle or finell. It melts at a temperature of about 113°, but does not cryftallize on cooling, a circumfance in which it differs from fpermaceti. It is infoluble in water, but boiling alcohol difolves more than its weight of it, and as the folution cools, the cetic acid feparates in brilliant lamellar cryftals. The folution in alcohol reddens litmus. It combines readily with the different faltifiable bases, and forms falt or rather foaps, none of which appear to poifeus any fhrinking properties.

CETRARIA, in Botany, Achar. Syn. 226, a natural, but not very cafeily defined genus of Lichenus, comprising eleven species, among which are L. juniperinus, glaucus, niveus, and islandicus of Linneus. See Lichenus, n. 19 in the arrangement of Ashurius.

CEYLONITE, or PLENEASTE. See Mineralogy, Addenda.

CHACE, col. 2, l. 32, for vizier r. veneur.


This genus is diftinguifhcd from Lepotecarpus (fee that article) by the undivided ftyle, and the minute fetaeous form of the inner fcales of the very short calyx. The only species is

1. C. leoptocarpoides, found by Mr. Brown, on the fouth coast of New Holland.

CHÄTODON, col. 2, l. ult. for Japan r. Java. Add—See Tethus.

CHÄTODON Arconnus. Add—Perhaps from the Aroo iflands among the Moluccas.

CHÄTÖSPORA, in Botany, from χατος, a brifle, and σπορα, a feed.—Brown Prodr. Nov. Holl. v. 1. 232.—This genus is founded by Mr. Brown, on thofe species of the Schoenus of Linneus, and other authors (fee that article), whose seed is fubfended by brifles, which are not fo long as the fcales of the fower. Fifteen species are natives of various parts of New Holland, one of which, C. lanata, Br. n. 48, is Schoenus lanatus, Labill. Nov. Holl. v. 1. 19. t. 20. The reel appear to have been firft defcribed by Mr. Brown. Schoenus cœpmuffus and rufus of Fl. Brit. belong to Chato-

spora. See Rhytchospora for a genus fimilarly charactefized.

CHAIN, col. 2, l. 4 from bottom, r. Plate XII.

CHALK, FRENCH, r. See Slate.


Female, Calyx deeply three-cleft. Petals three. Neafer

Vol. XXXIX.

three fcales, between the petals and gernein. Styles three.

Drupa fucculent, with one seed.

1. Ch. gracilis. Slender Chamedorea. Willd. n. 1. Ait. n. 1. (Borassus pinnatifrons ; Jacq. Hort. Schoenbr. v. 2. 65. t. 247, 248.)—Native of the Caraccs and of Guiana. An elegant palm, whose trunk is ten feet high, an inch in diameter, very smooth, crowned with alternate pinate leaves, two feet long, and fending out from near the bottom ferveral long, fder, aggregate fikes, of numerous fmall yellow flowers; the male ones longeft, and pendulous. Fruit leare-

let, the fize of a pea.


Eff. Ch. Calyx of two valves, two-foated; the outer valve very fmall. Corolla of two valves. Outer fcor male, its outer valve like the inner valve of the calyx; inner female, smaller, membranous. Scales two beneath the gernein. Stigma fheath. Seed inclofed in the hardenod corolla.

1. Ch. hordaceae. Br. n. 1.—Gathered by Mr. Brown, in the tropical region of New Holland.—A perennial fgraf, with two-ranked, linear, ftraight leaves; their fylipula rounded. Spike foltary, refeembling Hordeum, with imbricated flowers, in two ranks, parallel to the zigzag common-flack, on fhort partial flacks, each of which bears, from its infide, near the top, a very long aven. It is closely allied to PAnicum (fee that article), differing chiefly in having three fylipules, which indeed is extremely peculiar.

CHAMBER, in Architecture, l. 5 from the end, r. ought not to be, &c.

CHANCEFD. Add.—It contains 996 inhabitants.

CHANCEFORD, L. 3. —Lowcr, a township of the fame county and flate, having 818 inhabitants.

CHARLEMONT, a township of America, l. 3, r. 987.

CHARLES COUNTY, l. 4 and 5, r. 20,245, including 12,435 faves.

CHARLES CITY, l. 4, r. 5186, and 3023.

CHARLES, S. L. Add.—Allo, a parih of the German coast county, in the territory of Orleans, containing 3291 inhabitants, of whom 2321 are faves.—Allo, a district in Louifiana, containing 3505 inhabitants, including 271 faves.

CHARLESTON (2d article), l. 5, r. 38,468, and 35,714.

CHARLESTON (3d article), infert in l. 1.—city; l. 11.

r. 1810, 24, 711, and 11, 671.

CHARLESTOWN, l. 3. —The population is 5283; the fenatorial electors 669, by the cenfus of 1810. Here are two Presbyterian or Dutch reformed churches, one for Baptifs, one for Methodifs, and 30 school-houfes; l. 7.—The number of inhabitants in 1810 was 28, including one slave; l. 8.—The number of inhabitants is 1530; l. 14.—The population in 1810 was 1501; l. 27, for 1800 r. 4959; l. 41, for 2022 r. 17,47, including one slave.—Allo, a township of Indiana, in Clark county, having 11 inhabitants.

CHARLETON, col. 2, l. 8, by the cenfus of 1810, the number of inhabitants was 1945, and of fenatorial electors 227; l. 12, for 1805 r. 2180.

CHARLOTTE, l. 5, for 635 r. 1679.

CHARLOTTLE, a county of Virginia, l. 3, for 10,078 r. 13,161, and for 4916 r. 7557.

CHARLTON. Add.—Allo, a town of Worcester county, in Maffachufetts, having 2180 inhabitants.

CHARTIER. Add.—It contains 747 inhabitants.

3 H. CHARTRES,
CHARTRES, l. 11, r. 48° 26' 54". E. long. 1° 29' 35".
CHASE, in Sea-Language, col. 2, l. 5, r. keeps the chase.
CHASSIS DE GALERIE, r. CHASSES, &c.
CHATHAM, col. 3, l. 19 from bottom, r. 2191 and 12,652.
CHATHAM, in America, l. 5, r. 1334; l. 8, r. 208; l. 12, after 1767, add—It contains 3258 habitants; l. 14, after New York, add—Allo, a town of Morris county, in New Jersey, having 2091 habitants.—Col. 2, l. 2, r. 1287; l. 3, r. 3653; l. 12, after Connecticut, and 7551 l. 13, r. 48.
CHAUX de Font, l. 4, r. Locke; l. 6, r. Locke.
CHEESE, Chemical Properties of. See MILK.
CHEESE-Paste, col. 2, l. 22, infer.—Agiculture, Plate, &c.
CHEILANTHES, in Botany, a genus of ferns, first distinguished from Adiantum, (see that article in the present volume,) by professor Swartz, and named from hydrogen, margin, and a, 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 was not 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, l. 3. Willd. Sp. Pl. v. 5. 455. Brown Prod. Nov. Holf. v. 1. 155. Ait. Hort. Kew. v. 5. 526. Sm. Prodr. Fl. Græc. Sibth. v. 2. 278. Pursh 670.—Clads and order, Cryptogamia Filices. Nat. Ord. Filices annulatus.
Dr. Swartz defines sixteen species; professor Willdenow nineteen, the latter dispersing the whole in three sections, though marked as two only, according to an inaccuracy we have often noticed in him. The following are sufficient examples.

Sect. 1. Frond simply pinnate. One species.
Ch. micropteris. Small Cheilanthes. Willd. n. 1. Sw. n. 1. 324. l. 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.
Sect. 2. Frond doubly pinnate. Ten species.
Ch. pteroides. Pteris-like Cheilanthes. Willd. n. 2. Sw. n. 12. Ait. t. 1 (Adiantum pteroides). Linn. Mant. 130. Pteris orbiculata; “Houtt. Nat. Hist. t. 96. f. 3.”—Frond doubly pinnate; lower branches somewhat compound; leaflets ovate-elliptical, obtuse, rather heart-shaped, finely crenate. Dots crowded. Coverings imbricated. Common stalk polished.—Native of the Cape of Good Hope. A handsome fern, a foot or more in height, with stout, dark, shining fronds, and firm dark-green leaflets, half an inch long; paler beneath. This and the following might have been referred to the next section.
Ch. fragrans. Sweet-scented Cheilanthes. Willd. n. 7. Sw. n. 4. 325. t. 3. f. 6. Ait. n. 2.—Frond doubly pinnate, smooth; leaflets elliptic-lanceolate, obtuse, pinnatifid, with incurved, partly cleft segments. Common-flask somewhat hairy.—Native of the East Indies, from whence König sent specimes, which remain unnamed in the Linnaean herbarium. The Madeira plant, gathered by the same botanist, is, as Dr. Swartz inspected, a different species, being the Polypodium fragrans of Linnaeus, our Ch. fragrans, which is probably also Mr. Atton’s Ch. fragrans. The East Indian fern before us is excellently distinguished by professor Swartz, and has a more oblong frond, with curiously pinnatifid leaflets, nor can those who have seen both species ever confound them. We are unacquainted with Ch. odoras, Willd. n. 6.
Sect. 3. Frond triply or quadruply pinnate. Eight species.
Ch. dichotoma. Forked Cheilanthes. Willd. n. 15. Sw. n. 15. 335. l. 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, tiny, almost capillary branches, and minute round-lobed leaflets.
Ch. tenuifolia. Fine-leaved Cheilanthes. Willd. n. 16. Sw. n. 15. 332. “Schkuhr Crypt. t. 125.” Br. n. 1. (Trichomanes tenuifolia; Burn. Ind. 237. Dryopteris campesiris; Rumph. Arb. v. 6. 74. l. 34. f. 2.)—Frond triply pinnate, smooth; leaflets obtuse-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. dealbata. White-leaved 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 Millfouri, in July. A very delicate small fern, much resembling Ch. tenuifolia. Pursh.
CHEKIE, or CHEQUEE, a Turkish weight: that with which gold, silver, diamonds, and precious stones are weighed, is divided into 1000 drachmas, and the drachma into 16 kilots or carats, or 64 grains. A cheque weighs 10 oz. 5 dwt. 3 grs. troy weight; and a drachma 403 grs. ditto; so that 48 cheques = 4 lbs. troy nearly. The okle = 4 cheques, or 400 drachmas; and the cheque = 11 oz. avoidopus. The cheque of goats’ hair is called Th. Turkische drachs, or 5 lbs. 10 oz. avoidopus; the cheque of opium 250 Turkish drachs = 27 oz. 10 drs. avoidopus.
CHELMSFORD, col. 2, l. 12 from the bottom, r. 4549 and 822.
CHELMSFORD, in America, l. 4, r. 1396.
CHELSEA, in America, l. 3, r. 504; l. 8, r. 1327.
CHELTENHAM, col. 2, l. 19 from the bottom, r. 8353; l. 12, r. 1568.
CHELTENHAM, 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 Chepflow contained, in 1811, 421 houfes, and 2581 persons; 1558 being males, and 1023 females. CHERAY, or CHURAY, a weight in Perú; the basin of Churay being double the basin of Taurus, and weighing 12 lbs. 4 oz. 13 drs. avoidopus.
CHERBOURG, l. ult. r. N. lat. 49° 38' 31". W. long. 1° 57' 18".
CHERRYFIELD, in Geography, a town of Washington county, in the district of Maine, with 181 inhabitants.
CHERRY.
CHELLIAN.

CHERRY-TREE, a township of Venango county, in Pennsylvania, having 391 inhabitants.

CHESHAM. The parish of Chesham, in 1811, contained 252 houses, and 2071 persons; 924 being males, and 1147 females.

CHESHIRE, col. 2, l. 4 from the bottom, r. 41,187 and 227,031.

CHESHIRE. By the returns of 1811, Aughton-upon-Mersey in this county, and in a parish of the same name (omitted in its alphabetical arrangement), appears to have then contained 156 houses, and 918 persons; 467 being males, and 451 females.

CHISHER, in America, dele L 5 and 6, and add—and 40,088 inhabitants.

CHISHER, a township, &c. l. 3, add— containing 1315 inhabitants. At the close, add—It contains 2288 inhabitants.

CHESNUT HILL. Add— containing 1128 inhabitants.

CHEST, in Anatomy, l. 2, infr. Lungs.

CHEST of Voids, dele Six-STRINGED Base.

CHESTER, col. 6, l. 17. In 1811, the city of Chester contained 3292 houses, and 16,140 persons; 7007 being males, and 9133 females: 397 families employed in agriculture, and 2296 in trade and manufactures.

CHESTER, in Nova Scotia, l. 8, r. 1534; l. 13, r. 2030; l. 17, r. 2370; l. 30, after affluents, add— It contains 1596 persons; l. 32, r. 40; l. 33, r. 39,956; l. 34, r. 71 l. 57, r. 11,497; l. 58, r. 2743. At the close, add—Allo, a town of Clinton county, in Ohio, having 1254 persons.


CHESTER, West, a county of New York, containing 30,272 inhabitants, of whom 982 are slaves.

CHESTERFIELD, col. 2, l. 4. In 1811 the parish of Chesterfield contained 951 houses, and 4476 persons; 2025 being males, and 2451 females.

CHESTERFIELD, l. 3, r. 1 408; l. 7, r. 1839; l. 15—It contains 5563 inhabitants, of whom 1639 are slaves; l. 17, r. 9979, and 6015. Add—Allo, 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.

CHEWTWERT, and CHETWICK, two corn meafures in Ruffa; the former or cool being 4 ofminns = 4 paajacks = 8 chewtwicks = 64 garnitty. The latter meafures 1555.92 cubic inches, and contains 35% Winchellier gallons nearly. In bufines the ufual calculation is, that 100 chewtwerts produce 72 quarters, and 1 chetwert 53 buhfeis, Winchetler melon.

CHIESTOLITE. See Mineralogy, Addenda.

CHICHETER, 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 437, and the latter 511 inhabitants.

CHICHESTER, l. 4, r. 951.

CHILISQUAW. Add—Northumberland county, having 1505 inhabitants.

CHILLIKOTHE. Add—By the census of 1810, it contained 1360 inhabitants.

CHILMARK, l. 3, r. 723.

CHILODIA, in Botany, perhaps from χίλος, in allusion to its longer and more conicous lip.—Brown Prodr.

CHILLINGHAM, 1. 30.—In 1811, the township of Chillingham contained 668 houses, and 3410 persons; viz. 1580 being males, and 1830 females; 145 families employed in agriculture, and 652 in trade and manufactures.

CHITTENDEN, l. 6, r. 1810; l. 24, r. 1820. At the close, add—It contains 445 inhabitants.


Eff. Ch. Calyx bell-shaped, equally five-cleft. Corolla tubular, ringent; throat dilated; upper lip cloven; lower in three deep segments, the middle one longest. Stamens prominent. Stigma cloven, acute. Drupa dry. Nuts two, each of three cells; two lateral cells fingle-fed; middle one abortive, obliterated.

Downy shrubs, with opposite, simple, decurrent, linear, bluish leaves. Stems axillary, solitary, single-flowered, each

Brown.

1. Ch. florebradis. 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 glan-
dular, and clothed, like the outside of the calyx, with lacer-
ted 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 therefore to notice here some important compounds of this principle lately discovered, especially those with oxygen.

The protoxyd of chlorine, or euchlorin, has been already described under the article above alluded to. For its correct composition, see Table II. Atomic Theory.

The deutoxyd 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 first published. It may be prepared by mixing together a small quantity of chlorate of potash (not more than fifty grains) in powder, with sul-
phuric acid, till the whole forms a dry paste of an orange colour. Put this paste into a small glass retort, and plunge the belly of the retort into hot water, and keep it in that position for some time, taking care that the temperature of the water never becomes so high as 212°. A bright yellow-

CHLORINE

green gas separates from the paste, which must be received in small glass jars over mercury. This gas is the deutoxyd of chlorine. Its colour, as above stated, is a bright yellowish-green. Its smell is peculiar and aromatic, without any mixture of the smell of chlorine. Water absorbs at least seven times its bulk of this gas. The solution is deep yellow, and has an astrigent and corrosive taste, leaving a disagreeable and laking impression on the tongue. It destroys without previously reddening vegetable colours, provided they are moist. It does not act upon mercury, nor any other combustible substance tried, except phosphorus, which, when introduced into the gas, occasions an explosion, and burns with great splendour. When heated to 212° it explodes with more violence than euchlorin, and emits a great light. Two volumes of deutoxyd of chlorine, when thus exploded, are converted into three volumes, according to Davy, which conflit of two volumes or four atoms of oxygen and one of chlorine, or per cent. of

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<th>Substance</th>
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<tr>
<td>Chlorine</td>
<td>Cl</td>
<td>35.45</td>
</tr>
<tr>
<td>Oxygen</td>
<td>O</td>
<td>16.00</td>
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And its fp. gr. will be 2.761, that of chlorine being sup-
poised to be 2.5. Accordingly, however, to the count Von Stadion's analyses, this deutoxyd is composed of one atom chlorine, and only three of oxygen.

CHLORIC Acid.—The existence of this compound of chlorine with oxygen was suspected by Berthollet, but it was first obtained by M. Gay-Lussac. It is the acid which exilts in what was formerly termed oxymuriate, but now chlorate of potash. It was procured by dissolving the chlorate of barytes in water, and cautiously adding dilute sulphuric

acid to the solution, till the whole of the barytes was sep-
tated. The chloric acid remained in solution. This acid has a strong four taste, but no sensible smell. Its aqueous solution is colourless, and reddens vegetable blues without defraying them. By a gentle heat it may be concentrated without being decomposed, or volatilized with the water. When thus concentrated, it has an oily consistency. When the heat is raised, it is partly volatilized, and partly decom-
poized into chlorine and oxygen. Muriatic acid decomposes it similarly without heat; the nitric acid does not affect it. It combines with the different bases forming chlorates, for-
merly termed oxymuriates, the most important of which will be presently described. 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 most important of the chlorates. See it briefly described under Hyperoxymuriatic Acid.

CHLORATE of Soda.—This salt was first accurately described by Chenevix. It may be prepared by the same process as the chlorate of potash; but the easiest mode of obtaining it is, to diffuse carbonate of soda in chlorine acid. It does not readily crystallize, but its crystals when formed are square plates. Its taste is sharp and cooling. On burning coals it melts into globules, and emits a yellow light. When dif-
tilled it gives out oxygen, mixed with a little chlorine, and the salt left behind has alkaline properties.

CHLORATE of Ammonia.—This salt may be formed by dif-
folving carbonate of ammonia in chlorine acid, or by mixing a solution of carbonate of ammonia with a solution of an earthly chlorate. It crystallizes in fine needles, and is very solu-
ble in water and alcohol. Its taste is sharp. Placed upon burning coals, it fumilates 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 quant-
tity of the pure earth prepared by Vauquelin's method, and
calling a current of chlorine through the mixture. To separate the chlorate from the muriate, which are both equally soluble, and otherwise resemble each other, Mr. Chenevix had recourse to the ingenious expedient of boil-
ing phosphofate of silver with the compound solution; thus muriate of silver and phosphofate of barytes are formed and easily separated, while nothing but the chlorate of barytes remains in the solution, and may be easily obtained. This salt crystallizes in square prisms, terminated by an oblique face. It diffuses in about four times its weight of cold water. The solution is either precipitated by nitrate of silver nor muriatic acid. It is insoluble in alcohol. When heated it gives out oxygen gas, and an alkaline residuum is left.

CHLORATE of Strontian.—This salt was formed by a proces-
similar to the above, and resembles it in many of its properties, but is deliquecent, and rather more soluble.

CHLORATE of Lime, and Chlorate of Magnesia, may be formed as above. They are both deliquecent, and very soluble both in water and alcohol.

The metallic Chlorates may be formed by dissolving the oxyds.
CHO

The only known species are *Gh. laterificorum* and *glomeratum*, found on the south coast of New Holland, a bushy shrub, with minute scattered leaves, and small white flowers, being nearly related to *Leptosperma*; fee that article.


1. *Ch. tenellum*. Purple Chorispermum. Ait. n. 1. (Raphanus teocclus; Willd. Sp. Pl. v. 3. 561.) Pallas Voy. v. 3. 741. t. L. 3. J.—Leaves, as well as pods, fimbriate, upper ones lanceolate, toothed; lowermost pinnatifid.—Native of defarts near the Cape flan. A little annual herb, with small purple flowers. Mr. Brown's specific character indicates the existence of another species, not known to us.

**CHORIZANDRA**, from χορίς, to separate, and and, a male, because the flaments are individually separated by scales.—Brown Prodr. Nov. Holl. v. 1. 220.—A genus consisting of two species, natives of Port Jackson, nearly akin to *Chorizachene* of the same author, and to the Linnian *Corymbia*; see thefe articles. From the latter it differs in inflorescence and habit. How far they could with propriety be united, we have not materials to form a decisive opinion.

**CHORIZEMA**, a name of which there have been various explanations, (see Tr. of Linn. Soc. v. 9. 252,) is most probably derived from χορίς, to separate; but certainly not in allusion, as De Thie's lappules, to any division of the fruit. We rather believe the author of this name had in contemplation the separate filaments, of which two few invadences were known in papilionaceous flowers, at the time he wrote, and *Papilionaceae* may allude to their durative figure.—Labill. Voy. Eng. ed. v. 1. 435. Nov. Holl. v. 2. 120. Sm. in Sims and Kun. Anm. of Bot. v. 1. 526. Tr. of Linn. Soc. v. 9. 251. Ait. Hort. Kew. v. 3. 8. (Podolobium; ibi. 6.)—Clasf and order, *Decandria Monogynia*. Nat. Ord. *Papilionaceae*. Linn. *Leguminosae*, Juss.

Eff. Ch. Calyx five-cleft, two-lipped, Corolla papilionaceous. Style curved, Stigma obtuse. Legume oblong, tumid, of one cell, with many seeds.

1. *Ch. ilicifolia*. Holly-leaved Chorizema. Labill. as above, t. 21. Sm. n. 1. Ait. n. 1.—Leaves alternate, oblong, pinnatifid, with spinous teeth: point entire, longer than the teeth. Bracteas close to the flower.—Found by M. Labillardière, at the foot of the mountains, on the south coast of New Holland, flowering in December. Sent to Kew in 1823, by Mr. Good. Stem shrubby, hardly a foot high, branching from the root. Leaves alternate, fefile, fimbriate, coriaceous, with sharp spines. Flowers in terminal clusters.

2. *Ch. nana*. Dwarf Chorizema. Sims in Curt. Mag. t. 1032. Ait. n. 2. (Pultenaea nana; Andr. Repol. t. 434.)—Leaves alternate, elliptic-oblong, bluntnoth, incised, with spinous teeth. Bracteas rather distant from the flower.—From the same country. We profit by Mr. Brown's remarks for differentiating this species, hitherto confounded by us with the foregoing. Its stature is more humble. Flowers in lateral clusters, orange, with purple veines, and a short, white, purple-tipped keel. We know not distinctly the colour of *ilicifolia*.

3. *Ch. rhomboeae*. Few-flowered Chorizema. Br. in Ait. n. 3.—"Leaves entire, flat, pointed; lower ones orbicular, somewhat

CHO
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; Alt. Hort. Kew. v. 3. 9. Curt. Mag. t. 1477. Pulten. ilicifolia; Andr. Repub. t. 320.)—Leaves opposite, somewhat hastate; entire or toothed, spinous. Clusters axillary, shorter than the leaf. Gernon silky.—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. frondes. Climbing Chorizema. Sm. n. 3.—Leaves nearly opposite, elliptical, undivided. Clusters terminal, elongated. Calyx rather hairy. —Found by Dr. White, at Port Jackson. Stem twining. Flowers in loose pendulous clusters, yellow variegated with red.

6. Ch. fruticose. Silky-leaved Chorizema. Sm. n. 4.—Leaves mostly alternate, elliptical. Clusters axillary, the length of the leaves. Calyx silky. Standard narrow.—Gathered by Mr. Menzies, at King George's found. Stem twining. Leaves more silky at the back than in P. flaccidus; flowers three as large as in that species.

7. Ch. coriacea. Leathery-leaved Chorizema. Sm. n. 5.—Leaves roundish-elliptical, abrupt, coriaceous, scattered. Umbels axillary, injected. Calyx hairy.—From the same country. A stout, upright, rigid shrub. Leaves beautifully veiny; filly beneath. Umbel on silky stalks, much shorter than the leaves.

CHOUT, denotes in India a fourth part; and the Mahratta chout is a fourth of the revenues, exacted as a tribute by the Maharratta.

CHOWAN, l. 3, r. 5297 and 2789.

CHRISTCHURCH. In 1811 the borough and street contained 303 houses, and 1553 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 lubs, 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. 62° 43′.

CHROMATE of Iron. See Mineralogy, Addenda.

CHROME, 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 oxyds, the green, the brown, and the yellow or chromic acid. The green oxyd may be formed by expending chromic 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 oxyd may be formed by dissolving the above green oxyd in nitric acid, evaporating the solution to dryness, and exposing the dry mafs 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 substantiate instead of an oxyd. Chromic acid, the third oxyd of chromium, is easily reduced to the state of green or protoxyd, by the action of fulphurcted hydrogen, fulphuric acid, and protoxyds 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 painter with great success.

CHRONOLOGY, Chronological Table, B.C. 710, Semnach's army destroyed, &c. Col. l. 20, r. eclipse of the sun; for 1049 r. 578. Daniel, &c. Col. l. 11, l. 38, r. Persia; l. 41, r. 466. Col. l. 12, l. 2, r. Hallancus. Col. 18, l. penult., infer—st. Col. 22, l. 2, after kingdom, infer—of Cyrenæ. Col. 29, l. 33, r. Macrinius; l. 55, ditto. Col. 30, l. ult. r. Hierocles. Col. 34, l. 24, for one r. that; l. 45, r. Auien. Col. 38, l. 3 from the bottom, add—at Rome. Col. 39, l. 49, r. 206. Col. 41, l. 60 and 61, dele Charlemagne, &c. Col. 46, l. 27 and 28 dele. Col. 47, l. 7 from the bottom, for Frederic r. Ladiflaus II. Col. 52, l. 2, for Babylon r. Egypt; l. 9, ditto; l. 21, dele 1208; l. 27, dele the Ottoman empire began. Col. 55, l. 21, 22, dele. Col. 58, l. 32, dele Brazil discovered; l. 51, for 800 r. 780; l. 64, for North r. South. Col. 59, l. 53, r. Navaro. Col. 63, l. 21 dele; l. 61, after Palladio, add.—Frobisher fails for Greenland, and again in the following year. See Frobisher. l. 63, after 1580, infert—see Drake. Col. 64, l. 27, dele Greenland discovered. Col. 65, l. 32, for April 22 r. June 2. Col. 70, l. 41, after 22, add—in the battle of Gotham; l. 42, dele the battle of St. Godart, July 22. Col. 71, l. 53, r. Senef. Col. 74, l. 15, for July r. February. Col. 75, l. 37, r. ob. 1719, xst. 74. Col. 76, l. 1 and 2, r. When the Spaniards, under the duke of Vendôme, defeated Saremburg. Col. 78, l. 1 and 2, dele the Spaniards, &c. May 20; l. 10, for June r. May; l. 33 r. 1744, xst. 56. Col. 79, l. penult., 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 dele their words in that paragraph. Col. 85, l. 4 from bottom, add—Inquisition of Naples abolished. Col. 87, l. 4, 5, and 6, dele French, &c. bay; l. 11 and 12, dele Ghent, &c. Dec. 12; l. 20, for Yorkshire in 1780 r. Gloucester; l. ult. but 2, infer—Ghent and Brussels furrired. Col. 88, l. 24, after French king appears at the bar of the convention for the last time, Dec. 26, 1792; and condemned by vote, Jan. 16, 1793; and suffered on the 21st. Col. 89, l. 10 from bottom, add—The French account states the number of pertons at 60, instead of 3000, and date the catastrophe Aug. 3, instead of Sept. 3. Col. 91, 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 Finsgur, and immediately furrired themselves prisioners. Col. 93, l. 2, after flain, dele near Periapatan, and add—in the defence, and within the walls of his capital, Seringapatam; l. 3, after forces, add—under general Harriss; l. 54, r. June 14. Col. 94, l. 2, after battle of, for Rhamonia r. Alexandria; l. 3, after English (March 21); add—under for Ralph Abercromby, who was wounded in the contest, which terminated for honourably to himself and the army, and died a few days after, universally lamented; l. 8, for September r. April; l. 12, after two, r. Spanish ships being blown up; vide. the admiral's ship and the San Hermagildo of 112 guns sunk; and the San Antonio of 74 guns, commanded by the chef de
1807.—Battle between the French and Ruffians, in which the latter were defeated, Feb. 7.—Battle of Friedland, in which the Ruffians were defeated with great slaughter, June 14.—St. Thomas, a Danibh island, taken by the English, Dec. 21.

1808.—Battle of Vimeira, in which the whole of the French force, under general Junot, was defeated by Sir Arthur Wellesley, Aug. 21.

1809.—Cayenne taken by the English and Portuugeze, Jan. 15.—Battle of Corunna, in which the French were defeated by the English, Jan. 16.—Battle of Oporto, in which the French were defeated by Sir Arthur Wellesley, May 11.—Battle of Aspern and Esling between the French and Austrians, with dreadful slaughter on both sides, May 21 and 22.—Pope Pius VII. excommunicated Buonaparte, June 10.—At Raab, Austrians defeated by the French, July 5.—Battle of Talavera de la Reya, in which the French were defeated by the English and Spaniards, July 27.—Zante, and the ret of the Seven Islands, surrendered to the British in October.—Buonaparte divorced from the empress Josephine, Dec. 17.—General Jullerj through the kingdom, celebrating the entrance of George III. on the 50th year of his reign.

1810.—Islands of Faroe and Iceland taken under British protection, Feb. 12.—Amboyina feized by the English, Feb. 17.—Buonaparte married to Marie Louisa of Austria, April 1.—Ille of Bourbon surrendered to the British, July 10.—Battle of Buzaco, in which the French were repulsed with great slaughter by the allied army under lord Wellington, Sept. 27.—Mauritis surrendered to the British, Dec. 3.

1811.—Population of London, wellminded, Borough, and neighbouring districts, appeared to be 1,099,104, being an increase, in two years, of 133,139.—Ilnd of Java surrendered to the British, Sept. 18.—Battle of Ciudad Rodrigo, between the French and allied armies, under lord Wellington, which terminated in an orderly retreat of the latter, Sept. 23.—Cavare and Merida, the French, under general Girard, surprised and routed by general Hill, Oct. 28.

1812.—Badajos taken by storm by the British and Portuugeze, April 6.—Spencer Percival, prime minister of Britain, assassinated in the lobby of the house of commons, by John Bellingham, May 11.—Battle of Salamanca, in which the French were defeated with great slaughter by lord Wellington, July 22.—Smolensko, the Ruffians defeated by the French, Aug. 16.—Queen's Town, Canada, the army of the United States defeated by the British, Oct. 12.—Poltok, the French defeated by the Ruffians, and the place taken by storm, Oct. 20.—The French driven from Dorogobudh by the Ruffians, under Platoff, with great slaughter, Nov. 7.—At Witepk, the French, under general Victor, defeated by the Ruffians, under Witgenstein, with the loss of 3000 men, Nov. 14.—Ney's corps, 12,000 of which lay down their arms, defeated by the Ruffian general Milhamdothv, Nov. 17.—At Berezina, the contcd terminated in the capture by Wittgenstein of a French division of 8800 men, Nov. 28.—Near Vilna, a French column was destroyed by Platoff, when a general and 1000 prisoners were taken, Dec. 11.

1813.—Concordat signed between pope Pius VII. and Buonaparte, at Fontainbleau, 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.—Pyrenées, Soult was defeated, with immense slaughter, by lord Wellington and the Spaniards, July 28.—St. Sebastian was taken by storm, by general Graham, July 31.—Before Dresden, the allied army of Autfrians, Ruffians, and Prussians, was defeated by the French, Aug. 28.—At Tophitz, the French were defeated by the allied Autfrians, 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 Autfrians, Ruffians, and Prussians, the place having been taken and re-taken five times, terminating in a defeat of the French, Oct. 11.—Before Leipjfe, 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 defehtion of 17 German battalions, Oct. 18.

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.—Bordeaux 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 Ille of Elba for his retreat, April 5.—The states of Parma, Piacenza, and Gueftella, conferred on Maria-Louisa by treaty, April 5.—At Toulouse, 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 emperors of Ruffia, with the king of Prussia, prince Blucher, and other illustrious persons, 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.—Tulcan, after having been ceded 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 licensed in London, not to exceed 200.

1815.—Buonaparte quitted Elba, and landed at Cannes, March 1.—King of Candy deposed, and the sovereignty 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.
—Potosi evacuated by the royalists and entered by the Buenos Ayres army, under general Rondeau, April 5.
—Florence evacuated by the Austrians, and entered by the Neapolitans, April 6.—Battle of Waterloo, in which the whole French army, with Buonaparte in command, was defeated by the English and Prussians, with immense slaughter, June 18. (See Waterloo.)—Buonaparte retired to Paris after his defeat at Waterloo, June 20; and abdicated in favour of his son, June 23.—Paris evacuated by the French and occupied by the allied army, July 3.—Louis XVIII. restored to Paris, and refused the government, July 8.—Buonaparte falling to fall from Rochfort to America, surrendered himself to captain Maitland of the Bellerophon, July 15.—Army of the Loire, under generals Suchet and Davoust, submitted to the government of Louis XVIII. July 16.—Bourdeaux submitted to the government of Louis XVIII. July 14.—Buonaparte transferred to Torbay from the Bellerophon to the Northumberland, and failed for the island of St. Helena, decreed by the allied sovereigns to be his residence for life, Aug. 8. —And arrived thither, Oct. 16.—The Museum of the Louvre was dismantled by the allied sovereigns of the treasures of art which had been lodged there in consequence of the depredations of Buonaparte. His palace in Italy, which was conveyed to Paris, consisted of 66 pieces of sculpture, and 47 capital paintings. Among the former, were the following chief-d'oeuvres:—the Apollo, the Antinous, the Adonis, the Dying Gladiators, the Lacooon, the Two Sphinxes, and the Tomb of the Muses. Among the latter, were the principal paintings of Raphael, Perugino, Guerchino, Annibal Carracci, Guido, Titian, and Correggio. In the national library were reposed a MS. of Josephus's Antiquities on papyrus, a MS. Virgil of Petrarch, with notes in his hand-writing, and 500 of the most curious MSS. which were in the library of the Vatican.

1816.—Treaty with the Nepaulie in India, ratified March 15.—Princess 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.—Genoa restored 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 Pernambuco in March.—Above 600 petitions for parliamentary reform, presented by sir Francis Burdett, threw over 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 195, June 1, 1810;—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 350 against 215; and in the latter by 174 against 102, in 1812;—and again in the former house by 271 against 246, May 13, 1813;—and again in the same house by 228 against 147, and in the house of lords by 86 against 65, in 1815;—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.

CHYSOPRASE. See Mineralogy, Addenda.

CHYAZIC ACID, in Chemistry. See Cyanogen.

CHYLE, and CHYME, Chemical Properties of. These have

Vol. VIII.
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. Ashley 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 diffused 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 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 substance 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 destructive distillation, chyle gives first 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 salts 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. It yields about four times as much charcoal as chyle from vegetable food.

13. Neither chyle nor chyme contains any gelatine.

Dr. Prout ascertained the curious fact in different animals, that albumen never exerts in the stomach, 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 gastro intestinal system, so that it seems to undergo important changes between the intestines and thoracic duct. See Med.-Chir. Trans. vol. vi. and Annals of Medicine and Surgery, vol. i.

CICCA, dele See Term. 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 1670, when it was imported among the timber used for rebuilding the city of London after the great fire of 1665; but it was known at a much earlier period than this, though it was much less common.

Vol. XXXIX.

than it is at present. A circumstance is mentioned by Mussal, which proves that these insects were known at Mortlake, in Surry, in the year 1783. They live entirely by fuchion, employing for this purpose their sharp and fine trunk or proboscis, which lies in a straight direction beneath the breast. Like the great and some other insects, they probably imbibe some quantity of irritating fluid into the wound they make before they suck the blood of the animal, which they attack, as the swelling 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 beet subjects for exhibiting a microscopic view of the circulation of the blood.

CIMOLIA, dele Pipe-clay.

CINCHONA, Chemical Properties of. Vaquelin 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 nattgalls, but not that of glue.

2. Those whose infusions precipitate glue, but not the infusion of nattgalls.

3. Those whose infusions precipitate glue, nattgalls, and tartrate 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 Vaquelin has not given us the botanical name.

<table>
<thead>
<tr>
<th>Barks brought from Peru by Humboldt.</th>
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<tbody>
<tr>
<td>Quinquina of Loaqua</td>
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<tr>
<td>Quinquina, white, of Santa Fé</td>
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<tr>
<td>Quinquina, yellow, of Santa Fé</td>
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<tr>
<td>Quinquina, red, of Santa Fé</td>
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<tr>
<td>Quinquina, yellow, of Cuenca</td>
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<tr>
<td>Quinquina, ordinary</td>
</tr>
<tr>
<td>Infusion of natgalls</td>
</tr>
<tr>
<td>Oak bark</td>
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<tr>
<td>Cherry-tree bark</td>
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</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 refuse 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**, *delh i. 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 manufactures 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 waggons 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 savages.

**CINNAMON STONE.** See Mineralogy, Addenda.

**CIONE, ORGANA, delc.**

**CIPHER, col. 36, l. 35, for syllables r. letters.**

**CIRCAR.** At the close, add—Circar denotes generally the head of an affair, 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 7854 r. 1571.43. Col. 6, l. 3, Plate I. add—of Astronomical Instruments. Col. 68, l. 5 from the bottom, for cannot but be.**

**CIRENESTER, col. 3, l. penult.** By the return in 1811, the borough of Cirenecaster contained 902 houses, and 4545 persons; viz. 2030 males, and 2515 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 analysed 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 analysed 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>41.359</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 72.5. 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 1928 females.

**CLACKMANNANSHIRE.** By the returns of 1811, this thire contained 1995 houses, and 12,010 persons; viz. 5715 males, and 6295 females: 850 families being employed in agriculture, and 893 in trade and manufactures.

**CLADUSIUM, in Botany, from axilis, a twig, alluding to its habit.**—Brown. *J. J. Brown Prod. Nov. Holl. v. 1. 236.—A genus founded on Schoenus Marius of Linnæus. (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 bristles or scales underneath. Style deciduous, without a joint at the base. Nut naked and smooth, with a smooth kernel.

**CLADONIA, from its tufty habit, a name given by Hoffmann to a tribe of Lichens, now funk in Cenomyce, see that article.**

**CLAIBORNE, in Geography, a county of East Tennessee, having 4708 inhabitants, within 325 are slaves.**—Allo, a town of Mississippi territory, in Adams' county, containing 1238 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 Columbiana county, in the same state, having 1003 inhabitants. Allo, a township of Pennsylvania, in Alleghany county, containing 3080 inhabitants.

**CLARKIA, 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.—Clafs and order, Ophandra Monogynia. Nat. Ord. Calycantheme, Linn. Onagre, Juff.


1. *C. pulchella.* Elegant Clarkia. Pursh 1. 1.—Of the Koofkoofsky and Clark's rivers. Governor Lewis. Biennial, flowering in June. Stem erect, a foot or more in height, round, leafy, slightly branched upwards. Leaves scattered, sessile, linear, entire, smooth, an inch or two long. Flowers axillary, solitary, somewhat stalked, large and handfoine, of a fine purple or rote colour. Petals in three equal, abrupt, spreading lobes. Antères only four, involute. Stamina pale yellow, in four broad, rounded, petal-like lobes.

**CLARE, in Suffolk.** By the returns of 1811, the parish contained 253 houses, and 1170 persons; viz. 591 males, and 579 females.

**CLAREMONT, l. 6, r. 2064,—Allo, a town of Massachussets, in Hampshire county, having 987 inhabitants.**

**CLARENDON, a township of America, l. 4, after contains, inferred—1797.**

**CLARE.**—Add—The county contains 10,981 inhabitants, of whom 2695 are slaves; and the town has 538 persons, including 259 slaves.

**CLARKSBURG.** Add—Allo, a town of Massachussets, in Berkshire county, having 231 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, inferred—For the classes of animals, formed from a knowledge of the
the internal structure and according to the Linnaean 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 Digitata, col. Genera, l. 3, for Uonlatus r. Wombats, and for Wombat r. Wombat. Col. Sub-genera, l. 26, for Scalope r. Aquatic Shrew; l. 35, for Rino- phus r. Rinophus; l. 54, r. Myrmecophaga. Dele l. ult.

Page 6, Col. Genera, l. 13, dele Grampus; l. penult. r. Tioyous.

Page 7, col. Families, l. 2, r. Alechodides. Col. Genera, l. 9, r. Ois. Col. Families, under Passerinae, l. 1, r. Crenirostrata; l. 2, r. Dentiurostrata; l. 3, r. Plesiurostrata; l. 4, r. Conirostrata; l. 5, r. Suburostrata; l. 6, r. Planirostrata; l. 7, r. Teniurostrata. Col. Genera, l. 7, r. Momot; l. 13, after Oriolus, infert—Buphaga...Beef-eater; l. 26, r. Trochilus, and also in next column.


Page 9, col. Genera, after Vultur, infert—Gyptes, and after Falco, Secretaries—Secretary. Col. Sub-genera, dele l. 3 and l. 9. Under Chelonia and Familis, l. 2, r. Fluvialitida. Under Sauria, col. Genera, l. 3, r. Tupinambis; l. 4, Uroplatus; l. 5, Lophurus; l. 7, r. Galapagos; l. 10, r. Chameleo; l. 13, Anoios; l. 16, Chalcides; after Sepa, add—Bipes and Chirotes.

Page 10, under Batrachia and Familis, for Anoura r. Ecaudata; and for Deloura r. Caudata. Under Pisces, col. Orders, l. 3, r. Chismopneosi, Trematopneosi, and Opychithyoides.

Page 11, r. Trematopneosi; in the same column, r. Chismopneosi. Under Teleobranchiati, l. 4, after fins, add—which are joined. Under Genera, r. Lepidobatrachus. Ovoïdes, Moon-Fish.


Page 15, under Genera, r. Anbifomus, Ompolk, Macropoteronotus, Hypolomus, Cheilodactylus, Gasteroplancus, Serra Salmo, Sunfish, Synodus, Stylopithorus.

Page 16, r. Ophichthioïdes. Under Genera, Murenobla, Ocyphodes, Leucocia, Galathea, Penzus, Prionomia; l. 11, for nerves r. nerves; l. 12, for ceiled r. coiled.

Page 16, Tentacae. Col. Genera, r. Ozolus. Under Octopoda, r. distinct and small; jaws wanting, or formed in pincers, claws, or as a sucker.

For Suctaria r. Acarides.


Under Polyopoda, Familis, dele much, and infert—Myriopoda for Longifomia; and in l. ult. dele body of an oval figure, and infert—Quadriornina for Oviformia.

Page 17, r. Hexapoda. Under Genera, r. Bombylus, Stromoxys, Rheina, Strayomis; after Ceria, Mias, Cerocetus.

Page 18, col. 1, l. 1, r. crossed; and again, l. 2, under Familis, r. Frontihostra and Planipennata. Under Genera, r. Promecopis, Ceropis, Alyrodes.


Page 25, under Sub-orders, r. Apoda; under Genera, after Thalia, infert—Brytillus; r. Anoedones; r. Phiolus, and dele Cyrtodaria.


Page 27, dele, in l. 1, able to change from one place to another. Under Genera, after Hydra, infert—Coryna, Cristella, Pedicellaria; r. Pennatula, Vibrio-vibrio, Volvox-volvox.

CLAUDIO, refer to Gelee’ Claude, and dele Gallie.

CLAUSENBURG. See Colosvar.

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.

—Alle, 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-pall 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
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articles which they have against him as found in his drawer. Balance are then struck from all the accounts, and the claims transferred from one to another, until they are found 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's Cambist.

CLEAVELAND, in Geography, a town of Cuyahoga 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 100. for every day in which he shall sit or vote; provided such prosecution be commenced within twelve calendar months after such pecuniary 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 indemnified; and contracts which would have been good after passing this act are valid notwithstanding that act; and proceeding may be had and in 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 messuage, 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 donative, perpetual curacy, or parochial chapelry, not having sufficient glebe or demeine lands annexed to or in right of or by reason of his benefice or cure, or chapelry, or for any flendary curate or unbenevolent 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, that 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.—Allo, a county of Ohio, containing 2674 inhabitants.—Allo, a township of Knox county, in Ohio, including 714 inhabitants.—Allo, 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. 52, 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 tubular 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 inset through the side of the box into a hole made in the centre of oscillation 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 micrometer-screw is fixed, that adjoins 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 micrometer 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 paid of any other method, except that which results from actual experience, in observing the variations of rate at opposite seasons 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 fifteenth 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. Parkes's Eff. v. 4.

CLUPEA ALOSA, col. 2, l. 59, 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 elixirs of warm water or thin water-gruel. The infusion which
Cob

he prefers for administering clysters is a simple bag or ox-bladder, holding two or three quarts, tied to the end of a wooden pipe about fourteen or fifteen inches long, and an inch and a half in diameter where the bag is tied, and tapering to the extremity, where the thickness should suddenly increase, and be rounded off to the point as smooth as possible. The hole through the pipe may be made sufficiently large for admitting the end of a common funnel, by which the liquor may be poured into the bag. Mr. Clark recommends the following clysters for the several purposes to which they are applied. An emollient clyster may be composed of two or three quarts of the water-gruel, 6 oz. of coarse sugar dissolved in the gruel, and the fame quantity of olive-oil added to it. For a laxation clyster, he directs two or three quarts of thin water-gruel, 8 oz. of Glabber's salt (or common salt), and 6 oz. of olive-oil. For a purging clyster, he recommends 2 oz. of fenna, two quarts of boiling water, the fenna being infused and the liquor strained off, with the addition of syrups of buckthorn and common oil, of each 4 oz. An anodyne clyster may be prepared with one pint of the juice of common flax, or infusion of linseed, and 1 oz. or about two table-spoonfuls of tincture of opium. For a nutritive clyster, he directs three quarts of thick water-gruel well boiled; and in some cases milk-gruel might be substituted with advantage. For a diuretic clyster, in cases of strangury, or obstructions of the urinary passages, he recommends 1 oz. of castile soap dissolved in two quarts of warm water, and the addition of 2 oz. of Venice turpentine, previously broken up with the yolks of two eggs.

COACHES, Hackney, col. 4, line 8 from bottom, add—By statute 55 Geo. III. c. 159. f. 2. the commissioners are empowered to license hackney chariots; and by an act passed July 11, 1817, the holders of licences may drive either a coach or a chariot under the same licence; provided that they do not at the same time drive more than one, which is to be exprest in the licence, under a penalty of 10l. or revocation of the licence.

COAL, col. 13, l. 3 from bottom, for 2 92 Grey, &c. r. 21 92 Grey, &c. Col. 20, l. 12, for easelr r. wefherly.

COALBROOK, or Cofbrook Dale, in Geography, a township of Berks county, in Pennsylvania, containing 792 inhabitants.

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 Tafferaet, is 8.5384; according to Lampadius it is 8.7. It melts at about 130° 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 oxyds of cobalt, the protoxyd or blue, and the peroxyd 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

\[
\begin{align*}
\text{Cobalt} & : 100 \\
\text{Oxygen} & : 73.36
\end{align*}
\]

Proust found the proportion of oxygen considerably less, that is to say, only 19.8 with 100 of the metal; and Klapproth 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 36.25.

When the protoxyd of cobalt, newly precipitated from an acid, is dried by heating it in the open air, it assumes a fleabrown colour, which gradually deepens till it becomes black. This is the peroxyd 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

\[
\begin{align*}
\text{Cobalt} & : 23.4 \\
\text{Air} & : 66.6
\end{align*}
\]

Hence it appears to be composed of two atoms of cobalt, and three of oxygen; and on this supposition, the weight of its atom will be 102.5.

COCALICO. Add—containing 4024 inhabitants.

COCAMA, r. see Maynas.

COCINELLA, l. 39, add—These insects are commonly known under the name of lady-birds. The C. 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. punctata of Linneaus, which is little more than half the size of the common red bead, and is of a bright yellow colour, with numerous (generally 18) black specks.

COCCIIUM, l. 4, r. Ribchester.

COCCOLITE. See Mineralogy, Addenda.

COCHIN-CHINA, col. 8, l. 11 from bottom, for winged r. wing. Col. 10, l. 12, for men r. women.

COCKBURN, l. 2, for Grafton r. Coos. Add—it contains 142 inhabitants.

COCKE, a county of East Tennessee, containing 9154 inhabitants, of whom 436 are slaves.

COCKERMOUTH, l. 40, r. 2964; l. 41, r. 602.

CORDORUS. Add—It contains 1975 inhabitants.

COELACHINE, in Botany, from colochus, empty, and a nux, a nucus, alluding to the inflated glumes.—Brown Prod. N. Hall. v. 1. 187.—Clafs and order, Triandra Digynia. Nat. Ord. Gramina.

Eff. Ch. Calyx of two nearly equal, very blunt, tumid valves, two-flowered. Florets of two valves, without awns; the uppermost tailed, female. Neftary 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 græfis, resembling a diminutive Briza, very remarkable for the smaller, or imperfect, flore being female, not male.

COFFEE, col. 13, l. 1, r. 49, and 98; l. 15, r. 100.

Col. 14, l. 49, r. 43.

COHASSET, l. 3, r. 994.

COINAGE, col. 2, l. 4 from bottom, Plate III. fig. 1. Mifsellany.

COIT'S Gora, in Geography, a town of Franklin county, in Vermont, having 193 inhabitants.

COTTTSVILLE, a township of Ohio, in the county of Trumbull, having 429 inhabitants.

COKE, Sir Edward, l. 3, r. Micham.

COLEST, John Baptist, l. 16, r. XIV.

COLESTEY. In 1811, the borough of Colchester contained 2111 houses, and 12,544 persons; 5400 being males, and 7144 females: 430 families employed in agriculture, and 1152 in trade and manufactures.

COLESTON, in America, l. 7, add—containing, in 1810, 2697
COL

2697 inhabitants, of whom 7 are slaves; l. 16, add—containing 673 inhabitants.

COLCHICUM, col. 2, add—See Phil. Trans. for 1817, pt. ii. p. 262; and for Meadow r. Saffron.

COLDHAM.

In 1811 the parish contained 462 houses, and 2424 persons; 1174 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, esq., chief judge in the courts for the natives of Bengal, a practical and accomplished botanist.—Sm. Exot. Bot. v. 2. 111.—Clafs and order, Didynamia Gynno sperma. Nat. Ord. Fälices, Juff.

Eff. Ch. Calyx-teeth five, becoming feathery awns.

Seed solitary, brilly. Limb of the corolla unequally five-lobed.

1. C. oppugnifolia. Opposite-leaved Colebrookea. Sm. as above, t. 115.—Leaves opposite.—Found by Dr. Buchanan, by road sides in Nepal. A downy, slightly aromatic, furb, with flaked, elliptic-lanceolate, ferrigated leaves, and terminal, aggregate, whitened spikes, of innumerable, minute white flowers.

2. C. ternifolia. Three-leaved Colebrookea. Roxb. Corom. v. 3, 40. t. 245.—Leaves three or four in a whorl.

—Native of Myfory. The leaves are narrower and more drooping; the spikes much smaller than in the foregoing.

Dr. Roxburgh says the germen are four, sometimes all perfect; the flowers aggregate, with many common bracteas.

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 Rofs county, in Ohio, having 486 inhabitants.

COLERAINE, l. 3, r. and in 1810, 2016 inhabitants.

COLESHILL. In 1811, this parish contained 330 houses, and 1659 persons; viz. 789 males, and 850 females: 119 being employed in agriculture, and 196 in trade and manufactures.

COLICA, or Colic, in Farriery, a disease to which brute animals are subject; for which Mr. Taplin recommends a ball made of the following ingredients; viz. 1 oz. of pulverized anifeeds; ½ oz. of mithridate; ginger and grains of paradise, of each, in powder, 2 drs.; 1 oz. of aniseed and oil of juniper, of each, 1 dr.; and syrop g. f.: the ball to be given, according to the state of the diseafe, every two, four, or six hours. In some cases, a mixture of ginger, pepper, anifeeds, &c., ½ 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 aniseeds, 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, Cœlipus, a gluttonous fululence. The name appears to have originated with Hill, and is adopted by Hoffmann and Aeharius. The latter has only admitted this genus in his two last publications.—Aeh. Lichenogr. 129. t. 14. f. 8—11. Syn. 308. Sm. in Engl.


Eff. Ch. Shields orbicular, horizontal, nearly fessile, supercilial, with a gelatinous acerose border.

Aeharius reckons up sixty-four species. These are the gelatinous Lichens of former authors. (See Lichenes, feét. 1.) They are all more or less pulpy, oliv-green, or blackish; their fronts various in form and direction. Twenty-three British species are figured in Engl. Bot.

COLLEMORE’s Range, 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.

Vol. IX.

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 528 in trade and manufactures.

COLONSAY, l. 21, By the last act 786, and the number of houses 158.

COLOUR, col. 12, l. 11, for cold r. colour. Col. 22, l. 18, for tube r. tub.


COLUBER, l. ult. r. See Hydrus.

COLUGO, in Zoology. See Galeopithecus.

COLUMB, St. In 1811, the parish of St. Columb major contained 410 houses, and 2070 persons; viz. 988 males, and 1082 females: 225 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.

COLUMB, 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 11,242 inhabitants, including 5980 slaves; l. 11, add—It contains 518 inhabitants; l. 31, add—It contains 2057 inhabitants.—Allo, a township of Cayuhaga, in Ohio, having 205 inhabitants.

COLUMBIANA. Add—It contains 17 townships, and 10,878 inhabitants.—Allo, a town of Kentuck, in Adair county, containing 175 inhabitants, of whom 45 are slaves.—Allo, a district of America, containing 24,623 inhabitants, of whom 5305 are slaves.

COLUMBUS. See Tantalum.

COLUMBUS, l. 6, r. Trincemake.

COLUMBUS, in Geography, a county of North Carolina, containing 3022 inhabitants, of whom 703 are slaves.

COLUMNA, l. 10, for elliptic r. epileptic.

COLUMTON, l. penulti. dele arms; l. ult. r. 343 and 1774.

COMBINATION, col. 2, l. 8, dele c e; l. 38, for 6—1. r. 3.

COMBUSTION, Theory of. See Acid, and Acidification.

COMEPHORUS, in Phibiology, a genus of the apodes, the
CON

1. The characters of which are, head large, with depressed innot; mouth large, with small teeth; body elongated, compressed, 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 seems to be capable of swimming swiftly, and of springing out of the water like the flying-fish. See Callionymus Baikalen-

sis of Gmelin's Linnaean system.

COMMIPHORA, in Botany, from καυσις, gum, and χιως, to bear, Jacq. Hort. Schoenbr. v. 2. 66. t. 249, a dioecious oentandrous shrub, of which the male only is known, found in Madagascar, and said to produce that kind of elastic gum, of which Fourcroy has given an analysis. More information on this subject is very desirable.

COMMON PRAYER, l. 15, add—2 & 3 Edw. VI.

COMPAGNIE ECCOSOIS. See GENDARMES, &c.

COMPASS, col. 6, l. 37 and 38, r. See MAGNETICAL DECLINATION, and MAGNETICAL VARIATION.

COMPENSATION, col. 18, l. 35 from the bottom, for but broader r. and narrower.

COMPSTELLA, l. 2, after capital, insert—(see Corenxa).

COMPOUNDS, in Chemistry, are divided into primary and secondary.

Primary compounds, according to Dr. Thomson, are those formed by the union of combustibles with the four supporters of combustion, oxygen, chlorine, iodine, and fluorine, and with cyanogen. Dr. Thomson also includes under this division certain compounds of combustibles with one another, and with oxygen.

Secondary compounds are those formed by the union of two or more primary compounds. These include the four classes of substances, termed hydrates, fates, hydrophilurates, and loaves.

COMREE, in Geography, a township of Berks county, in Pennsylvania, containing 217 inhabitants.

CONCORD, l. 10, insert— and had, in 1810, 2396. At the close, add—Alto, a town of Grafton county, in New Hampshire, containing 1126 inhabitants. At the close of the next article, add—containing 677 inhabitants; l. 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. Alto, a township of Miami county, in Ohio, having 679 inhabitants.—Alto, a town of Rofs county, in Ohio, containing 1277 inhabitants.

CONCORDIA. Add—Alto, a county and parish of the territory of Orleans, containing 2895 inhabitants, of whom 1581 are males.

CONMEMAUGH, a township of Indiana county, in Pennsylvania, containing 1167 inhabitants.—Alto, a township of Somersfield county, in the same state, having 381 inhabitants.

CONESTOGA. Add—containing 1506 inhabitants.

CONEWAGO, a township of Adams county, in Pennsylvania, having 531 inhabitants.

CONEWANGO, a township of Warren county, in Pennsylvania, having 448 inhabitants.

CONELTON, 2 half lines, r. at 944, the inhabitants at 4616, of whom 2023 are males, and 2593 females.

CONGOON, a port of Larifian, in Perhia, containing 6000 or 7000 inhabitants, and having an excellent roadstead, where a frigate may ride safely in the most tempestuous weather, and good water and fire-wood be procured.

CONIC SECTIONS, Lemmas. Def. l. 1, r. A E; l. 2, D and B; l. 3, A B. Cor. l. 1, r. A E in B; l. 3, B and D in B; l. 5, D B and D E.

CONNECTICUT. At the close, add—See UNITED STATES.

CONNELSVILLE, l. 2, for Washington r. Fayette; l. 4, r. 93 inhabitants.

CONNIOTT, a township of Pennsylvania, in the county of Crawford, having 285 inhabitants.

CONON, l. 1, for son r. father; l. 2, after Athens, r. who died in the year B.C. 393.

CONOPLEA, in Botany, Perf. Syn. Fung. 234, an obscure genus of Fungi, confining of compact, rigid, permanent fibres, generally black or brownish, interfiled with powder. Four species are described, found on rotten wood, branches, or leaves.


Roots perennial, fibrous. Stem scarcely any. Leaves sword-shaped, equitant, rough or bristly at the edges. Stalk many-flowered, capitate or corystobo, often woolly.

Four species are natives of the south coast of New Hol-

land; and one, 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.

Parf.

CONSTRUCTION of Boats. The plate referred to under this article has been superseded by Plate XIV. of Naval Architecture; and for the description of the latter, as far as it relates to Boats, the reader is referred to the article WOOD-MOULDING.

CONVOCATION, col. 3, l. 36, after representatives, add—The summons to the convocation must not be con- founded with that which we now mention, though the constituent parts are the same; and by modern usage the assembly of both is supposed to have been on the same day. But the one may be easily distinguished from the other by this difference: viz. the convocation is provincial, and summoned by the metropolitans of Canterbury and York, whereas the claque, commonly denominated praemunier, (from its first 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 close—Population in 1811 was 10531, the number of houses 218.

CONWAY, in America, l. 8, r. 1080. Col. 4, l. 1, r. 1784.

COOLING Powers of the Gases. It is difficult to ascertain the precise conducting powers of gaseous substances, as the cooling of hot bodies in gases is influenced by a variety of circumstances besides their conducting properties. Count Rumford found, that a thermometer cooled nearly four times as fast in water as in air of the same temperature. The same philosopher also found, that rarefaction much diminishes the conducting power of air, and that hot bodies cool most swiftly of all in a Torricellian vacuum. This sub-
ject, however, has been investigated more lately with greater precision by Leslie and Dalton. Mr. Leslie ascertained, 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 carbonic acid is rather inferior to that of air, but bodies cool in hydrogen more than twice as fast as in common air; and Mr. Leffle 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>11°</td>
</tr>
<tr>
<td>Sulphuretted hydrogen</td>
<td>10°</td>
</tr>
<tr>
<td>Nitrous oxyn</td>
<td>10°</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>10°</td>
</tr>
<tr>
<td>Common air</td>
<td>9°</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7°</td>
</tr>
<tr>
<td>Nitrous gas</td>
<td>7°</td>
</tr>
<tr>
<td>Gas from pit-coal</td>
<td>7°</td>
</tr>
<tr>
<td>Hydrogen gas</td>
<td>4°</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 noticed 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 Prout; but Chevexis, 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 state of powder, formed by precipitating it from muriatic acid by an iron plate. This mixture is to be triturated in a mortar, and put with muriatic 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 muriatic 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

<table>
<thead>
<tr>
<th>Copper</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Hence the weight of the atom of copper will be 80.

The peroxyd or black oxidy of copper has been already described. It is composed, according to Proust and Berzelius, of

<table>
<thead>
<tr>
<th>Copper</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>25</td>
</tr>
</tbody>
</table>

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 farts of copper may be accurately estimated.


Eff. Ch. Calyx none. Petals five or fix, 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. aphlenophila. Fern-leaved Coptis. Pursh n. 2.—Leaves twice ternate, pinnatifid. Found by Mr. Menzies, on the west coast of North America, and by Thunberg in Japan, this being actually Thalidium japonicum of that author, and of Willd. Sp. Pl. v. 2. 1303! The flowers are greenish.

CORACHIE, in Geography, a good sea-port in the country of Scind; which fee.

CORAL, Chemical Properties of. See VERMIS.


We do not doubt the propriety of separating this plant, and another of American origin, (see Pursh 593. n. 4) from Cymbidium; but we have some nearly allied Orchids from Neapul, which require to be examined before the limits of Corallorhiza 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-dune, 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. Hun. bolds, 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 furphases it in the colossal summits of Guanacas, 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 Quinqui. It lies through a thick uninhabited forest, which cannot be traversed, in the frozen 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, &c. by H. M. Williams, 1814.

CORYLINE, in Botany, an old name of Van Royen's, from κόρυλος, a club or flask, suitable enough to the Dracene and Yucca to which it was originally applied, and which we prefix are included in the genus which now bears it. —Comm. in Jaff. 41. Brown Prodr. Nov. Holl. v. 1. 280. —Clas and order, Hexandria Monogynia. Nat. Ord. Aphi-rafy, Jaff. Asphodelo, Br.


The stem is shrubby. Leaves lanceolate, finely ribbed, elongated. Panicle terminal, of numerous, many-flowered, alternate spires, with two unequal bracts beneath each flower.

1. C. canifolia. Br. n. 1. —Leaves stalked, pointed. Clusters divided. Outer bracts acute, twice as large as the inner, which hardly equal the partial stalks. —Found by Mr. Brown, in the tropical part of New Holland.

See Dracena, of which our first and second species belong to this genus.

CORFE-Castle, i. 29, r. after return —of 1811 was 161, and of inhabitants 744.

Corinth, a town of America, i. 2, r. 1876.

Corinthian order, i. 8, for convex r. concave.

Corn, col. 3, l. 18 from the bottom, del 1. 18 to l. 14.

Vol. X.

Cornea, Opacity of. Opacity of the cornea is one of the worst consequences of obstinate chronic ophthalmia. The sight, recent, and superficial form of the disease is usually known under the name of nebula; and it is preceded by and attended with chronic ophthalmia. 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 sclerotica, 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 streaks, 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 ophthalmia 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 abscess between its layers. In the treatment of the nebula, the curative indications are to reforest the varicose vessels 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 ophthalmic ointment, or the ung. hydrarg, nitrat, together with astringent collyria. The second defideratum is fulfilled by the excision of the fasciculus of varicose veins, just at the base of the opacity, with a pair of dissecting kifeus and forceps. With respect to the deeper and more obstinate opacities, which are frequently called albigo and leucitis, they are consequences of severe acute ophthalmia, though sometimes the effects of an ulcer or wound of the cornea, when they are commonly known only by the latter appellation.

The recent albigo may sometimes be dispersed by the same treatment, which is applicable to violent ophthalmia; and when the inflammation has been subdued, the ung. hydrarg, nitrat. is the best local remedy for promoting the ab sorption of the extravasated opaque lymph. The eye may also be frequently walked with a collyrium, composed of two scruples of the murrate of ammonia, and four grains of verdigris, in eight ounces of lime-water. The treatment must be continued three or four months before the case is to be abandoned as hopeless. With respect to the leucitis arising from a cicatrix, Scarpas fets it down as absolutely incurable.

CORNISH, l. 5, r. 1810, and 1606. Add —Allo, a town of York county, in the district of Maine, having 974 inhabitants.

CORNVILLE, a town of America, in the district of Maine, and county of Somerset, having 504 inhabitants.

CORNWALL, col. 8, l. 51, r. 1811; l. 52, r. 35, 971, and 216, 667.

Cornwall, in America, l. 3, r. 1279; l. 8, add containing 1602 inhabitants.

Coro, l. 7, after perfons, add —The little commerce that is carried on is in mules, goats, hides, sheepkins, cheeves, &c. obtained from the interior of the country, and more particularly from Carora. At the clofe, r. N. lat. 10° 8' from Paris.

CORSHAM, l. 17, add —By the return of 1811, the number of house was 478, and that of inhabitants 2395.

CORTLANDTS, a county of New York, having 8800 inhabitants.

COURDUNDUM. See Mineralogy, Addenda, and Adamantine Spar.

COURNA. Add —See Compostella.

Coryveis, col. 2, l. 20, add —The African or Cape raven, des cribed by Le Vaillant, is, according to Dr. Shaw, the only variety worthy of notice.

COWEN, l. ult. r. 51 Geo. III. 288 houses, and 1417 inhabitants.

CORYSTHANES, in Botany, from κορυς, a helmet, and αιθος, a flower. —Brown Prodr. Nov. Holl. v. 1. 328. —Clas and order, Gynandria Monandria. Nat. Ord. Orchideae. Eff. Ch. Calyx ringent; upper lip vauthed, 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. Maffes 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 Lypenanthus nigriscus; see that article.

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sustended by an almost orbicular, heart-shaped, pointed leaf.

2. C. unguculata. Stalked Helmet-orchis. Br. n. 2.—

Lip without a spur, tubular, dilated and hood. Flower stalked. Flower pendulous. — Found by Mr. Bauer, at Port Jackson.

3. C. biculata. Double-spurred Helmet-orchis. Br. n. 5. (Corybas aconitiflorus; Salis. Parad. t. 83.)—Lip tubular, with two spurs at the base.—Found near Port Jackson, but, according to Mr. Brown, very rarely, nor does he seem to think it has ever been brought alive to England. We received a specimen in spirits, from Dr. White, about the year 1793: Mr. Brown’s remarks on this subject are curious.

COSMEA, a name certainly much improved from Cosmo of Cavanilles, Ic. v. i. 9.—Ait. Hort. Kew. v. 5. 152.—This genus comes next to Catasetum, and we should fearfully scruple to unite them.


COTTONIS. Add.—This town, called Cotaos or Cotales, is now an inconvenient place, inhabited by about 80 Jewish, Armenian, and Turkish families. Its rivers are extensive, and it is situated on a beautiful and fertile plain.

COTCHUNG. See Deraguz.

COTENTIN for Contentin.

COTOPAXI. This is the loftiest of those volcanoes of the Andes, which, in recent epochs have undergone eruptions. Its absolute height, according to Humboldt, is 18,874 feet; so that it is double that of Camiogu, and 2600 feet higher than Vefuvius would be it were placed on the top of the peak of Teneriffe. This is also the most dreadful volcano of the kingdom of Quito, and its expulsions are the most frequent and disastrous. The mafs of fire, and the huge fragments of rock thrown out of this volcano, cover a surface of several square leagues; and would form, if they were heaped together, a colossal mountain. In 1758, the flames rose 2900 feet above the brink of the crater. In 1774, the roaring of the volcano was heard on the borders of the Magdalena, a distance of 200 leagues. In April 1768, the quantity of ashes ejected by the volcano was so great, that in the towns of Haumbato and Tacanga the inhabitants were obliged to use lanterns in walking the streets at noon-day. The explosion in January 1803 was preceded by the sudden melting of the snow which covered the mountain. For twenty years before, smoke or vapour had been observed to issue from the crater; and in a single night, the subterraneous fire became so active, that at fun-rise the external walls of the cone were heated to such a degree as to appear quite naked, and of the dark colour peculiar to vitriined fire. At the port of Guayaquil, fifty-two leagues distant, Mijos. Humboldt and Bonpland heard the noise of the volcano day and night, like the continued discharges of artillery. In this part of the Andes, a longitudinal valley separates the Cordilleras into two parallel chains; the bottom of this valley is 5843 feet above the level of the ocean, so that Chimborazo and Cotopaxi appear no higher than the Col du Geant, as measured by Sauflure. 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 Refereshes. See VOLCANO.

COTTON, col. 15, l. 15 from the bottom, for feed r. read COTTON-ENTRY. By the return in 1811, this city contained 3448 houses, and 17,493 persons; viz. 8197 males, and 9276 females: 123 families being employed in agriculture, and 1207 in trade, manufactures, and handicraft.

COTTONENT, 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.

COUCHE, col. 2, l. 5, r. the king’s premier, &c.

COURONNE des Taffes, 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 cell of small glaffes, placed sideways of one another, and containing water or some salina folution. Metallic arcs are then procured, having one end composed of zinc, and the other of silver or copper: these arcs are inserted into the glaffes in an uniform order; each glaffe having the zinc leg of one arc, and the copper or silver leg of another arc immerfed in the fluid. The zinc and copper legs are not in contact, and they are always to be disposed 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 Coupita.

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.

CRAIL. In 1811, the burgh and parish of Crail 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.

CRAYFORD. In 1811, the parish contained 233 houses, and 153 persons; viz. 760 being males, and 754 females.

CREAM,
CRO

CREAM, Chemical Analysis of. See Milk.

CREDITON, L. 8. from the end, r. and the hundred contains, by the return of 1811, 2130 houses, and 10,648 inhabitants; L. 5, after extent, add,—But the borough of Crediton contains only 425 houses, and 1846 inhabitants.

CREWKERNE, 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 1675 females; 281 families employed in agriculture, and 308 in trade, &c.

CRIBRARIA, in Botany, from its perforated structure, Perf. Syn. Fung. 189; one of those beautiful, though minute, genera of Fungi, whose head is formed of reticulated filaments, encircling the powdery feeds. Perfocon reckons up eleven species.

CRICKHOWEL. In 1811, the parish contained 157 houses, and 611 inhabitants. In the hundred of Crickhowel is a Roman encampment, called the Gari, situated at the extremity of the vale, on a rising ground. The dimensions are much the same with those of Caer-Bannau (see BANNA), and it is nearly of a square form. It lies on the Via Julia, which passed in this direction from Caerleon to Caerlennih in Carmarthen. We are informed that the old practice of fingling coins 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.

CRICKLADÉ, l. 14, r. 51; L. 15, r. 1893, and 2009; l. 16, 10,403; l. 17, 4894, and 3509; 1483 families chiefly, &c.; l. 18, r. 411.

CRISTARIA, in Botany, from the wings or crofts of the aggregate capsules, by which alone it is distinguished from SIDA (see that article).—Cavan. Ic. v. 5, 10. Pursh 453. Sims in Curt. Mag. 1675.—We can hardly at all 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. glaucophylla, Cavan. Ic. t. 418. 2. C. multifida, which is our SIDA pterosperma, the last species but one in that article. 3. C. cocinea, Pursh n. 1. Curt. Mag. t. 1673, a native of the dry plains of the Mifflun, perennial and hardy in our gardens, adorned with beautiful scarlet flowers. 4. C. botanica, Cav. as above, 11, which is Malacoides betonica folio, &c. Feuill. Voy. v. 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.—Alfo, a township of Ohio, in Jefferson county, having 1152 inhabitants.

Cross-Wort. Add.—and Valentina.

CROTALUS, col. 3, l. 19, r. to have them come, &c.

CROTONEPSIS, in Botany, from xiphus, Crotos, and ephy, appearance; but the principle of the name is incorrect, insomuch as the Greek xiphus is our Ricinus, to which genus in question bears no resemblance; and if the Crotos of modern botanists be intended, such a comparative appellation is contrary to rule.—Michaux Borel.—Amer. v. 2. 185. Willd. Sp. Pl. v. 4. 380. Pursh 206.—Cliffs and order, Monocotyledonea. Nat. Ord. ?


Capsule superior, not burfling, with one seed.

1. C. argentea. Silvery Crotonepsis. Pursh n. 1. (C. lineata; Michaux 180. 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 Mifflun, flowering in July. Pursh. A slender annual herb a span high, with opposite or alternate entire leaves, variable in breadth, and loose spikes of minute white flowers. The pubescence consists of fringed silver scales, as in Crotus.

CROUDESE, r. See Ballotade.

CROW'S NECK, in Natural Language, is a kind of box, sufficient to hold a man; generally a cleft, fixed near the mast-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 1374 houses, and 7801 inhabitants; 3616 being males, and 4185 females; 3357 families employed in agriculture, and 662 in trade, &c.

Croydon. Add.—and in 1810, 802 inhabitants.

Croydon Canal, l. 3, r. Surry.

CRUCIOSTRA, CROSS-BILL, in Ornithology, a genus of birds of the order Pufius; the characters of which are, beak thick and forked; mandibles, when at rest, inerally curved; nostrils small, rounded, situated at the base of the beak; tongue entire. Mr. Stephens, the contributor of Dr. Shaw's Zoology, mentions and describes two species; one of which, or common crows-bill, beak externally olive-green, and tail feathers; the other, or Loxia curvirostra of Linnaeus; and the crows-bill with a dull crimson body, wings black, with two white feathers, secondary quills white at the tips, and tail black, the Loxia leucoptera of Gmelin, and white-winged crows-bill of Latham and Pennant.

CRUSTS, Animal, Chemical Properties of. See VERNES.

CRY, see the preceding.

CRY, see the preceding.

CRY, see the preceding.
rather tender annuals in our gardens, of no striking appearance.


Eff. Ch. Calyx-leaves and petals linear, spreading. Flower reversed. Lip erect, sessile, 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, fleshy, flat. Flowers in a terminal spike, dull red, ftenfent.

1. C. longifolia. (Malaxis fulvulata; Labill. Nov. Holl. v. ii. 24. 1. 2.) found at Port Jackson, as well as on the south coast;

2. C. ovata; and 3. C. eretta; are the only described species.

CRYSTAL, col. 5, l. 19, for changed r. charged.

CRYSTALOGRAPHY is the science which treats of the form and structure of crystals. (See Crystal.)

The beautiful symmetrical forms, which frequently occur in the deep clefts of mines or the fissures of alpine rocks, cannot fail to strike the most common observer with surprise. Amidst the utmost 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 considered that, besides the prevailing forms peculiar to certain minerals, the same species are not unfrequently crystallized in a variety of dissimilar forms, and that minerals of different species often present crystals 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 minutecst 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 Lisle, Bergmann, and Hauy. The latter has ably demonstrated that all the varieties of crystalline forms are reducible to a few simple primitive forms, some one of which may be regarded as the nucleus of each crystal, however complex its form may be. The constituent particles, or what Hauy denominates the 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 form or derivative crystal.

The primitive forms of all crystals which have been hitherto examined are six.

1. The parallelepiped, 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 rhomboid.

2. The octahedron. This is a double four-sided pyramid. When the triangular faces are equalateral, it is called a regular octahedron. (Plate VII. fig. 27, Crystallography.) 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 rhomboidal 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. Rhomboidal dodecahedron, bounded by twelve equal rhombs, fig. 12.

6. The pyramidal dodecahedron, consisting of two six-sided pyramids joined base to base, fig. 14.

The primitive forms which most frequently occur are, the parallelepiped 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 indefinite, 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 sunshyne, when the reflections from the internal parts will show its structure. Where no joints are discoverable, Hauy 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 I, G H, A K. The discovery of it in this crystal was first made by the abbe Hauy 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 rhomboidal nucleus. This first suggested to him the theory of the structure of crystals. The division of this 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° 5' and 74° 55'. Rhomboïds of calcareous spar, indeed, occur with different angular dispositions; but these are secondary crystals, and will not split in directions parallel to their faces. One of these, with the primitive nucleus, is represented.
CRYSTALLOGRAPHY.

represented fig. 24. The theory of their formation will be explained as we proceed.

The primitive form is not in all cases the ultimate form to which crystals can be reduced; for where the primitive form is not a parallelopiped, the division parallel to the faces necessarily produces forms which must vary from that of the primitive nucleus. See Plate V. fig. 56. Crystallography, which represents the base of a fixed-sided 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 parallelopedia, 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 laminae 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 six faces and in that of the short diagonal A O, I A, V A, A K. These latter sections divide the rhomboid into six tetraedrons, which are represented surrounding the nucleus. Hairy conceivethat 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 we can carry the divisions; and the obvious consequence is, that if these divisions be carried far enough, we must at last reduce the crystal to its integral 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 tetraedron, the triangular prism, and the cube, may be readily conceived to be constructed with four, six, 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 six.

If we conceive the integrant molecules to be arranged in rows, and a number of these rows to be arranged in the same planes, they will form laminae 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 laminae decrease in extent by one or more rows of particles, the result will be a change of form, or the production of a secondary crystal. Now the laminae 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 on 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 parallelopedic, whose faces differ in the respective inclinations 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 diversity of laws, sometimes acting solitarily, and sometimes in combination upon the same primitive form, the number of ranges subtrahend 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 make the imagination baffle the study of crystallography would present an immense labyrinth, from which even the affinities of theory could not extricate the learner.

But the force which produces the decrements of ranges appears to have a very limited action. Generally these subtractions take place by one or two rows of molecules. None have hitherto been found beyond six rows; but such is the fecundity united 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 8,588,604 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 tetraedron 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, six, eight, they compose parallelopedia. These parallelopedia are, by Hairy, named subjacent molecules. They are always substitutified in the place of tetraedrons and triangular prisms in considering the decrements where they produce the secondary forms.

Decrement of the Edges.—The most simple case of change of form produced by the superposition of decreasing laminae, is that which supposes ranges of molecules to be taken away on all the edges of a paralleloped, in a direction parallel to the edges. Yet this case, so simple in appearance, may give rise to forms of considerable complexity. Thus the rhomboidal dodecahedron (Plate II. fig. 27, or Plate III. fig. 28. Crystallography) 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 crystall EA, O I, and E'A', O'I', is formed by a congruities of cubes. Suppose these cubes of such a size, that an edge of the primitive crystal is composed of a row of seventeen cubes, placed side by side, as represented fig. 29. I O, E O: of course each face of the primitive crystal will be a congruities of 289 squares, consisting of so many integrant molecules; and the primitive crystal or cube will be a congruities of 4913 cubes. Let us suppose that a square surface or plate, of the thinnest of one integrant molecule, be applied to every face of cube; but that instead of being of the same size as the face of that crystal it is left 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 crystal. 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 fig. 29; the cube will therefore be converted into a rhombohedral dodecahedron. The cubic nucleus I'I', O'O', E'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 laminae, 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 different 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 faces 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. 30.) 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 seen at q p, 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. fig. 30, 31, 32. Crystallography.

Another example of decrements on the edges is deserving particular attention: it is afforded by that peculiar kind of crystal of calcaceous spar, commonly called dog-tooth spar, or which Haidy denominates the metallic crystal. (Plate II. fig. 22.) In this crystal, the edges E O, O L, I K, where the two opposite pyramids join, coincide with the edges of the primitive nucleus, as may be seen in fig. 24. 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 O', I O E' O', &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 consequence 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 r 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 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 primitive 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 this 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 assemblage of one hundred small rhomboids, 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 rhomboids. 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 cafes, 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 calcaceous spar, called by Haidy equiaxe.

This variety, the secondary crystal, is a rhomboid, much more obtuse than the nucleus, the greater angle being 114° 18' 60". 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 which passes through
the diagonals drawn from a to t, and from a to u, and which
cuts off the solid angle $\alpha$, coincides with the face $a, b, d$, of
the nucleus. But there are six lateral solid angles $\alpha, \beta, \gamma,$
and $t, m, u$. We have, therefore, five 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 preserve the same alternation, and cross
in such a manner as to present the fix 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 resulted two triangu-
lar faces on each edge, which being in the same plane
formed a rhomb, the short diagonal of which is I O.

Let us suppose, that the nucleus was the primitive rhomb
of carbonate of lime (a b, d f, fig. 34.), and that the laminae
of superposition decrease by one range of little rhomboids
similar to the nucleus; but the decrements to take place only
on the edges $a b, a f, a n,$ which meet at the summit $a,$ and
on the opposite edges, which meet at the opposite point $d$.
Then instead of twelve rhombes there will only be six, of
which the shorter diagonals will coincide with the edges
$a b, a f, a n, &c.$ The other parts of the laminae of super-
position, that is, those which are situated near the lower
edges, $b d, d f, f n, &c.$ will not undergo any decrement,
but will suffer variations that will tend to prolong the faces
produced by these decrements, until they intersect each
other. From hence it results, that the lamina, instead of
preferving the figure of a rhomb, as would have been the
case 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.

Fig. 35. $A$, a b $d f$, is the face of the face nucleus or rhomb
as in fig. 34., and what is said of this face may easily be
applied to the others. Suppose this face divided into 81
rhombes, which represent the faces of so many molecules, or
729 in the whole. The first lamina of superposition, which
we apply to the face a b, d f, will be B, fig. 35., in which U l,
Z $d$, represent the upper face, and C U b, X Z b, the
facets of the two upper edges. We must place this lamina in
such a manner on the face a b, d f, that the point $b$ shall unite
with the point $b$, the point A' with the point A, and the
point B' 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, the included between a b, A b, on one side, and
a f, B b, on the other, will remain uncovered, the necessa-
ary result of a decrement by one range of molecules.
The lamina B is a pentagon resulting from the subtraction
of the three little rhombes necessary to complete the rhomb.
This subtraction was required, that the lamina 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 $b d, d f, d, A$, fig. 35., which
Correspond with these lines. These two ranges being
sufficient to fill up the void, it is not necessary to add similar
ranges towards the adjacent edges of the laminae of super-
position, applied on the neighbouring faces. The operation
will indicate of itself what is required in these kinds of addi-
tions.

The fig. C, 35. represents the second lamina of super-
position, which is to be applied to the former in such a
manner, that the points $t, D^2, E, d,$ shall unite with those
which are marked with the same letters in fig. B. As the
crystal will receive another increace towards the edges, which
Correspond with $F d', C d'$, we may conceive that instead of
one range added on each side $D d', E d$, in fig. B, it will be
necessary to add two on each of the two lines $E d', C d'$,
fig. C, 35.

We must place in the same manner, in succession, the two
laminae represented D and E, fig. 34.; observing that
the letters marked with an accent in each figure shall coincide
with the same letters not accented in the preceding figure.
Beyond the series which answers to fig. E, the laminae
of superposition will cease to envelope the lower edges of
the crystal, and will be reduced to simple triangles, which may
be perceived on examining the figures E, F, G, H, whose
shape will be determined according to the conditions
before stated.

The number of rhomboids which compose the laminae
being now progressively decreasing, is reduced at last to a
single rhomboid $d'$ (fig. D, 35.), which being applied on
that which is designated by the same 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 successively pentagonal and triangular
faces as they recede from the nucleus. For example, every
lamina, detached from the crystal (fig. 34.), by a section which
passes any where between the angle $\alpha$, and the middle of
the lines Z t, Z u, is necessarily triangular, and has the same
structure as $P^2 t R^1$, fig. G, 35.; namely, it is really furrowed
at its base, but the ridges are imperceptible on account of
their extreme minuteness.

Decrements on the Angles.—To explain the formation
of secondary cryftals, in many infances it is necessary to admit
that the decrements take place on the solid angles. The
formation of the regular octahedron formed on the cube is
represented Plate III. fig. 36. Crystallography, and an
account of it is given under the article CRYSTAL, but the
reference is erroneously to Plate I. fig. 20.

The effect of decrements 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. Mifcellany, O I, O 8; where the face of a cubic
nucleus is represented as divided into a number of lesser
figures; and fig. 23, A, B, C, D, E, F, G, H, I, in the
same plate, represent a successive series of plates, or lamina,
placed on the cubic nucleus, each decreasing by one row on
the angles. These are described 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 case of decrement, where a regular
octahedron is formed on a cubic nucleus. The arrange-
ment of the integrant molecules on one of the triangular
faces of the octahedron is represented Plate IV. fig. 37.
Crystallography.

If the decrements on the angles of a cube were to stop
before they terminated in points, there would remain faces
parallel with that of the cube, which will be evident from
inspecting Plate III. fig. 36. The crystal would then have
fourteen faces, eight those of the octahedron, and fix those
of the cube. Nothing is more common than to find such
crystals 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 some-
what from the cube. If the plates applied successively
upon all the faces of this rhomboid suffer decrements only
at the angles contiguous to the summits A and O; and that
these
these decrements take place by two ranges, then instead
of twenty-four faces, only six would be formed; and if we
suppose these prolonged till they meet each other, they
would conjointly form a very obtuse rhomboid (fig. 39.)
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 oligite
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. Let
S g', b G', fig. 46, be a quadrilateral figure formed by cutting
through the rhomboid G g in the direction of a plane,
formed by the two oblique diagonals S g', i G', fig. 45., and
the edges S G, S g. This quadrilateral figure, termed by
Haei the principal section of the rhomboid, is divided in
the figure into a number of small quadrilaterals repre senting
the principal section of as many molecules. Let S G, S g, S G',
fig. 47, be the face of the rhomboid, fig. 45, marked with
the same letters, and subdivided into the faces of the mole-
cules of which it is composed. If we suppose that the
angle g" undergoes a decrement by a single row of mole-
cules, the small rhomboid represented by e n = g" will be
wanting; hence it is obvious, that the edges of that plate
will have the direction a n, and that the distance between the
angle g", from which the decrement sets out, and the edge
e n, will be measured by the femidiagonal of a molecule,
or r g. If the decrement took place by two ranges, the edge
q, the first plate of superposition, will correspond with
c d, and the distance between it and the edge 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 semidiagonals 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 successive 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 r p, fig. 46, being a section made in the first plate of super-
position, 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 straight line g' g b, it will
coincide with the face produced by the decrement. But
the angle g" b being, in this case, parallel to the axis S A, as may be
demonstrated geometrically, hence it follows that the
secondary faces constitute the faces of a prism. If the
decrements went 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 e g; then the line g q g' 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 respec-
to all possible varieties of the primitive rhomboid.

Mixed Decr ements are those in which the number of ranges
taken away in breadth and height give ratios, the two terms
of which purpafs 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 Decr ements,—These will be best explained
by references to the figures.

Let A A', Plate IV. fig. 48. be a paralleloiped of any
kind, which undergoes a decrement by two ranges on the angle
E O I of its base A E O I. It is obvious, that the
dges of the plates of superposition will have the direc-
tions b o r t, parallel to the diagonal E I, and so situated
that these will be upon the sides O E, O I, two rows of mole-
cules comprehended between the angle O and the line b e,
and likewise between b e and r s. But as has been already
said, the plates applied upon the adjacent faces I O, A' K,
E O, 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 e g, s t, and those of the plates applied upon E O, A' H,
the directions b o g, n t; for since the lower edge of the first
plate applied upon E O I coincides with b e, 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 e, 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 t s. From this it follows, that if we suppute the part
situated above r t s, we shall have a solid on which the face
r t s will repre sent the effect of the decrement which we are
considering.

Now, the direction e g, s t, of the plates applied upon
the face I O, A' K, (and the same face 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 parallellism will become still greater, if we suppute
the decrements upon the angle of the base E O I to take place
by three or four ranges. This is the kind of decrement to
which the name of intermediate has been given. It is ob-
vious, that it may take place in an infinite number of
rather directions, according as it deviates more or less from
its two limits, the parallellism with the edge and the dia-
gonal of the face.

In cases similar to those of Plate IV. fig. 48. we avoid
the complication introduced by these intermediate decre-
ments, by supposing them comprehended under the principal
decrement. But certain crystals exist in which all the three
decrements round the face sole angle are intermediate. In
such a case, the fimplest of the three is chosen as the prin-
cipal decrement, and the other two considered as auxiliary.
Fig. 49. represents a case of this kind: e 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 b, which is the edge of the first plate applied upon E O, A' H,
flaws 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 mole-
cules of a higher order, and as if the subtraction took place
by single ranges of these compound molecules. Thus there
will
CRYSTALLOGRAPHY.

will be on the base A E, O 1, a decrement of triple molecules by two ranges in height, since on one part, the quadrilateral figure $\triangle O \pi s$, which represents the base of a compound molecule, is equivalent to the bases of three simple molecules; and on the other, the line $O \rho k$, which corresponds to the height of a plate of superposition, is equivalent to the height of two simple molecules. It is easy to conceive likewise, that the decrement relative to the face $E O, A' K$, takes place by two ranges in height of double molecules; because $O \rho k$ contains the bases of two simple molecules, and $O n$ is equal to the length of three simple molecules. In the decrement which takes place upon $I O, A' K$, 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 $E O, A' H$; because it is the one whose direction deviates the least from that of the diagonal $E A'$, 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 $O I, I'O'$, 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 laminae of superposition will be in the direction of the lines of $d n, k m, \ell r, l \ell$, 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 in that of the height: in this case, the decrements will be both intermediate and mixed. Suppose also that the edges of the laminae of superposition, situated around one solid angle $O$, had directions which crossed, so that with respect to the face $O I, I'O'$, the greatest number of the faces of the molecules should be taken away on the side $I'O'$; but on the face $E O, O E$, it should be on the side $O O'$, and with respect to face $E A, I O$, it should be on the side $E O$; 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 $k m, l \ell$, corresponding with those of the nucleus, are rhombs; and the faces $m l, r o$, 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 $G G'$, Plate IV. fig. 47, and that these decrements take place by ranges of double molecules, parallel to the faces $u m, x y, u' m', x'y'$. It is evident, that these decrements will produce above each rhomb of the primitive nucleus $S G, S G'$, two faces, which, commencing at the angles $G G'$, will converge towards each other, and come in contact in a line situated above the diagonal $S g''$, 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 solids, with its nucleus inscribed. It is a variety of calcareous spar which sometimes occurs. The lines $a b a'$, $d e d'$, $f g f'$, represent the direction of a fracture parallel to the face $G g'', G'S'$, 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 $B S', D' I$, $C' S$, &c., while in the dodecahedron of Bergmann, represented in Plate II. fig. 23, and called by Hauy metaphytic calcareous spar, the lateral edges of the nucleus coincide with those edges of the secondary crystal that constitute the common bulk 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 inflections, 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.) would concur with that from which results the dodecahedron with pentagonal faces. (Plate III. fig. 31.) The drift 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 fold angle $O$, fig. 31, will be parallel to the equilateral triangle, whose sides pass through the points $p s t$, fig. 24; in the manner, the centre that coincides with the front $O'$ will be parallel to the equilateral triangle, whose sides pass through the points $t s n$, Plate IV. fig. 54. But the second law produces faces situated as the pentagon, by the sides of the triangles $p s t, n p l$. Now the section of these triangles upon the pentagon $O s, O'n$, fig. 31, reduces the pentagon to an isosceles triangle, which has the line $t n$ for the base: the two other sides are those which pass through the points $t s, n s$. The same takes place with the other pentagons. Hence it follows, that the secondary crystal produced will be an icosahedron, bounded by eight equilateral triangles, and twelve isosceles triangles. (See Plate IV. fig. 54.) This icosahedron occurs in iron pyrites, and 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 six-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 rhomboidal nucleus, fig. 21, has six of its solid angles $E, O, I, K, G, H$, situated in the middle of the lateral faces of the prism: hence it follows, that these angles are the points from whence 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 decrements extend on the two adjacent planes that form the solid angle. Let us then refer all the decrements to the six angles $E O I, E H G, I K G, H G K, O I K, H G O$, the drift 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 $A A, \text{fig. 20}$, where each of these small faces, as $O O A$, 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 $O O$ rise up, and the point $O$ sinks down; so that at a certain period we shall have the solid represented $\text{fig. 19}$, where the faces produced by the decrements become pentagons $O E I$.

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 fix faces parallel to the axis which are produced by the first decrement, the second foliy will be completed, and will be a regular fix-sided 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 $P P, O O$, has the faces $P P, O O$, 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 bases. 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 crysallals, 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 Haüy analogique. (See Plate IV. fig. 55.) It is composed of twenty-four trapezoidal faces, of which fix are vertical faces, as $a b c d, d b e$, and twelve others, disposed fix and six, as $e f a b$, and $e f a b$, &c. and fix terminal faces, as $p a b$. 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 intercept 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 equiangular prism. (Plate III. fig. 54.)

Fig. 55: $A, B, C, D$, represents the different trapezoidal faces of this crystal. Various relations of proportion between their sides and angles are given by Haüy, 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 parallelopiped, 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-sided 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, tetraedrons and octahedrons. Haüy, 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 its octahedrons 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 tetraedrons. Some other primitive forms divide also in directions which are not parallel to the faces, as we have seen in the case of the tournamente. See Plate III. fig. 26.

Thus, besides parallelopipeds, there are two other forms which integral molecules assume, namely, the tetrahedron and the triangular prism; but it deferves particular attention, that the tetrahedral and primitive molecules are always arranged in such a manner in the interior of crysallals, that, taking them in groups of two, four, fix, or eight, they compose parallelopipeds, so that the ranges subtracted by decrements are no other than these parallelopipeds; and we may conceive such decrements as taking place by one or more ranges of rhomboidal molecules. If, for example, we take the regular fix-sided 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 integrant molecule; it is evident that any two adjoining triangles, $A, B, C, D, F, G$, 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 rhombs. 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 these parallelopipeds, these edges will successively correspond with the lines of the hexagon $i m n r b h, k u x y g e r$, &c. from which we see that the quantity by which each plate decreases is a sum of parallelopipeds, or prisms with rhomboidal bases; and if the decrement attains its limit, we shall have a right fix-sided pyramid, which will have for its base the hexagon $A, B, C, D, F, G$. These parallelopipeds, composed of tetraedrons or triangular prisms, are called by Haüy sublative molecules; and as far as the theory of crysallals is concerned, we may conceive all crysallals to be composed of parallelopipeds.

Plate V. fig. 58. refers to a particular case described in a note by Haüy (tom. i. p. 96.), to explain the vacuities on the edges $b, e, i, n$; but being of less importance, we proceed to flate the observations of M. Haüy on some apparent anomalies in crystallography.

In common crysallals, the faces adjacent to each other always form saineit and never re-entering angles; but certain crysallall forms exist, which present the latter angles. Let $B, D$, Plate V. fig. 60, represent an oblique prism with rhomboidal
rhomboidal bases, 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 the one half remained fixed, whilst the other is removed without being separated from the former. The crystal will then be presented under the aspect seen in fig. 61, where the triangle v, 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 faient angle or projecting edge with the triangle A B D. Whilst 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. 60, 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 faient 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 faient one.

These crystals which are here described are called by Hauty hemihypran, or half reversed. Romé de Lisle has called such crystals marles.

Another accident extremely common is the manner in which crystals in groups are infected 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 R an equilateral triangular face, 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 progress. As the increment continues increasing, it will more and more envelop the upper crystal, and may finally by covering it entirely. We observe crystals fink 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 fluor spar inserted into each other have the lamina of each extended without interruption, until they are stopped by the common plane of junction.

The example here cited 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 tautosite, 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 fupposed, 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 Hauty, 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 that 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 with the microscope 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 fold, since we can always conceive a plane figure to be a section made in a fold: let t s z s', 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 p b j f s, &c. the steps 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 e, 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, t s, s' z. If we refer this assemblage in imagination to the fold, of which it is a section, we shall easily perceive that this fold 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 t' s, s' z. Here we have already two laminae of superposition instead of one only. Lastly, by a further
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 i, 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 crys tal, 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 2, 3, 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 crys tal, or the faces parallel to those of the nucleus in the case where the decrements do not reach their limit; and then these letters are combined in the symbol of the crys tal 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 intercepted by a single additional face. The decrements which produce this face may take place either on the upper base P, or on the plane T, 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 denotes 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 I, A, E, the observer is supposed to move round the crys tal till he is opposite to that angle, or to turn round the crys tal 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 to the left.

For example, if we are speaking of the solid angle A, the figure A will represent a decrement by two ranges on the surface A E, 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 to the left of the letter, according as they occur in one direction or the other.

Thus D expresses a decrement by two ranges proceeding from D towards C: Č, a decrement by two ranges proceeding from C towards D: D, a decrement by two ranges defecing upon the face M: H, a decrement by three ranges, proceeding from H towards G: 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 r, fig. 66, opposite to the edge denoted by the capital letter D, fig. 66,
CRYSTALLOGraphy.

To decrement, we must suppose the faces of the crystals reversed. Hence, \( d \) will express a decrement by two ranges upon the other base \( D \), 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 \( E O \).

If the fame solid angle, or the fame edge, undergo several successive decrements on the fame 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, \( D, D, D \) 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 denominate 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 fame principles, employing the fractions \( \frac{1}{2} \), \( \frac{3}{2} \), 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 VII. fig. 67.) be the fame 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 \( x \) \( y \); so that \( O y \) measures the double length of a molecule, and \( O x \) that of a single molecule.

This kind of decrement is thus expressed, \( O, D', F' \); the parenthesis indicates 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: \( O = \text{O two on the right, O three on the left;} \ O, O, \) read, \( O \) under two, \( O \) above four. And the symbol \( O, D', F' \), read, in a parentheses, \( O \) 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 were adopted, there would result a degree of confusion in the picture which the formula prevents. 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 felspar which Haüy calls binariv, viz., where there are two decrements by two rows each. The primitive form is represented figs. 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. 68, corresponds 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 \( l, \) 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 \( P \). All this description may be exhibited by five letters in symbic language: thus \( G M T \) \( P \) denoting a decrement by two ranges on the edge \( G \), and a decrement by two ranges on the angle \( I \), fig. 64.

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 binitary felspar, fig. 68. \( G M T \), \( \text{I} \) \( P \), 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 equal, the same letter will denote either; for everything 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. 60; 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 substitutions of letters. The oblique prism with rhomboidal bases is represented fig. 70. The rectangular prism with rectangular bases fig. 71. The rectangular prism with rhomboidal faces 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 fame 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 crymophane (see Chrysobéryl) the nucleus of which is a rectangular parallelopiped, such as represented fig. 71. The symbol of the secondary crystal, \( \text{G} \), fig. 75, will be \( M T \times G \), \( B A \). This variety is called by Haüy annular crymophane.

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 \( M T \times G \), \( B F \). If we compare fig. 71. with 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 \( M T \times G \), \( B B A \). which becomes the fame 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 \( G, G \), with \( G, G \); 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 \( T \) 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 \( G \).
In the preceding symbols, each letter, such as on \( G \) or \( ^2 G \), can only be applied to a single edge situated to the right or left, as the letter is itself; but \( ^2 G \) 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. 79. to represent its primitive form, we shall have for the symbol of the variety of crystal here represented,

\[
\begin{align*}
^2 G & \quad M \quad B \quad B \quad E \quad E \quad P \\
& \quad B \quad E \quad S \quad u \quad P.
\end{align*}
\]

In this symbol, \( ^2 G \), indicates two different faces formed on each side of each edge, 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 \( ^2 G \) applies to the faces marked with the letter \( a \), and this requires only to write the letter \( a \) under the symbol.

From the same principles it follows, that the rhomboidal dodecahedron derived from the cube, fig. 74, is expressed by the symbol \( B \). The octahedron derived from the cube is thus expressed \( A \).<sup>1</sup>

The rhomboid, imposing itself in the most natural aspect, so that the two facial angles, composed of three rhomboidal plane angles, are in the same vertical line, has, properly speaking, no base, but merely summits, which are the extremities of its axis. Its edges and angles 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 analogous by Haiyi, its symbol would be \( e D eB \), the interpretation of which will be evident.

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 scalene triangles; fig. 82. the regular octahedron. In placing the figures that accompany the letters in the symbols, and 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 the letters 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 \( A \). To indicate a decrement by one range on all the edges we write \( B \). 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 isof-

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 rectangular six-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 plane angles may be assimilated to a summit of the obtuse rhomboid; hence it is only necessary to give letters to one face, as may be seen in the fig. A, E, B, B, P. Where the parts of crystals opposed 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 six of its faces, namely \( s \), produced by the subtraction of one range upon the edges \( D \), 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:

\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad b & \quad b & \quad b \quad b
\end{align*}
\]

\( E \) and \( b \) indicate 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:

\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]

\( E \) and \( b \) indicate 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:

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D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]

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\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]

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\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]

\( E \) and \( b \) indicate 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:

\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]

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\[
\begin{align*}
D & \quad E \quad P \quad B \quad b \\
& \quad b \quad P \quad n \\
E & \quad E \quad P \quad B \quad b
\end{align*}
\]
CRY

The preceding illustrations of M. Haüy's mode of denoting 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 fold angle, marked with the same letter as in the nucleus. Every consonant indicates the edge which has the same letter in the figure. It is understood.

3. Each letter contained in the symbol is understood with the figure belonging to it to represent all the same letters, and the edges or angles 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 thickness 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 subtracted 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 G G, or G G A A, the two edges or two angles which it marks should be considered in the figure in the same relative positions. Thus 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 1 G 1, it applies equally to all the edges G. The same applies to the letters which denote the angles.

8. The parenthesis, as, for example, (O D D', F' s) indicates 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', 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 rhomboïd; it indicates, according to the principle, the letter opposite to E.

10. When the large and small letters of the name are introduced into the symbol with different numbers attached to them, the two opposite edges or angles denoted by these letters are conceived 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 abbé Haüy'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 Haüy's Traité de Minéralogie, 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-mentioned work by this illustrious 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', r', r' by cutting other lamina parallel to each of the faces r, r, r, &c. we shall at length extract the primitive nucleus A E, O I, fig. 24.

CSHATRIYA, or CHATERIE, 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 persons; viz. 1063 males, and 1025 females: 251 families being employed in agriculture, and 123 in trade, &c.

CUCKOW-SPIT. Add—This cuckow-spitte encompasseth the larva of a species of cicada, which is denominated C. ipumaria, 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 advanced state of the summer, and is the production of the included larva, which, from the time of its hatching from the egg deposited by the parent insect, continues occasionally to suck the juices of the insect that it refines, and to discharge 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 Zoology, vol. vi.

CUCULUS, l. 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, l. 21, after insects, add—and on larve or caterpillars; l. 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 TARTAREUS.

CULLUMIA, in Baines, dedicated by Mr. Brown, to the honour of the late John Cullum, bart. an elegant and accomplished scholar and botanist; as well as of his brother the present for Thomas Gery Cullum, bart. F.L.S. an 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. 135.—Clas and order, Polygami-fraction. Nat. Ord. Compositae. Linn. Corymbifera, Jaff. Eff. Ch. Receptacle cellular. Seeds smooth. Downnone. Common calyx of one leaf, covered with imbricated scales.


2. C. setosa. Recurved smooth-leaved Cullumia. Ait. n. 2. (Berkleya setosa; Willd. ibid, excluding Commelina's
CUR

(Cyn.)—Leaves ovato-lanceolate, smooth, recurved, fringed with prickles.

3. C. squarrosa. Recurred awl-leaved Callania. Ait. n. 3. (Beckhaye squarrosa ; Willd. 2272. "Rohria squar-

rota ; Thumb. in Act. Soc. Nat. Scrut. Hafn. v. 3, part 1. 1802, 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.

CULLUMPTON. By the return of 1811, the parish contains 699 houses, and 2917 inhabitants.

CULPEPPER, l. 3, r. 1810, 18,697, and 8312.

CULROSS. 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 183 in trade, manufactures, and handicraft.

CUMANA, l. 4, r. Wolfe.

CUMBERLAND, l. 23, r. and by the return of 1811, 24,002 houses, and 133,344 inhabitants.

Cumberland, in Maine, l. 7, r. 24 towns; l. 9, r. 1810, is 42,831.

Cumberland, in New Jersey, l. 5, r. 12,678, and 42.

Cumberland, a county of Pennsylvania, l. 36, r. 26,757, and 307.

Cumberland, a county of Virginia, l. 3 and 4, r. 9992, and 6102.

Cumberland, a county of N. Carolina, l. 2, r. 9382, and 2796.

Cumberland, a county of Kentucky, l. 1 and 2, r. 6085, and 902.

Cumberland, in Rhode island, l. 2, r. 2140.

Cumberland, in Pennsylvania, r. 1591. And at the close of Bedford, add—containing 570 inhabitants.

CUMMINGSTON, l. 3, r. 1009.

CURCULIO, l. 17, add—Mr. Marsham, in his "Ento-
mologia Britannica," enumerates no fewer than 234 Bri-
tish species; l. 27, add—The larva, when properly fried and boiled, is considered as one of the best dainties in the West Indies. P. 3, C. GRANARIUS, add—See WEevil. P. 5, col. 2, NUCUM, add—The various changes which the nut-maggot passes through, from its introduction into the nut in August to its escape, are worthy of attention. Dr. Darwin, in his "Botanical Garden," thus beautifully de-

Script. of this infest from the cavity of the nut:

"So sleeps in silence the curculio, shut
In the dark chambers of the cavern'd nut;
Erodes with ivory beak the vaulted shell,
And quits on silny wings its narrow cell."

CURD, Chemical Properties of. See MILK.

CURIA CLAUDENSA, a writ that lies against him who should fence and inclose the ground, but refues or defers to do it.

CURIA Adovare vult, 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.

CURRIE, JAMES, M.D., in Biography, distinguished both as a physician and a writer, was the son of an esta-

blished minister at Kirkpatrick-Fleming, in Dumfriesshire, in which parish he was born in the year 1756. Originally designed for commerce, he was educated with that view; but upon a change of his destination, he commenced, in 1776, a course of medical study at Edinburgh: and having graduated in that university, settled, in 1787, 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 Manchester, published in 1785 in the first volume of the Manchester Transactions. 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 conformance 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, Commer-
cial and Political, addresed to the Right Honourable Will-

liam Pitt, by Jasper Willon." In 1797 his medical reputa-

tion was much advanced by a treatise entitled "Medical Reports on the Effects of Water, cold and warm,

but disguised by Dr. Wright's narrative in the London Journal, was much extended. With a view to the relief of the
difficulty family of the rustic 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 1804, and that his friends and patients at Liverpool were deprived of the pleasure of his society and advice by his removal, towards the close of the year, to Clifton and Bath. His disorder, which was of the pulmonary kind, somewhat abated in con-

sequence of the change of his situation, and at the com-
mencement of the following year he began to profife in his profession with encouraging prospects of succces. But it again recurred with alarming symptoms, and he was under a necessity 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 science, and the interests of humanity and benevolence, suffered great loss by his death.

CURVO, in Geography, a township of America, in the diriict of Maine, and county of Somerset, containing 275 inhabitants.

CUSERUND, a town of Mekran in Peria, 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 independent chief, whose revenue is about 1000 rupees a year.

CUSHING, l. 3, r. 532.

CUTIFIS, Chemical Properties of. See INSECTUMS.

CYANOGEN, in Chemistry, the name given by M. Gay Lussac to the recently-discovered gases of the prussic acid, and which he has demonstrated to be a compound of carbon and azote. The name is derived from ammonia, blue. Cyanogen may be obtained by exposing dry prussiate of mercury in a small retort, to a heat rather under redness. The salt blackens, and a gaseous fluid is extracted in abundance, which must be collected over mercury. This gas is cyanogen. It is colourless, and possesses 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 1.8664. It is inflammable, and burns with a purplish-blue flame. It is not decomposed by exposure to a red heat. Water diffuses 4 3/4 times its volume, and alcohol 23 times its volume of this gas. It reddens tincture of limon. Phosphorus, fulphur, and iodine, may be volatilized in it without alteration. Potassium burns in it, and absorbs it. For complete combustion, 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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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
fulphur, forming fulphocyanic acid; and with iron, forming
ferrocyanic acid: of each of which acids we shall here give a
brief account.

Chlorocyanic Acid. — This is the oxyphoric acid of Ber-
thollet, 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
passing a current of chlorine gas through a solution of hydro-
cyanic acid (prussic acid, see below) in water, till the liquid
discoloured indigo dissolved in sulphuric acid. To separate
the excess of chlorine, the mixture was digested with mer-
cury. 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 basin of mercury. The appara-
atus 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 heating 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 inflamm-
able, 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 com-
pletely. It throws down iron from its solution of a green
colour. But some of its compounds appear of a very per-
manent 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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<tbody>
<tr>
<td>Cyanogen</td>
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<td>Chlorine</td>
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<td>41.93</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
Prussian Acid; which see. Hydrocyanic acid may be pre-
pared 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 whose
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 Prussian Acid. It is a most
violent 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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<td>Cyanogen</td>
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<td>Hydrogen</td>
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<td>96.3</td>
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And the specific gravity of its vapour will be .9367.

Hydrocyanic acid cannot be preserved for any length of
time without undergoing decomposition, ammonia is formed,
and a quantity of cherry matter is deposited. Iodine vola-
tilizes in this acid fuffers no change. Oxygen decomposing
it with combustion. Chlorine displaces the hydrogen, and
forms chlorocyanic acid. Neither azote, hydrogen, carbon,
boron, silica, nor phosphorus, have any known action upon it.
Sulphur decomposes it, appearing to displace the hydrogen
and combine with the cyanogen, and thus forming fulphocyanic
acid. Potassium, sodium, 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 peroxys
of copper. The peroxys of manganese completely absorbs
the vapour of hydrocyanic acid in a few hours, water is
formed, but cyanogen is not evolved. When the red oxyd
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 after-
wards submitted to heat, water is diffigeaged, and the
cyanide, or prussiate of mercury, as it was formerly termed,
is left behind. See further under Prussic Acid.

Sulphocyanic Acid. — This is the sulphuretted chyanic 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 neutral liquid containing a considerable quantity
of fulphocyanic 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 peroxys of manganese 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 perulphate of copper and three of the
protosulphate of iron is to be added, till the crimson colour
disappears. A copious white precipitate, composed of
fulphocyanic acid and protoxys of copper, takes place.
The copper may be sepetrated by boiling with a solution of
potash, and the sulphocyanate of potash thus formed after-
wards decomposed by sulphuric acid; the sulphocyanic acid
may be then obtained by distillation in a retort. If any ful-
phuric acid adheres to it, this is to be separated by a little
carbonate of barytes.

Sulphocyanic acid thus formed is a transparent colour-
less liquid, having an odour as strong, and somewhat refel-
bng acetic acid. Its specific gravity when most con-
centrated was 1.022. According to Mr. Porrett's analysis, it
is composed of

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<td>Sulphur</td>
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<td>Hydrocyanic acid</td>
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Dr. Thomson seems inclined to consider this acid as com-
posed
posed of cyanogen and sulphur, but it is probable that Mr. Porrett’s view of its composition will be hereafter found correct.

The *sulphocyanates* of potash, soda, ammonia, barytes, fronton, lime, and magnesia, are all deliquescent salts soluble in alcohol. The sulphocyanate of soda, lime, barytes, and fronton, are capable of crystallizing, the others are not. The sulphocyanate of alumina is not deliquescent, and readily crystallizes. The sulphocyanate of the protoxyd of iron is colourless, and very soluble. The sulphocyanate of the pyroxyd of this metal is of a beautiful crimson colour, deliquescent, and does not crystallize, and this is one of the most striking characteristics of this acid. The sulphocyanate of the pyroxyd of copper is a white powder insoluble in water and molybdate acids. The other salts are not remarkable, and consequently possess little interest. The following is a short account of some of the salts formed by this acid.

**Ferrocyanic Acid; the Ferrvitretd Chyazic Acid of Mr. Porrett its Discoverer.** — This is the acid which combines with different bases, and forms what were formerly denominated *triple prussiates*, iron being supposed to form part of their base, whereas Mr. Porrett has demonstrated that this metal forms a constituent of the acid itself. This acid may be obtained by the following simple process: — Diffuse in cold water any quantity of the *triple prussiate of barytes*, and for every ten grains of the salt add about 0.55 grains of real sulphuric acid, agitate the mixture and let it stand some time. The barytes will be precipitated in union with the sulphuric acid, and leave the ferrocyanic acid in solution in the water. When obtained, it has a pale lemon colour, and is deficient of smell. It is decomposed by a gentle heat and exposure to a fijrong light, hydrocyanic acid being formed, and the white triple prussiate of iron deposited. When combined with the different bases, it forms at once the salts formerly termed triple prussiates. 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

<table>
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<tr>
<th>Hydrocyanic acid</th>
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<th>63.79</th>
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<tr>
<td>Black oxide of iron</td>
<td>-</td>
<td>36.21</td>
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Of the remaining species we have no account.

**Cynodon, from *κυθος*, a dog, and *δος*, a tooth, a genus founded by some authors on the *Pantum Daffylon* of Linnaeus, a grass known in many of the temperate or warm parts of the globe, to which Mr. Brown adds two tropical New Holland species. See his Prodr. v. i. 1875. This genus is closely related to the *Chloris of Swartz*. See *Panicum*, at the end of sect. 1. of that article.

**Cyntheana, in Geography, a town of Kentucky, in Harrison county, containing 356 inhabitants, of whom 116 are slaves.**


Eff. Ch. Calyx ringlet, pointless. Petals spreading, nearly equal to the lower calyx-leaves. Lip dissimilar, direct, flat, obtuse, undivided, with two calliostylos at the base. Anther a terminal permanent lid; the cells close together. Masses 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 near akin. Leaf—kidney-shaped, many-ribbed. *Flowers* generally turned, or, in one sense, reversed. *Malaxis lipifolia* (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 *Lobellia* answer to *Malaxis*.

**Cythis.**

Eff. Ch. Calyx leafy. Corolla closed, like a lid, splitting transversely; the torn face permanent. Stamens inserted into the receptacle, permanent. Nectariferous scales none. Capsule with many seeds; receptacles pendulous from the top of the central column.

1. \textit{C. spongiosa}.—Native of Van Diemen's island. A \textit{fbruk}, resembling \textit{Spongiosa}, \textit{Poncefia}, and \textit{Cynarea}, 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 \textit{Nephritis} is here also applicable. In particular, venefication, leeches to the hypogastric region, the warm bath, aperient medicines, and emollient ointments, 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 strict practised. In chronic inflammation and thickening of the bladder, the symptoms and pain may be allayed with anodyne emollient ointments, which are far better than injections into that organ itself. Opium, cicutum, hylocyamus, the uva urbi, &c. with a perpetual blister, may also be tried.

CYSTOTOMY, \textit{Cystostoma}, from \textit{xysto}, the bladder, and \textit{tekn}, to cut, the operation of cutting into the bladder. See Lithotomy.

D.

DAGESTAN, l. 2, after Asia, infer—almost entirely mountainous, as its name implies.

DAGOTI. See Gauthier.

DALIBARDA. See Gauthier.


DAMPAN. See Sunnun.

DAMPIERA, in \textit{Botany}, dedicated by Mr. Brown, to the memory of William Dampier, the famous navigator, who first brought one of the species, \textit{D. incaus}, Br. n. 7, from the west coast of New Holland, along with several other speciemem prepared at Oxford, the earliest botanical tribute from that remote country.—Br. Prodr. Nov. Holl. v. 1. 587.—Class and order, \textit{Pennandra Monogynea}. 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 closely combined. Cover of the stigma naked at the edge. Nut inferior, crustaceous, with a solitary kernel. Dry, downy, perennial herbs, or \textit{fbrubs}, 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 \textit{D. fricta}, Goodenia fricta; Sm. Tr. of L. Soc. v. 2. 340. Willd. Sp. Pl. v. 1. 955.

DANA. Add—containing 625 perfons.

DANBURY, l. 3, r. 345; l. 8, r. 3606.

DANBY, l. 2, r. 1730.

DANTHONIA, in \textit{Botany}, fo named by M. De Candolle, after M. Danton, a French botanist, is a genus separated by that eminent writer, in his \textit{Flora Franchetii}, v. 3. 32, from \textit{Avena}, 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.

3 M 2
lau'd species, and mentions having gathered ten or more in
Southern Africa; but with a hint that this genus is too
near to Avem, which it almost entirely resembles. The
name being acknowledged by Mr. Solander, in his genera in
graphes, we would presume to offer another hint, that Amphitogon
we wish to lay nothing of Diploptogon and Amphitogon, fee
these articles, may possibly require revision.

DANVERS, l. ult. r. 3127.

DANVILLE, l. 6. 412 and 166; l. 9, r. 2240.

DAOURIAN. See NERTSKINSKI.

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
s 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 slaves.

DARK-RAYS, l. 17, r. see Heat and Rays of Heat.

DARTINGTON, l. 6, from bottom, after Darlington,
inferred, containing of three divisions, contained 7184
housies, and 39,001 persons; 18,775 being males, and
20,276 females; and the township of Darlington con-
tained 818 housies, and 5059 persons; 2351 being males, and
2708 females.

Darlington, in Carolina. Add—It contained in 1810,
9047 inhabitants, of whom 2731 are slaves.

Darryfield. Add—See Deerfield.

DARTON, in Rural Economy, a kind of feabs or ulcers
which lams are subject, and which extending to the
mouth often prove fatal. The remedy proposed is washing
the fores with vinegar, and applying a faile 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 housies, inferred—in the
parishes of St. Petrox, St. Savion, and Townfall, which
form the borough of Clifton Dartmouth, was
364 houses, and that of inhabitants 3595.

DARTMOUTH, in America, l. 9, for 2660 r. 329.

DARWINIA, in Botany, in memory of the late ERAS-
MUS DARWIN, M.D. the elegant poet, and ingenious
botanical physiologist; see that article.—Rudge Tr. of Linn.
Soc. v. 11. 299.—Clafs and order, Decandria Monoxygyn.
Nat. Ord. . . .

Eff. Ch. Calyx none. Corolla tubular, funnel-shaped,
tumid, with five marginal imbricated segments. Stamens
concealed, inferted in two rows into the throat. Anthers
kidney-shaped. Gernen somewhat oblique. Style pro-
minent. Stigma simple.

1. D. facicularis. Ibid. t. 22.—Found in New South
Wales, by Mr. Joseph Bank's and Dr. Solander. A branched
branch, with crowded needle-like leaves, and terminal deni
tuffs, of elegant, small, red flowers.

DASYPOGON, from dasy, thick and briskly, and pygon,
a beard.—Brown Prod. Nov. Holl. v. 1. 263.—Clafs and

Eff. Ch. Calyx inferior, tubular, three-clawed. Petals
three, with long claws, connected with the stamens. An-
thers incumbent. Stigma simple. Capsule of one cell, not
buried, witted with the hardened calyx.

1. D. brongiifolius. Br. n. 1. Terr. Authr. 76. t. 8.—
Found on the shores of King George's found, New Holland.
_Herb one and a half or two feet high, somewhat thirubby,
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 ἄνδρα, a man, the tenth clas of the sexual or artificial system of Linnaeus, containing such plants as have ten 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 clas, Diadelphus, the latter containing only such as have some sort of union or combination in their filaments, and whose filaments are moreover of a peculiarly flat membranaceous structure, altogether different from those of proper decandrous flowers. (See Diadelphus.) The tenth clas 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 fructification are irregular in number.


A genus of elegant shrubs, found on the south coast of New Holland, with scattered falked leaves, and terminal drooping spikes of red flowers. Berries violet.


DEDDINGTON. In 1811, the parish contained 252 houses, and 1,296 persons; 635 being males, and 661 females.

DEEDHAM. In 1811, the parish contained 264 houses, and 1,472 persons; 697 being males, and 775 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 Wellmoreland county, in Pennsylvania, having 2380 inhabitants.

DEER Creek, a town of Ohio, in the county of Pickaway, having 853 inhabitants.

DEER, is, col. 2, l. 11, r. 1057.

DEERFIELD, l. 10, r. 1750; l. 16, r. 1851. Add—Alfo, a town of Ohio, in Portage county, having 394 inhabitants.—Alfo, a town of Ohio, in Rofs county, having 619 persons.—Alfo, a town of Ohio, in Warren county, having 1181 persons.

DEERING, l. 3, r. 1363.


DE S E R T  I S L A N D,  M o u n t.  A d d.—Mount Defert contains 1307 inhabitants. See Eden.

D E S M A N T H U S, in Botany, so called by the late professor Willdenow, 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 *Rheede*, a homonym, and *nearly* a flower; alluding perhaps to the strap-like filaments of the neutral flowers, common to every species.—Wild. Sp. Pl. v. 4. 1044. Allt. Hort. Kew. v. 5. 457.—Clauf and order, Polygama Monacica; or rather perhaps Decandria Monogynia. Nat. Ord. Lomcientae, Linn. Leguminosae, Jull.

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. Pler. Germin superior, ovate-oblong; style thread-shaped, the length of the flaments; 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, flattened. 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 so striking 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-like flaments, dilute of anthers, and more or less different in colour from the perfect flowers. We are nevertheless 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 very uniform, having doubly pinnate leaves, with numerous, oblong, obtuse, crowded *fascicles*; axillary, solitary, flattened, oblong *spikes*, of crowded tassel-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 fleshy leaves; partly herbaceous.

Sect. I. Without thorns.

1. D. latifolius. Lake Defansatus. Willd. n. 1. (Mimosa leucrythra; Humb. and Bonpl. Pl. equinoct. t. 16.)—Thorns none. First division of the leaves of two or three pair; second of many rough-edged leaves. Stipulas pointed. Spurs globose. Stalks bracteate. Stems prostrate; triangular in their upper part.—Native of the dry borders of fields at Tranquebar. König in the Linnean herbarium. Root woody, perennial. Stems several, from a foot to a foot or more in length, herbaceous, profificate, rather zigzag, leafy, smooth, somewhat glaucous, scarcely bracted; nearly round at the bottom, but triangular above. Leaves about half the size of the former, on much shorter stalks, and effentially distinguished, if we mistake not, by the roughness of their edges, caused by small close-preened bristles. The *flippus* are obliquely ovate, ribbed, with a tapering bristle point, which we do not find in D. natans. *Flowers*—*stalks* not much longer than the leaves, each bearing one or more broad clapping *bracteatas*. *Spikes* short and roundish. *Legumes* elliptico-oblong, obtuse, with four, five, or six seeds.

2. D. natans. Floating Defansatus; or Aquatic Sensitive. Willd. n. 2. Allt. n. 1. Andr. Repert. t. 629. (Mimosa natans; Vahl Symb. v. 3. 102. Roxb. Coro-
mand. v. 2. 115. t. 110. M. orientalis non pinosa, rariari-

—Thorns none. First division of the leaves of three pair; second of many smooth-edged leaves. Spikes oblong, interrupted. Stalks mossily without bracteas. Stem round, floating, with tufted roots from the lower joints.—Native of fresh-water lakes, pools, and flow streams, in the East Indies, Cochinchina, &c. Loureir says it is cultivated in the last-mentioned country, as an ingredient in falads, being tender and agreeably sweetish, though not very palatable to the stomach. The plants are tied to stakes, to prevent their being carried away with the stream. The root is annual, entirely floating, as well as the round, smooth, branched, leafy *flava*, whose lower joints lend forth tufts of compound radicles, their interfaces being often sullen, or pungent, at one side, as if to render the herb more fruayant. *Leaves* alternate, flattened, doubly pinnate, smooth, bright green; secondary divisions from one to two inches long, each of twelve or thirteen pair of elliptical, entire *legumina*, which fold together slowly when touched; their edges smooth. *Sipulas* membranous, half-ovate, or heart-shaped, obtuse. Common *flower-stalks* generally naked; sometimes furnished with a *bractea* or two. Spike oblong, more or less crowded. *Corolla* greenish. Abortive filaments of the lower flowers large, lanceolate, yellow, very conspicuous. *Legumes* five or six from each spike, an inch in length, purplish-brown, smooth, elliptico-oblong, pointed. *Seeds* oval, from four to eight, forming a central row, infected by a slender thread alternately to each margin of the legume. König fent specimens of the following to Linneus, but not, as far as we can discover, of the present species; while the information he communicated regarded both species, which possibly he might originally confound, thinking the *triceras* variety caused by growing out of the water. However this might be, his *natans* is certainly the present plant, to which alone that name can apply.

3. D. triceras. Triangular-stalked Defansatus. Willd. n. 3. (Mimosa triquetra; Vahl Symb. v. 3. 102. M. natans; Linn. Suppl. 439.)—Thorns none. First division of the leaves of two or three pair; second of many rough-edged leaves. Stipulas pointed. Spurs globose. Stalks bracteate. Stems prostrate; triangular in their upper part.—Native of the dry borders of fields at Tranquebar. König in the Linnean herbarium. Root woody, perennial. Stems several, from a foot to a foot or more in length, herbaceous, profificate, rather zigzag, leafy, smooth, somewhat glaucous, scarcely bracted; nearly round at the bottom, but triangular above. Leaves about half the size of the former, on much shorter stalks, and effentially distinguished, if we mistake not, by the roughness of their edges, caused by small close-preened bristles. The *flippus* are obliquely ovate, ribbed, with a tapering bristle point, which we do not find in D. natans. *Flowers*—*stalks* not much longer than the leaves, each bearing one or more broad clapping *bracteatas*. *Spikes* short and roundish. *Legumes* elliptico-oblong, obtuse, with four, five, or six seeds.

DESMANTHUS.

Stem prostrate, compressed. Stamens five.—Gathered in flagrant waters at Vera Cruz by Dr. Houillon, who sent seeds to Miller. The latter records that the flmmus, though naturally floating, grew more erect when the plant was cultivated on dry ground. The root is annual, according to Willdenow, Aiton, and Linnaeus, who had this species in the stove at Upfal. Stems herbaceous, smooth, a little zigzag, a foot or two in length, floating or decumbent, slightly branched. Leaves: sensitive, larger than those of D. nana, the lower pair, oblong-obovate, and the upper ones as large as Common Clover, yellow, recurved, on stalks nearly as long as the leaves, bearing two dilatant, ovate, sheathing bracteas. Stamens but five, those of some of the lower 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 Linnaeus; 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. The legume is drawn by Houtoult elliptic-oblong; slightly curved, with a furrow, or double edge, along the back. Seeds numerous, ovate. The leaves are fenitive in this and the three preceding.

5. D. depressus. Depressed Desmanthus. Willd. n. 5. 6—Thorns none. First division of the leaves of two pair; second of eight or ten pair of linear oblate leaflets. Spikes capitate, of a few decandrous flowers. Legumes linear. Stem prostrate.—Found by Humboldt and Bonpland, in South America. Root woody, perennial. Stems several, from a span to a foot long, diffuse, smooth; branched and round at the bottom; obliquely quadrangular above. Spikes stalked, without bracteas. Legume an inch and a half long, pointed, with many seeds. Akin to the two 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. (Mimofa pernambucana; Linn. Sp. Pl. 1502. M. inermis decumbens, folis duplicito-pinnatis, epis cerumini, floribus pentandris, inferiioribus cafratis; Linn. Hort. Uppl. 145. n. 6. M. americana pigra, folis longis angustis, 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 petandrous 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 mock commonly five primary divisions in the leaves, a prostrate stem, and only five flowers. 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 stem of his plant. Hence the Linnean specific name pernambucana, taken from Zanoni, becomes peculiarly unsuitable, and is fortunately changed by Willdenow.

7. D. virgatus. Upright Angular Desmanthus. Willd. n. 7. Ait. n. 4. (Mimofa virgata; Linn. Sp. Pl. 1502. Jacq. Hort. Vind. v. 1. 34. t. 80. M. spuria de Pernambuco, detta Mimofa italicca; Zanoni. Fl. 18. t. 60. M. inermis, folis duplicito-pinnatis, folis linearibus glabris; Linn. Hort. Clifford. 209.)—Thorns none. First division of the leaves of four pair; second of twelve pair. Spikes capitare, 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 probably our D. nana, at least according to the synonymy of Plukenet and Rheede, cited by that author. The late professor Jacquin sent seeds of this present species to Kew, in 1774, where it flowers in the stove in July and August. His plant is precisely that of Linnaeus, mentioned in the Hortus Cliffortianus as of American origin, but confounded with several other things in his Fl. Zeylanica. 316, n. 505. D. virgatus has an erect shrubby stem, with wand-like branches, angular when young, but lefs so as they become older. Flowers oblanceolate, with a pubescent auricle. Common footstalks with a round depressed gland between the two pair of subdivisions. Leaflets linear, obtuse, fringed, glaucous beneath. Flower-footstks the length of the leaves, erect, with small deciduous bracteas near the top. Heads slightly drooping while young, pale or whitish. Several of the lowermost flowers furnished with ten linear, very narrow, almost thread-shaped, abortive filaments, in the place of flaments. Anthers of the upper flowers roundish, yellow. Legumes 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 disjosed 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 Linnaeus himself in his MSS. Probably it may relate to D. plenus.

8. D. punctatus. Spotted-stalked Desmanthus. Willd. n. 8. Ait. n. 5. (Mimofa punctata; Linn. Sp. Pl. 1502. M. frutecens mediae alpinae, foliis duplcatis falcatis et umbellatis, pedunculo longifloro; Browne Jam. 253. Achlyonomea mitis prima; Comm. Hort. v. 1. 61. t. 31.)—Thorns none. First division of the leaves of four or five pair; second of many. Spikes ovate. Flower-stalks bracteate at the base. Legume oblong, obtuse, wavy.—Native of Jamaica, from whence it was introduced very early into the European fiowers. Our specimen was sent by Dr. Browne to Linnaeus. The stem is besprinkled with small callous points. Branches angular. Leaves a span long, with a gland on the common footstalk between the first pair of wings. Leaflets about twenty pair, fenitive, linear-oblong, smooth, obtuse with a small point. Flower-stalks scarcely so long as the leaves, each bearing, near the base, two large ovate, or heart-shaped, bracteae. Spike drooping, ovate, of numerous, crowded, pale flowers, the lower ones with thin lanceolate petals, in the place of the five flaments of the more abundant upper ones. Legumes about three from each spike, stalked, 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 Mimofa. 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.

Se&. 2. Thorny.

9. D. cinerulus. Ash-coloured Desmanthus. Willd. n. 9. Ait. n. 6. (Mimofa cinerula; Linn. Sp. Pl. 1505. Roxb. Coromand. v. 2. 39. t. 174. M. n. 215; Linn. Fl. Zeyl. 96. Acacia spinosa, ex alis spicata, foliis pennis avium referentibus; Burm. Zeyl. 3. t. 2. A. maderapatana, minutissimis foliis, aculeis feroxibus, alternis, frondosa; cortice itidem cinereo; Pluk. Almag. 3. Phyt. t. 121. f. 5.)—Branches becoming solitary spines. First division of the leaves about nine pair; second of many. Spikes solitary, cylindrical, drooping; tapering at the base. Legumes linear, curved.—Native of the East Indies; in forests and low barren lands, according to Dr. Roxburgh, who observes that the wood is remarkably hard, but, owing
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 House about June and July. A low, irregular, rigid frutic, with a grey bark, and zigzag branches, short, alternate, lateral shoots spreading 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 flalk also is hairy. Spikes axillary, flaked, an inch or two long, swelling upward, obtuse, dense, and many-flowered. Perfect flowers numerous, yellow, with ten flaments, whose anthers are ovate, of two cells, and tipped with a small round gland. The lower flowers, less numerous, are pale rose-coloured, abortive, having ten linear, obtuse, trap-like leaves instead of flaments. Legume falcate, linear, compressed, but not flat, about three inches long, and one-fourth of an inch broad, smooth, obtuse. Seeds ten to fifteen, oblong, yellow.

10. D. divergens. Spreading-branched Definanthus. Wild. n. 10. ('Ergott Dimmo; Bruce's Travels, v. 5. 34, with a plate.')—Branches becoming solitary spikes. First division of the leaves of eight pair; second of many. Spikes in pairs, cyindrical, pendulous. Legume twelled.'—Native of Abyssinia? A frutic, fix feet high, with divaricatet inflated branches, besprinkled with white warts. First divisions of the leaves from fix to nine pair. Leaflets numerous, linear, angular at the base, and fringed at the edges. Thorus rigid, ftraiht, awl-shaped, sometimes in pairs. Legume linear, contorted. Wildenow, who made this description from a living specimen, says the gardeners call this species Mimosa diversicata. But what is so designated in Donn's Hort. Cant. 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 frutic, 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.

DE TOIT. Add.—The civil district 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.

DE VAUXIA, in Botany, far named by Mr. Brown, in honour of M. Devaux, author of a dissertation on the natural family of Junci, in the Journal de Botanique. M. Labillardiere had previously published this fame genus under the appellation of Centrolepis, from ungus, the centre, and lepis, 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. 272. (Centrolepis; Labill. Nov. Holl. v. 1. 7.)—Clafs and order, Monandria Polygynia. Nat. Ord. Rhytipteris, Brown.

Gen. Ch. Cal. Sheath of two concave, keeled, permanent, alternate valves, clasping each other at the base, containing an indefinite number of flowers. Car. of two oblong, membranous valves, sometimes accompanied by small accccory scales. Stam. Filament one, capillary, drooping, rather longer than the largest valve of the corolla; another simple, oval. Pf. Germins several, from three to twelve, ovato-oblong, superior, inserted into one side of a central oblong receptacle, and all turned one way; style as many, thread-shaped, either dilinct at the bottom or combined, spreading or deflexed at the summit; stigma linear, downy. Peric. Capsules as many as the germins, 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 lefier species of Scirpus. The roots are fibrous and tufted. Stem none.

Leaves radical, bristle-shaped, half sheathing at the base. Flower-flalks radical, thread-shaped, undivided, naked. Sheath solitary, terminal, its valves either awned or not. Nine species are described by Mr. Brown, as follows.

Sec. 1. Receptacle scaly.
1. D. pulvinata. Cushion Devauxia.—Receptacle scaly. Styles fix or seven, dilinct. Sheath pointlets; lower valve rather hifpid; upper smooth. Leaves nearly as tall as the flower-flalks.—Gathered by Mr. Brown, in Van Diemen's island.

2. D. Paterfani. Paterfon's Devauxia. (Centrolepis annula; Rudge Tr. of Linn. Soc. v. 10. 284. 112. f. 2.)—Receptacle scaly. Styles eight or nine, dilinct. Sheath pointed, many-flowered; upper valve nearly smooth; lower hifpid. Adult flower-flalks hairy, as well as the leaves, which are only one-third as tall.—Gathered by Col. Parfon and Mr. Brown, near Port Jackson, New South Wales. Leaves very narrow, an inch long. Flower-flalks above two inches high. Sheath tumid, fiercely riling above the flower.

3. D. Ariogia. Brilly Devauxia.—Receptacle scaly. Styles from five to seven, dilinct. Sheath pointets; both valves hifpid. Adult flower-flalks smooth, three as long as the finely hifpid leaves.—Found by Mr. Brown, on the southern coast of New Holland.

Sec. 2. Receptacle without scales. Sheaths hifpid.

4. D. tenon. Slender Devauxia.—Receptacle naked. Styles four or five, combined at the base. Sheath almost pointets, brilly as well as the leaves. Flower-flalks slightly hairy.—Found in the island of Van Diemen, by Mr. Brown.

5. D. Billiardiere. Labillardiere's Devauxia. (Centrolepis fasicularis; Labill. Nov. Holl. v. 1. 7. 1. C. cuspidiger; Rudge Tr. of Linn. Soc. v. 10. 283. 112. f. 1.)—Receptacle naked. Styles two or three, combined at the base. Sheath brilly; with awns nearly as long as the valves. Leaves rather hairy. Stalks smooth.—Native of Port Jack- son, as well as of Van Diemen's island. Brown, Labillardiere. The numerous brille-shaped leaves are about an inch and a half long, erect, those which clasp the base of each flower-flalk, which is half as tall again, are toothed at their inner margin towards the base. Valves of the sheath twice as tall as the flowers. Corolla toothed, obtufe.

6. D. esfera. Prominent-flowered Devauxia.—Recep-tacle naked. Styles from seven to ten, dilinct. Sheath pointets, brilly, 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. Bankfi. Bankfiian Devauxia.—Receptacle naked. Styles from eight to ten. Sheath pointets, very smooth, many-flowered, membranous at the edges. Stalks three or four times the length of the leaves.—Gathered by Mr. Joseph Banks, in the tropical part of New Holland.

8. D. pufilla. Little Devauxia.—Receptacle naked. Styles fix or seven. Sheath pointets, very smooth, mem-branous 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, Lablellated, or original generic name, has, by taking refuge for a prickle, as it undoubtedly means a point, or {sharp fife}, made Centropis to express a prickle shield, aluding to the habited {fheath} of some species. But this is not apposite, the scales, or glumes of the flower, to which the original name applied, being, in no fene, pointed, or prickle; nor do we fee that this name can be forced into any appropriate meaning, the {fheaths} being acknowledged on all hands not to be central.

DEVIZiES, col. 2, l. penult. r. 696, and 1750.

DEVONSHIRE, col. 6, l. 11 and l2, r. 623,318, and 383,308.

Dew. To this article we shall subjoin some appropria
t remarks, selected from an "Effay on Dew, &c. by the ingenious Dr. Wells, lately (viz. 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 same opinion was announced in 1788 by Mr. Wilfon of Glasgow (vol. i. Edinb. Tran.), and also by Mr. Six of Canterbury (Phil. Tran. 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 confideration of the subjed, was led to fufpect that this opinion was erroneous; and his fufpicion was afterwards juftified by a variety of obfervations and experiments. Although Dr. Wells agrees, in general, with Arifotle and other writers, and maintains that dew appears only on calm and fenere nights, yet this opinion is not univerfally true; for he frequently found a small quantity of dew on grafts, both on windy nights, if the flank was clear or nearly so, and on cloudy nights, if there was no wind; but he never perceived dew to fall in both cloudy and windy nights. Dew, he says, probabably begins, in this country, to appear upon grafts, shaded from the flank, during clear and calm weather, fooner after the heat of the atmosphere has declined; and it continues to form, in shaded places, after fun-rife; the interval between fun-rife and its ceafing to form being considerably shorter than that between its firft appearance in the afternoon and fun-fet. If the weather be favourable, however, more dew forms a little before, and in shaded places a little after fun-rife, than at any other time; whereas Mufchenbroeck afferts, that dew does not form after the sun has rifen. Our author alfo maintains, in opposition to the opinion of M. Pricur, that dew, after it has once commenced, continues during the whole night, if the weather remain flill and fenere. 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 ferving to increase the production of dew; and, accordingly, in equally clear and calm nights, dew is more abundant soon 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 foutherly and wetferly winds, than with thofe which blow from the north and the eait. Another circumfance 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 baro-

Dew meter is commonly attended with wind or clouds, both unfavourable to the production of dew, yet the greatest dew observed by our author occurred while the barometer was falling. M. De Luc alfo has observed, that rain may be foretold when dew is uncommonly abundant in relation to the climate and feaon. We have already observed, that dew is commonly more plentiful in spring and autumn than in summer, a fac which our author alfo has noticed; it is always very copious on clear and calm nights which are followed by milfy or foggy mornings; and on a clear morning which succeeds a cloudy night. Heat of the atmosphere, if other circumfances are favourable, occasions a great formation of dew; and upon the fupputation of the fame clearnefs and flillness of the atmosphere, more dew is formed between midnight and fun-fet than between fun-fet 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 fhew, that various differences with regard to fition, mechanical flate, and real nature of bodies, have a very considerabfe influence upon the production of dew. As to fition he observes, that whatever diminishes the view of the flky, as feen from the expofed body, diminishes the quantity of dew that is produced; and hence the quantity is greater when the expofure to the flky is more complete. There are other circumfances, regarding fition, 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 observed farther, that when other circumfances are similar, a difference in the mechanical flate 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 those of the other fubftances juft mentioned. Bright metals also attract dew much lefs powerfully than other bodies: this fac was observed by Mufchenbroeck and Dufay; but they erroneously afferted, that dew never appears on the upper furface of bright metals. There are others, and our author in particular, who have known dew to be formed on gold, silver, copper, tin, platina, iron, steel, and lead. This imputation of metals to attract dew is communicated to bodies of a very different nature, which touch or are near to them. Wool, says our author, laid upon a metal, will acquire much lefs dew than an equal quantity laid upon grafts in the immediate vicinity. It is maintained, that the upper furfaces of metals are moft readily and moft copiously dewed on thofe 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 says, "for example, platina one night f Uttarly dewed, while gold, silver, copper, and tin, though fimilarly situated, were entirely dry; and I have alfo feveral times feen these four metals free from dew, while iron, steel, zinc, and lead, were covered with it." Our author proceeds to investigate and afcertain the degree of cold connected with the formation of dew. Mr. Wilfon, he thinks, is the firft philofopher who ever fufpected the exiftence of fuch a conjufion; though dew is often fpoken of as cold by our popular writers. Herodotus mentions it as poffefing 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 purpofe, he has, in fenere and flill nights, examined the temperature of dewed grafts, and con-

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flantly
flantly found it to be less than that of the air, any where between one inch and nine feet above the ground, the latter being the greatest height at which he ever marked the heat of the atmosphere in these experiments. At the height of four feet above the ground, and in calm and clear nights, he frequently found the graps seven, eight, or nine degrees colder than the air at that height; several times it was 10° and 11°, and once 12°, colder than the air. In some few observations, the greater coldness of graps than of the air began to appear, in clear and calm weather, in places sheltered from the afternoon sun, and yet open to a considerable portion of the sky, soon after the heat of the atmosphere had declined. A similiar coldness continued upon graps in still and serene mornings, for some time after the rising of the sun, in places shaded from its direct light, but otherwise open to the sky. In cloudy nights, particularly with wind, the graps was never much colder than the air. Sometimes the temperatures were the same; at other times that of the graps was higher, even when it had been wetted by preceding rain, and when it must have cooled by evaporation. When the night changed from clear to cloudy, though without change as to calmness, a considerable alteration in the temperature of the graps always ensued, and this change occurred sometimes very suddenly. On one night, the graps, after having been 12° colder than the air, became 2° colder, the temperature of the air at both observations being the same. On a second night, the graps became 9° warmer in an hour and a half. On a third night, in less than forty-five minutes the temperature of the graps rose 17°, while that of the neighbourhooding air increased 38°.

On a fourth night, the temperature of the graps at half-past 9 o'clock was 32°; in twenty minutes afterwards it was found to be 30°, the sky in the mean time having become cloudy. At the end of twenty minutes more, the sky being clear, the temperature of the graps was again 32°. On the connection of fog or mist with cold, Dr. Wells made several experiments, which we cannot recite. He observes, that he has always found on dewy nights the temperature of the earth half an inch or an inch beneath its surface much warmer than the graps upon it; and the earth at this depth was also almost constantly warmer on dewy nights than the air. Metals, says our author, furnish proofs of the predilection of dew with cold in the substances on which it forms superior to that of the neighbouring atmosphere. Upon the whole, our author's experiments, which we cannot minutely detail, shew, that when bodies which had been equally exposed to the night air were examined at the same time, those which were most dewed were the coldest. In the prosecution of experiments with other substances besides graps, he found that those of the filamentous downy kind were the most productive of cold. Thus, wool of moderate fineness, very fine raw silk, very fine unspun cotton, fine flax, and flax-down, were not only more readily cold, upon clear and calm nights, than graps, but also gave rise to a greater degree of cold than was almost at any time observed upon it even in its best state. Wool produced the least cold, and we have found before, that it attracted less dew than silk, cotton, and flax. Fresh, unbroken straw, and threads of white paper, were found to be a little more productive of cold than wool. The next class confined of bodies in the state of powder; these were, clean river sand, graps, charcoal, lamp-black, and a brown cake of iron. Chalk produced the least, and the three last substances produced the greatest cold. Solid substancess, exposing to the sky a surface of at least twenty-five inches square, formed a third class, on which our author made experiments. The substances of this description subjected to trial were, graps, brick, cork, oak-wood, and wax; all of which were found inferior to the filamentous substancess. His principal experiments, however, of this kind were made on snow.

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 confederacy of a fact first noticed by Gersten in 1753; 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 Mulchenbroeck, 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 of which it 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 more 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 electrical 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 farther 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
DEW.

"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 grass, 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 grass 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 grass, though it began to form much sooner in the latter than in the former situation, those on the raised board having received air, which had previously deposited leafs of its moisture.

"A reason is now also afforded, why a flight 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 Sauffure, by merely cooling the air contiguous to them, mark a degree of moisture, beyond what the atmosphere actually contains. This serves to explain an observation made by M. De Luc, that in fenere and cold nights, the humidity of the air, as determined by an hygrometer, increases about, and after fun-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 explanation 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 molt perfons," says Dr. Wells, "respecting the communication of heat among bodies in the open air, is confirmed to what happens during the day; at which time, those that are situated near to one another are always found to pollese 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 clear 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 poissles a temperature, in common with the atmosphere, higher than 35°, 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 firmanent of ice be stopped to exist at any height in the atmosphere; the consequence 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 interpowed 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 clear night. The upper parts of the grass radiate their heat into regions of empty space, which consequently send back no heat in return; its lower parts, from the smallness of their conduction 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 grass.

"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, poissling the temperature of the atmosphere, is placed before a larger cold body, rendered equal in effect to one half 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 cases 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 explanation of several more of the appearances described in the former part of this Essay, and..."
of some others, which have not hitherto been mentioned by me.

Radiation of heat by the earth to the heavens must exit 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 consequently little impediment exils to the escape, by radiation, of the earth's heat to the heavens, and when no heat can be radiated by the sun 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 passing 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 leffen 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 molt 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 fullest 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 lofs, which it hence suffers, is more or less compensated by what is radiated to it, from the body above, the under surface of which poffefles always the fame, or very nearly the fame 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. Wilfon; since, in consequence of the ceasing 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 extracted by the condensation of vapour, during the formation of a cloud, must soon be diffipated; 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 poffess the fame 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 clofe 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. Wilfon 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 profesor Leslie, that the diminution of the fun'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 same state of the atmosphere, which allows the heat of the fun 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 the
DEW.

the general rule, that whatever exists in the atmosphere, capable of stopping or impeding the passage of radiant heat, will prevent or lessen the appearance at night of a cold on the surface of the earth, greater than that of the neighbouring air.

"It follows also, from what has been said in this article, that the water deposited upon the earth, during a fog at night, may sometimes be derived from two different sources, one of which is a precipitation of moisture from a considerable part of the atmosphere, in consequence of its general cold; the other, a real formation of dew, from the condensation, by means of the superficial cold of the ground, of the moisture of that portion of the air, which comes in contact with it. In such a state of things, all bodies will become more or less cold, especially those which most readily attract dew in clear weather. I have had no opportunity, however, of trying this conclusion by the test of observation, since it occurred to me.

"When bodies become cold from radiation, the degree of effect observed must depend, not only on their radiating power, but in part also on the greater or less exposure, with which they can derive heat, by conduction, from warmer substances in contact with them. Thus, grasses, on a clear and still night, were constantly colder, sometimes very much colder, than the gravel-walk, though a small quantity of sand, placed upon grasses, was almost nearly as cold as this substance. In this case, the difference in temperature between the gravel-walk and sand, evidently depended on the different quantities of heat which they received from the parts beneath. A like reason is to be given for dew appearing in greater quantity on shavings of wood, than on the same substance in a more dense and compact form; and for filamentous and downy substances becoming colder than all others, even than lamp-black, which is placed by Mr. Leslie, at the head of the belt of radiating heat. For the lamp-black exposed by me, being about two lines in depth, polished, in consequence, a fund of internal heat, which would more readily pass to its cold surface, than the heat of the lower parts of the downy substances would to their upper surface.

"Bodies, exposed in a clear night to the sky, must radiate as much heat to it during the prevalence of wind, as they would do if the air were altogether still. But in the former case, little or no cold will be observed upon them above that of the atmosphere, as the frequent application of warm air must quickly return a heat equal, or nearly so, to that by which they had lost by radiation. A slight agitation of the air is sufficient to produce some effect of this kind; though, as has already been said, such an agitation, when the air is very pregnant with moisture, will render greater the quantity of dew, one requisite for a considerable production of this fluid being more increased by it, than another is diminished."

Theophrastus remarks, and the remark has been confirmed by other writers, that "the hurtful effects of cold occur chiefly in hollow places. If this be restricted to what happens on ferny and calm nights, and it does not, I believe, hold true in any other circumstances, two reasons from different sources are to be alligned for it. The first is, that the air being fuller in such a situation, than in any other, the cold, from radiation, in the bodies which it contains, will be less diminished by renewed applications of warmer air; the second, that from the longer continuance of the same air in contact with the ground, in depressed places than in others, less dew will be deposited, and therefore less heat extricated during its formation. It will be seen in the last part of this Essay, that, in the East Indies, depreffions in the earth are artificially made, for the purpose of increasing the cold, which appears in ferene nights. On this subject, however, it is to be observed, that if the depreffed or hollow places be deep, in proportion to their horizontal extent, a contrary effect must follow; as a cafe will occur more or less familiar to that which existed in some experiments formerly related by me, in which a small portion of graves was surrounded by a hollow cylinder.

"An observation closely connected with the preceding, namely, that in clear and still nights, frosts are less prevalent upon hills, than in neighbouring plains, has excited more attention, chiefly from its contrasting 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. Piétet and Mr. Six, respecting the increasing warmth, in clear and calm nights at all seasons of the year, of the different parts 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. Piétet, indeed, furnished an explanation himself, by ascribing it to the evaporation of moisture from the ground. But to shew that this is not sufit, 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 degree 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 pellicular 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 less 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 similar fact to the smallhefs of dew on hills, 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 declination 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 footstalls of their leaves, will cause in the leaves an almost perpetual motion, even in states of air that may be denominated calm. I have hence frequently heard, during the stillness of night, a rustling 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 of all bodies they 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, as 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, to the conductive power of dew cannot form upon them, unless their whole mass be 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 Leslie, 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. Leslie, 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 platinum and zinc. In the article Dew, we have already taken some notice of the opinion of those who maintain, that it rives from the earth at night. The first trace of this opinion, according to Dr. Wells, occurs in the Hist. Acad. Sci. for 1687. Germaine advanced it anew in 1733. It was embraced by Munchenbroek and Dyck; the latter who, before he admitted that dew sometimes falls. Mr. Wacker of New England has adopted the same opinion. We refer those who wish to see the arguments for and against this opinion fully ratted to Wells's Essay.

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 mists does not already exist, the general masses of the atmosphere are incapable of receiving moisture in a admirably form. Accordingly, on cloudy nights, when the air, consequently, can never be cooled more than a little below the point of repletion with moisture, by bodies in contact with it, 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, put 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, must soon replete 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 reflecting 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 ferene night." For several appearances connected with dew, we are under a necessety of referring to the third part of Dr. Wells's Essay.

DEWAN, or DUAN, a term which has various significations in India. It denotes a place of assembly, a native minister of the revenue department, and chief justice of civil cause within his jurisdiction, and receiver general of a province. The term is also used to designate the principal revenue servan 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 Dewannu denotes the office or jurisdiction of a Dewan. DEWEYSBURG, in Geography, a town of Caledonia county, in Vermont, having 200 inhabitants.

DEZPHOL, a town of Períin, in Kuzfítan, or Chufftan, 28 miles W. of Shuffter, containing nearly as many inhabitants as that city, and situated on the eastern bank of the Abuz, 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. 455. Add—With a small portion of oxygen, as for Humphry Davy has lately discovered.

DIANA, col. 20 from the bottom, for 27 r. 30.

DIANELLA, in Botany, a poetical name, in honour of the sylvan goddess Diana, to whom Commeron its author thought so beautiful an inhabitant of the woods peculiarly appropriate.
From the text provided, it appears to be a page from a botanical text discussing various plants. The page includes descriptions of plants such as Dianella ait., which is described as having leaves, flowers, and being native to South Holland. Other plants mentioned include Cyanophyllum, which is noted for its flowers and being native to Siberia, and Dierbek, which is described as having leaves and being native to South Holland.

The text seems to be discussing the botanical characteristics of these plants, including their leaves, flowers, and distribution. The author also mentions the use of some of these plants in various contexts, such as being used for medicinal purposes or as decorative elements in gardens.
of the corolla; the third imperfect. Stigma two-lipped, in three deep segments. Seeds depreessed.

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 twinned, unlike the rest; inner with two awns.

1. D. setaceus. Setaceous Diplopon.—Gathered by Mr. Brown, on the southern coast of New Holland. A grafs perfectly resembling Amphipogon laguroides, (see that supplementary article,) in habit and inflorescence, in the spike being capitate, and the outermost flowers likewise abortive, composin a kind of involucrem. Brown.

DIP-MICROMETER, and DIP-SECTOR, 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.

DIPDIUM, in Botany, from δίς, and δίς, alluding to the two separate flanks, or feet, by which the males of pollen attach themselves to the stigma.—Brown Prod. Nov. Holl. v. 1. 330.—Clasfs and order, Gynandra Monandra. Nat. Ord. Orchides.

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. Males of pollen solitary in each cell, with an inner lobe, each attached by a separate thread to the gland of the stigma.

Leaflets smooth herbs, growing on the ground, with a thick, branching root. Base of the stem sheathed with imbricated scales, more dilant on its upper part, where they become bracteas. Flowers numerous, in a simple clustor, purple, very handsome. Two species are mentioned.


DISPASC.É.É. 1. 3. after cotyledons, inferif—two.


Eff. Ch. Calyx inferior, five-cleft; two segments sub-sequently much enlarged. Petals five. Capsule oval, of one cell. Seed solitary.

1. D. turbinatus. Wood-oil Dipterocarpus. Roxb. as above, t. 213.—Native of various countries eastward of Bengal, flowering early in the hot seafon, 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, flat-keeled, ovate, acute, wavy or ferrated, 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 2590.

VOL. XII.

DISTHENE. See Mineralogy, Addenda.

DISTILLATION, col. 7, l. 22, &c. for Wetter r. Welter.

DISTILLED WATERS, col. 2, l. 23 from bottom, for macerated water r. macerated in water.

DISTILLER, col. 2, l. 12 from bottom, r. 24 Geo. II. col. 40. Col. 3, l. 19, 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 423 inhabitants.

DIXMONT. Add—Allo, 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.

DODBROOKE, l. alt. r. 112, and 942.

DODECAGON. The demonstration annexed is misplaced, and belongs to Dodecagon.

DOEMIA, in Botany, Brown Tr. of the Wern. Soc. v. 1. 50. (Dactylis ; Att. Hort. Kew. v. 2. 76.) a genus of the Alespiadea, differing from Sarcostemma, (see that article,) in having the outer crown of the lamens in ten deep segments. It confisls of Gynacanthum extusum, Jacq. t. 54, (to which C. bicolor, Andr. Rep. t. 562, is very nearly related,) and Asclepias cordata, Forlk. Egypt.-Arab. 49.

DOLGELLY, col. 2, l. 21 and 22 from bottom, r. 537 and 3964.

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. 2156 and 2147; l. 4, 1327. Add—and one in Butler county; having 671 inhabitants.

DONIA, in Botany, fo 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.—Clasfs and order, Syngenesia Polysigma superflua. Nat. Ord. Composita, Linn. Corymbifera. Jaff.

Eff. Ch. Receptacle naked. Seed-—down briskly, deci-

duous. Calyx imbricated, hemispherical.

1. D. glutinosa. Glutinous Donia. Alt. n. 1. (After glutinosus ; Cav. Jav. v. 2. 253. t. 168. Doronicum glutinosum ; Willd. Sp. Pl. v. 5. 2115.)—Leaves ovate-oblong, sharply ferrated, glutinous, as well as the upright-scaled calyx.—Native of Mexico. A green-house férub, raised from Spanish feeds by Mr. Lambert, flowering in Auguf and September. The leaves are sessile. Flowers terminal, solitary, near two inches broad, yellow, white, with many rays.

DRE

herbaceous. Leaves much narrower than the foregoing. Flowers yellow, with a balsamic scent.

DONNINGIA, 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.

DOOSSAK, in Geography, the present capital, and the residence of the prince of Seiland, in N. lat. 31° 8'. E. long. 62° 10', eight or nine miles from the river Heermund. See Zarang.

DORAK. See Felahin.

DORCHESTER, col. 4, l. 29, r. 1811; l. 20, r. 3020 and 15380.

Dorchester, in America, l. 10, r. 18,108 and 5032.

Dorchester township, l. 2, r. 537; l. ult. r. 2930.

Dorchester, a town, or rather a village, formerly a city, of Oxfordshire, between Banff 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.

DORLING, l. 29, r. 1811—589—3529.

DORSET. See Dorset.

DORSETSHIRE, l. 15 and 16, r. 23,210 and 124,693.

DOVER, col. 9, l. 21, r. 9674 and 1780.

Dover, in America, l. 3, r. 548; l. 11, r. 2228; l. 26, r. 1882; l. ult. r. 1882 inhabitants. Add—Allo, 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—Allo, a township of Bucks county, in Pennsylvania, having 660 inhabitants.

DOWNE. Add—containing 1501 inhabitants.

DOWHAN, l. 25 and 26, r. 1811—361—1771.

DOWNTON, l. 24, r. 543—2624.


Ed. Ch. Calyx five-cleft. Corolla tubular; limb in five deep spreading segments, bearded. Nectary five scales beneath the germin. receptacles of the seeds hanging loose from the top of the central column. Br.

Some flowers are five-cleft, as Labillardiere observed in his D. verticillatum, found in New Caledonia. Mr. Brown, who met with four species in New Holland, remarks, that Forster's Eparia longifolia and rosmarinifolia, Prodr. 13, natives of New Zealand, belong to this genus.

DRACUT, l. 2, after county, r. and itale of Massachusetts; l. ult. r. 1301.

DRAG. See Drowning.

DRAMATIC Mycet of the Greeks, col. 2, l. 5 from the clofe, r. marks.

DRAINYON. 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 Tytrey, now Drayton-in-Hales, situated in the hundred of North Pirehill, in the county of Stafford, consists of three townships, having 104 houses, and 657 inhabitants.

DRESDEN, in America. Add—It contains 1096 inhabitants.

DRESSING, in Rural Economy, and the Manage, de vol. XXXIX.

DRY

notes the periodical application of friction, by means of brushes, cloths, &c. to the hides of animals, with a view both to cleanliness and health. (See CURRING.) Friction on the surface of the body, by means of the curry-comb and brth, contributes to promote the circulation of the fluids, and that inefensive perpiration through the pores of the skin, which greatly conduce to the health and activity of the animal. Columella observes, that the bodies of cattle ought to be rubbed down daily, as well as the bodies of men; and frequently it does them more good to have their backs well rubbed down, than to have their bellies filled with large quantities of provender. Of the practice which is so common on the post-roads of throwing pailsfuls of cold water on horses when they are over-heated at the close of a stage, Mr. Clark speaks doubtfully; although it is said that no bad consequences ensue, probably because they have little interruption of exercise; but he is of opinion, that if they are well rubbed down after exercis, there will be no occasion for washing, or rather drenching them with cold water. See Horde.

DRIFIELD, l. 4, r. 399, and 1857.


Five species, from Southern Africa, are described by Jacquin and Willdenow, and figured in Jacc. Ic. t. 373—377. They have falcate leaves, linear-lanceolate, coming after the fall, flaked cluster, of numerous greenish flowers. D. elata, Curt. Mag. t. 822, and D. pusilla, Jacq. t. 374, are the only ones in Hort. Kew.

DROITWICH, l. penul. r. 423, and 2079.

DROMORE, l. 3, r. 1295.

DRONFIELD, l. 4, r. 267 and 1343.

DRYANDRA, in Botany, received its name from Mr. Brown, in honour of his friend Jonas Dryander, M.A. a distinguished pupil of the great Linnaeus, who succeeded the celebrated Solander in the place of librarian to Sir Joseph Banks; and after rendering eminent services to science, died under the roof of his illustrious friend and patron, in October 1810, aged 62. Mr. Dryander has erected to himself a lasting monument in his Catalogus Bibliothecae Historico-naturales Josephi Banks, the most elaborate and complete work of the kind, and the most perfect specimen of correct execution, that perhaps any department of science can boast. His papers on Begonia, Lindsea, and other subjects, in the Transactions of the Linnean Society, richly entitle him to botanical commemoration; to say nothing of his abilities as editor of the first edition, and part of the second, of Mr. Aiton's Hortus Kewensis, as well as of Dr. Roxburgh's Plants of Cornomandel; or his various services to natural science in other respects. Thunberg had long ago published a Dryandra (see our former article); but that proving not distinct from Forster's Alkerites, previously established, Mr. Brown has happily chosen a most distinct genus, next akin to Banksia, and fearlessly lefs rich in number and beauty of species.—Brown Tr. of Linn. Soc. v. 10. 211. t. 3. Prodr. Nov. Holl. v. 1. 396. Ait. Hort. Kew. v. 1. 219.


Gen. Ch. Common Calyx, hemispherical, of numerous, permanent, imbricated scales, many-flowered. Cor. of one petal,
petal, in four deep linear segments, at length separating more or less completely, slightly dilated and concave at their summits. Nectary four scales at the base of the germen. Stam. Filaments four, very short, inserted into the base of the cavity of each petal; anthers linear-oblong. Pf. Germen superior, very small, of two single-feaded cells; style cylindrical, rigid, erect, about the length of the corolla; stigma undivided. Peric. Follicle woody, obliquely turbinate, of two shallow cells; the partition unconnected, deeply cloven transversely, chalicy. Seeds solitary, compressed, oblong, with a lateral crescent-shaped membranous wing. Common receptacle flat, befit with oblong scales or bristles, rarely wanting. 


This genus confides of New Holland shrubs, 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, accompanied with crowded leaves, of which the innermost are sometimes diminut. as it were imperfect, and accompanied at the base with clove-prefted bracteas, 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.

1. D. floribunda. Many-flowered Dryandra. Ait. n. 1. —Leaves wedge-shaped, deeply and sharply serrate. Calyx-scales fringed; the outermost nearly smooth. Tips of the corolla smooth. Stigma obtuse, slightly club-shaped. —Native of Lewin's land, growing on rocky hills. Mr. Menzies favoured us with a specimine from King George's found. This shrub flowers at Kew molt 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 interstices of the veins curiously prefted beneath. Flowers terminal, in a close cylindrical head, reftembing fame Thistle or Sarracenia, shorter than the crowded surrounding leaves. Calyx brown, of many sharp imbricated scales, the inner ones gradually longef, and hairy. Corolla threc as long, yellow, externally hairy, except at the tips lodging the flaments, which are smooth, keeled, obtuse, minutely haired. Mr. Brown observes that the scales of the receptacle, feparating the flowers, are sometimes wanting.

2. D. cuneata. Wedge-leaved Dryandra. Ait. n. 2. —Leaves wedge-shaped, deeply serrate, spinous, flanked. All the calyx-scales even and silky. Tips of the corolla bordered. Stigma slender, awl-shaped, acute. —Found by Mr. Brown, on rocky hills in Lewin's land. He notices two varieties: one with leaves scarcely an inch and a half long, whose three terminal teeth are all nearly equal; another, which possibly be a different species, with leaves two inches long, whose dilated extremity has the middle tooth shorted, the adjoining finufes broader.

3. D. armata. Acute-leaved Dryandra. Ait. n. 3. —Leaves pinnatifid; lobes triangular, flat, decurved, straight, spinous-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, furrowed. —Found by Mr. Brown, on rocky hills in Lewin's land. Mr. Good fent this species to Kew in 1805, but it has not yet flowered there, nor have we seen a specimine.

4. D. falcatn. Curve-leaved Dryandra. Br. n. 4. —Leaves pinnatifid; lobes triangular-awl-shaped, decurved, falcate and recurved, spinous-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 fame country as the last.

5. D. formosa. Splendid Dryandra. Br. Tr. of Linn. Soc. v. 10. 213. t. 3. —Ait. n. 4. —Leaves linear, elongated, deeply pinnatifid; lobes unequally triangular, pointlee, flat; downy beneath. Calyx-scales hairy; the innermost linear-oblung, 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 fent to Kew, by Mr. Good, in 1803, and it is marked by Mr. Aiton as flowering there molt 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 mid-rib, into numerous, clofe, regular segments, whose upper margin is direét, lower curved; the under fide finely downy, fnow-white, turning rufly with age, or long keeping. Stem branched, downy. Flowers terminal, two or three inches in diameter, embofmed in leaves. Calyx-scales purplifi-black, ftriated and naked on the inside. Flowers of a tawny yellow, clothed with long faming hairs to the very point. Style yellow, floft and smooth. Stigma cylindrical, furred. Follicles small; tapering and hairy at the base; rounded at the margin; gaping widely, overtopped by the linear scales of the receptacle.


7. D. plumosa. Feather-flowered Dryandra. Ait. n. 5. —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 fides of hills, in Lewin's land. Sent to Kew by Mr. Good, in 1803, but has never blossomed there. 

8. D. obtusa. Obtuse-leaved Dryandra. Ait. n. 6. —Leaves linear, pinnatifid, longer than the downy reftem; 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 fent to Kew, at the fame time as the last, but has never yet produced flowers.

9. D. nivea. White-leaved Dryandra. Ait. n. 7. —("Bankiana nivea; Labill. Voy. v. 1. 412." t. 27. —N.C. Nov. Holl. v. 2. 118.) —Leaves linear, pinnatifid, about as long as the smooth flem; 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 flem 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 foregoing: 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 specimine. Flowers solitary, sessile 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 divaricated, fimbriated, and the stigma hardly thicker than the style.

—Leaves linear, pinnatifid, very long, acute; downy beneath; tapering and entire at the base; lobes triangular, acending, decurrent, 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 Lewin'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; flow- white beneath; entire at the base, and tapering into a foot- stalk; lobes triangular, deciduous, divaricated, 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 fimbriated 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, decurrent, dilated at their base. Calyx-scales downy, ovate.—Gathered by Mr. Brown, in Lewin's land, on the stony fides of hills.

—Leaves deeply pinnatifid, longer than the downy stem; lobes oblong, obtuse, fimbriate, 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 half-described, induced him to consider it as belonging to the prent genus. The short stem is clothed with dense, soft, rufy pubescence. Leaves resembling a Cycas in texture, as well as form, though only a foot 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 rufy.


DUBASH, a name applied at Madras to the same per- son who is denominated Banian in Bengal: it signifies a person who can speak two languages.

DUBLIN, in America, l. 4. r. 1184; l. 8. r. 2194; l. 10, r. 970. Add—Allo, a township of Bedford county, in Pennsylvania, having 820 inhabitants.

DUBOISIA, in Botany, in memory of Mr. Dubois, a botanist of the time of Dilleni, who appears, by Ray's

SYNOPTIS, ed. 3. 17, to have had a garden at Mitcham in Surrey, and whose son, or brother, Charles, was an affiduo- us cryptographer. His copy of Buxbaum is in our hands.


DUBUDU. See DUBU.

DUCHESSNEA, 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 supposed 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 speciments have led us to suppose it to be a orphan of botanists who have described the ripe fruit, which in those speciments 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 stands as F. indica, in Alt. Hort. Kew. v. 3. 275.

DUCK CREEK, in Geography, a hundred of Kent county, in Delaware, containing 3590 inhabitants, of whom 167 are Slaves.

DUDLEY, l. 3. r. 2621 houses, and 13,925 inhabitants.
Add—Dudley is partly in Otsego hundred, Staffordshire, in which Dudley is locally situated.

DUDLEY, in America, l. 2, r. 1220.

DUEL. At the close, add—Duelling, says a late excellence writer, in the modern sense of the word, exclusive of casual frays and single 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 duke 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 dress, 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 girdles. Hallam's State of Europe during the Middle Ages, vol. ii. ch. 9. part ii. p. 441. London, 1818.

DUFEREN. See DEUREN.

DUFIOREIA, 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. flammeus, Linn. Suppl. 431. Hoffm. Pl. Lich. t. 1. f. 5; L. madrepormis, Wulf. in Jacq. Coll. v. 3. t. 3. f. 2; and three other species. The frond is tubular, branched, membranous in its middle, with a border from the frond. We much 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 Camberwell and Pech-

HAM.
DUN

DUMBARTON. By the return of 1811, the burgh and parish of Dumbarton contained 363 houses, and 3421 persons; 1573 being males, and 1748 females; 93 families employed in agriculture, and 524 in trade and manufactures. The shire of Dumbarton contained 3218 houses, and 24189 persons; 11760 being males, and 12829 females; 1123 families employed in agriculture, and 2689 in trade, manufactures, and handicraft.

DUMBANE. In 1811, the parish contained 473 houses, and 2733 persons; 1272 being males, and 1461 females; 163 families employed in agriculture, and 293 in trade, &c.

DUMFRIES. In 1811, the burgh and parish contained 1445 houses, and 9262 persons; 4103 being males, and 5159 females.

DUMFRISHIRE. By the return of 1811, this county contained 11,660 houses, and 62,060 persons; 29,347 being males, and 33,613 females; 3862 families employed in agriculture, and 4435 in trade, manufactures, and handicraft.

DUMMER, l. 2, for Grafton r. Coos; add—containing 7 inhabitants.

DUMMERSTOWN, 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.

DUNBURN, a township of Fayette county, in Pennsylvania, containing 2266 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 1350 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—2015. Litter, l. 1, add—The number of houses, n 1811, was 45, and of persons 264.

DUNNET. In 1811, the parish contained 311 houses, and 1308 persons; 638 being males, and 760 females.

DUNSE. In 1811, the parish contained 362 houses, and 2124 persons; 1174 being males, and 1250 females.

DUNSTABLE, l. 6, r. 1249; l. 9, r. 475.

DUNSTALL. In 1811, the parish contained 296 houses, and 1616 persons; 690 being males, and 926 females.

DUODECIMAL. See INSTEAD.

DUPHIN. l. 4, r. 7863—2416.

DURAND, a township of Coos county, in New Hampshire, having 62 inhabitants.

DURBAR, denotes in India the court, hall of audience, or levee.

DURHAM, col. 2, l. 9, r. 29,633—177,625; l. ro, r. 83,971 and 93,954.

DURHAM CITY, l. 9, 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. 204.

DURSLEY, l. 15, for town r. parish, 489; l. 16, r. 2580—465 families.

DUTCHESSE COUNTY, l. 7, r. in 1810, was 51,363—1262.

DUXBROUGH, or Duxbury, l. 5, r. 2201.

DUXBURY, l. 3, r. 326.

DYBERY, 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 Dyker contained 156 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 filaments.

EAGLE, in Geography, a township of Adams3 county, in Ohio, containing 803 inhabitants.—Alfo, a township of St. Clair, in the Illinois territory, having 384 inhabitants.

EAGLE, Bald, a township of Centre county, in Pennsylvania, having 1146 inhabitants.—Alfo, a township of Lycoming county, in the same state, having 246 inhabitants.

EAGLE ISLAND. Add—Alfo, an island in the district of Maine, and county of Hancock, having 9 inhabitants.

EAR, DISEASES OF. See DEAFNESS, Tympanum, Tube, Enaphathia, and Otalgia, the latter of which articles will be found in the Addenda.

EARL, in Geography, a township of Lancaster county, in Pennsylvania, containing 418 inhabitants.—Alfo, a township
township of Berks county, in the same slate, having 794 inhabitants.

EARTH, col. 19, l. 12 from bottom, for 7935 r. 3967, and for 7882 r. 3941.

EARTHEN WARE. See DELPH and POTTERY.

EDSTITUTE, a township of Berks county, in Pennsylvania, having 805 inhabitants.

EDISTO, l. 9. r. 752.

EDINBURGH, col. 2, 1, r. 1657.

EDGARTON, l. 5. r. 1557.

EDGARTON, a township of Putnam county, in Georgia, having 73 inhabitants.

ECHENEIS, l. 4. add—Or, according to Dr. Shaw, head furnished above with a flat, ovate, transversely calcated shield, gill-membrane fixed, and body without scales.

ECLIPTIC, 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'', and at the winter solstice 23° 27' 47'', 35'. 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'', 25; from that of the winter solstice he deduced it 23° 27' 47'', 35'.

ECTROSIA, in Botany, from έκτροςεις, an abortion, alluding to the number of abortive flowers.—Brown Prod. Nov. Holl. v. 1. 185.—A genus of grasses, allied to Eleusine, (see that article,) and to Cbloris of Swartz, all whose characters require investigation.

EDINGTON, 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 inhabitants; l. 5, add—containing 264 inhabitants.

EDDA, or Odla, at present denominated Orla, after having been the residence of the Courtenseys, counts of Edela, and having been taken by Zhenghi or Zangi, was sacked by the Moguls in the 13th century, and by Timur in the 804th year of the Hegira. It is now subject to the grand signior, and the residence of a pasha of two tails. It is situated in a barren country, 67 miles from Bir, and 232 from Darike. It is surrounded by a stone wall, and defended by a citadel. The houses are well built, and the inhabitants, composed of Turks, Arabs, Armenians, Jews, and Neflarians, are said to amount to about 20,000 souls. The chief ornaments 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. 12423 and 5107.

EDGEFIELD. Add—It contains 23,160 inhabitants, of whom 87,6 are slaves.

EDGEMONT, l. 2. r. 611.

EDINBURGH, col. 7. l. 7. add—By the parliamentary return of 1811, the city and burgh of Edinburgh contained 7110 houses, and 102,987 inhabitants; 43,982 being males, and 59,005 females. The fires of Edinburgh contained 8679 houses, and 45,620 inhabitants; 21,022 being males, and 24,598 females.

EDINGT. In 1811 the parish contained 85 houses, and 417 persons; 196 being males, and 222 females.

EDM. r. Poxon.

EDWARDSIA, in Botany, (see that article,) is thus defined by Mr. Brown, in Ait. Hort. Kew. v. 3. 1.—Caylx five-toothed. Corolla papillaceous. Legume with four wings and many seeds.

EFFINGHAM, l. 4. r. 876. Do. l. 5. r. 1004; dele including 762 flakes.

EGERIA, or EGERA, the most strongly fortified city of Persia, on the left bank of the Engur; populous and well built, and giving name to the whole country about it.

EGGS of Flies, l. 6 from the end, for formed r. found. 

EGG in Architecture, l. 4, for plated r. placed.

Egg Harbour. Add—It contains 1830 inhabitants, being 22 being flaves.—Allo, a town of Burlington county, in New Jersey, containing 931 inhabitants.

EGHAM, l. 4. add—In 1811, the parish contained 519 houses, and 2823 inhabitants.

EGREMONT, l. 3. r. 790.

EGREMONT, l. 6. r. 1811; l. 7, r. 329, 1556.

EGYPTE, col. 6. l. ult. for or r. an. Col. 7, l. penult. for this r. the.

ELAN, in Chemistry, a name given by Chevrel to a principle exiling in animal tallow or fats. To obtain it, he distilled the tallow in alcohol, and suffered the stearin (see Stearin) to crystallize; the alcohol was then distilled off, and thus the elan separated. Braconnet procured it in a different manner. He submitted the tallow to preasure between folds of blotting-paper, which absorbed the elan. The paper was then soaked in water, and again subject to preasure, by which the elan was forced out, and could thus be obtained separately.

Elan thus obtained has much the appearance of a vegetable oil, and is quite liquid at a temperature of 55°. Sometimes it is distinctly of smell and colour, but most commonly it poises both, owing probably to the presence of foreign bodies, from which it is impossible to free it. Chevrel examined the elan from the tallow of the human subject, the sheep, the ox, the hog, the jaguar, and the goose, all of which differed slightly from one another. Their specific gravity varied from 913 to 929; those of the human subject and ox being lightest, and that of the goose the heaviest. Those of the sheep, ox, and hog, were nearly colourless, and of little smell; all the others were more or less of a yellow colour, and pellucid more or less odour. The elan of the sheep was most soluble in alcohol, 100 parts of which liquid, specific gravity .792, distilled 81.17 of elan at a temperature of 167°. The elan of the jaguar was least soluble, only 80.89 parts of the elan being soluble in the same quantity of alcohol at the same temperature. See further on this subject under Stearin.

ELALITE. See Mineralogy, Addenda.

ELBERTON, l. 6, r. 4291 and 45.

ELBERTON, l. 3. add—it contains 58 inhabitants.

ELBURZ, a range of mountains in Khorafin in Persia, which detaches several branches that expand over the country between Alerabad and Meheid, also over a great way to the east and north of that city, form a junction with the ridge of Banian, and finally link into the defect plains of Khorasan.

ELECTRIC, Wells, dele.

ELECTRICITY, Medical. (See Medical Electricity.)

This subject was terminated rather abruptly in the article above referred to, we shall therefore endeavour to supply what was there omitted, or has since been observed upon the subject.

The powers of electricity in removing discharges were much over-rated by the earlier electricians, as for the most part
ELECTRICITY.

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 application 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 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, caters 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 re semble those produced by common electricity. Large plates are best adapted for keeping up the continued stream, which is doubtless one of the best modes of exhibiting galvanism, and of ensuring its specific operation, if it exerts any. A medical galvanist can seldom require a battery composed of more than fifty or sixty pairs of plates, from four to six 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 patients. Dr. Wilfon Philip plates, 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. Wilfon Philip has lately attempted to shew that the galvanic battery may be substituted 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 fe deases to which it was never previously applied. These therefore remain to be briefly noticed.

Aphonia and Dyphonia.—Dr. Philip states, that he has employed galvanism in many cases of habitual aphonia, 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 defea 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 stomen,
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 upon 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 ascribed by Dr. Philip to have been experienced in dyspepsia, provided no inflammatory symptoms were present. Dr. Philip, however, seems to doubt if it will be found useful in domestic affections.

In Dyspepsia, likewise, Dr. Philip thinks it will prove an excellent remedy; also in torpor of the liver and bilious ducts; and a recent writer states, that he has found it very advantageous in chronic hepatitis, constipation, &c. See an Experimental Enquiry into the Laws of the Vital Functions, by Dr. A. P. Wilson, Philip.

**ELECTROPHORUS**, col. 2, l. 19 from bottom, for hair-flake r. harc-flake.

**ELEGANCE**, col. 2, l. 4 from bottom, for are r. have.

**ELEGY**, l. 2 from bottom, r. Gray's.

**ELEMENTS,** in Physics, col. 2, l. 27, for mercury r. earth.

**ELEOCARIS,** in Botany, loco a marit, and zygo, an ornament or favour, from its general place of growth.—Brown Prodr. Nov. Holl. v. i. 224.—A genus separated from Scirpus by Mr. Brown; near akin to Dichromena, 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 arcuatus 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 Eleetari, or Ela-tari, 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, confituting, as far as we know, a genus by itself, and it is perfectly unexceptionable in form and construction, as well as free from all ambiguity. Were this name nevertheless to be finally rejected, we should gladly submit it in the stead of that of Matonia, in honour of our learned and valued friend, who has so clearly established the genus.—Matton Tr. of Linn. Soc. 1814. Richd. H. Mal. v. xi. 9.—Cliffs and Order, Monandria Monognyna. Nat. Ord. Scitamineae, Linn. Canne Jaff.

Gen. Ch. Cal. Perianth superior, of one leaf, tubular, cylindrical, elongated, minute 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, flout, erect, with a lanceolate, acute, horizontal lobe, about its own length, on each side at the base, the summits simply notched, without any cret or extension beyond the anther, which consists of two oblong, divergent, marginal lobes, about half the length of the filament, attached by their backs, their extremities on a level with the top of the filament. *Pit.* Germen inferior, nearly globular; stigma 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 fleshy, elliptic-oblong, or somewhat ovate, triangular, fluted, of three cells, and three coriaceous valves. *Seeds* numerous, roundish, somewhat angular, rough, each with a fine, membranous, evanescent tunic. *Peric.* central, shorter than the capsule when dry, winged with three longitudinal membranes, originally connected with the central ridge of each valve.

Ell. Ch. Anther of two distinct lobes. Filament with two transverse lobes at the base; emarginate and simple at the summits. Outer limb of the corolla in three oblong lobes; inner a single lip. Capsule of three cells, and three valves, with a central receptacle. Seeds rough, tenaciate.

1. *E. Cardamomum.* Leffer, or Malabar, Cardamom. Maton as above, (Amomum repens; Sonnerat Ind. Or. v. 2. 240. t. 136. Rofe. Tr. of Linn. Soc. v. 8. 353. Wildl. Sp. Pl. v. 1. 9. A. Cardamomum; White Tr. of L. Soc. v. 10. 230. t. 4. 5. Alpinia repens; Sm. Tr. of L. Soc. v. 8. 353. note. Specim. Pharm. Lond. unpubl. 8. A. Cardamomum; Roxb. Monand. 38. Coron. v. 3. 19. t. 226. Cardamomum minus; Math. Valgr. v. 1. 25. Camer. Epit. 17. f. 3. Bont. Hist. Nat. 126, the three rounder fruits only. Clus. Exot. 187. Ger. Em. 1542. Dale Pharmac. 276. C. simplicior in officinis dictum; Buxh. Phil. 414. C. cum siliquis quill thess. bivibus; Bauh. Hist. v. 2. 205. Elettari; Rheede Hort. Mal. v. 11. 9. t. 4. 5.)—Capsule ovate-oblong, obliquely triangular. Calyx notched.—Native of the mountainous parts of Malabar, on lofty cloudy hills, flowering when the rainy season begins, in April and May; ripening seed in October and November. *White, Roxburgh.* Root perennial, tuberous, with many fibres. Leafy stems from six to twelve feet high, erect, strait, pale 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; paler and more glossy beneath. Stipulae emarginate, round, smooth. *Pinnas* 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. *Bractea* alternate, ovate-oblong, acute, at the base of each partial stalk, withering; *partiales* solitary, tubular, closely embracing the germen and calyx, allmost as long as the latter, and resembling it in shape, but deciduous. Outer limb of the corolla green; *tip* white, veined with crimson. Capsule when fresh fleshy, smooth, nearly globular, but becoming bluntly triangular, coriaceous, and pale brown, when dry. *Seeds* blackish, gracefully aromatic and pungent, with a flavour of Camphor, esteemed more agreeable and useful in food and medicine, than any others of this tribe. (See CAR

DAMOM, 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 perfect 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
Axia—a grateful and fabulous acciosophy of diet—whose general adoption by the civilized nations of the other quarters of the world is prevented only by its limited importation." This is certainly quite a new idea to us Europeans, who value this drug merely as a grateful and wholesome stimulant, on which account it becomes an article of commerce, having supplanted all its relatives in the apothecary's shop. Its general use in Axia, indeed, renders the plant a very important and profitable object of culture, though the harvest, occurring at the most unhealthy season, is not unattended by serious dangers. Fevers, fluxes, the bite of innumerable minute leeches, and the infantly fatal sting of the whip-snafe, are mentioned as not uncommon mischiefs, 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 majus; Dole Pharm. 276. Born. Hist. Nat. 127, the fruit only? C. majus officinarum; Bauh. Pl. 413. C. majus vulgar; Ger. Em. 1542. Clus. Exot. 187. Lob. l. v. 2. 222. C. medium t Mattth. Valgr. v. 1. 25. Calcar. Epit. 11. f. 2. Barrel. l. obs. 1395. t. 974, the longest fruit. C. cum filiis five thecs longis; Bauh. Hist. v. 2. 205. Enst.; Herm. Muf. Zeyl. 66. Zingiber Enst.; Gernt. t. 1, f. 5.)—Capsule 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, rarely used, some substituting for it Grains of Paradise, 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 persuaded they must belong to the same genus as the Malabar Cardamom. They appear to have a similar panicled inflorescence, and the structure of the fruit, with its central receptacle, coriaceous fringed valves, and angular rough or rugged seeds, are the fame in this as in the last. These seeds, however, are of a brighter, or reddish hue, and very inferior in flavour, far less powerful and less agreeable. The shape of the capsula is essentially different, being usually thrice as long, and much more acutely and flirkingly 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 majus, a figure with large, terminal, simply 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 capsulae, not 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 G. minus, supposed to be our Amomum Cardamomum, or Amomum verum of old writers, not the preceding Eleuttaria Cardamomum. Clusius, Gerard, &c. rather copy the fruit from Bontius than from nature, and seem to take the calyx for the flalk.

EMD

ELEVATION, Angle of, for A R B r. R A B (Plate 1. Mechanics, fig. 3.)

ELGIN, l. ub. By the return of 1811, the number of houses in the burgh and parish was 962, and of inhabitants 4602.

ELHAM, l. 3 from bottom, after London—and the parish contains 174 houses, and 992 inhabitants.

ELIZABETH, a township of Miami county; in Ohio, having 730 inhabitants.

ELIZABETH, Cape, i. 7, r. 1415; i. 14, r. 1874; and i. 15, r. 1754.

ELIZABETH-Town, col. 2, l. 1, after New York, infect—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 Somerfet county, in Pennsylvania, having 1118 inhabitants.

ELKLAND, a township of Lycoming county, in Pennsylvania, containing 787 inhabitants.

ELLESMERE, col. 2, l. 7 and 8, r. 1264 and 5935.

ELLINGTON, 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 806 persons.

ELMINA, l. 8 from bottom, for kaffo r. braffe.

ELMORE, l. 2, r. 157.

Vol. XIII.

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 Idrak, in Persia, most probably the mount Orontes 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 Hamadan, which is situated at the foot of this mountain, believe that some of its gravae have the power of transmuting the basalt metals into gold, as well as of curing any distemper 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, infect—5977 houses, occupied by 32,443 inhabitants, &c. Col. 4, l. 43, r. 4249; l. 44, r. 928.

ELY, or Ete. In 1811 this parish contained 157 houses, and 886 persons; viz. 365 males, and 521 females.

EMBANKMENT, col. 25, l. 4 from bottom, infect—In 1809 about 6000 acres of land were obtained by an embankment of the sea upon Cartmel sands, 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 Somerfet, having 351 inhabitants.

EMERY,
ENF

EMERY, l. 11, after Tennant, infert.—(Phil. Trans. for 1802, p. 401.)

EMETIN, in Chemisty, a name given by MM. Majendie and Pelletier to a substancc 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 if digested ipecacuanha in sulphuric ether, and afterwards in alcohol. The alcoholic soluticn 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, a little oil, and acetic acid, but yields no trace of ammonia, which indicates that it does not contain azote. A very fpongy 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. Muriatic 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.


Eff. Ch. Calyx five-cleft; pupil and closed in the fruit. Stamens inserted into its bale. Stigmas two or three, thread-shaped. Capsule membranous, covered. Seed depressed.

Procumbent shrubs, very much branched, with alternate filby leaves, and axillary, solitary, sessile flowers, without bracttes. There are two New Holland species.

ENDIAN. Add—It lies in N. lat. 39° 18', 20 miles from Zeitoon, occupies both banks of the Tab, and is nearly two miles in circuit. It trades with Baffora 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 Cinnamomum, which Mr. Brown separates from Laurus of Linnæus; and also very near his Cryptocarya, see that article.

ENFIELD, l. 4, after parliament, infert—in 1811, 1115 houses, and 6656 inhabitants. The town has only 524 houses, and 5055 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.

Vol. XXXIX.

ERE

ENFILADE, col. 5, l. 34, fig. 4. Col. 6, l. 20, infert—(fig. 5.)

ENGINE, col. 9, l. 6, for levelled r. bevelled.

ENGLAND, New. Add—See America and United States.

ENGURI, a river of Mingrelia, which rises in the mountains of the Abazians, and flows close to the fortresses of Rugh, between Ilani 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 Engh; but the left is called Schariftkali, under which denomination it crosses the whole of Mingrelia from N. to S. and falls into the Phafs, seven versts above the city of Potti.

ENOSBURGH, a town of Franklin county, in Vermont, containing 704 inhabitants.

ENUNCIATIVE ORGANS, dele the reference.

EPHRAI, or Dunkard-Town, infert—(which see.)


Eff. Ch. Calyx and petals equal, spreading. Lip flaked, undivided, with two faciculated thread-shaped processes at the base; and an appendage attached from the bottom of the column, below the claw of the lip. Another parallel to the stigma, with a petal-like lobe at each side.

1. E. grandiflora.—Gathered by Mr. Brown, on the coast of New Holland. Flowers handsome, blue, resembling those of a Thelymitre; see that article.

EPIDERMIS. Add—See INTEGRUMENTS.

EPIDOTE. See MINERALOGY, Ahdinda.

EPILITTOS. See Deglutition and Larynx.

EPHYTUME, for Epitheta r. Cuscuta.

EPING, 1. penult. r. 334 and 1874.

EPING, in America, l. 3, r. 1182.

EPSON, l. 4, r. 1811—397 houses, 215 inhabitants.

EPSON, in America, l. 4, r. 1816, and 1126.

EPWORTH, l. 1, for Lindley r. Manley, weftern ; l. 4, r. 274; l. 5, r. 152.

EQUAL ALTITUDE, Inf. by the Earl of Ilay, col. 1, l. 19 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. represented. Col. 10, l. 24, for 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 I.) r. (like Table V.)

EQUATORIAL-Micrometer, col. 2, l. 12, for fig. 3, r. fig. 4.

EQUES, in Ichthyology, Knight-fish. See Cyathodon 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 Peru, which is probably that Arbel on famous for the final victory obtained by Alexander over Darius, and the capital of the province of Audiabe, is now reduced to a wretched mud town, with a population not exceeding 3000 souls. N. lat. 36° 16'.


Eff. Ch. Calyx in five deep segments; changed and membranous in the fruit. Cor... Stigma undivided. Drupes dry, with four cells, and four seeds.

Two rufh-like shrubs, E. oppositifolia and alternifolia, found on the inhospitable south coast of New Holland. Their leaves are semi-cylindrical. Flowers solitary, flaked.

3 P ERIACHNE.
ERK


A genus of tropical grasses, akin to Arina, generally downy; their leaves narrow, flowers paniced. Mr. Brown describes ten New Holland species, none of them in any other author. In six of them, the outer valve of the corolla has a terminal awn.

ERIE, l. 2, r. 3758; after Erie, add—northern, containing 394 inhabitants, of whom, in 1810, 14 were slaves.


Eff. Ch. Calyx ringent; lower leaves strangled, under the lip. Petals smaller, erect. Lip flanked, lip downy, without glades. Column fimicircular; simplest at the top. Anther terminal, permanent, pointleaf; cells close together. Maffes of pollen four in each.

1. E. autunnalis. Br. n. 1. (Epipacis cunnulata; Labill. Nov. Holl. v. 2. 61. t. 211. f. 2.)—Native of the east and south parts of New Holland. Bulb globular. Leaf radical, enclofed in a sheath, with the base of the flalk, which is four or five inches high, naked, bearing from one to three white or purplish flowers. Akin to Caladenia.

ERIVAN. Add.—By various species, the hill of which was in the year 1806 by the Turkish was named; this town is reduced to a ruinous condition. It has been repeatedly taken both by the Turks and Persians, 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 Molian hills, on the S. by the Araxes, and on the E. by the district of Karabahg and Karadag, is situated on the banks of the river Zengui, and defended by a fortess, of an elliptical form, upward of 6000 yards in circumference. The N.W. side of the town is built on a precipice, impeding over the river 100 toises in height; but is surrounded by the fort which is encompassed by two strong walls, flanked with towers.

ERKOOK, in Ornithology, a bird of Abyfinia, 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 east part of Abyfinia, it is called Abba Gumba, in the language of Tigré; but on the westem side of the Imer, it is called Erkoom. Its groaning noise gives occasion to the name of its name. 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 cast; the eyes—ladies 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 protruberences 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 upon the ground to flying; but when he is raised, he flies to a considerable distance. Its smell is rank, and he is said to live in Abyfinia 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 trees, and in order to obtain them, he frequents fields of this grain.

He builds in large thick trees, and if he can, always near churches, and his nest is covered like that of a magpie. Mr. Bruce, in the Appendix to his Travels, has described this bird, and accompanied his description with a drawing.

ERROL, l. 2, for Grafton r. Coos. Add—and in 1810, contained 38 inhabitants.


ERVING's GORE, in Geography, a town of Hampshire county, in Massachusets, having 106 inhabitants.


ERZERUM, I. 11, after church, add—Mr. McKinnie estimates the whole number of inhabitants at 100,000; 15,000 of whom are Armenians, and the rest Turks, with the exception of 200 or 500 Greeks. Here are nearly 40 mosques, four of which are handsome, a Greek church, a large Armenian chapel, and at a distance from the city three celebrated monasteries. The bazaars are extensive. In winter the cold is intense; but the air being pure, and the water good, the natives are fat and healthy. N. lat. 39° 57'. E. long. 40° 57'. The pachalic of Erzerum is the most considerable in Armenia; it is divided into twelve districts, and governed by a pacha of three tails, who resides at Erzerum.

ESCAPEMENT, tfhbranul for a Pendulum, col. 2, l. 1 from the bottom, for C N r. Q N. Col. 3, l. 13, for ND r. N Q. Eschape by Alex. Cummings, col. 1, l. 10 from the bottom, for D r. H.

ESKIMAS BAY, r. Labrador.

ESOX, col. 5, l. 25, after represented, infert—curving.

ESSEX, l. 5 from bottom, r. 42829 and 253473.

ESSEX, in America, l. 7, r. 8; l. 8, r. by the census of 1810, 71,888 inhabitants.

ESSEX, in Virginia, l. uli 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 34777 inhabitants.

ESSEX, in Vermont, add—containing 14 townships, and 3087 inhabitants.

ESSEX, a township, &c. l. 2, r. 957.

ESTLE, a county of Kentucky, containing 2082 inhabitants, of whom, in 1810, 133 were slaves.

ETH

ETHER, in Chemistry. The specific gravity of sulphuric ether, as recently determined by M. Theodore de Saufriure, is 1.155 at 68°; and it boils in vacuum at 20°, and not at 20°, as stated 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 Saufriure has lately published an analysis of sulphuric ether: according to this ingenious chemist, it is composed of

- Hydrogen
- Carbon
- Oxygen

Which proportions are nearly equivalent to

- Olefiant gas
- Water

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 is 0.974.

Two volumes of it will weigh 1.948
The fp. gr. of the vapour of it
water is - - - - - 0.625

2.573

which certainly differs but little from 2.586, the true fp. gr. according to M. Gay Lussac.

Nitric Ether.—The properties of this singular substance 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 bared a glass tube, which was plunged to the bottom of a long narrow glass jar, half filled with a faturated 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 fame 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 so 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 clofe phial with a sufficients quantity of chalk. This purified, it exhibited the following properties.

It has a slightly yellow colour, and a very strong etheral 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 diffuse 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 blues. Its vapour is much more chalcic than that of sulphuric ether.

According to Thenard, it is composed of

<table>
<thead>
<tr>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
<th>Azote</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8.54</td>
<td>28.45</td>
<td>48.52</td>
<td>14.49</td>
</tr>
</tbody>
</table>

But Dr. Thomson does not seem to place much reliance in 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 ebullition 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 2.219, that of air being 1. At the temperature of 54°, water dissolves its own bulk of it. At the temperature of 52°, it becomes liquid ether.

Muriatic ether in its liquid form is colourless like water, very liquid, has no action on vegetable blues, and has the same smell and taste as in the gaseous state. At the temperature of 41°, Thenard ascertained its fp. gr. to be 0.874. It is much more volatile than alcohol, or even sulphuric ether. None of the usual tests indicate the presence of muriatic acid in it. When burnt, however, a considerable proportion of this acid is disengaged, 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>Muriatic acid</th>
<th>Carbon</th>
<th>Oxygen</th>
<th>Hydrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>29.44</td>
<td>36.61</td>
<td>23.31</td>
<td>10.64</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>Five atoms hydrogen</th>
<th>Four atoms carbon</th>
<th>One atom chlorine</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.25</td>
<td>30.00</td>
<td>45.00</td>
</tr>
</tbody>
</table>

And the weight of its

atom will be - - - - - - 81.25

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. 1.7, 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 potash. Its fp. gr. at 72° is 1.926. 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 analysed; but Dr. Thomson is disposed to believe, from analogy, that it has a composition similar to that of muriatic ether, or that

3 P 2
it is composed of four atoms olefin gas, and one atom of hydriodic acid.

Acetic Ether.—The original experiments of Laurus and Scheele have been lately repeated by other chemists, and particularly by Thénard. Thenard succeeded in forming this ether, by repeatedly distilling together very concentrated acetic acid and alcohol. No gaseous product was evolved. The superfluous acid was neutralized by potash, and the ether finally obtained by a cautious distillation of the resulting liquid from acetate of potash. Acetic ether thus procured is limpid and colourless. Does not redden vegetable blues. Poffelles a peculiar taste, quite different from that of alcohol. Its fp. gr. at 44° is .866. It boils at the temperature of 105°. It burns with a yellowish-white flame, and acetic acid is evolved during its combustion. At the temperature of 62°, it requires more than seven times its weight of water to diffusely 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 substituting the fornic acid 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 63°, 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.

ETON, col. 3, l. 25, r. to be seen; l. 57, r. 314 and 2279.


Eff. Ch. Spikelets generally single-flowered; scales imbricated, moisty empty. Stamens twelve or more. Nut cylindrical, crustaceous, without bristles at the base; kernel smooth. Tall bog-plants, from the south coast of New Holland. Scales blackish externally; upper ones filky internally. Somewhat allied to Chrysitrin. There are two species.


EUCHILUS, Brown in Ait. Hort. Kew. v. 3. 17, seems to us a Pulteriæ; see that article.

EUCHLORINE, in Chemistry. See Oxyumaria Acid.

EUCLID, in Geography, a township of Cayahoga, in Ohio, containing 283 inhabitants.

EUCLIDIUM, in Botony, from w, well, and ojvodic, to float up, because of the firmly-clasped seed-veil. —Br. in Ait. Hort. Kew. v. 3. 74.—Clafs and order, Tetradynamia Siliculae. Nat. Ord. Siliculae, Linn. Cruraceae, Jaff.


Eff. Ch. Calyx four-toothed, superior. Petals closely united into a deciduous lid, with four furrows. Stamens in four sets, alternate with the calyx-teeth, combined at the base. Capsule of four cells, opening at the top. Seeds numerous.

1. E. tetragona. Br. as above, t. 3.—In exed places near the shore, about Lucky bay, on the south coast of New Holland, flowering and bearing fruit in January. Br. A florin, three to five feet high, with square, bordered branches. Leaves stalked, ovate-oblong, mostly opposite, coriaceous, four or five inches in length, entire, glaucous, dotted with retinuous points. Umbels axillary, stalked, of three or four flowers, whose numerous white flamen spread conspicuously after the lid is fallen. We believe this fine plant is living in the green-house of the Comete de Vandé, at Baywater.

EUDIOMETER. See Laboratory.

EUDIOMETRY. —Add.—See Laboratory.

EVELYN, I. 2, inferm after Surrey; October 31st; l. 4, for Chrifhurch r. Balsom college; l. 5, inferm—spent much of his time. At the clofe of his article, add—for a farther account of the life and writings of this excellent person, we refer to the Memoirs, published from original MSS. in 2 vols. by William Bray, eq. Lond. 1818.

EYESHAM, col. 2, l. 10 from the bottom, r. 574 loufes, and 3668 inhabifants.

EYESHAN, in America, add—In 1810, it contained 3445 inhabitants.


1. E. lurina. Br. as above, t. 2.—In mountainous woods, and about great rivers, at Port Jackson, flowering in December and January. A slender florin, from five to ten feet high, very smooth. Flowers alternate, on short flanks, obovate-oblong, acute, entire, coriaceous, four or five inches long. Flower-flanks axillary, short, bearing two or three small leaves, and one flower, whose numerous, pale yellow, perfect filaments spread, in a radiant manner, after the lid is gone, displacing the broad imperfect ones, united with them below, overlapping the stigma. These superfluous 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 understood as alluding to the ample area of the leaves.—Salib. in Ann. of Bot. 2. 73. Ait. Hort. Kew. v. 3. 295.—Clafs and order, Polyandra Monogynia. Nat. Ord. Rhoeadae, Linn. Hydrocharides, Jaff. Nymphææ, Salib.


1. E. jerox. Prickly Euryale. Ait. n. 1. Roxb. Corom. v. 3. 39. t. 244. Ammexcip panfica; Andr. Repof. t. 618.—Native of lakes and ponds in India, to the east of Calcutta. Roxb. This has the habit of a Nymphææ. The floating petal leaves, cloven at the base, are from one to four feet wide; purple beneath; their ribs, veins, and flanks, like the flower-flanks, 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 loof coloured tunic.
EXP

tunic. This noble plant has flourished in the duke of Marlborough’s aquarium at White Knights. Annevea was the name originally intended by Dr. Roxburgh.


Eff. Ch. Corolla in five deep segments; three innermost fringed. Anthers erect. Stigma triangular. Capule pulpy, of three cells, and three valves, with partitions from their centre. Seeds several; becar crested.

Twining leafy fbrulas, from the warmer parts of New Holland, with alternate, ribbed, entire leaves; simple, aggregative, dropping flower-flasks; pale purple elegant flowers; yellow fruit, and rather large black seeds.


2. E. angustifolius. Linear Fringe-blossom. Br. n. 2. — Leaves linear-lanceolate. Filaments distinct. Tips of the anthers always straight. — Found within the tropic, as is also the first species. Mr. Brown.

EUTAXIA, Br. in Ait. Hort. Kew. v. 3. 16, we seprporate from Dillwynia: it is our fourth species there described.


EWELL, I. 7, r. 1811, 225 houses, and 2135 inhabitants.

EXARRHENA, in Botany, from its prominent foliage, in which it seems chiefly to differ from Myosotis. — Br. Prodr. Nov. Holl. v. 1. 495. — The only species is E. suaveolens, found in Van Diemen’s island, a hairy herb, with decurrent leaves, and fragrant white flowers.

EXECUTION, in Painting, col. 4, l. 2, r. Janus.

EXETER, col. 4, l. 23 from the bottom. — The number of inhabitants in the city of Exeter and county of the same, by the return of 1811, was 2878 houses, and 18,896 inhabitants. Exeter, in America, l. 17, r. 8759. — In Washington county, l. 3, r. 2236, and add.—Also, a county of New York, containing 9477 inhabitants. — Also, a township of Berkshire county, in Pennsylvania, having 1194 inhabitants.

EXHALING VESSELS. See Esbaltam Sytem under Heart.

EXMOUTH, I. 18, r. 459 houses, 2301 inhabitants; l. 19, r. 371.

EXPANSION, col. 3, l. 31, for expands r. contracts. Expansion of the Gases. See Gas.

EXPONENTIAL EQUATION, dele the reference.

EXT

EXPOSURE, col. 2, l. 2, for southern r. northern.

EXPRESSION, Physiognomical. 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 suppos’d to exist in many plants, and which may be obtained tolerably pure from the work 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’s, to prevent the ambiguity, it has been chosen to dilate the principle of Schrader under the term extractive. The following are the properties of extractives, according to Dr. Thomson.

1. Soluble in water, and the foliage is always coloured. When the water is slowly evaporated, the extractive matter is obtained in a solid state, and transparent; but when the evaporation 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 kind of putrefaction 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 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 flaky 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 fusible.

8. Alkalies 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 modify precipitate extractive. Muriate of tin poiffèés this property in an eminent degree. It throws down a brown powder, perfectly insoluble, composed of the oxys 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 be soaked in chlorine, and then dipped into the infusion of the extractive. Hence we see that the extractive matter
mater 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,** vol. 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. Chenix found the sp. 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 flight 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>98.10</td>
</tr>
<tr>
<td>Albumen, a trace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muriates and lactates</td>
<td></td>
<td>1.15</td>
</tr>
<tr>
<td>Soda with animal matter, soluble</td>
<td></td>
<td>.75</td>
</tr>
<tr>
<td>only in water</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Vitreous Humour.**—This possesses very nearly the same properties as the aqueous. Even its sp. gr. is the same, or only a very little heavier. According to Berzelius, it is composed of

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>98.40</td>
</tr>
<tr>
<td>Albumen</td>
<td></td>
<td>.16</td>
</tr>
<tr>
<td>Muriates and lactates</td>
<td></td>
<td>1.42</td>
</tr>
<tr>
<td>Soda with animal matter, soluble</td>
<td></td>
<td>.02</td>
</tr>
<tr>
<td>only in water</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Crystalline Lens.**—The sp. gr. of this is 1.100. When fresh it has little taste. 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>58.0</td>
</tr>
<tr>
<td>Peculiar matter</td>
<td></td>
<td>35.9</td>
</tr>
<tr>
<td>Muriates, lactates, and animal matter soluble in alcohol</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Animal matter, soluble only in water, with some phosphates</td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>Portions of the remaining insoluble cellular membrane</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

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 sp. gr. Thus the sp. gr. of the human aqueous and vitreous humour is 1.0253; that of the crystalline 1.0790. The humours of the eyes of oxen also resemble those of the sheep. The sp. gr. of the aqueous and vitreous humours is 1.0088; that of the crystalline 1.0765. The crystalline of the ox weighed thirty grains. When the whole was pared away, except fix grains in the centre, the sp. gr. was found to be 1.194.

Sir H. Davy found the same constituents in the eyes of birds; but the sp. gr. of the vitreous humour in these animals is greater than the sp. 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 talciferous, and adheres to the tongue like clay. It is insoluble in water, alcohol, ether, oils, lime-water, and acetic acid. It dissolves in potash and ammonia by the assistance 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. 4.** In the year 1811, the town and parish consisted of 326 houses, and 1893 inhabitants.

**EYMOUTH.** Add—By the return of 1811, the parish contained 115 houses, and 562 inhabitants.

**EYNHAM, or ENSHAM, l. ult.**—In 1811, the number of inhabitants was 1418, and of houses 246.
FABER, JACOBUS STAPULENSIS. See FEVER.

FAHRENHEIT, l. 2, Hamburg or Danzig.

FAIRFAX, l. 3, r. 13,117 inhabitants, of whom 5942 were slaves in 1810. At the close, add—Also, a town of Maine, in Kennebec, containing 924 inhabitants.

FAIRFIELD, l. 4, r. 17; l. 5, r. 40,950; l. 6, r. 83; l. 17, r. 4,125; l. 24, add—divided into 15 townships, containing 11,361 inhabitants. For Kennebec r. Somerset; l. 26, r. 1,348; l. 30, r. 1,618; l. 36, add—containing 2,279 persons; l. 43, r. 1,975; l. 47, add—It contains 11,857 inhabitants, of whom 4,034 are slaves. Also, a township in Crawford county, in Pennsylvania, having 421 inhabitants.

Also, a township of Butler county, in Ohio, having 1,414 inhabitants. Also, a township of Columbiana county, in Ohio, having 852 persons. Also, a township of Highland county, in Ohio, having 1,157 inhabitants.

FAIRFIELD, New. See NEW, &c.

FAIRFORD. In 1811, the parish contained 299 houses, and 1,444 persons;viz. 688 males, and 756 females.

FAIRHAVEN, l. 5, r. 645; add—Also, a small township of Maine, in Somerset county, having 116 inhabitants.

FAIRLIE. At the close, add—983.

FAIR VIEW, a town of York county, in Pennsylvania, containing 1,298 persons.

FALLHERZ. See MINERALOGY, Addenda.

FALLOWFIELD, Earl and West. Two townships in Chelten county, in Pennsylvania, the former containing 991, and the latter 1,157 persons. Also, a township of Washington county, in Pennsylvania, containing 1,934 inhabitants. Also, a township of Crawford county, in Pennsylvania, containing 551 persons.

FALLS, a township of Bucks county, in Pennsylvania, containing 1,409 persons. Also, a township of Muncingum county, in Ohio, containing 931 inhabitants.

FALMOUTH. At the close, add—By the return of 1811, the town of Falmouth contains 465 houses, and 3,933 inhabitants.

FALMOUTH, in America, l. 3, r. 4105. Col. 2, l. 11, r. 2237.

FANNET, a township of Franklin county, in Pennsylvania, containing 1,398 inhabitants.

FAQUERIE, l. 3 and 4, r. 22,489 inhabitants, of whom 10,361 are slaves.

Fareham. In 1811, the parish contained 596 houses, and 3,325 persons; viz. 1,592 males, and 1,733 females.

FARMER, col. 5, l. 9 from the bottom, for LEAFARMS r. LEAFARMS.

FARMER, Richard, col. 2, l. 12, for which he exchanged for r. for which he exchanged.

FARMINGTON, l. 7, r. 1639. After Bolton, add—

FEA, a town of Strafford county, in New Hampshire, having 1,272 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 Farringdon contained 327 houses, and 1,843 persons; viz. 990 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 Turra, of Vicenza, in a quarto dissertation, (published at Venice in 1765,) reduced by Linnaeus to Cheiranthus, is restored by Mr. Brown, in Art. Hort. Kew. v. 4. 96. It commemorates Philipp Farfeti, a noble Venetian, celebrated for his botanical erudition. Mr. Brown gives the following:

Eff. Ch. Pouch-elliptic-oblong, siliqua, compressed, with flatish valves. Cotyledons accumbent. Seeds several; 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 Germaefer and Sirhid, 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 Tab to the confines of Larifan. The Sirhid, 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 Yezdekha, situated on the bed of a former river, which separates this province from Irak. Fars, &c.

FAVART, l. 23, for retrofile r. retrofile.

FAVERSHAM, col. 3, l. 30, r. in 1811—672—3872.

FAWN, l. 3, r. 1402.

FAVYETTE, l. 4, r. 9; l. 6, 24,714 inhabitants, of whom 98, in 1810, were slaves. Also, a county of Ohio, containing 1,854 inhabitants. Col. 2, l. 4, r. 8239; l. 5, r. 2905; l. 9, r. 804; add—Also, a township of Alleghany county, in Pennsylvania, containing 2,016 inhabitants.

FAYSTON, a town of Chillendon county, in Vermont, having 149 inhabitants.

FEARING, a town of Ohio, in Washington county, having 454 inhabitants.

FEATHERS, dry-pulled, scalded, dele the reference to Bed.
FER

FEISAPAR. See Felspar and Mineralogy, Addenda.  

FEISPAH or DOHRAK, one of the principal towns of Chufistan or Kuziflan, in Persia, founded by Sheikh Soliman when the ancient Dorak, one of the eight cities of Sufiana, was abandoned. It is situated in low marshy ground, on the banks of two of the branches of the Jerahi, surrounded 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.

FELSPAR. See Felspar and Mineralogy, Addenda.

FELUGIA, or AXBAR, in Geography, a town in the pachalic of Bagdad, which, under the appellation of Perifurabur, 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 Kerbela generally cross the river at this spot, on a bridge of boats.

FENCE, col. 2, l. 20, dele low. Col. 3, dele hedge, laft word, and the comma in l. 4, 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 Pushish.

FERGUSON, a township of Centre county, in Pennsylvania, having 1666 inhabitants.

FERMANAGH, l. 2, r. 1954.

FERMAGH, a town in the county of Fermanagh, in Ireland, having 3174 inhabitants.

FERMENTATION, Viscous, in Chemistry. The recent observations of chemists enable us to state with greater precision the changes which sugar 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

\[
\begin{array}{ccc}
\text{Hydrogen} & - & 6.66 \\
\text{Carbon} & - & 40.00 \\
\text{Oxygen} & - & 53.33 \\
\end{array}
\]

which correspond with 1 atom of each element.

Alcohol, according to Dr. Thomson, is a compound of about

\[
\begin{array}{ccc}
\text{Hydrogen} & - & 13.04 \\
\text{Carbon} & - & 52.16 \\
\text{Oxygen} & - & 34.80 \\
\end{array}
\]

which correspond with 3 atoms of hydrogen, 2 atoms of carbon, and 1 atom of oxygen; and carbonic acid gas is composed of

\[
\begin{array}{ccc}
\text{Carbon} & - & 27.27 \\
\text{Oxygen} & - & 72.72 \\
\end{array}
\]

or of 1 atom of carbon and 2 atoms of oxygen.

Hence, if we suppose (for the sake of round numbers) 3 atoms of sugar 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>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 atoms</td>
<td>2 atoms</td>
<td>1 atom</td>
</tr>
<tr>
<td>3 atoms</td>
<td>1 atom</td>
<td>2 atoms</td>
</tr>
</tbody>
</table>

which make together 3 + 3 + 3.

or three atoms of sugar.

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 sugar. Thus 100 parts of sugar (as deduced by Dr. Thomson from Thenard's experiments) were converted into

| Alcohol | - | 57.44 |
| Carbonic acid | - | 42.56 |

Whereas the proportions, according to the above calculations, ought to have been

| Alcohol | - | 51.12 |
| Carbonic acid | - | 48.88 |

A coincidence as near as could have been expected, considering the very difficult nature of the experiment.

With respect to the modus operandi of fermentations, we have nothing to add, but that the subject still remains a mystery. See Wine, and Yeast.

FERREY, in Geography, a town of Mazanderan, in Persia, situated at the mouth of a river, 30 miles E. of the village of Meshid Sir, which carries on a small trade in rice, salt, fish, and pottery.

FERRISBURGH, a town of Additon county, in Vermont, having 1647 persons.

FERROCYANIC ACID, in Chemistry. See Cyanogen.

FERRURETTED CHYRIC ACID. See Cyanogen.

FEVRE, or FABRI, JAMES DE. Add—See FABER, JACOBUS STAPULENSIS.

FEZA, in Geography, a small town of Persia, 18 furlongs from the capital of Fars or Farfistan, 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.

FIDUAL LINE. See Line.

FIELD-SCARBS, R. Field-Scarbs. Field-Fortification, col. 6, l. 23 from the bottom, for at top r. at top and at bottom.

FIFESHIRE, col. 3, l. 32, r. 1811; l. 33, r. 17518—101,272.

FIGURE, in Heraldry, col. 2, l. 12, for pavis r. passant.

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.

FIROZEABAD, an ancient city of Fars, in Persia, founded by Arta-xerxes Babegon, which became the capital of Firoze Shah, the grandson of Nahrwan. Its ruins occupy a large space in a plain about 17 miles in length, and half as wide. Here are the remains of Attalah Kudda, or fire-temple of Firoze Shah.

FIROZABAD. See the preceding article.

FISSCAND, L. ult. r. 250. Col. 2, l. 3, r. 1811–1829; l. 1, deU lately and received ; l. 15, for Fridays r. Thursdays; l. 22, deU having been recently affixed by the erection of a pier; l. 28, for about fifty r. severals; l. 29, r. from 30 to 100 or more tons burthen; l. 40 and 41, r. at a distance near St. David’s is a vail, &c.

FISCHERA, in Botany, so named by professor Sprengel, in honour of his pupil Mr. Ferdinand Fichter, now curator of the Razoomofsky garden, near Moscow.—Spreng. Prodr. Umbell. 27. (Azorella; Labill. Nov. Holl. v. i. 73.)—Clafs and order, Pentandria Digna. Nat. Ord. Umbellata.


1. F. lanceolata. Lanceolata Fichtera. Spr. n. 3. (Azorella lanceolata; Labill. 74. t. 99.)—Leaves linear-lanceolate, keeled, of Native of Port Jackson, New South Wales.

Dr. White; of Lewin’s land, Labillardiere. Stem thrummy, twelve or eighteen inches high, with roughish branches. Leaves scattered, numerous, spreading, entire, smooth, an inch and a half long; tapering at the base. Umbels terminal, falked, compound, many-flowered.

2. F. ovata. Ovata Fichtera. Spr. n. 4. (Azorella ovata; Labill. 74. t. 100. Trachymene ovata; Spr. Umb. 8.)—Leaves ellipticovate, triple-ribbed.—From the fame 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.

3. F. linearis. Linear Fichtera. (F. linearifolia; Spr. n. 2. Azorella linearifolia; Cavan. 1c. v. 5. 57. t. 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 differ from it, if the foliage of this genus can at all be trusted for specific characters.

We conceive the compound umbels, totally different habitat, more oblong less flattened fruit, and other characters above indicated, must keep these plants genetically distinct, both from the original Azorella, (see Bolax,) and from Mr. Rudge’s Trachymene, hereafter described, though the learned Sprengel now refers them to the latter. His T. comprima (Azorella comprima; Labill. t. 101.) appears not well to accord with either, in character or habitat. The fruit is broader than long, tumid and reticulated, not rough. Umbels compound.

FISH, Anatomy of, deU all the references to plates.

Under Kidney and Urinairy Bladder, col. 2, l. 49, deU the paragraph beginning—It may, and ending, place.—Under Brain, col. 4, l. 12, deU after uflal, and begin—immediately, &c. Under Integuments, col. 2, l. 10 from bottom, r. renewed. Col. 5, deU after skin, l. 3 and l. 4. Under Organs of Fisjon, 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, Pichard, col. 2, l. 24, for 35,0000 r. 35,000.

Vol. XXXIX.

FISHERY, Salmon, col. 3, l. 7, for strikes r. strike; l. 8 from bottom, for killed r. kitted.

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 fix harpooners r. one or two harpooners.

FITZBURG, in Geography, a town of Worcester county, in Massachusetts, having 1566 perons.

FITZJAMES, l. 8 from bottom, for France r. Spain.

FITZWILLIAM, l. 5, r. 1301.

FIXED Bodies, l. 20, after silver, add—and platina.

FLAG, Col. 2, l. 7, since Nov. 1805, the red flag at this mail has been the first in rank after the union flag.

FLAHERTY, l. 7 from bottom, after Scottish r. and Irish; l. 5, deU Irish.

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 Alkalis,” Anderson’s Bee, vol. x. p. 353.

Col. 2, l. 25, r. distance.

FLAX Foot-Brooks, l. 29, r. higher than the distance.

FLAX-Seed Jelly, col. 2, l. 32, for oils r. foils.

FLEMINING, l. 5, r. 8947, and 549.


Six species are defined in Hort. Kew, all from the East Indies. F. frutescens, Roxb. t. 248, and fennalotis, t. 249, have handsome axillary spikes of crimson flowers; fildiftis, which is Hedysarum orbiflorum of Linnaeus, has simple leaves; all the rest are ternate.

FLETCHER, l. 2, r. 382.

FLEUR-DE-LIS. See FLOWER-DE-LUKE.

Fleur de Lis, r. Fleur de Lif.

FLINDERSIA, in Botany, in honour of capt. Flinders; commander of the botanical expedition in which Mr. Brown was employed.—Br. Bot. of Terr. Auatr. 63.—Clafs and order, Pentandria Monogyne. Nat. Ord. Cereales, Br. Eff. Ch. Calyx five-cleft, inferior. Petals five, Nectary cup-shaped, bearing the flaminis, with five intermediate barren filaments, opposite to the petals. Capsule woody, of five valves, and five cells, with as many loofe partitions. Seeds winged, two in each cell.

1. F. australis. Br. l. 1.—A tree found on the east coast of New Holland, lat. 23°. Leaves ternate or pinnate entire. Panicles cymose, downy. Capulas muralcates. Arbor radulfera, Rumph. Amb. v. 3. 201. l. 129, is apposited to belong to this genus.

FLOAT-STONE. See MINERALOGY, Addenda.

FLOOR, in Building, col. 2, l. 37, for heading points r. heading joints.

FLORAL GAMES, l. 10, add.—It is said that Clementina-Hauna, countess of Thouleou, published an edict that attended all the poets of France with artificial crowns, drested with flowers, &c. Walton’s Hill of Poetry, vol. i. p. 467.

FLORIDA, col. 2, l. 1, after Appalachica, add—and Pearl river, N. by 31° N. lat. and S. by Bayou Iberville, Amite river, and lakes Maurepas and Pontchartrain; 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 Baton Rouge, New Feliciana, St. Helena, and St. Tammany. The rivers are, the Misissipi, the Comite, Amite, Tickfah, 3 Q. Tangipoo.
Tangipoo, Chisneté, Bogue Chito, and Pearl. The Courbe rises in Wilkinson county, in the Mississippi territory, and, after a course of forty miles, falls into the Amite. The Amite rises in the same territory in Amite county, and having joined the Iberville, falls into lake Maurepas, after a course of 100 miles. The Tickfah rises in the same territory, and after entering W. Florida, becomes much augmented, and pursuading a part of its course of fifty miles falls into lake Maurepas. The Tangipoo rises in the same territory, and running nearly S. 70 miles, falls into lake Pontchartrain. The Chisneté rises in W. Florida, and Pursuading a course of about 60 miles, enters into lake Pontchartrain. The thriving town of Madisonville lies on its banks. The Bogue Chito has its source in the Mississippi territory, and after a S.E. by S. course, enters the Pearl River; which see.

FLORIDA, a town of Berkshire county, in Massachusetts, containing 302 inhabitants.

FLORIN, col. 2. l. 19. after divisions, add—A florin is a silver coin in Holland, Flanders, and Germany, called also "Guilder," or "Gulden." Accounts are kept in Holland in gilders or florins of 20 schillings each subdivided into 16 pennings. A rix-dollar is worth 21 florins, and a pound Flemish is equal to 6 gilders; hence, the rix-dollar being 13. 4d. Flemish, the guilder is 13. 4d. Flemish. A gold guilder, with which accounts are kept in the corn-trade, is worth 28 florins. Among the coins are stamped gold florins at 28 florins, un stamped at 26 florins. A gold guilder of 28 florins must weigh 407 Dutch assels, 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 18 1/2 carats of fine gold, 23 carats of fine silver, and 1 1/2 carats of copper. The Hanoverian guilder contains 18 1/2 carats of gold, 23 carats of silver, and 1 1/2 carats of copper. The gold florin is a gold coin in Hanover, and other parts of Germany; but the gold guilder in Holland is a silver coin. See Table of Coins under Coin and Exchange.

FLOYD, l. 4, r. 3453 and 113.

FLUATES, in Chemistry. See FLORIC Acid.

FLUGEL-MAN, in Military Language, a well-drilled intelligent soldier, 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 posted 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, re semble 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 fulfill some ulterior 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 same quantity of water as the blood, so that the change 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, perspirable fluid, &c. are of this kind. The latter species consists of fluids, in which the influence of the nervous system has separated a large portion of the albuminous matter, and left the remaining liquid proportionally more watery. The flava, the humours of the eye, and the effused serum of membranes, are of this species; and in these, the quantities of salts, and in general all of alkali, are the same as in the blood.

The influence of the chemical agent of secretion is therefore, according to Berzelius, chiefly spent upon the albuminous materials of the blood, which seem to be the source of every substance that peculiarly characterizes, and is the principal constituent of each secretion, and which is fat generis. All the other parts of the secretion seem to be rather accidental, and to be found there only, because they were contained in the blood out of which the secretion was formed. The excretions are of a more compound nature. They all contain a free acid, which is the lactic, and in the urine this is mixed with the uric acid. Urine seems to contain only a single peculiar characteristic matter, but milk has as many as three, namely, butter, curd, and fugar of milk. The perspired fluid appears to have no peculiar matter, but to be a mere watery liquid with hardly a vestige of the albumen of the blood, and in short to be the same as the other excreted fluids would be if deprived of their peculiar matter.

An account of most of the animal fluids will be found under their proper heads. The following is a tabular view of the analyses of what have been termed albuminous fluids, many of which have been omitted.

<table>
<thead>
<tr>
<th>Name of Fluid</th>
<th>Albumen</th>
<th>Incoagulable matter, &amp;c.</th>
<th>Salts</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid from spina bifida</td>
<td>0.5</td>
<td>0.7</td>
<td>1.0</td>
<td>97.8</td>
</tr>
<tr>
<td>Liquor pericardii</td>
<td>5.5</td>
<td>2.0</td>
<td>1.0</td>
<td>92.0</td>
</tr>
<tr>
<td>Ditto</td>
<td>6.0</td>
<td>2.8</td>
<td>1.0</td>
<td>93.5</td>
</tr>
<tr>
<td>Fluid from hydrocephalus</td>
<td>12.2</td>
<td>1.1</td>
<td>0.8</td>
<td>91.25</td>
</tr>
<tr>
<td>Fluid from hydrocele</td>
<td>6.8</td>
<td>1.1</td>
<td>0.8</td>
<td>91.25</td>
</tr>
<tr>
<td>Liquor amnii</td>
<td>1.6</td>
<td>1.1</td>
<td>1.4</td>
<td>98.54</td>
</tr>
<tr>
<td>Fluid from afeites</td>
<td>4.25</td>
<td>1.0</td>
<td>1.0</td>
<td>97.35</td>
</tr>
<tr>
<td>Fluid from a blister</td>
<td>6.0</td>
<td>1.4</td>
<td>1.0</td>
<td>92.86</td>
</tr>
<tr>
<td>Ditto *</td>
<td>18</td>
<td>4.0</td>
<td>4.0</td>
<td>78.0</td>
</tr>
<tr>
<td>Albumen ovi</td>
<td>12.0</td>
<td>2.7</td>
<td>0.3</td>
<td>85.00</td>
</tr>
</tbody>
</table>

The above are the results of Dr. Bostock'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 fats, they are the same as those constantly found in the serum of the blood; we refer our readers therefore to what we have said on this subject under the article Blood.

FLUORIC ACID, in Chemistry. See FLORIC Acid.

FLUORIC Acid. Since this article was written for the Cyclopaedia, many important additions have been made to our knowledge respecting fluoric acid, which deserve to be mentioned here.

Pure fluoric acid, according to Gay Lussac and Thenard, may be obtained by distilling together in lead vessels a mixture of one part of white flour spars 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.

Florid acid thus obtained is, at 32°, a colourless liquid, like water. It remains a fluid between 40° and 65°. Its boiling point has not been determined, but it is low. When exposed to the air it fumes violently, giving out a smell similar to that of muriatic acid, but much stronger. It is very speedily diffused in the open air, and can only be preserved in metallic vessels. Thifie 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 state, its specific gravity is 1.0609. 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 solution. 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 heal.

Reflexing the nature of this acid, the opinion of the older chemists, and even of Gay Lussac and Thenard, was, that it is compounded of an unknown base and oxygen. M. Ampere, however, hinted the notion that it is analogous to muriatic acid, or a compound of hydrogen, and a supporter of combustion, to which the name of fluoric 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 of fluorine, and one atom of hydrogen. See Simple Bodies.

Fluoric acid combines with all the bases forming fluates. Fluoric 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 crystallize, but when heated, flies off in thick white vapours.

Fluoric of Potash.—This salt may be formed in the same manner as the last. It has a very sharp taste, crysallisizes 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.

Fluoric of Soda.—This salt may be formed as above. It has much less taste than fluoric 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.

Fluoric of Lime.—This salt exists abundantly native. It is called Fluor spar (which see), and is the substance from which this acid is always obtained. It is composed, according to Davy's analysis, of

| Fluorine  | 20.0 | 100.0 |
| Calcium   | 26.25 | 131.25 |

Fluoric of Barytes.—This salt is tasteless, insoluble in water, but soluble in excess of fluoric acid, and likewise in nitric and muriatic acid. It is composed of

| Fluorine  | 20.0 | 100.0 |
| Barium    | 87.5 | 437.5 |

Fluoric of Strontian.—This salt possesses the same properties as fluoric of barytes.

Fluoric of Magnesia.—This is a tasteless powder, insoluble in water, and fearfully soluble in acids.

Fluoric of Yttria, Fluoric of Alumina, and Fluoric of Zirconia, are likewise white insoluble powders. The

Fluoric of Glucina 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 fluoric, with the metallic bases of the earths.

The metallic fluorides are not upon the whole an interesting class of bodies. The fluoride of iron, manganese, zinc, and tin, are white insoluble powders. The fluoride of cobalt is of a red colour. The fluoride of lead exists in the form of brilliant plates. The fluoride of copper, of small blue-coloured soluble crystals. The fluoride of mercury of small lamellar yellow crystals. The fluoride 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 fluoride of mercury is made to act upon silver.

Fluoric Acids.—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 process we are indebted to Dr. John Davy, but the acid itself was first discovered by Gay Lussac and Thenard in 1808.

Fluoric 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 instantly gives a red colour to vegetable blues. Its specific gravity, as determined by Dr. Davy, is 2.5795. 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 chars 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 fluoborates, which have been little examined. On the supposition that it is a compound of fluoric acid and boron, which seems to be the most probable opinion, its composition will be

| Fluorine | 20.0 | 100.0 | 228.57 |
| Boron    | 8.75 | 437.5 | 100.0 |

Fluoboric Acid.—Fluorine has also the property of combining with silica, 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 glaef into a retort, and pouring over the mixture sulphuric acid sufficient to convert the whole into a paffe. Heat is then to be applied, and the acid speedily comes over in the form of a gas, and may be collected over mercury. Fluoboric 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 265 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 silica 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 silica and one atom fluorine.

The fluoborates have not been much examined. The fluoborate of lime exists abundantly native, and has not hitherto been distinguished from fluor spar. It may, however, be easily recognized by heating it in metallic vessels with sulphuric acid, when it yields fluoboric acid gas, while fluor spar does not.

FLUORINE. See Fluoric Acid.

FLUOROSILICIC ACID, FLUOROSILICATES. See Fluoric Acid.

FLUTE TRAVERSIERE. See Traversiere.

FLUVANNA, l. 5, r. 4775, of whom 2142 are slaves.

FOAL-BIRTH. See Age of the Horse, and Horse.

FOLKINGHAM, or FALKINGHAM, l. 5 and 6, r. 106 houses, and 659 inhabitants.

FOLKSTONE,
FOU

FOLKSTONE, l. 15. In 1811 this town contained 765 houses, and 3667 persons; viz. 1673 males, and 2024 females; 13 families being employed in agriculture, and 157 in trade and manufactures.

Vol. XV.

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, infer—c 1 l. 2, c. 69. Under Continuation, l. 4, 1, under Day's work, l. 4, r. 2. Col. 39, under Performance of Men by Machines.—Continuance, l. 1, 147° l. 2, 22°. Col. 41, under Work of Mules, l. 1, r. Caznad; l. 23, r. 72 horses, and burns a chaldron, &c.

FORCEP, col. 2, l. 30 from bottom, r. Ruef; l. 19, r. Maurice Pratique.

FORDINGBRIDGE, l. 11, r. 1811; l. 12, r. 445—2289; 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 641 houses, and 2787 inhabitants.

FORFAIR, l. 21, r. 1811; l. 22, r. 759—552.

FORFAIRSHIRE. 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 15,616 in trade and manufactures.

FORICULA, col. 2, under Agricultura, 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 lefiable properties, it approaches the acetic acid. But Suerfen has shewn, that it has the property of neutralizing much of the alkaline bodies than acetic acid. Gehlen also has shewn, that the formates of soda and copper, differ altogether from the acetates of the same bases. Berzelius has lately analyzed this acid with his usual precision; according to him, it is composed of

Hydrogen 2.844 which nearly corre—1 atom hydrogen.
Carbon 32.492—respond with 2 atoms carbon.
Oxygen—64-78—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. 2935, and 293 families, &c.

FORTH, col. 2, l. 7, for Camburkenneth, r. Cambukenneth.

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. See Mineralogy, Addenda.

FOSTER, l. 2, r. 2613.

FOTHINGHAY, l. 28, r. 1587. Col. 2, l. 15 and 16, r. and the whole parish contains 55 houses, and 313 persons.

FOUNDERY.—The manner of casting bells, col. 2, l. 6, for r. l. 14.

FOURTH, col. 2, l. 3, r. Fourth, Great Sharp.

FOURTH, Great Sharp, r. Great.

TOWEY, col. 2, l. 20 from bottom, r. 1811; after

FOU

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.

FOXBOURNE, l. 4, r. 870.

FOYERS, l. 9, r. moody; l. 11, r. breach; l. 15, r. afflicted rents; l. 16, r. caelefals; l. 17, after wide, infer—c a comma.

FRAGUER, col. 2, l. 31, after farther on.

FRAGAED RAILS, l. 12, for rails r. polls; and in l. 11, after rails r.affles.

FRAMINGHAM, l. 3, r. 1670.

FRANCE, col. 26, l. 16, add—See French Revolution.

FRAISED, l. 5, l. 5, for heds r. fluids.

FRANCESTOWN, 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, infer—123 inhabitants; add—Alfo, a town of Suffolk, in New Jersey, containing 1677 inhabitants;—Alfo, a town of Cumberland county, in Pennsylvania, having 867 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 an more perfect (elegant) copy, corrected and amended (revived and corrected, P. C.) by the Author. He was born, Jan. 6, (Jan. 17, original,) 1706. Died 17—"

FRANKLIN, in Geography, l. 3, r. 19; l. 4, r. 16,472; l. 14, r. 25,803; l. 16, containing 159 inhabitants; l. 20, r. containing 5730 inhabitants, of whom 759 are slaves; l. 24, r. 6914; l. 25, r. 1794; l. 26, after Franklin, containing 1099 persons, of whom 407 are slaves; l. 27, r. 10,166—5330; l. 41, r. 10,815—1565; l. 45, r. 1398 l. 54, r. with 1542 inhabitants; l. 55, for three r. five; after York county, having 706 inhabitants, in Huntingdon county, with 571, in Franklin county, with 1781, in Fayette county, with 1623, in Greene county, with 1933 inhabitants; l. 58, r. 1161; l. 11 after Ohio, add—with eight townships, and 5494 inhabitants.—Alfo, a township of Portage county, in Ohio, having 235 inhabitants.—Alfo, a township of Knox county, in Ohio, having 725 persons.—Alfo, a township of Ohio, in Scioto county, having 217 persons.—Alfo, a township of Warren county, in Ohio, having 2302 persons.—Alfo, a county of New York, containing 2617 inhabitants.—Alfo, a township of Somerford county, in New Jersey, containing 2539 inhabitants.—Alfo, a town of Bergen county, in New Jersey, having 2839 inhabitants.—Alfo, a county of the territory of Mississippian, containing 2016 inhabitants, of whom 725 are slaves.

FRANKS, l. 3, r. 1142.


FREDERICK, l. 12, r. 34,437; l. 13, r. 3671. Col. 2, l. 22, r. 2874 inhabitants, of whom 611 are slaves.

FREDERICK, a township of Montgomery county, in Pennsylvania, having 828 inhabitants.

FREEHOLD, l. 4, r. 1810—4784; l. 7, r. 1814—3843.

FREEMAN,
FREEMAN, a township of Maine, in Somerset county, having 237 inhabitants.

FREEPORT, l. 5, r. 2184.

FREEZING, l. 15, r. 222.

FRENCH Creek, in Geography, a township of Mercer county, in Pennsylvania, having 183 inhabitants.

FRICITION, Calculation of the Quantity of, col. 2, l. 22, 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 tails.

FRUIT-Stones, l. 5 from the bottom, for cuts r. coats; l. abs. r. these seeds, &c. were carried off.

FRYBURGH, l. 2, for York r. Oxford; l. 4, r. 1024.

FUNGI, Chemical Properties of the. Braconnot has lately detected three distinct new principles in this class of plants. Two of these are acids, one of which he has denominated boletic acid, the other fungic 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 pumulo-ignarius. Its colour is white; it is not altered by exposure to the air, and its crystalls 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 solutiion 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.

Fungic Acid.—This was extracted from the boletus juglandis, and other fungi. This acid is colourless, does not crystallize, has a very four taste, and when evaporated to dryness, deliquesces on exposure to the air. The fungates of potash and soda do not crystallize, are very soluble in water, but not in alcohol. The fungate of ammonia crystallizes in regular fixed 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°.

Fungi.—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.

FUNKUS of the Anthru, l. 13, for he r. she.


F. gigantea, De C. Pl. gr. (Agave Fexa, Linn.) and F. tubersa, (A. tuberosa, Willd. Sp. Pl. v. 2. 194.) are the only species.

FURIES, col. 3, l. 22, r. these serpents.

FURR, in Heraldry, the 4th paragraph, r. Furrs either conflit of one colour (which is white, but cannot be used in arms singly), or more than one; and these either two, or more than two.

FURRINGS, in Architecture. Add.—Joists are furred, by which operation the uneven joints of an old floor are levelled for the reception of the flooring boards.

FURZE, col. 4, l. 18, for f. 165. r. 31. 122., 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, del all and except gold.

G.

G, l. 21, after ring, &c. add.—It has been asserted, however, by an ingenious correspondent, 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 pressure here described is at any time necessary for the pronunciation of this letter. It does indeed take place in two of the three examples here given, viz. gate, go, and gold; but it is for the formation of the letters t and l. This pressure takes place also with the G soft.

GADUS. Obi. Some species, viz. Molva, Albidos, Tau, Lota, Muflela, Tricirratus, and Cimbrias, all bearded, are arranged in the same division, the character of which is without boards.

GADE, in Carpentry, l. 9, for a staff r. the stcck; for to strike r. or strike; l. 10, for stafF r. stuff; l. 11, for it r. the tooth.

GAINSBOROUGH, l. 9 from bottom, for quadrangular r. quadrangle.

GALANGAL, l. 3, add.—See Alpinia, Addenda.

GALAPAGOS, col. 1, l. 5 from bottom, for 68° r. 86° or 89°; del the paragraph.

GALARDIA, in Botany, Lamapeck Dict. v. 2. 590. Illstr.
GAL


We have already announced this genus under the Virgilia now established. There are two more species, G. fimbriata and arilata, from N. America.

GALEOPITHECUS, CALUGO, 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 high, short, broad, dilated, and pectinated; that the canine teeth are very short, triangular, broad, sharp, and serrated; that the grinders are four, truncated and muricated with conical protuberances; and that it has a flying-film 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 Transactions of the Academy of Peterburgh for the year 1780. The galeopithecus volans, or flying colugo, is the Lemur volans of the Linnean system, and the flying macaco of Pennant'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 able to adhere to its breasts by the mouth and claws. Its whole length is about three feet, and of the same breadth when expanded; the tail is slender, and about a foot long. Its expansive skin, which enables it to fly, is continued on each side from the neck to the fore-feet; thence to the hind-feet, 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 underside, both of the body and membrane, is of a yellowish colour. The head is long, the mouth small, and the tongue fleshy, broad, rounded, attenuated on the edges, and ciliated with papilae, and also slightly beft 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 cugungo, colugo, and gigon. It is a gregarious animal, lives chiefly in the evening, and its body is said to be about the size of a cat. M. Geoffroy says there are two varieties; viz., one of the colour usually described; the other of a fine cinnamon 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 superintendant of the Madrid garden. " Ruiz and Pav. Prod. 110."


2. G. tribolata. ib. t. 282. —Both natives of South America.

GALLIUM, col. 2. l. 34. for dried r. freth.

GALLATIN, l. 2. r. 3159. and 664.

GALLIC Acid, in Chemistry. This acid has been recently analyzed by Berzelius. He found it composed of:

<table>
<thead>
<tr>
<th>Element</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>5.90</td>
</tr>
<tr>
<td>Carbon</td>
<td>56.64</td>
</tr>
<tr>
<td>Oxygen</td>
<td>38.36</td>
</tr>
</tbody>
</table>

According to which analysis, the constitution of gallic acid is as follows:

<table>
<thead>
<tr>
<th>Atoms</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td>6</td>
<td>45.11</td>
</tr>
<tr>
<td>3</td>
<td>30.00</td>
</tr>
</tbody>
</table>

and the weight of its atom will be 78.75.

Gallic acid has been found in the following plants, in the different proportions stated.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elm</td>
<td>7</td>
</tr>
<tr>
<td>Oak, cut in winter</td>
<td>8</td>
</tr>
<tr>
<td>Horie-cheesnut</td>
<td>6</td>
</tr>
<tr>
<td>Beech</td>
<td>7</td>
</tr>
<tr>
<td>Willow (boughs)</td>
<td>8</td>
</tr>
<tr>
<td>Elder</td>
<td>4</td>
</tr>
<tr>
<td>Plum-tree</td>
<td>8</td>
</tr>
<tr>
<td>Willow (trunk)</td>
<td>9</td>
</tr>
<tr>
<td>Sycamore</td>
<td>6</td>
</tr>
<tr>
<td>Birch</td>
<td>4</td>
</tr>
<tr>
<td>Cherry-tree</td>
<td>8</td>
</tr>
</tbody>
</table>

GALLICIA, New. l. 5. r. Zucatecas.

GALLIPOLIS, a township of Ohio, in the county of Gallia, containing 448 inhabitants.

GALVANISM, col. 3. l. 25. after inch, inch—a part.

GALVANISM, Medical. See VOLTAISM, and particularly ELECTRICITY, Medical.

GALVANOMETER, an apparatus constructed by Mr. Pepsy, by an alteration in Bennett's electrometer, adapted for measuring very minute quantities of electricity, and which perhaps could not be rendered feasible 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. To the lid is fixed a thin flap 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 pieces of zinc which rest 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 Bolck's "History of Galvanism," 8vo. 1819.

GAMING, col. 5. l. 39. r. 8 Geo. I.

GARDENING, l. 17. r. Loudon.

GARDINER. Add—containing 1029 perfoms.

GARDNER, l. 4. r. 815.

GARLIE, 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 fever with two or three inches, and thus will be produced a running which will cure the disease; or a common rowel will answer the purpose.

GARRARD. Add—It contains 8926 inhabitants, of whom, in 1810, 2000 were slaves.

GARSTANG, l. 3, r. 178 and 790.

GARUGA, in Botany, a very barbarous Indian name.

Eff. Ch. Calyx bell-shaped, five-cleft, bearing the stamens and the five equal petals. Stigma five-lobed. Drupa with several nuts.


GAS, col. 2, l. 25; after atmosphere, add—will be found under 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 Cyclopaedia. 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 stated 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.


b Oxygen and a solid base. Sulphuric acid, fulphuretted acid. Carbonic oxide, carbonic acid.

c Hydrogen and a solid base. Cyanogen, sulphurered hydrogen, olefiant gas, carbetred hydrogen, hydroguret of phosporus, hydroyduret of phosporus.

d Fluorine, chlorine, and cyanogen with a base. Fluoboric acid, chloro-carbonic acid, hydrocyanic acid, chloro-carbonic acid.

e Two solid bases. Sulphuret of carbon.

f. Triple or quadruple compounds. Hydroidic ether, chloric ether, sulphuric 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 for 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 refract 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 fluoboric acid, forming fluoborate of ammonia— with fluobisic acid, forming fluobislicate of ammonia— with carbonic acid, forming carbonate of ammonia— with sulphurous acid, forming sulphite of ammonia— with sulphuretted hydrogen, forming hydro sulphuret of ammonia.

2. Gases that may be mixed without any striking combination, though they are capable of uniting in certain circumstances, such as: Oxygen with hydrogen, forming water— with carboxylic oxyd, forming carboxylic acid— with azote, forming nitric acid— with chlorine, forming chloric acid— with sulphurous acid, forming sulphurous acid— with nitrous oxyd, forming nitric acid.

Hydrogen with chlorine, forming muriatic acid— with iodine, forming hydriodic acid— with cyanogen, forming hydrocyanic acid. Chlorine with carboxylic oxyd, forming chloro-carbonic acid.

3. Gases which mutually decompose each other when mixed together, such as: Oxygen with phosphuretted hydrogen. Chlorine with ammon— with sulphurered hydrogen— with carbetred hydrogen— with olefiant gas— with sulphurered hydrogen— with nitrous gas. Sulphurered hydrogen with nitrous gas—with sulphurous 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 explosions are passed through them, &c. These are more numerous than the preceding, and are as follow: Oxygen with sulphurered hydrogen— with carbetred hydrogen—olefiant gas— vapour of ether— vapour of alcohol. Nitrous oxyd with hydrogen— with phosphuretted hydrogen— with sulphurered hydrogen— with carboxylic oxyd— carbetred hydrogen— olefiant gas— vapour of ether— vapour of alcohol— sulphurous acid.


Combination of Gases with Liquids. Gases may be considered with reference to their combination with water and with 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— carbetred hydrogen—carbonic oxyd— phosphuretted hydrogen—oxyd gas— nitrous gas— olefiant gas— nitrous oxyd— carboxylic acid— sulphurered 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


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 class of supporters, acids, or alkalies. The following is a list of such as they have been hitherto examined, arranged in the order of their absorbability. Chlorine, cyanogen, sulphuretted hydrocarbon, fluorine, muriatic acid, fluoboric acid, ammoniacal gas.

When water is saturated with the above gases its bulk is augmented. Thus one cubic inch of water saturated with

<table>
<thead>
<tr>
<th>Cubic Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eff.</td>
</tr>
<tr>
<td>-1.002</td>
</tr>
<tr>
<td>Sulphuretted acid -1.040</td>
</tr>
<tr>
<td>Muriatic acid -1.500</td>
</tr>
<tr>
<td>Ammoniacal gas -1.666</td>
</tr>
</tbody>
</table>

With respect to the absorption of gases by other fluids less 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 presenting 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>At a temperature of 60°, 100 Measures of Water</th>
<th>absorb, according to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Henry, Dalton, Saurur.</td>
</tr>
<tr>
<td>Sulphuretted hydrogen</td>
<td>106 100 253</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>108 100 106</td>
</tr>
<tr>
<td>Nitrous acid</td>
<td>86 100 76</td>
</tr>
<tr>
<td>Olefiant gas</td>
<td>5 3.7 3.7</td>
</tr>
<tr>
<td>Nitrous gas</td>
<td>6.7 6.5</td>
</tr>
<tr>
<td>Oxygen gas</td>
<td>2.14</td>
</tr>
<tr>
<td>Phosphuretted hydrogen</td>
<td>1.4 5.7</td>
</tr>
<tr>
<td>Carburetted hydrogen</td>
<td>1.53 1.56</td>
</tr>
<tr>
<td>Azotic gas</td>
<td>1.61 1.56</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>2.01 1.56</td>
</tr>
<tr>
<td>Carbonic oxyd</td>
<td>7.06 6.2</td>
</tr>
</tbody>
</table>

**Table II.—Gases combining with Water in large Proportion.**

<table>
<thead>
<tr>
<th>One Measure of pure Water</th>
<th>absorb, according to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dalton, Saurur. Thunson, Gay Lussac, Davy.</td>
</tr>
<tr>
<td>Chlorine</td>
<td>2</td>
</tr>
<tr>
<td>Cyanogen</td>
<td>43.78</td>
</tr>
<tr>
<td>Sulphuretted acid</td>
<td>363 +</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>516</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td>700</td>
</tr>
<tr>
<td>Flouoboric acid</td>
<td>780</td>
</tr>
</tbody>
</table>

**Combination of Gases with Solids.**—The simple gases are only four, oxygen, chlorine, hydrogen, and azote. Oxygen combines with all the simple bodies known. Chlorine, with by far the greater number. Hydrogen, with carbon, phosphorus, and sulphur, and some of the metals. Azote, as far as is known, with carbon only.

Of the union of compound gases with solids little is known, and such combinations are very rare.

With respect to the weights of the atoms, specific gravities, composition, &c. of the different gases of bodies that have been well ascertained, they will be found in the titles appended to the article Atomic Theory, to which, therefore, we refer our readers. Other particulars, such as their chemical properties, &c. will be found under their respective heads.

**Expansion of Gases by Heat.** (See Expansion.)—To what has been there advanced we may add, that it is now considered as established, that all elastic fluids expand equally and uniformly by heat; and the following table gives us nearly the bulk of a given quantity of air at all temperatures, from 32° to 212°, by the aid of which the expansion of gases for all other temperatures may be easily ascertained.

<table>
<thead>
<tr>
<th>Temp.</th>
<th>Bulk.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>32°</td>
<td>1000000000</td>
</tr>
<tr>
<td>33°</td>
<td>1002083</td>
</tr>
<tr>
<td>34°</td>
<td>1004166</td>
</tr>
<tr>
<td>35°</td>
<td>1006249</td>
</tr>
<tr>
<td>36°</td>
<td>1008333</td>
</tr>
<tr>
<td>37°</td>
<td>1010416</td>
</tr>
<tr>
<td>38°</td>
<td>1012499</td>
</tr>
<tr>
<td>39°</td>
<td>1014583</td>
</tr>
<tr>
<td>40°</td>
<td>1016666</td>
</tr>
<tr>
<td>41°</td>
<td>1018749</td>
</tr>
<tr>
<td>42°</td>
<td>1020833</td>
</tr>
<tr>
<td>43°</td>
<td>1022916</td>
</tr>
<tr>
<td>44°</td>
<td>1024999</td>
</tr>
<tr>
<td>45°</td>
<td>1027083</td>
</tr>
<tr>
<td>46°</td>
<td>1029166</td>
</tr>
<tr>
<td>47°</td>
<td>1031249</td>
</tr>
<tr>
<td>48°</td>
<td>1033333</td>
</tr>
<tr>
<td>49°</td>
<td>1035416</td>
</tr>
<tr>
<td>50°</td>
<td>1037499</td>
</tr>
<tr>
<td>51°</td>
<td>1039583</td>
</tr>
<tr>
<td>52°</td>
<td>1041666</td>
</tr>
<tr>
<td>53°</td>
<td>1043749</td>
</tr>
<tr>
<td>54°</td>
<td>1045833</td>
</tr>
<tr>
<td>55°</td>
<td>1047916</td>
</tr>
<tr>
<td>56°</td>
<td>1049999</td>
</tr>
<tr>
<td>57°</td>
<td>1052083</td>
</tr>
<tr>
<td>58°</td>
<td>1054166</td>
</tr>
</tbody>
</table>

**GASOMETER.** See Laboratory.

**GASTRIC JUICE.** See Digestion.

**GASTROLOBIIUM, in Botany, Br. in Ait. Hort. Kew. v. 3, 16, a papilionaceous genus, with ten separate flaments, named from the nudum, or being separating. We have had no opportunity of examining it.**

**GATES, I. 4, p. 5965 and 2790.**

**GATTON, I. 3, for I. 2, 99.**


G. rigens, (Gorteria rigens; Linn. Sp. Pl. 1284. Curt. Mag. t. 90.); G. pavonia, (Gorteria pavonia; Andr. Repof. t. 533.); and G. fabulata, Br. are the only species; all natives of the Cape of Good Hope. See Gorteria.

GEOUGA, in Geography, a county of Ohio, containing 8 towns, and 2,917 inhabitants.

GEOUGA, l. ul. This parish consists of 141 houses—r. 641.

GELATINE, in Chemistry. This animal principle has been lately analyzed by Gay Lussac and Thenard, according to whom it consists of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>7.914</td>
</tr>
<tr>
<td>Carbon</td>
<td>47.881</td>
</tr>
<tr>
<td>Oxygen</td>
<td>27.207</td>
</tr>
<tr>
<td>Azote</td>
<td>16.998</td>
</tr>
</tbody>
</table>

100.

Gelatin is equally visible 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. Capsule of three cells, three valves, with three seeds.


2. G. lanceolatum. Willd. n. 2.—Leaves oblong-lanceolate, obate.—Eaft. Indian trees, with alternate leaves, the tubular stipula of a Ficus, and axillary flowers.

Vol. XVI.

GENESEE, l. 8. r. 1810, and 12,558 persons.


GENEVIEVE, 1. 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 Missisipi, and extending W. and N.W. It was the discovery of these lead-mines that gave rise to the famous Missisipi scheme, projected by Law in 1719, which ruined hundreds of families in France, as they were then duped to be a silver-mine: and though the bubble burst immediately, yet Du Prat, who wrote thirty-nine years afterwards, perfided in the error, and speaks of a silver-mine on the Marameg in his account of Louisiana. The Marameg is now called the Marawaal, 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. Bradbury's Travels, &c.

GEJODURUM, in Botany, from γαή, the earth, and ἄρης, a gift; becaufe, contrary to the nature of moft of its neareft allies, this genus grows on the ground, not on trees.—Jackfon in Andr. Repof. 626. Br. in Ait. Hort. Kew. v. 5, 207.—Clasfs and order, Gyandria Monandria. Nat. Ord. Or bifolcs.

Vol. XXXIX.
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 sand-flate and alpine lime-flate 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 sand-flate and alpine lime-flate as local formations, but of greater extent than any of the strata above them. If this view of the subject was 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 periphrastic 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 of 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 succession, and the regular manner in which they are spread over each other further proves that the greater 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 further, 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 isolated formations of greater or less extent, in which there might be a great similarity in some situations, and a great diversity in others. Now such is found to be the fact." (Bakewell’s Introduction to Geology, 2d 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. Arrowsmith’s excellent map, in which the physical geography is distinctly marked. These ranges form the borders of numerous basins, 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 succession of the strata in different parts of the world, yet there are certain rock formations that we may regard as universal, without altering 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 succession. With granite we include gneiss, and also mica-flate, 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-flate (see Slate) generally covers the granite, gneiss, or mica-flate, and may be regarded as a universal formation, or, perhaps more correctly, as a general covering of granite, gneiss, and mica-flate. The flate formation contains various anomalous beds of porphyry, compact feldspar, lime-flate, hornblende, serpentine, and felspar. (See Porphyry, Felspar, &c.) No observable regularity has yet been discovered in the succession of these latter rocks in different countries, and some of them may often be observed piling 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 flate appear, many of them, to be a coarser kind of flate, with an intermixture of quartz, or other minerals, until at last they lose the character of flate, and become sand-flate. This coarse flate, in its pafage from flate to sand-flate, forms that kind of rock which has been denominated grey wacke or waccé. Various beds of lime-flate occur in the coarser flate. Of thele, the most considerable in England is called the mountain lime-flate: it has a subferyllantine structure; it abounds in organic remains in many parts, and contains metalliferous veins, principally of lead and zinc. This lime-flate lies below all the principal coal formations in England and Wales. (See Strata.) Between this lime-flate and a dark grey compact lime-flate called lias, occur the coal strata, with the various beds of sand-flate and flate. The order of succession 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 same flate occurs in Flanders. The strata above the lias were first correctly described by Mr. Faye, 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 districts," extending in a waving line from Dorsetshire to the county of Durham, and delineated in his map. These strata consist of a succession of beds of rock-flate, or oolite, (see Oolite,) and coarse lime-flate, with thick beds of sand and clay, over which occurs the chalk. These beds are arranged with great regularity compared with other beds that occur between the lias and the mountain lime-flate, but the order of succession and thicknesses, particularly of the oolite, is variable; for in many parts, beds of variegated oolite 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 mislaid 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 same order 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 succession whenever several of these formations occur in the same district, and the localities annexed will make it both interesting and useful. Persons who study nature in their closets are disposed to believe, that the thicknesses of the strata
fracta 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 fracta is always regularly to the east; but this is not the case. A fractum of any considerable extent has waves and irregularities, by which it is generally spread over a large space compared with its true thickness and fupposed angle of inclination. A fractum not more than seventy yards in thickness 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 thicknesses 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 bedding of the fracta in the line of their dip generally spread them over a much wider space than the angle of inclination and thicknesses would lead us to believe; and the comparison which has been made of sliding a number of books under each other to represent the fupposed thicknesses of the whole fracta of England is utterly inapplicable to the case. In fections of particular districts, to represent the arrangement and dip of the fracta, it is impossible to delineate the irregularities and wavages of the fracta on a small scale. In the fection of England by Mr. Bakewell, (see Plate III. fig. 1. Geology,) the various fracta from the German ocean to Croyf-fell are represented rifing regularly from under each other, like a number of books in a flanting position, it being impracticable to represent on such a small scale all the irregularities of each fractum. In Plate III. fig. 2, the fection is on a larger scale, and the lis fractum, d, d, d, d, is represented rifing from under the green land b, b, b, near Bridport in Dorsetshire, and continued to the valley, M, at Axmouth; whereas had not the fracta been di fluorated by a great number of fractures, as represented in the fection, the lis fractum d would have terminated or cropt out eal of the letter L, which represents the situation of the town of Lyme. The aggregate thicknesses of all the beds of lis 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 lis crop out about four thousand yards, or two miles and a quarter west of its firt appearance near Bridport.

Plate III. fig. 6. Geology, represents the waving structure of the beds of slate, provincially called shillett in Devonshire. In some fitions, as near Moreton, beds of black lime-done are interposed, and take the twilled form of the slate. Now in palling from Exeter to Dartmoor over the fractured edges of the fracta, as represented fig. 6, the traveller may crofs portions of the fame fractum a, a, a, repeatedly at a considerable distance from each other, and were he to suppofe each of thefe portions to be a separate fractum, and to calculate accordingly, the thicknesses of the whole bed of slate, from the red ground on the eait, to Dartmoor on the weft, he would make it not lefs than ten miles; whereas in all probability it may not exceed three or four hundred yards. On a smaller scale, the fracta 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 decribed in the article Coal. See Coal, and Veins, Mineral.

It too frequently happens, that geological obervers measure nature by the flandard of their own limited experience in palling through a country, and describe certain rock formations as defitute 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-slate, compact feparl, porphyry, linite, trap, clinehtone, and granite; a thin bed of stratified lime-done is interposed, and runs through a space of fifteen miles, containing organic remains of corals, though the rocks which cover this lime-done, to a great depth, and the rocks on which it refts, contain no observable vetiges of organic life. Their relative poition in the valley of Long Sleddale in Westmoreland, is represented Plate III. fig. 5. Geology. The slate which covers the lime-done 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 fracta are merely the fchifte laminae of the slate arranged in the direction of the cleavage, the dip of the slate being in reality the fame as that of the lime-done on which it rests. Under the lime-done occurs a bed of horn-done, refembling compact feparl, but infufible; this is eighty yards thick, and rests on other beds of fchat, as represented Plate III. fig. 5. Geology. This fchifte and horn-done 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 original remains under rock formations of great extent which are defitute of them is a circumstance of great interest to the geologist wherever it occurs, and proves the nececity of caution in deciding whether certain rocks were formed prior to the exiflence of organic beings. Bafaltic or trap rocks, whole fitution is not confrormable with the general dip or poition of the fracta, and which bear a near similarity to volcanic rocks in appearance and composition, are decribed under the articles Trap, Rowley-Ragg, Whinstone, and Veins, Mineral; and also the article Basalt, Addenda; which fee. Plate IV. fig. 2. Geology, represents the arrangement of a series of columnar and amorphous beds of basalt placed over regular fracta in an unconformable poition, and interfected by veins or dykes of basalt b, b, in which the ftructure is columnar; but the columns or bafaltic prifms in these dykes are arranged horizontally.

Plate IV. fig. 1. Geology, reprefents the fection 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 reprefented as separated from the rock by a thin lining of clay e, which generally accompanies veins. The interfecion of metallic veins in the fame plate reprefents two veins containing the fame kind of ore, and having the fame dip a, a, a, a, interfected by a vein of a different kind b, b, which has cut through and displaced the former; in these inftances, the vein bb is fuppofed to be of posterior formation to the veins a, a, a. In the fame fig. is fhewn the displacement of a vein without any interfecion of other veins. (See Veins, Metallic.) For an account of volcanic rocks, fee the articles Volcano and Volcanic Products, and alfo Systems of Geology. For an account of the organic remains in rocks, fee Petrifications, Rocks, Strata, and Fletz Rocks. For an account of the organic remains of extinct species of large quadrupeds in alluvial foil, fee Mammoth, Mastodon, Megalonix, and Megatherium, Addenda.
GEOLGY.

A Tabular Arrangement of all the Rock Formations in England.

**CLASS I.—Primary Rocks.**

<table>
<thead>
<tr>
<th>No</th>
<th>Rock Formation</th>
<th>Order of succession variable; thickness unknown.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Granite</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gneifs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mica-slate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quartz-rock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marble</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Serpentine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Porphyry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sienite</td>
<td></td>
</tr>
</tbody>
</table>

**CLASS II.—Transition Rocks.**

<table>
<thead>
<tr>
<th>No</th>
<th>Rock Formation</th>
<th>Order of succession variable; thickness unknown.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Lime-flone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Porphyry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey wacke-slate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey wacke</td>
<td></td>
</tr>
</tbody>
</table>

**CLASS III.—Secondary Limestone Rocks.**

Structure usually stratified, but the Strata much dislocated and inclined.

<table>
<thead>
<tr>
<th>No</th>
<th>Rock Formation</th>
<th>Localities. Greatest observed thickness of the strata.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Old red sandstone</td>
<td>Van Mountain, Brecon - 2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heavytree, Exeter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thoerton, near Exeter</td>
</tr>
<tr>
<td></td>
<td>First sandstone</td>
<td>Mountain, or metallic limestone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Red, often micaceous sand or sandstone, containing subordinately conglomerate pebbles from the older rocks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calcite concretions in beds and mafic masses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Porphyry and trap in beds and mafic masses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Often a compact coralline mafic, alternating with beds of shale, chert, gritstone, and trap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Derbyshire, four beds, and three of trap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cross-fell, 19 of gritstone, 50 of gritstone, 60 of shale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yorkshire, and Derbyshire - 260</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Newcastle, 82 beds of gritstone, shale, and coal, of which nine of coal are wrought</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1482</td>
</tr>
</tbody>
</table>

Strata often lie horizontally on the Edges of the inclined Beds of the last Formation.

**N° 4.**

<table>
<thead>
<tr>
<th>Rock Formation</th>
<th>Localities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesian limestone</td>
<td>Knareborough, Bolsover, and Sunderland 300</td>
</tr>
<tr>
<td>Yellowish, fine-grained, and sometimes of a pink hue</td>
<td>Salop, Lancashire, Staffordshire, Devon, Cambridge, Plains of Cheshire, and Worleshire 400</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>
</tr>
</tbody>
</table>

**N° 5.**
GEOLOGY.

No 5.

Lias.—Blue flaky marl

Sometimes bituminous, with
their beds of blue, grey,
and white argillaceous lime-
stone

Sometimes oolitic

Contains chert rarely

Sand of inferior oolite mica-
ceous

Sometimes calcareous

Oolite formation.

Second fletz lime-flone,
Werner. Jura lime-
stone, Humboldt

Inferior oolitic marl

Coarse calcareous, slightly
oolite with shelly fragments
Sterile grey clay, with beds
of fullers’ earth

Composed of oolitic concre-
tions and shelly fragments,
united by a calcareous ce-
ment

Calcereous silecious oolite,
sometimes passing into sand
With shaly and thin beds of
calcareous

Faintly, or Fens-
clay

Sterile clay, with septaria

Calcereous grit

Siliceous sand and lime

Coarse sandy lime-flone

Oolite concretions, and shelly
fragments, periliable free-
flone

Sometimes bituminous

Calcereous-silecious free-flone,
with beds and nodules of
chert

Strata of sandy clay and marl,
alternating with beds of
coarse shelly lime-flone

No 6.

Iron-flone

Contains beds of clay

— — — of ochre

— — — of fullers’ earth

Leat coloured

Tetsworth clay

Micaceous sandy, and almost
black

Sand and sand-flone, with
grains of green earth
Alternating, and passing into
grey flone

Sometimes cemented by cal-
careous earth

Containing beds of chert

— — — specks of mora

Green sand-flone

formation

Third sand-flone of
Werner

Localities. Greatest observed
thickens of the
strata. Feet.

Haylings, Wealds of Sussex — 500
Summit of Shotover Hill
Woburn, Bedfordshire
Vale of Aylebury, and White-
horse, Berkshire
Devizes, and White-horse,
Berkshire
Vale of Powley
Eastburn, Suffox
Maidstone, (Kentish ragg)
Lyme, Dorset
Black Down

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. —Allo, a town of Maine, in the county of Lincoln, having 1168 inhabitants. GEORGE-Town, col. 2, l. 14, r. 1993; l. 29, add—Allo, a district of North Carolina, containing 15,679 inhabitants, of whom 13,867 are slaves.

GEORGE, a township of Fayette county, in Pennsylvania, having 2036 inhabitants.

GEORGIA, in America, l. 2, r. 1760.

GERMAN, l. 2, p. 2079.

GERMAN-Town, col. 2, l. 1, r. 29; added—Allo, a town of Ohio, in the county of Montgomery, having 1256 inhabitants.

GERRY, l. 5, p. 839.

GEYSERS, celebrated fountains situated on the side of a hill, about 16 miles to the N. of Skallbitt; for an account of which we refer to the article Uxahyer.

GEZANGABEEN, or Persian Manna. This substance 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 stick. When first separated, it is a white flicky substanee, not unlike hoar frost, of a very rich sweet taste. It is purified by boiling, and then mixed up with rofe-water, flour, and pittatcho-nuts into cakes, and in this form constitutes the sweet-meal, called in Peria gezangabeen, and which by the Persians is highly valued. This substanee, in its original state, is faid to liquify at a temperature of about 68°. The Persians, however, themselves consider this substanee as a spontaneous exudation from the tree on which it is found; hence the term gezangabeen, a term meaning literally juice of the gro, which is the Persian name of the tree producing it. Thomson’s Annals of Philosophy, vol. xii. See MANNA.

GHAUT. See GALT.

GHONI, a large market-town of Mingrelia, carrying on some trade, situated between the Aradcha and the Hippas.

GHURZI
GLU

GHURZI, a well-built and populous town of Min- grelia, on the left bank of the Taghuril.

GILBERT, col. 2, l. 32, r. 1759.

GILDER, or GILDER. See FLORIN.

GILEAD, 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.

GILMANTOWN, l. 4, r. 4338.

GILSON, or GILSON, l. 2, r. 513.

GIRARDEAU, Cape, a district of Louisiana, containing 3888 inhabitants, of whom 89 are slaves.

GIRVAN, l. penult. and ult.—In 1811, the number of houses was 533, and of inhabitants 3097, of whom 358, &c.

GISBOROUGH, or GISBOROUGH, l. 5, r. 1811—435; l. 12, r. 2094.

GLAMORGANSHIRE, last parag. — Glamorganshire is divided into ten hundreds, exclusive of the two towns of Cardiff and Swansea, and 118 parishes, which, in 1811, contained 85,667 inhabitants; 41,365 being males, and 43,472 females: of whom 7915 families were employed in trade and manufacture, and 8217 in agriculture.

GLANCE CoAL. See MINERALOGY, Addenda.

GLASGOW, col. 2, l. 11 from the bottom, add—By the parliamentary returns of 1811, the city and burgh of Glasgow contained 17,543 houses, and 100,749 inhabitants; 45,273 being males, and 55,474 females: of whom 17,669 families were employed in trade and manufactures, and 544 in agriculture.

GLASS, Laws relating to, l. 14, add—By 49 Geo. III. c. 63, the former duties upon crown glasses and broad glasses 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. 1509—8280; dele the next paragraph, and infer—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. 5945; l. 21, r. 2319. Col. 2, l. 2, for Woodbury infer—Weymouth; l. 9, r. 19774; l. 10, r. 74; l. 17, after Philadelphia, add—having 555 inhabitants.—Also, a town of the same county, having 1726 inhabitants—l. 25, r. 10,427 inhabitants, of whom 5798 were slaves in 1810.

GLOUCESTERSHIRE, col. 2, l. 26, infer after amounted to—52,042, of inhabitants 285,514, of whom 133,192 were males, and 152,322 females; 29,088 families being employed in trade and manufactures, and 20,782 in agriculture.

GLOVER, l. 3, r. 378.

GLUCINA, 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 glucina. 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, 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, 28,45 were slaves.

GLYPHIS, in Botany, from γλυψειν, to embos, expressing the appearance of the warty crust. — Achar. in Tr. of Linn. Soc. v. 12. p. 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 CYNODONTON.

Eff. Ch. Warts flatish, of the substance of the crust. Receptacles superficial, numerous, irregular, black, solid, each with a depreffed disk, and tumid margin.


GODALMING, l. 2, r. 672, and 3543.

GOFFSTOWN, l. 5, r. 2000.

GOLD. See GOLD, and Mineralogy, Addenda.

Gold, in Chemistry. A few particulars latterly ascertained respecting this metal deserve to be briefly noticed here.

Sulphur is rated in the Cyclopædia to exert no action on gold, and this is true in ordinary cases. But if an alkaline hydrofulphuret be dropped into a solution of gold, a black powder falls to the bottom, which is found to be a fulphuret of gold; and which, according to the experiments of Bucholz and Oberkamp, is composed of:

<table>
<thead>
<tr>
<th>Reagent</th>
<th>Bucholz.</th>
<th>Oberkampf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Sulphur</td>
<td>24.39</td>
<td>24.39</td>
</tr>
</tbody>
</table>

With respect to the oxys 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 fulphuret of gold above-mentioned. Still, however, these results are by no means satisfactory.

GOLDENSYNN, r. Goldenfyn.

GOMPHEUS, 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 lengthened into a tabular snout, and that the teeth are small, those 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; front about one-seventh of the whole fish; upper jaw larger than the lower; the sides of the mouth smooth and blue, head and gill-coverings plain, the rill 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 Commerson about the coasts of Otaheite.

GOOCHLAND, l. 4, r. 10,203 inhabitants, of whom 5662 were slaves in 1810.

GOODYER, 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, 322, &c.)—Br. in Alt. Hort. Kew. v. 5.
GROSHAM, 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—Alto, a town of Cheshire county, in New Hampshire, having 563 inhabitants.—Alto, a town of Lincoln county, in Georgia. See Lincoln.—Alto, a township of Columbiana county, in Ohio, having 277 inhabitants.—Alto, a town of Ohio, in Tuscarawas county, having 320 inhabitants.

GOSPORT, col. 2, l. 30, r. 1439.

Gosport, in America, l. 3, r. 72.

GOTHEBOURG, col. 2, l. 5, r. amounted in 1811 to 24,856 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 so 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 pounds.

Granton, l. 4, r. 1365; l. 8, r. 35; l. 9, r. 28,462; l. 12, r. 931; l. 18, r. 940.

Grain, as a weight, l. 11, dcle bread.

Grains of Paradise. See Amomum and Cardamom.

Grainger, l. 6, r. 6397 and 537.

Grampound, l. penult. r. 601 and 96.

Granby, 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 5346 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. 1504.

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—Alto, a county of Kentucky, containing 2301 inhabitants, of whom 103 were slaves in 1800.

Green, l. 6, r. 19,536 inhabitants, of whom 367 were slaves; l. 10, r. 12,544; l. 14, r. 6653; of whom 1354 were slaves; l. 16, r. 4507 and 1842; l. 19, r. 1277; l. 23, r. 1497; l. 24, for Franklin county, add—Alto, a township in Washington, r. Green, adding after state—with 1708 inhabitants; then add—Alto, a township of Ohio, in Fayette county, with 290 inhabitants.—In Gallia county, with 421.—In Hamilton county, with 916.—In Jefferson county, with 875.—In Ross county, with 1183.—In Scioto county, with 507.—In Trumbull, with 559.—In Columbiana county, with 338 inhabitants; all in the district of Ohio.

Green Briar, l. 4, r. 5914 inhabitants, of whom 404 were slaves in 1810.

Green Earth. See Mineralogy, Addenda.

Greene, l. 2, r. 9713 and 655; l. 7, containing, together with Greenbough town, 11,769 inhabitants, the county having 4992, and the town 2440, in the above number; l. 12.—By the census of 1810, it contains 5797 persons, and 5076 perpetrators.

Greene, in Pennsylvania. See Greene.

Greene, in Maine. See Greene.

Greene, a town of Adams' county, in Ohio, having 393 inhabitants.

Greenfield, l. 5, r. 1165; l. 7, r. 980; add—Alto, a township of Bedford county, in Pennsylvania, having 855 inhabitants.—Alto, a township of Ohio, in Fairfield county, having 743 inhabitants.

Greenland, in America, l. 3, r. 592.

Greenlaw, col. 2, l. 2, r. In 1811, it contained 253 houses, and 1260 inhabitants.

Greeneock, l. 3, after Glasgow, add—The parish, including East, Middle, and West Greenock, contained, in 1811, 1138 houses, and 19,612 persons.

Greensborough, in Georgia. See Greene, l. 6, r. 566.

Greensburgh. Add—It contains 132 inhabitants, including 42 slaves.

Greenstone, in Geology, granuline, Werner, a species of granular trap or basalt, composed of hornblende and felspar, and described in our article Trap. (See Trap.)

It has recently been discovered, that the mineral called augit, or pyroxene by Hauy, is a constituent part of many rocks of greenstone, which confirms still further the similarity between volcanic and bafaltic rocks. See Volcanic Products.

Greensville, l. 3, r. 6853 inhabitants, of whom 4599 were slaves in 1810.

Greensville, l. 3, r. 13133 and 2355.

Greensup, a county of Kentucky, containing 2369 persons, of whom 484 were slaves in 1810.

Greenwich, col. 4, l. 28 from bottom, r. 16,947 and 2315.

Greenwich, in America, l. 3, r. 1225; l. 6, add—containing 2858 persons; l. 9, in 1810, 2728; l. 13, add—in 1810, 858 inhabitants; l. 12, r. 3533. Add—Alto, 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—Alto, a township in Cumberland county, having 1102 inhabitants.

Gregory, David, l. alt. 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 Bosc, Brit. Jams, 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.

Greenatte. See Mineralogy, Addenda.
GUARD

Vol. XVII.

GREY Antimony Ore. See Mineralogy, Akad.t.

GRIESBACH, John Jacob, in Biography, an eminently learned divine of Germany, was born in 1745, in Heß-Darmskadt; and at the Gymnasmum at Frankfort, and the university of Tubingen, acquired that acquaintance with the learned languages, for which he was so distinguished, and which he applied to the most valuable biblical purposes. He fought further means and opportunities for improvement at Hall and Leipzig. In order to acquaint himself with the variety of religious sects, and for the purpose of consulting public libraries, he commenced in 1769 an extensive tour, visiting Holland, England, and Paris. In 1770 he returned to Frankfort, with a view of arranging the archives which he had collected. In 1773 he was appointed professor extraordinary of divinity at Halle; and in 1774-1775 appeared his first great work, which was a critical edition of the historical books of the New Testament in Greek. From Halle he removed to Jena in 1775, and became third professor of divinity. Having previously published several critical disquisitions in reference to biblical subjects, he completed, in 1777, his edition of the whole Greek Testament in 2 vols. As his reputation increased, his appointments and labours multiplied. But the great object to which his attention was principally devoted, was the completion of his edition of the New Testament, which appeared in 1805, 4, 6, and 7, in 4 vols. A larger edition, begun in 1796 and finished in 1806, was adapted for sale in England as well as in Germany; and was liberally encouraged by the munificence of the late duke of Grafton. In 1811 professor Griesbach's health began to decline, and in 1812 he was under a necessity of giving up the province of lecturing; and a disorder in the chest terminated his life on the 24th of March 1812, in the 68th year of his age. His corporeal form was athletic, his aspect grave and somewhat austere; but he possessed a kind heart, excellent moral principles, an independent spirit, and universal philanthropy.


GRIMSBY, l. 19 from bottom, after Grimby infert—(both bargain and parish)—l. 18, r. 619 and 2747.

GROGGINESS, in Furnery, a stiffness in the foot of a horse occasioned by battering the hoof on hard ground, which is often succeeded by swelling of the leg and contraction of the sinews. A horse that bears altogether upon his heels in trotting is denominat'd "groggy;" and the defect is generally incurable.

GROTTON, l. 3, r. 549; l. 6, r. 449; l. 8, r. 1886; l. 11, r. 4451.

GROTTO, col. 2, l. 36. Add—The grotto in Savoy is a prodigious work, said to have been begun by Caesar, but principally executed by Charles II. duke of Savoy in 1750. It is a passage cut through the mountain near the delightful valley of Echelles to the length of 5000 yards, and in perpendicular height above 100 feet; it is wide enough for two carriages to pass. About half way is a complete tunnel, running in another direction, 1000 feet long, and 36 feet high, cut by order of Buonaparte for the conveyance of cattle. Six years, both night and day, were devoted to the completion of it.

GRYPILL. Under genus Gryillus, species Gryillus, add—See Locust and Acridophagi.

GUADALAJARA, col. 2, l. 3, after annually, add—The population is estimated at 75,000, but according to Humboldt 19,500 in 1803, and that of the administration 5,630,500. N. lat. 20° 50'. W. long. 105°.

GUAIAUCUM, Chemical Properties of. Guaiacum was formerly considered as a resin, though in its properties it differs considerably from resins. Guaiacum always affumes a green colour when exposed to the light in the open air. When heated, it melts and diffuses at the same time rather a fragrant odour. Its &p gr. is 1.2285. It is very sparingly soluble in water, but imparts to that fluid a greenish-brown colour, and a sweetish taste. 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 destructive 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. Quaratáro, and between 21° 50' and 23° 30' N. lat., and 100° and 105° W. long., extending from N. to S. 75 miles, from E. to W. 85 miles. Humboldt estimates the population of the administration in 217,500, and of the capital, in N. lat. 21°. W. long. 105°, at 41,000.

GUANARA, at the end, r. Depons &c.

GUAXACÁ, l. 5, after distance, add—between 16° and 18° N. lat., and 112° and 117° W. long.; from E. to W. 230 miles, from N. to S. 175 miles.—l. 32, after persons—that of the province 354,800. At the close—W. long. 96° 25'.

GUERNSEY, a county of Ohio, containing 9 townships, and 3050 inhabitants.

GUGAH, a town of Scind, in the Persian 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 900 inhabitants.

GUILDER, or GILDER. See Florin.

GUILDFORD, lat lines, r. 495 and 2974.

GUILDFORD, l. 3, r. 544.

GUILDFORD, l. 2, r. 1961; l. 4, r. 1872.

GUM, Chemical Properties of. The best test for gum in solution, according to the experiments of Dr. Thomson, is infus'd with water. When added to a very dilute solution of gum, it produces a white flaky precipitate. Gum arabic is composed, according to

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight in Grains</th>
</tr>
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<tbody>
<tr>
<td>Sugar</td>
<td>693</td>
</tr>
<tr>
<td>Carbon</td>
<td>423</td>
</tr>
<tr>
<td>Oxygen</td>
<td>53.84</td>
</tr>
</tbody>
</table>

The varieties of gum are very numerous, and probably differ considerably in their chemical properties, though few of them have been examined. (See CERAMIX.) 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, 1534. (Watson's Chem. Eff. vol. ii.)

GUN-SHOT WOUNDS. At the end, add—See Wounds.

GUREL, r. a small country of Asia.

GURMSYL, or GURNESSER, meaning a warm climate, a district of Mekran, which is a narrow tract, about five

days'
GYM

days' journey N.W. of Noofley, probably the bed of a river, half a mile wide, between two high banks, fertile in grain, and being watered by the Heermund river, needs little cultivation. The inhabitants are notorious robbers, composed of the outcasts of the surrounding country.

GYMNADENIA, in Botany, Br. in Ait. Hort. Kew. v. 5. 191, (Orchis conopiata 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 essential.

GYMNETRUS, in Ichthyology, a genus of the Thoraci order of fishes; the characters of which are, body very long, compressed; teeth numerous, subulate; gill-membrane four or five rayed; and deltate of anal-fin. The species are, G. Aflatani, or flagy G. speckled longitudinally with brown points. A native of the northern hemisphere, and probably first described by Alcarius, in his "Icones rerum naturalium," and length ten feet, diameter about six inches; head short, mouth small, and eyes rather large. This fish is said to be generally seen neither preceding or accompanying the schoal of herrings in the northern seas, and therefore is popularly known by the appellation of "king of the herrings." Of this there is a variety, as Dr. Shaw suggests, called the Russian Gymnetrus.

G. argentio-ceruloeus, or a blue-hilferly G. with oblique, linear, brown bands, and rounded spots, red fins, and four central processes. A native of the Indian seas, and occasionally seen in tole of Europe.

G. cepedian is a doubtful species, of a gold colour, shaded with brown. See Shaw's Zoology, vol. iv. pt. ii.

GYMNISAS. Add.—The name of Gymnias, according to Rennell's "Illustrations of the History of the Expedition of Cyrus, &c." was a town and village, named by others Camoufl, and by others Counda and Kumaia, which stands on the northern bank of the river Areth, about 31 miles below its source, and on the eastern border of Peria, in the country of the Phashani.

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. Decayer. By the returns of 1811, the parish of St. John, Hackney, contains 2699 houses, and 16,771 inhabitants: but this, like the other villages in the neighbourhood of London, is daily increasing.

HADDAM, l. 3, r. 2205; l. 5, r. 2573.

HADDINGTON, l. 7, r. 1811—1671, and 4370.

HADDINGTONSHIRE, col. 2, l. 26, r. 1811—5882, and 31,164.

HADLEY, l. 4, r. 509—2592—1811.

HAIG, r. 1247.

HAIG, l. ult. r. 1811—213—1118.

HAIR, Chemical Properties of. See INTEGRUMENTS, and WOOL.

HALES-OWEN, in Geography. In 1811, the parish contained 13,520 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, l. 5 and 6, r. 1811—2151, and 9159; l. 3 from the bottom, r. 703; l. ult. r. 1758; after inhabitants, add—Allo, a township of Dauphin county, in Pennsylvania, having 1365 inhabitants. Col. 2, l. 5 and 6, del the numbers; l. 8, and 9, r. 16,520—6024; l. ult. r. 22,133 inhabitants, of whom 9663 were slaves in 1810.

HALLATON, l. 5, r. 147, and 598.

HALLOWELL, l. ult. r. 2608.

HALSTEAD, l. 5 and 4 from the close, r. 1811—722—2709.

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. ult. after mart, add—The number of houses, in 1811, was 1344; and of inhabitants 8136.

HAMBATO, l. 3, after Quito, add—See RIOMABA.

HAMDEN, l. 4, after Winicaffet, add—See HAMPTON; l. 6, r. 1716.

HAMILTON, in Scotland. This town and parish, in 1811, contained 768 houses, and 6453 persons; 2928 being males, and 3525 females: 213 families employed in agriculture, and 1121 in trade, &c.

HAMILTON, l. 3, r. 780; l. 6, after Northampton, add—the latter having 104, the second having 1263 inhabitants; l. 8, add—and others, r. 15,258. Add—Allo, a township of Ohio, in Trumbull county, having 326 persons. Allo, a township of Ohio, in Warren county, having 1258 inhabitants.

HAMILTONIA, in Botany, Ait. Hort. Kew. v. 5. 480. See PHYLLAM.

HAMLETS, TOWER, a particular district in the county of Middlesex, commanded by the constable of the Tower, or lieutenant of the Tower-hamlets, for the service and preservation of that royal fort.

The Royal Tower-Hamlets comprehend the militia raised in the district of the Tower, which is divided into two battalions, viz. 1st and 2d, officered like other corps belonging to that establishment, and subject to the same regulations.

HAMMERSMITH, l. 3, r. 1811—978—739.

HAMPTON. Add—containing 1279 inhabitants.
HAMPSTEAD, col. 2, l. 8 from the end, r. 1811-842—5480.
HAMPSTEAD, in America, l. 2, l. 17, r. 1262,228.
HARAH, in America, l. 7, r. 64—76,775; l. 16, r.
containing 9784 inhabitants, of whom 929 are slaves.
HARLAND, l. 1, l. 3, r. 2, l. 12, 1747.
HARRAM, l. 1, l. 3, r. 229—1984.—In America,
l. 2, r. 1747.
HAMPION, l. 1, r. 1811—738.
HANOVER, l. 3, r. 660; l. 9, r. 1810; l. 10, r.
990; l. 18, r. 1840; l. 570. HANCOCK, l. 7, r.
31,031; l. 13, r. containing together with its town 15,330 inhabitants, of whom the flaves in the county are 6278, and in the town 78; l. 19, r. 10439; l. 23, r. 1183; l. 26, r. 311.
HANIFAH, Abot, in Biography, a celebrated Mahometan doctor of the 8th century, who was the founder of the sect denominated Hanities, and who was imprisoned at Baghdad by the caliph Almanfer, because he would not subscribe to the doctrine of absolute predetermination. He was born at Cufa in the year 700, and died in prison in the 70th year of his age. After his death his doctrine acquired reputation; and in the year 1092 a mausoleum was erected to his memory, and also a college for the votaries of his sect. This brief account of him may not be unanonymously clofed with the following anecdote:—Having received from an adversary a rude blow on his face, he faid to the perfon who thus affaulted 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. 1711; l. 16, add—
containing 2135 inhabitants; l. 22, add—containing 2843 inhabitants.
Hanover, a town of Burlington county, New Jersey, having 2536 persons;—l. 25, r. containing 15082 persons, of whom 8454 are flaves.
Hanover, a township of Ohio, in Columbian county, having 735 inhabitants.—Alfo, a township of Ohio, in Licking county, having 651 inhabitants.
Hanover, New. Add—Alfo, a county of New Orleans, having 11,465 persons, of whom 6442 are flaves.
Hanover, Upper, a township in Montgomery county, in Pennsylvania, with 725 inhabitants.—Alfo, a township in Northampton county, in the fame flate, having 939 persons.
—Alfo, a township in Beaver county, in the fame flate, having 1005 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° 5', on a flat sandy plain. See Haran.
HARBOROUGH, col. 2, l. 30, r. 1811—335—1704.
HARDEN. See Hardin.
HARDIN, or Hardin, r. 7330—893; add—Alfo, 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 mild and indefatigable botanist and zoologist, Col. Thomas Hardwicke, P. L. S. long resident in the East Indies. Roxb. Corom. v. 3. 6.—Clafs and order, Decan-

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HASLINGDEN, l. 3 and 4, r. 962—5127.
HASELQUIST, l. 5, r. 1722. Col. 2, 1, 26, r. 1747;
1, 22, r. 1749.
HASTINGS, l. 4, r. 5268—34,826.
HATTFIELD, l. 3, r. 409—2066.
HATFIELD, l. ult. r. 1811—2677—501.
HATFIELD, l. ult. r. 805 inhabitants. Add—Also, a town-
ship of Montgomery county, in Pennsylvania, containing
622 inhabitants.
HATHERLIEGH, l. ult. r. 1811—1380, and 223.
HAVANT, l. 6, r. 1811; l. 7, r. 357, and 1824.
HAVEN, EAST, l. 3, 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 50 are slaves; l. 17, after 1810,
add—I, 1810, 5772 porters; 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.
HAVERFORD, l. 2, r. 754.
HAVERFORDWEST, l. 19, r. and also seven fairs in the
year for, &c.; dele on the 7th of July; l. 41 and 42, r.
1811—2003, and 630.
HAVERHILL, l. 5, r. 1811—242—1216. Do. in
America, col. 2, l. 13, r. 2682.
HAUYNE. See Mineralogy, Addenda.
HAWARDEN, l. 7, r. 1811—832—4356.
HAWICK, col. 2, at the close, add—By the return of
1811, Hawick contained 1163 houses, and 7645 perfons.
HAWKE, l. 3, r. 412.
HAWKINS, l. 1, r. East Tennelse; l. 4, r. 7643; l. 5,
r. 935.
HAWKESHEAD, l. 18 from the bottom, r. 1811—
149—576.
HAWLEY, l. 2, r. 1031.
HAY, l. 4, r. The parliamentary return of 1811 states
the number of inhabitants to be 1099, and that of houses
231. It has one market on Thursday, and five fairs. A
wooden manufacture has lately been established here.
HAYLING, l. 7, r. 1811—110—620.
HAYNES, a township of Centre county, in Pennsylvania,
having 1791 inhabitants.
HAY'TI, a name given by the natives to the island of
St. Domingo (which fee). The dimenions are differently
stated by different writers. Some fay, 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 affigns 390 for the
length: Rainsford fays, that it is more than 450. The
abbé Raynal represents it as 200 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 Deflalines, Christophe, and Cherveux,
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 uni-
verse, to die rather than submit again to her dominion.
At the same time, they appointed Deflalines governor for life,
with power to enact laws, to make peace and war, and to
nominate his successor. One of the first acts of his govern-
ment 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 exclu-
sive privilege of selling negroes in Hayti: intending thes
not for slavery, but for military service. Some of the
French inhabitants had remained upon the general evacu-
ation of the island, confiding in the favour and mercy of
Deflalines. But their confidence was misplaced; for in a
few weeks he mediated their destruction, and issued man-
dates, 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
fierce to the city of Domingo, which was poffeffed 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 fix military
divisions, with a general over each, independent of one an-
other. 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 reli-
gious institution. Marriage was declared to be an act purely
civil, and divorce in some cafes was allowed. In a census,
taken in 1805, of the inhabitants of the part of the island
under the power of Deflalines, the returns were about
380,000, to which some incidental omifions 20,000 were
added, making the whole number 400,000. The regular
army confisted of 15,000 men, of whom 1300 were cavalry.
Considerable attention was paid to the subject of education.
The young Haytians were generally taught to read and write.
Deflalines, whilst he poffeffed several good qualities, was fer-
ocious and cruel; and at length his atrocious acts of tyranny
caused an infraction 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 fecond 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 Toufaint, whom he reffembled in charact.
Discarding the pompous title of emperor, he modestly de-
gnified himself “chief of the government of Hayti.” He
made several enactments, and issued proclamations favourable
to commerce. Petion, however, soon appeared as a candi-
date for the sovereign power; the struggle between him and
Christophe was fierce, and in a battle fought January 18,
1807, between the two armies, Petion was defeated, and
fared himself by flight. In a council convened at Cape
François, a new constitution was published Feb. 17, 1807,
in which slavery was for ever abolished in Hayti; and the
government was reveled in a chief magistrate for life, who
appointed his successor. The council of state confisted of
nine members, two-thirds of whom were generals; so that the
government approached nearly to an oligarchy. The strug-
gle 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 esta-
blifhed 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 Chris-
tophe, which gave offence. Although the two governments
which rule the northern and southern districts have not esta-
blifhed any relations of mutual amity, they have remained
HEAT.

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 Lancastrian 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, 1840.

HEARING, col. 2, l. ult. after ear—(see EAR.)

HEAT, col. 2, l. 2, 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 most 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><strong>Nature</strong></td>
<td><strong>Same Weight.</strong></td>
</tr>
<tr>
<td>Air</td>
<td>1.0000</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>0.0315</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>1.2523</td>
</tr>
<tr>
<td>Oxygen</td>
<td>0.9765</td>
</tr>
<tr>
<td>Azote</td>
<td>1.0000</td>
</tr>
<tr>
<td>Oxyd of azote</td>
<td>1.3503</td>
</tr>
<tr>
<td>Olefin gas</td>
<td>1.5530</td>
</tr>
<tr>
<td>Carbonic oxyd</td>
<td>1.0340</td>
</tr>
<tr>
<td>Aquous va-1 pour</td>
<td>1.2884</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 the experimentalists, if we were to employ a mercurial thermometer. See the section Expansion of Heat below. Thus, The mean capacity of iron, from 0° to 100° = 0.1098. 0 to 200 = 0.1150. 0 to 300 = 0.1218. 0 to 370 = 0.1255.

In the following table, for the other metals they have only given the measures taken at 100°, and at 200°.

<table>
<thead>
<tr>
<th>Mean Capacity between 0° and 100°, between 0° and 300°.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metal</strong></td>
</tr>
<tr>
<td>Mercury</td>
</tr>
<tr>
<td>Zinc</td>
</tr>
<tr>
<td>Antimony</td>
</tr>
<tr>
<td>Silver</td>
</tr>
<tr>
<td>Copper</td>
</tr>
<tr>
<td>Platinum</td>
</tr>
<tr>
<td>Glass</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>lbs. Ice.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive-oil when burnt melted</td>
</tr>
<tr>
<td>Rape-oil</td>
</tr>
<tr>
<td>Wax</td>
</tr>
<tr>
<td>Tallow</td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
<tr>
<td>Sulphuric ether</td>
</tr>
<tr>
<td>Naphtha</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 table, which we regret we cannot give, were, that 1 lb. of lime-wood, highly dried over a chaffing-dish, melted 34,210 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 gases 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 gases 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 supposing 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>204.61</td>
</tr>
<tr>
<td>300</td>
<td>314.15</td>
<td>314.15</td>
</tr>
</tbody>
</table>

Table II.—Expansion of Glass.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>100°</td>
<td>352.9</td>
<td>352.9</td>
</tr>
<tr>
<td>200</td>
<td>213.2</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>352.9</td>
<td></td>
</tr>
</tbody>
</table>

In the above table, on the dilatation of glass, the third column shews that its expansion is not uniform, but increases, except between 0° and 100°, where it is the same as indicated by Lavoisier and Laplace. The last column contains the degrees which would be indicated by a thermometer formed of...
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of a glass plate, whose increase in length would serve as a measure of temperatures.

Table III.—Expansion of Metals.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Mean absolute Dilatation of Iron</th>
<th>Temperature indicated by a Thermometer made of a Bifurcated Iron</th>
<th>Mean absolute Dilatation of Copper</th>
<th>Temperature indicated by a Thermometer made of Copper Rod</th>
<th>Mean absolute Dilatation of Platinum</th>
<th>Temperature indicated by a Thermometer made of a Platinum Rod</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°</td>
<td>373.6</td>
<td>100°</td>
<td>328.8</td>
<td>100°</td>
<td>311.6</td>
<td></td>
</tr>
</tbody>
</table>

When we compare these results with those obtained from glass, 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 Essay which gained the prize voted by the Academy of Sciences in 1818, entitled Researches on the Measure 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 Delaroch and Berard, very much diminish the probability of Dr. Crawford's theory of animal heat. But the most formidable objections to this theory result 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.

HEALTH, in Geography, a town of Hampshire, in Massachusetts, containing 917 inhabitants.

HEAVY Spar. See Mineralogy, Addenda.

HEBRON, l. 2, r. 563; l. 3, r. 1433. Add—Alto, a township in Pennsylvania, in Berks county, having 2808 inhabitants.

HEIDELBURG, l. 4, r. 3532; l. 6, r. 1433. Add—Alto, a township in Pennsylvania, in Berks county, having 2808 inhabitants.

HEITSBY, col. 2, at the close, r. the population of the borough and parish, returned in the year 1811, was 1023; the number of houses 958.

HELEN'S, St., l. 9, r. 106—658.

HELLAM, a township of Pennsylvania, in York county, having 1410 inhabitants.

Hellenists, col. 2, l. 24, r. Hellenism.

HELMISLEY, l. 5, r. 1811—261; l. 6, r. 1415.

HELSTON, col. 2, l. 2, r. 2207—428.

HEMATIN, in Chemistry, the name given by Chevreul to the peculiar matter constituting the colouring matter of the hematoxylon 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 sp. gr. .857. Filter the alcohol, concentrate it by evaporation, then add a little water, evaporate a little further, and leave it to itself. Crystals of hematin are deposited in abundance. Thus prepared, it is in the form of small brilliant crystals, of a reddish-white colour, and a slightly astringent bitter and acrid taste. It is readily soluble in boiling water, and the solution 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 oxides 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.

HEMEL-HEMSTED. At the close, infert.—The population of the parish, by the return of 1811, amounted to 3240, and the number of houses to 638.

HEMIONUS. See Equus.

HEMLOCK, in Geography, a township of Northumberland county, in Pennsylvania, having 879 persons.

HEMPFIELD. Add.—The former contains 3431, and the latter 2444 inhabitants.

HENDERSON, in Kentucky, l. 2, r. 4544; l. 3, r. 1457. At the close, add—containing 159 persons, of whom 47 were slaves in 1810.

HENLEY-UPON-THAMES, l. ulta, r. 1811—522—1117.

HENLEY in Arden, l. 5, r. 1811—242; l. 6, r. 1035.

HENNIKER, a town of Hillsborough county, in New Hampshire, having 1608 inhabitants.

HENRICO, l. 2, r. 9945; l. 3, 4546.

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, fo named by the earlier botanists and physicians, from a resemblance in the leaves to those of the human liver, it is restored to a distinct genus from Anemone, (see that supplementatory article,) by professor De Candolle, in his Syll. v. 1. 215, merely because the Stellaria is placed very near to the flower, (some have thought it an actual plant), 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 decided. These species are,


2. H. angulosa. Angular, or Serrate, Hepatica. Lamiack Dict. v. 1. 169.—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, and a slightly different.

3. H. integripetala, with ovate entire leaves and very hairy stalks, found by baron Humboldt in South America, is not clearly an Hepatica.

HEPATITE. See Mineralogy, Addenda.

HERAT. Add.—The ancient Aria or Artaxacona, capital of Aria; l. 4, after name, infert.—Or Herirood; 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 Her- 
rat, or Herirood, afterwards runs, &c.; l. 5, for l. r. Herat 
embraces an area of four square miles, and, &c.; l. 6, add— 
This castle is of a square form, elevated on a mound, flanked 
towers at the angles, and bastion of burnt brick. The 
character is grand 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 
bazaars:—l. 23, add— The residence of the prince is a mean 
building, having a gallow 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 Hindus, the last-mentioned of whom are highly 
respected, and they only possess 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 
Cahul, Cashmere, Bucharah, Hindoolan, and Persia. From 
the former, they receive flax, indigo, sugar, chintz, mufin, 
leather, and Tartary flax, which they export to Mebed, 
Yerd, Kerman, Isla, and Bouliau, receiving in return 
chiefly dollars, tea, china-ware, broad-cloth, coffee, pepper, 
and sugar-candy; dates and flax from Kerman and car- 
petts from Ghaen. The staple commodities of Herat are, 
flax, coffee, and asfaaritida, which are exported to Hindu- 
flan. The city has a great number of mulberry-trees, cultivated 
merely for the sake of the silk-worm, and the adjoining 
plains produce asfaaritida. The winters here are very 
severe, and the cold often injures the crops; but the fer- 
tility of the plain is such that it affords an immense pro- 
duce both of wheat and barley, and almost of every 
kind of fruit known in Persia. The cattle are small, but 
not plentiful, and the broad-tail sheep are abundant. 
The revenue of this city is estimated at 24 lacs of rupees. 
The prince in possession pays a tribute to his Persian ma-
jesty of 50,000 rupees a year. N. lat. 34° 12'. E. long. 
65° 14'.

HEREFORD. At the close, add—By the return of 
1811, Hereford contains 1583 houses, and 7366 inhabitants. 
HEREFORD, a township of Berks county, in Pennsylvania, 
has a population of 2000.

HEREFORDSHIRE, col. 2, l. 7 from bottom, r. 
1811—18,772—04,772.

HERKIMER, a county of New York, containing 
22,046 inhabitants, of whom 64 are slaves.

HERMINIUM, in Batony, a name by which Linneus 
its author seems, in Phil. Bot. 1717, to allude to Hermes, or 
Mercury, but without any explanation.—Linn. Gen. cd. 1. 
ed. 2. 130.—Clafs and order, Gynandra Monandria. Nat. 
Orch. Orhidae.

Eff. Ch. Calyx spreading. Petals three-lobed, like the 
lip, which has no spur. Anther fixed, nearly terminal.

1. H. monorchis. Milk Herminium. (Ophrys monor- 
chis; Linn. Sp. Pl. 1342. Engil. Bot. t. 71.)—" Radical 
leaves two, lanceolate."— Native of chalky pastures in 
Europe. A small plant, with yellowish whitely-feeted 
flowers. No genus is better defined, but we know nothing of 
any other species indicated by Mr. Brown's specific 
character.

HERO, North, l. 2, of Grand Ile country; l. 3 and 4, 
r. 1810—552.

HERO, South, l. 3, r. 826; l. ult. r. 623.

HERriot. See HARIOT.

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— 

HERUS, 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 Hexhamshire, including four 
quarters or townships, had 251 houses, and 1328 persons.

HEYNE, CHRISTIAN GOTTLOB, in Biography, was 
born at Chemnitz, in September 1729, and rose from humble 
life, after struggling with many difficulties, in 
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 decent subsistence from their 
labour, 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 expenses of his own education, and by 
the assistance 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 Leipzic. Private teaching, however, 
was his resource for further supplies, and thus furnished 
he devoted himself to the profession of the law; and industrious 
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 Saxoon minifter, which he obtained 
by a Latin elegy, he was invited to Dresden, where he 
repaired in 1522 with flattering expectations, which were 
evertheless disappointed; so that he was reduced to a state 
of indigence and differe, 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 
translater of a Greek romance, he acquired that taste for 
criticism which raised him to that eminence in this depart-
ment 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 Bruhelian library, were again precluded by the incursion 
of the Prussians into Saxony, which occasioned the sudden 
departure of count Bruhl from Dresden, and the dispersion 
of his library. After some changes of situation, he repaired 
to Dresden in the year 1763; and in the following year 
married a lady, named Theresia Weisa, 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 Gewler. 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 
Iliad, 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 unive council, 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 "Commentaria Novi," 
which was dedicated to the king. The first edition of 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 applause 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 which he declined. The principal object of his attention was the Royal Society of Göttingen, 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 Armidale 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 Weitphalian order of the crown, and died in the month of July 1812.

HICKMAN, in Geography, a town of West Tennessee, containing 2,881 persons.

HICKUP, l. 7, add—See Lungs.

HIETANS, the name of a people of North America, who travel in 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 pastures with the feasons, 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 Hietans have domesticated the horfe, and live 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. 3, r. 1374.

HIGHWORTH, in America, l. 8, r. 1502.

HILLTOWN, l. 4, r. 1335.

HINEKLEY, col. 2, l. 5 from bottom, r. 1811—6058, and 1097.

HINDON. Add—By the returns of 1811, the borough and parish contained 170 houses, and 781 persons.

HINESDALE, a town of Berkshire, in Massachusetts, containing 822 inhabitants.

HINESBURGH, a town of Chittenden county, in Vermont, having 1238 persons.

HIGHAM, l. 3, r. 241—1262.

HIGHTHORNE, l. 7, r. 2382.

HINDSLE, l. 4, r. 740.

HIRAN, l. 2, r. Oxford for York, and 336; add—Also, a township of Ohio, in Portage county, having 171 inhabitants.

HIRUNDO. At the close, for Swallow r. Migration.

HITCHIN, l. 11, r. 1811, the hundred of Hitchin and Pilton contained 1529 houses, and 7732 inhabitants.

HOCKSTETT. Add—See Battle.

HOCKING, 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.

HOLDNESS, l. 4, r. 825.

HOLLAND, in America, l. 4, r. 422; add—Also, a town of Orleans county, in Vermont, having 126 inhabitants.

HOLLES, l. 4, r. 1529.

HOLLISTON, l. 1810—989.

HOLLOW SPAR. See Mineralogy, Addenda.

HOLLY, Mount, in Geography, a town of Rutland county, in Vermont, having 902 inhabitants.

HOLCENTRUS, in Ichthyology, a genus of the Thracici order of fishes; the characters of which are, habit of the genus Perca; grill-covers scaly, serrate, and aculeated; and scales, in most species, hard and rough. The species enumerated and described by Dr. Shaw are as follow: H. 

1. With forked or lunate tail.

SAGO. 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 flender near the tail, eyes large and gold-coloured, scales large, and denticulated at the edges. Native of the Indian, American, and Mediterranean seas, and held in high estimation for the table.

SCHRAETTER. Brownish H. with four longitudinal black lines on each side, silvery abdomen and naked head; the perca schraetter of Gmelini's Linnaeus. Native of the Danube, and of its tributary streams, esteemed for food.

RADULA. H. with the body lined with white spots; P. radula of Gmelini's Linnaeus. Native of India.

GATERINA. Bluish H. with black spots and scattered spots; Scena gaterina of Gmelini's Linnaeus. Native of the Arabian seas, varying in size and colours.


QUINQULENEIS. Yellowish H. with brownish back, and body marked on each side by five longitudinal blue lines. Native of Japan.

BENGALIENSIS. Subfalcatus 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 transversely banded, and fins spotted with black. Native of the Indian seas, and esteemed for the table.

DECUSATA. White, with brown back, and body marked by
by two longitudinal and seven transverse brown bars. Native
of the American seas.

Pteronotus. Sclaterius H. with brownish back, body
marked by transverse brown bands; dorsal fin rameinfe be-
hind, and marked by a black spot. Native of unknown
regions.

Argentinus. Brownish H. with silvery sides. Native of
regions unknown.

Ponger. Black H. with extremely minute scales: found
about the coast of Cornwall.

Amercius. With fourteen soft and seventeen spiny rays
in the dorsal fin; perca acerina of Gmel. Linn. Native of
the Euxine sea, and esteemed as food.

Ceruleuscens. Bluish 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.

Cottaidea. With all the fins marked by two speckled
lines. Native of the Indian seas.

Gigas. Ochraceous H. with brown clouds, three-
spined gill-covers, and eleven dorsal spines: perca gigas of

Forskalii. Red H. with four broad transverse whitish
bands: perca fasciata of Linn. Gmel. Native of the Red
sea.

Tauvina. Linear-oblong H. with blackish ferruginous
spots: perca Tauvina of Linn. Gmel. Native of the Ara-
bian seas.

Oro. Brown H. with the body marked transversely
by elongated spots, and the dorsal, anal, and caudal fins
spotted with yellow. A native of Japan.

Auratius. 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.

Fasciatus. 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.

Surinamensis. Brownish H. with subluteous clouds,
red head, and anterior gill-covers spine-ciliated. Native of
Surinam.

Afer. Oblong-ovate brown H. with small scales and
short tail. Native of the coasts of Guinea, in high estima-
tion for food.

Japanicus. Red H. with small scales, and blue and
yellow irises. Native of Japan.

Mex. 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.

Margiatus. Bluish H. with brownish back, red fins,
and dorsal fin 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
Vol. XXXIX.

brown, and with the dorsal, anal, and caudal fins sublan-
cocate. Native of the East Indies.

Ceruleo-Punctatus. Bluish H. with pale yellow clouds,
and deep-brown fins spotted with blue. Native country
unknown.

Biocolur. Bluish H. with irregular white spots. Shaw’s

HOLT, l. 7, r. 216—1037.

HOLT, l. 1, for Gravford r. of the same name; l. uh.
r. 1811—161—813.

HOLYHEAD, l. 5 from alt., r. 1811—539—3005.

HOLYWELL. In 1811, the town of Holywell con-
tained 133 houses, and 3954 persons; viz. 2925 males,
and 3469 females: 117 families being employed in agricul-
ture, and 752 in trade, manufactures, and handicraft.

HOMER, col. 2, l. 23, for Cos r. Jos.

HONEY BROOK, a township of Chester county, in Penn-
sylvania, containing 1073 inhabitants.

HONITON, l. 16, after act, add—in the borough and
parish; l. 17, r. 581 and 2735.

HOPE, col. 2, l. 13, add—Alfo, a town of the district of
Maine, in the county of Lincoln, having 787 inhabitants.

HOPEA, in Botany, a fourth genus, (see our former

is very nearly allied to Diplopterus, (see that article,) though
different in the aspect of the flowers.

HOPEWELL, l. 5, after York, having 1577; after
Huntingdon, 805; after Washington, 2193; l. 8, r. 1810;
the. 9, r. 2565; l. 10, add—containing 1087 inhabitants.—
Alfo, a township of Fairfield county, in Ohio, having 478
inhabitants.

HOPKINS, a county of Kentucky, having 2927 inha-
bilants, of whom, in 1810, 404 were slaves.

HOPKINTON, l. 2, r. 1345; l. 8, r. 1774.

HOPS, col. 10, l. 28, r. 3250—Lotus relating to, l. 5,
infert—See also 45 Geo. III. c. 94. 49 Geo. III. c. 98.
and the duties that are imposed on hops.

HORNELLENDE. See Mineralogy, Addenda.

HORNELLENDE State. See Mineralogy, Addenda.

HORSE. See Mineralogy, Addenda.

HORSNEY, l. uh. r. In 1811, the parish contained
of houses, and 704 inhabitants.

HORSNLEY, l. 12 and 13, r. 1811—807, and 3349.

HORN-SPINE. See Mineralogy, Addenda.

Horse, col. 11, l. 22, r. 24. 10d. Col. 12, l. 25 from
bottom, r. 23. 10d.; l. 21, r. 17. 16d.; add—On the
fuljet of duties on horses, see Tax.

HORSHAM, l. 32, r. In 1811, the borough contained
287 houses, and 1714 inhabitants; and the whole parish,
including the borough part, contained 622 houses, and 3839
inhabitants.

HORSHAM, in America, l. 2, r. 938.

HOSPITAL, Bridewell, col. 2, l. 18, r. which ex-
ceeded the receit by, &c.

HOVEA, in Botany, in memory of Mr. Pantalaone Hove.
(See POIRETTE.)—Br. in Ait. H. Kew. v. 4. 275. (Poire-
ette; Sm. Tr. of L. Soc. v. 9. 304.)—Chais and order,
Diadophis Decandrii. Nat. Ord. Papilionaceae, Linn. Le-
guminosae, Jaff.

Eff. Ch. Calyx two-lipped; upper lip cloven, abrupt.

H. linearius, (very near H. lanceolata, Curt. Mag. t. 1624,) a
linear-leaved flower, with blue-purple flowers, and smooth
leaves; and H. longifolia, whose leaves are longer, and
leaves downy, are the only species in Hort. Kew., both
3 T.
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 Easington 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 314 houses, and 1812 persons; viz. 850 males, and 962 females.

HOWELL, a township of Monmouth county, in New Jersey, having 2780 inhabitants.

HUBBARDTON. See Hubbardton.

HUBBARD, a township of Ohio, in Trumbull county, having 674 inhabitants.

HUBBARDSTON, l. 3, r. 1127. HUBBARTON, or Hubbardston, l. 2, r. 734. HUDDERSFIELD, l. 27, r. 1811—1871—9671. 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 Suffolk r. Plymouth; l. 3, r. 132.

HUMITE. See Mineralogy, Addenda.

HUMLOCK, l. 12 from bottom, del the reference (see that article).

HUMOURS of the Eye, Chemical Properties of. See Eye.

HUMPHRIES, in Geography, a county of West Tennesee, having 1511 persons, of whom 132 were slaves in 1810.

HUNGARY, col. 2, l. 33, after inhabitants (in 1810, 7908, 104).

HUNGERFORD, l. 2 from bottom, r. 1811—167—947.

HUNTINGDON, col. 3, two last lines, r. 1811—522—2307—450. HUNTINGDON, in America, l. 7, r. 16,778; l. 14, r. 476; after Philadelphia, add—the township contains 1668 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.—Also, a township of Adams' county, in the same state, having 1014 inhabitants.

HUNTINGDONSHIRE, l. 14, r. 7566 houses, 42,208 inhabitants; 20,402 males, 21,806 females.

HUNTINGTON, l. 3, r. 514.

HUNTINGTON, in Connecticut. See Huntington.

HUNTSBURG, l. 3, r. 734.

HUR, Richard, in Biography, an eminent English prelate, was the son of a reputable farmer, in the parish of Teterhall, in the county of Stafford, and born in January 1719-20. 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 Welton, B.D. &c." and which was highly commended by Dr. Warburton. As a literary critic, he first laid the foundation of his future fame in 1749, by an an-

nymous publication, entitled "Horace's Epistles to the Pilos, with an English Commentary and Notes," and also of his fortune by a compliment paid in the preface to Warburton, whom he afterwards reeled, 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 Whitehall preachers. In 1751, he published a "Commentary on Horace's Epistle to Augustus," reeling in learning and ingenuity his former commentary. Both these Commentaries were reprinted in 1753, with two differations on dramatic poetry and poetical imitation. This volume was dedicated to Warburton in a high style of panegyric; and it was followed, in 1755, by a piece, entitled "Delicacy of Friendship," in which the anonymous author, known to be 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 estima-

tion of his admirers, he was thought to be entitled. By this pamphlet he gained no reputation, and it is said, that in conformance of some remarks on his subervient disposition, he was devisor of suppressing it, though it has been since reprinted in a late edition of his works. His first churc

HURD's church preferment was a college living at Thurlston in Leicester, to which he was inducted in 1756, and here he lived for several years in retirement. Soon after Hume's "Effay 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 noticed in the following terms: "Dr. Hurd wrote a pamphlet against this work, with all the subervient petulance, arrogance, and feverity which distinguished the Warburtonian school." These Remarks have been thought to be the joint production of the master and disciple. Hurd's "Letter to Mr. Mamon on the Marks of Imitation," published in 1753, 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 since the writer's attachment to Whig principles. In 1762 appeared, without his name, an amusing work, entitled "Letters on Chivalry and Romance," 12 mo.; 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, flated 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 fol

lowing year, he was graduated D. D. at Cambridge, and appointed to preach the lectures on prophecy, established at Lincoln's-Inn by Warburton; these were comprised in twelve discourses, which formed a volume of highly valuable theological literature, published in 1772, 8vo. with his explanation of the double sense of prophecy, called by him a "divine artifice." With that excess of ingenuity which in some cases seems to derogate from the simplicity of the gospel, some have been dissatisfied. Having established his reputa-

tion both as an elegant writer and an ingenious theologian, Dr. Hurd was promoted without solicitation to the fee 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 see of Worcester took place in 1781, when he was also nominated clerk of the closet; and though he was offered the primacy in 1783, he declined the acceptance of this high dignity. In his retired station at the episcopal seat of Hartlebury, he palled 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 heir-loom to the see 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, prefixed to the public in 7 vols. 4to, in 1788; adding afterwards, viz. 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 regard 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 fame-sources," (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, on Huron's River.


2. H. alpina. Alpine Hutchinsia. Ait. n. 2. see Lepidium alpinum.—Leaves pinnatifid. Petals twice as long as the calyx. Style hyat.


HYALITIC. See TOXICODENDRON.

HYALITE. See MINERALOGY, Addenda.

HYDE, t. 4, r. 629—1882.

HYDEPARK, t. 2, r. 261.

HYDROGEN. For the recent determinations respecting the specific gravity, &c. of this gas, see Atomic Theory.

HYDROGEN, Arsenical. See Arsenic.

HYDROGEN. Boroured, 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-filings, 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, suppose to be borourated hydrogen, was extracted; but it was not satisfactorily examined. Sir H. Davy endeavoured in vain to unite boron with hydrogen by heating them together.

HYDROGURET of Carbon, Phosphorus, and Sulphur, the names by which some have chosen to distinguish the xeric of hydrogen with these respective subfiances, and which were formerly called carburetted, phosbur'ated, and fulphuretted hydrogen.

HYDROPHILUS. At the clofe, add.—The genus like, that of dytkus, has been greatly inceafed by the perfevering researches of modern entomologists. Mr. Marsham enumerates twenty-eight British species.

HYDROPHOSPHORIC Acid, Hydrophosphoric Acid, Hydrothionic Acid, in Chemistry, names which have been given, the first to phosbur'ated hydrogen, the two last to fulphuretted hydrogen.

HYGROMETRY, col. 13, l. 22, add.—Mr. Leslie's improved hygrometer is compofed of a tube of ivory, containing quickfiver, with a glafs 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 preffes the quickfiver higher in the tube;—when it imbibes moisture from damp air, it swells, and allows the quickfiver to reflide. Mr. Leslie finds, however, that thefe variations do not correpond with the real moifures of atmospheric dryness or humidity: near the point of extreme dampness, they are much fegmented; while they diminifh rapidly towards the other extreme. The addition of another scale, therefore, correponding to this inequality, is neceffary; and even with this, it cannot be regarded as either an accurate or delicate instrument.

There are other circumstances, fays the profeflor, connected with evaporation, on which an hygrometer may be conftructed; particularly the dilatation imparted to the air by the vapour, and the defepufion of temperature produced on the humid surface.

On the firft of these he has invented an hygrometer conftituting of a small tube, the mouth flat, having a hole ground through the bottom, in which is cemented a fender recurved tube, like a fephy, containing a portion of coloured oil. A few drops of water being put on a glafs plate, and the tube being flipt on this, the included air difdibles moisture propofitional to its dryness; and the increased elasticity, thus communicated to the air, caufes the column of oil in the tube to afcend. This instrument, however, requires address in its management, which renders it difficult to obtain with it refults perfectly precise.

On the other principle, Mr. Leslie has conftructed what he
HYGROMETRY

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 descent 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 rife, on some particular days, as high as 60 or 90 degrees.

In thick fogs, the instrument stands almost at the beginning of the scale: it commonly falls as the rain, and remains low, during wet weather; but it mounts 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. Leffie 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 aerotermometer. 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 fiction, 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 brass cap, having a collar of leather, which, after the cavity has been filled with distilled or boiled water, is screwed tight, to prevent the transfusion of the liquid from being so 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 descent 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 rife of temperature, answering to 15 centigesimal 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 dissolve 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-sixtieth 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 dissolving 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 founds on this principle, requires, as he says, the assumption, not merely of the mixture of two masses 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 abstracted, 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. Leffie 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. Leffie, 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 Leffie’s Short Account
HYR


HYPERSTONE. See Mineralogy, Addenda.

HYPOPOTHOUS ACID. See PHOSPHORUS.

HYPOSULPHUROUS ACID. See SULPHUR.

HYREUS, 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; rect with three toes, two before and one behind. There is one species, viz. H. Abyssinicus, 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 infibits on the kernels of almonds and other seeds, which it easily breaks with its strong ferrated beak. It frequents woods, and is called "Guifso batio dimmo-on jercq."

I and J.

JACKSON, l. 2, containing, together with its town Jefferson, 10,589 inhabitants, the slaves in the county being 1789, and in the town 27; l. 5, r. Welch Tennesees, adding—containing 5401 inhabitants, of whom 481 were slaves in 1810.

JACKSONBOROUGH, l. 2, after Carolina, add—in Screven county. At the close, add—containing 2663 inhabitants, of whom 2000 were slaves in 1810.

JAFFREY, l. 4, r. 1336.

JAGHIRE, l. 7, after hereditary, add—There are two species of jaghire; one personal, for the use of the grantee; and the other, in trust, for some public service, commonly for the maintenance of troops.

JAINA, l. penulis, r. Mylure. Col. 2, l. 32, after Jainas, add—some say that; l. 34, after distinctions, add—others, however, attest that they have the same fourfold division into classes or calls.

JAMAICA, in America, l. 8, after inhabitants, add—Alfo, a town of Windham county, in Vermont, having 996 persons.

JAMBAVANTA, l. 1, for Snr. Sri; l. 5, for anatar a. avatara.

JAMES II. col. 3, l. 13, r. 5th.

JAMES City, l. 3, r. 4094 inhabitants, of whom 2320 were slaves in 1810.

JAMES, Sr. l. 5, after Cheferer, add—Alfo, a parish in the county of Acadia, in the territory of Orleans, containing 3935 inhabitants.

JAMESTOWN. Add—Alfo, a town of Newport county, in Rhode Island, containing 504 persons.

JAVA, l. 24, after one, add—(See BANTAM.) At the close, add—See Raffles's Java.

JAY, l. 1, for Kennebeck r. Oxford; l. 7, r. 1107. Add—Alfo, a town of Orleans county, in Vermont, containing 28 inhabitants.

JAYADEVA, l. 5 from the bottom, for practical r. poetical.

JAYADEN, 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 process 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 plats, from four to five feet wide, which were surrounded by little mounds of earth, four inches high. In these enclosures, 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 so 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 46°. But granting this were the fact, it would not hence follow, that the ice was formed, while the air was 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 Sir R. Baker wholly, and by Mr. Williams in great measure, to cold produced by evaporation; and this opinion has been adopted by Bishop Watlon, 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, agreeably 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 it 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 subfancies. 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 subfancies, on those still 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 states 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 nights, in air of a temperature higher than 32\(^\circ\), not only without any lobs of weight from evaporation, but with a gain of weight from an opposite procfs: and he concludes in general, that the formation of ice in Bengal, in the circumstances described by Barker and Williams, must be attributed, in by far the greater measure, if not altogether, to a lobs 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\(^\circ\) produces very little cold, even in the daytime: 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\(^\circ\) 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, tongue; antennæ with more than thirty joints; abdomen in most species foot-tailed; piercing exerted, with a cylindric-bivalve sheath. The animals of this genus deposit their eggs in the bodies of other living insects, and generally in those of caterpillars. Here they hatch, and the young larve, 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 folken cafe, changes into chrysalis, the whole number forming a group on the thrivelled 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, glemerator, puperum, ovularum, ramidulus, luteus. See Vespa, and Aasp.


ICTUS SOLARIS, A Stroke of the Sun, denotes the effect of a too violent influence of the fun upon the head. It is ranked by Dr. Cullen as a variety of apoplexy, under the name of “Carus ab inflatione.”

IDA. Add—The summit of Ida is denominated Gargarus; 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, it is conjectured, may have been a Greek church, or perhaps only a sheep-pen, 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; viz. 1957 males, and 2497 females: 399 families being employed in agriculture, and 405 in trade and manufactures.

JEFFERSON. (See J.ass.)—Alfo, a county of the Misissippi, containing 4301 inhabitants, of whom 1792 were in 1810.—Alfo, a township of Clarke county, in the Indiana territory.

JEFFERSON, in Kentucky, l. 3, r. 11,611; l. 4, r. 3746; l. 7.—It contains, together with Louisville, 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; r. 11 towns with 17,260 inhabitants, of whom 6001 are slaves; l. 14, after Steubenville, add—Alfo, a town of Adams' county, in Ohio, having 404 inhabitants.—Alfo, a town of Fayette county, in Ohio, having 327 perfoins.—Alfo, a township of Madison county, in Ohio, having 246 inhabitants.—Alfo, a township of Montgomery county, in Ohio, having 1343 inhabitants.—Alfo, a township of Mifkingham county, in Ohio, having 562 perfoins.—Alfo, a township of Preble county, in Ohio, having 385 inhabitants.—Alfo, a township of Ross county, in Ohio, having 1456 inhabitants.—Alfo, a township of Scioto county, in Ohio, with 258 perfoins.—Alfo, a township of Geinger county, in Ohio, containing 168 inhabitants,—Alfo, a town in Maine, in Lincoln county, having 1205 inhabitants.—Alfo, a township of New Hampshire, containing 11,581 inhabitants, including 3532 slaves; l. 17, for Granite r. Coos, Cottam's co. d. r. 1971; l. 19, after Scottville, add—Alfo, a county, containing 161 inhabitants.—Alfo, a township of Greene county, in Pennsylvania, having 1124 inhabitants.—Alfo, 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 stated to be 245,562, and that of slaves 10,851. See each county, and the United States.

JESSAMINE, l. 2, r. 8219 and 2466.

JET. See Mineralogy, Addenda.

JEWS, col. 16, l. 9 from the bottom, r. 110,000.

JINIAL, denotes a large mullet, fixed on a trivet, iced in Indian forts, and fired with great precision.

ILCHESTER, l. 2. r. 1811—83—

ILEUM. See Intestine.

ILLFRACOMBE, l. 4th, r. 434 and 1934.

IILLINOIS. Add—The Illinois territory, now one of the United States, contains two counties, viz. St. Clair and Randolph: the former comprehending nine townships, and the latter four; and the number of inhabitants in the whole territory is stated, by the census of 1810, to be 12,282 perfoins, of whom 108 were slaves. See United States.

ILLORI, a town of Mingrelia, on the left bank of the Enguri, farrowed by a wall.

ILMINTER. By the return in 1811, the parish contained 364 houses, and 2160 persons; viz. 1022 males, and 1138 females: 121 families being employed in agriculture, and 231 in trade, manufactures, and handcraft.

ILSLEY, l. 2, and Eail and Welf IlIlley were returned to parliament, in 1811, as containing 179 houses, and 996 perfoins.

IMIRETTA, l. 8, after W. add—between the 43d and 44th degrees of N. lat.

IMPEDEMENTS, in Education. See Larvyn, and the references under that article.

IMPERA, in Botany, so called after Ferrante Impero.
perato, a Neapolitan botanist of the 16th century. See Saccharum, n. 15.

VOL. XIX.

INCUBATION, dele the account of the figures. INDEPENDENCE, in Geography, a town of Sussex county, in New Jersey, containing 1234 inhabitants. INDIANA. After the table, add—According to the census of 1810, Indiana is divided into five counties, viz. Dearborn, having 7310 inhabitants; Clark, with 5670; Harrison in two divisions, having in one 2338, and in the other 1257 inhabitants; and Knox in two cantons, one having 4057, 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 inhabitants.

INDICATOR, Honey-guide, in Ornithology, a peculiar genus formed of the Cucullus Indicator; the characters of which are, beak long, conic, dilated at the base, narrow towards the tip, the upper mandible bent and carinated, the lower one recurved at the tip; nofrills slightly covered with feathers, feet simple, with two toes before and two behind. The external hinder toe longest, armed with a stout claw. See Cucullus, and for Dr. Sparrman's account of it, Phil. Trans. vol. lxi. p. 38.

INDIGO, Chemical Properties of. The indigo of commerce 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 specimen he could procure; and more lately Chevreul from the belt guatamina could only obtain 45 per cent. The following analysis of Chevreul will give some idea of the substances with which the indigo of commerce is adulterated.

Substances separated by water

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<tr>
<th>Ammonia</th>
<th>Difoxyogenated indigo</th>
<th>Green matter</th>
<th>Bitter matter</th>
<th>Green matter</th>
<th>Red matter</th>
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<td>alcohol</td>
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<td>muriatic acid</td>
<td>Red matter</td>
<td>Carbonate of lime</td>
<td>Oxyd of iron and alumina</td>
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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 residuum diffused 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 sodium it forms a copious yellow insoluble precipitate, and hence contains a portion of artificial tannin; with ammonia, crystalline 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 resinous-like substance appears on the surface. This substance becomes solid on cooling if the processes be now stopped. If it be removed, and the solution be evaporated to the constancy of honey, redissolved in hot water and filtered, the potash throws down yellow spicular crystals, consisting of bitter principle combined with potash. These crystals have the property of detonating with a purple light when wrapped up in a paper, and firing with a hammer; the retn by treating it with nitric acid may be converted into the same bitter principle. If the processes be stopped sooner than the point above-mentioned yellow crystals are obtained, which on sublimation become white, and appear to possess the properties of benzoic acid. Thus it appears, that by treating indigo with nitric acid, it is converted into tannin, oxalic acid, benzoic acid, and bitter principles.

INDRA, col. 2, l. 32 and 33; read thus, without a break, and omitting INDRA Malva. Malva, the hereditary possession, &c.

INDUSTRY, in Geography, a township of America, in Maine, county of Somerfield, having 562 inhabitants.

INFLAMMATION of the Breast. See Breast, Inflammation of, in the Addenda.

INGA, in Botany, an American name, recorded by Meargeaven, and adopted by Plumer. It was funk in Mimoso by Linnæus; but Humboldt and Bonpland having separated from thee the original genus of Plumer, have retained the appellation he had chosen, and they are followed by Wildenow, as well as by Brown and Alton in Hort. Kew. If any barbarous name be tolerated, and they can hardly be all expunged, the present is excepcionable. —Plum. Gen. 13. t. 198. Wild. S. & Pl. v. 4. 1804. Ait. Hort. Kew. v. 5. 451. —Clafis and ordre, Polygama Monoeia; rather Monadelphica Polyspondia. Nat. Ord. Lumenca, Linn. Leguminosae, Juss. 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 pithil.

Obf. If Mimoso be divided at all, the present numerous genera may commodiously be separated from it, though the infraclasses, and structure of the flowers, come, in many instances, very close to Acacia; see that article, as well as Mimoso and Desmanthus. From the lat., Inga is truly distinct, in having monadelphous indefinitely numerous flowers, no neuters, though many males, 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. Wildenow 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; none of them fentive.

of Coromandel, for the sake of its sweet pulpy red fruit, which is six inches long, wholesome, though rather inipid. Flowers small, white.

Seet. 2. Leaves three yokes. Five species.


Native of Martinico. Leaflets an inch long, oblique. Flowers purplish.

Seet. 3. Leaves pinnate; common stalk winged. Thorns none. Twelve species.

I. vera. Common Inga. Willd. n. 17. Ait. n. 3. (Mimofa Inga; Linn. Sp. Pl. 1498. Inga flore albo imbrati, frutico dulei; Plum. 1c. 14. t. 25. Arbor. Merian. Surin. t. 51.)—Leaflets about five pair, ovato-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. fafua. Statey Inga. Willd. n. 25. (Mimofa fafua; Jacq. Fragm. t. 10.)—Leaflets about four pair, ovate, pointed; hairy beneath; with a flanked gland between each pair. Corolla hairy. Legume hairy, compressed, twisted.—Native of the Caraccas. We have from Dr. Maeter a fine dried specimen, such as that from which Jacquin’s plate is taken. This is a truly magnificent plant, whose copious large tawny flowers, with long crimson flaments, 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.

Seet. 4. Leaves pinnate; common stalk simple. Thorns none. Ten species.

I. nodosa. Knobbed Inga. Willd. n. 29. Ait. n. 6. (Mimofa nodosa; Linn. Sp. Pl. 1498. Phaefalus arbores, &c.; Pluk. Phyt. t. 211. f. 5.)—Leaflets two pair, ovato-oblong, smooth, unequally divided by the rib; the lower, ones smallest, with a gland between. Found in Ceylon and Cochinchina. It appears to have been raised in the English and Dutch flotts, but not preferred. The leaflets are from one to two inches long, their two sides very unequal.

Seet. 5. Leaves conjoint, pinnate. Nine species.

I. purpurea. Purple Inga, or Soldier-bush. Willd. n. 42. Ait. n. 8. (Mimofa purpurea; Linn. Sp. Pl. 1500. Andr. Repol. t. 372. Acacia fruticenses, &c.; Plum. 1c. 6. t. 10. f. 1, the Linnaean characters misapplied.)—Leaflets four pair, obvate, 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 taffels of crimson flaments.

Seet. 6. Leaves doubly pinnate. Eleven species; some thorny.

I. Saman. Great Downy-leaved Inga. Willd. n. 49. (Mimofa Saman; Jacq. Fragm. t. 9.)—Thorns none. Leaves with six pair of primary divisions; leaflets five or six pair, elliptic-ovate, obtuse; terminal ones unequalized; all downy beneath as well as their flalls. Native of the Caraccas. One of the largest and stoutest trees of the Mimofa tribe. Leaves two feet, or more, in extent, with a depressed gland at every subdivision. Legume flat, seven or eight inches long.

INGATESTONE, I. 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 class resumes the name of the Royal Academy of Sciences, preferring the organization and distribution in fections.

INVERARY, col. 2, l. 8 and 7 from bottom, r. 103 and 111.

INVERKEITHING. Add—The burgh and parish of Inverkeithing, by the last returns in 1811, contained 581 houses, and 2400 persons.

INVERNESS, col. 2, l. 7, 8, 9, r. The burgh and parish was returned, under the act of 1811, as containing 1672 houses, and 10,757 inhabitants.

INVERNESS-SHIRE, l. 10 and 11, r. comprehended, in the year 1811, 78,336 persons, occupying 14,466 houses; 35,722 being males, and 42,614 females.

INVERURY. In 1811, the burgh and parish contained 205 houses, and 907 persons; 453 being males, and 454 females.

INULIN, in Chemiſtry, a name given by Dr. Thomson to a substance extracted from Roea, from the Inula heurum, or Elecampane. This substance 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 island was visited by the favages of Madagacar, called Malagacars, who laid siege to the principal town, and destroyed the crops, and thus reduced the inhabitants to the most deplorable state, so that nearly 200 women and children perished of hunger, and numbers of the latter were actually eaten by their parents, so that these favages have nearly desolatod the Comoros islands. The once happy and flourishing island of Ioanna, with its 570 towns and villages, so enchantingly described by Sir William Jones, is now reduced to two walled towns, and a population of 3000 souls.

IOANNINA, a city of Albania, the capital of Ali’s dominions, situated on the western banks of a lake of the same name, at about two miles from its easter extremity. In its utmost length, it may be, perhaps, about two and a half miles, and in breadth nearly a mile. Near the lake it stands on a flat, but the northern and western parts are built on slopes of rising and uneven ground. A triangular peninsula juts into the lake, and contains the residence of the pacha, being defended by a fortitation at each angle. The entrance into these forts is over a draw-bridge. There is one street which runs nearly the whole length of the town, and another that intersects it at right angles, extending to the fortresses; these are the principal streets. Many of the houses are large and well built, containing a court-yard, and having warehouses or flables on the ground, and the apartments of the family above. A flight of wooden steps and a gallery connect the under and upper parts of the houses. Although gloomy in appearance, with small windows latticed with crofs bars of wood, the yard is furnished with orange and lemon trees; and the best houses communicate with a garden, and the galleries are sufficiently spacious to allow scope for walking in rainy weather. The bazaar, or principal street, inhabited by tradesmen, has a flowy appearance; the bizzalfeen, or covered bazaar, is of considerable size, and would put one in mind of Exeter Change in London. Befide the palace of the pacha, and two houses allotted to the sons of Ali, there is another summer residence of the vizier’s in the suburbs, at the N.W. end of the town. Beyond the pavilion,
See particularly this and it the inhabitants.

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 posseffes. The colour of the iris is next oberved to alter: this happens first in the exter 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 bright 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 fluctuation very like a cobweb, occupying the pupil, and which is soon afterwards distinguished to consist of a delicate flake of coagulable lymph. Into this, the processes or dentations of the margin of the pupil seem to shoot, and it is afterwards found, that at these points adenitie are apt to be established, in consequence of which vision is rendered more indistinct, and only one fide 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 adhesions between the iris and capsule of the lens are formed. The quantity of lymph effused is sometimes so great, as to fall in a currled 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 sensibility 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; and the periphery of the eye-ball it fadens. The cornea loses somewhat of its peculiar brilliancy; and lymph now appears as to be effused into the substance of the iris; for, while it projects more and more towards the cornea, its fibres are collected into vessels, and its surface exhibits a puckered or plaited appearance. A yellowish-red tubercle 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 diseafe subsides, both the pus and blood in the anterior chamber are absorbed. The threds of the cyst of the abscess, which were floating in the aqueous humour, in a few days disappear. The anterior chamber regains its transparence; the iris remains permanently expanded; its puckered appearance continues, the pupil is closed, and the power of vision is entirely loft. 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 flate of a thin membrane, which is opaque towards its centre, but somewhat transparent at the edges; the margin of the iris is only adherent

Vol. XXXIX.
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 inflammation 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 preserved, vision is totally destroyed; but often the eye suppurates, 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 seated 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 vasa net-work in the conjunctiva, but by the ciliary vessels on the external surface of the sclerotic. 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 contracted, and the iris limited in its motions, as in common iritis; but the pupil does not prefer 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 gust of tears following every change of light and temperature. At length, a regular nightly pain sets in, of an extremely feverish kind, but strictly limited to that part of the cranium which is immediately 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 increafed, and consequently vision more impeded.

Peculiar appearances then take place in the iris; for, either on its papillary or ciliary margin, or on both, one or more reddish-brown tubercles arise, which have a pensive look. Their growth is pretty rapid. Lardy-looking ulcer sometimes appear on the cornea and white of the eye, or on the eyelids. Even when syphilitic iritis terminates in the most favourable manner, the eye for a long time afterwards is peculiarly sensitive to the influence of cold and moisture. On every exposure to these, the organ becomes morbidly sensitive 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 eruptions supposed to be connected with the abuse of mercury, the inflammation seems 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 rises on the iris, without any other alteration on this membrane than that of colour, the pupil remaining almost unchanged. 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 vivid 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 principles as that of inflammation in general, with one difference, 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 effusion the thickening and adhesions of the iris, the formation of opacities in the pupil, and other mischiefous and disturbing effects upon vision, are principally derived. According to Mr. Travers, indeed, whatever may be the cause of iritis, mercury is the grand remedy for resisting the progress and confessions 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 symptomatic inflammatory fever. Hence, it is principally in the idiopathic iritis that large bleedings from the arm are requisite. 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 cafes quite useless.

In the idiopathic iritis, he recommends us to take sixteen 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 inflammation has evidently taken place. In the fifth stage of the process, blisters to the temple, or behind the ears, have little or no effect; though sometimes a large one on the nape of the neck seems to be of service. According to Schmidt, the only topical treatment which is admissible is the fomentation of the eye with water made hot as the patient can bear it, which sometimes procures a mitigation of the violence 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 disease 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 fictions 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 looses its effect, or the eye cannot bear any fluid application, which is sometimes the case, then he infers daily between the eye-lids a small quantity of a salve composed of two draams of fresh butter, six grains of red precipitate, and eight grains of extract of opium. According to
to the fame eminent oculist, frictions once a day over the eye-brow with mercurial ointment, opium being added to it, very much contribute to the aborption of the lymph effused in the posterior chamber.

It is seldom necessary to continue many days the exhibition of mercury; for such is the efficiency 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,t, is unquestionably one of those diseases which does not require more mercury for its cure than the common idiopathic iritis; and although it was supposed 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 several 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 flopped 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 aborption of the lymph, which thickens the iris, obliterates 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 fever in the eye with violent head-ache, three or four leeches should be applied on the eye-brow, and a mild purgative administered. The nightly attacks of pain, which are so invariably followed 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 use 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 Nachthar und Iritis nach Staar-Operationen," 4to. Wien. 1801. Additional information is also published in Beer's "Lehre von den Augenkrankheiten," b. i. p. 450. Wien. 1813. Saunders on Diseases of the Eyes, edit. 3. by Dr. Farre; B. Travers, in "Surgical Essays," part I. Carnichael in "Observations on the Symptoms and Specific Diffections of Venereal 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 warmest 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 protoxyd of iron is a compound of

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Hence the weight of the atom of iron will be 35. The red or peroxyd of iron, according to the same chemist, is a compound of

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<td>Iron</td>
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Or it is composed of 4 atoms iron + 1; 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 peroxyd 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, Magnetic. See Mineralogy, Addenda.

IRVINE, coll. 25, l. 12. In 1811, the burgh and parish contained 694 houses, and 7550 inhabitants.

IRWIN, a township of Venango county, in Pennsylvania, having 357 inhabitants.

ISAURIA, l. 11, for town r. country.


1. I. frutescens. Ait. n. 1. (Apocynum frutescens, 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 4233 houses, and 24,120 persons; 11,955 being males, and 12,165 females.

ISLE OF WIGHT, in America, l. 3, r. containing 9186 inhabitants, of whom 4041 were slaves in 1810.

ISLEBOROUGH, l. 5, r. 583.

ISLEWORTH, l. 26, add—By the parliamentary returns in 1811, the parish contained 775 houses, and 4661 persons.

ISLINGTON, coll. 2, l. 15, r. 1811—15,665—2399.


Eff. Ch. Lip nearly similar to the converging petals and calyx. Anther a moveable deciduous lid. Mains of pollen four, parallel.


3 U 2

2. I. prolifera.
2. *I. prolifera*. Ait. n. 2. (Cymbidium proliferum; Willd. Sp. Pl. v. 4. 95.)—Flowers axillary. Leaves lanceolate-oblong. Stem prolificous, with axillary two-leaved bulbs.—Both species grow in the West Indies.

**ISRAEL**, in Geography, a township of Precble county, in Ohio, having 394 inhabitants.

**JUBILEE**, l. 13, for thirty-five r. thirty-three.

**IVES**, St. i. penit. r. 1811—712—3281 persons, in the borough and parish.

**Ives**, St. l. 4 from the end, r. 1811—2426—474.

**JULFA.** See ZULPHA.

**JULIEN**, St. l. 3, r. Saulnile.

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**K.**

**KAMA**, col. 2, l. 3 from bottom, for magry r. magry.

**KAMAL**, dele l. 2, 3, and 4 from the bottom.

**KAMAWKA**, in Geography, a county of Virginia, containing 3566 persons, of whom 352 were males in 1810.

**KARLY**, col. 2, l. 8, for hall r. base; l. 15 from bottom, for as r. or.

**KARPOOT**, a large and ancient town in the pachalic of Diarbeker, 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 *Vifnumitra* r. *Vifnumitra*.

**KASI**, l. 4, for nai r. nai.

**KASKASKIAS**, l. 5, r. 622, and 48.

**KASYAPA**, l. 7, for all r. ufe,

**KAYKIYA**, l. 4, for Lucins, his half brother *r*. twins, his half brothers.

**KAZAMEEN**, a town of Perfia, in the pachalic of Bagdad, three miles north of Bagdad, and on the western bank of the Tigris, inhabited by about 8000 Perfians, who reft here because this town is the burying-place of Imam Moufa Caffim, and Imam Mahomet Tongy, holy men for whom they had great repect, and to whose memory a noble mosque is erected. About nine miles north-west of Kazameen, and at fome distance from the river, a pyramidal structure is erected, called by Europeans the Tower of Babel, Nimrood by the natives of Bagdad, and Agerkaf by the Arabians, and fuppofed 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° 43'. 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 streams of excellent water. From the depopulation it has fuffered, its precent inhabitants do not exceed 3000 or 4000.

**KEARSARGE GORE**, a township of Hillsborough county, in New Hampshire, having 125 inhabitants.

**KEENE**, l. 3, 1810; l. 4, r. 1646.

**KEITH.** In 1811 the parish contained 755 houifes, and 3352 persons; 1391 being males, and 1961 females; 173 families employed in agriculture, and 295 in trade, manufactures, and handicraft.

**KELAT**, the capital of Balouchilcan, &c.; add—It is immediately encompassed by a low mud wall, and contains 4000 houifes; the inhabitants are estimated at 7000, of whom 500 at kaf are Hindoos. The palace of the Khan is fteoted 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° 57'. E. long. 67° 57'.

**KELLY VALE**, a township of Orleans county, in Vermont, having 40 inhabitants.

**KELSO.** In 1811 the parish of Kelfo contained 529 houifes, and 4428 persons; 1773 being males, and 2449 females; and the district of Kelfo, comprehending twelve parishes, contained 2173 houifes, and 12,378 persons; 5592 being males, and 6786 females; 1268 families employed in agriculture, and 797 in trade, manufactures, and handicraft.

**KENDAL,** l. ult. In the year 1811, Kendal ward contained 2719 houifes, and 13,674 persons; and the town of Kirkby Kendal contained 1496 houifes, and 7508 persons.

**KENERA,** l. 9, for there r. thefe.

**KENFIC.** In 1811, the parish contained 55 houifes, and 242 persons; 119 being males, and 123 females; and Higher Kenfig, which is a hamlet in Mengan parish, contained 24 houifes, and 129 persons; 69 being males, and 60 females.

**KENILWORTH.** In 1811 the parish contained 463 houifes, and 2279 persons; 1145 being males, and 1134 females; 155 families employed in agriculture, and 264 in trade, manufactures, and handicraft.

**KEN-**
KENNEBECK, l. u.² It contained, in 1810, 32,564 inhabitants.

KENNEDIA, in Botany, so named in honour of Mr. Kennedy, the well-known cultivator at Hammermith, whose skill and experience have so much enriched the works of his fon-in-law, Mr. Andrews.—Venten. Malmaur. 104.

Brown in Ait. Hort. Kew. v. 4. 299.—Clas and order, 


Leguminosæ, Jull. 


3. K. prostrata. Few-flowered Scarlet Kennedia. Br. in Ait. n. 3. (Glycine coccinea; Curt. Mag. t. 270. Willd. Sp. Pl. v. 3. 1065.)—Leaves ternate, obovate, hairy. Stalks one or two flowered. Stem prostrate.—Native of New South Wales, from whence its seeds were brought about 1790.


Flowers violet, with two green spots on the keel.

Mr. Brown appears to have some unpublished species.

KENNET. Add.—It contained, in 1810, 947 inhabitants.

KENSINGTON, l. 4. 1811—1790—10,886.

Kensington, in America, l. 4. r. 781.

KENT, l. 19, 86. 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; l. 5, r. 42,429; l. 13, r. 9,834; l. 24, r. 1794.

Kent, New. See New Kent.

KENTUCKY. Add.—See United States.

KERBALA. See Voloçenia.

KERKUK, or Kerko, the largest town in the lower Kurdistan, in N. lat. 35° 29', 39 furnungs from Bagdad, and 41 from Mafuf, on the road from one place to the other. It was formerly a military station, called by Strabo, Demetrias; and by Ptolemy, Corcora. Its population is estimated at 18,000 houfes, Turks, Armenians, Nettlorians, 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-houfes, one hoummon, one caravansera, one Armenian church, and twelve pieces of uifeles artillery mounted on the battlements. In the suburbs, are five mosques, nine small caravanseras, thirteen coffee-houfes, three convents, and three Catholic churches. Near it is a number of naphtha pits, which afford an abundant supply of that commodity.

KERMANSHAM, one of the five districts of the province of Irak in Perfo; the capital of this extensive and fruitful district of the same name, and the residence of Mahomet Ali Meerza, the king's eldest son, and the most able and warlike of all the princes of Persia. It is a flourishing town, containing about 12,000 houfes, at the extremity of a fine plain, through the centre of which runs the Karafu. It is adorned with many gardens, and fourteen humming 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.—Clas and order, 


Corchorus, n. 12.—A correct examination of the genere has authorized the learned professor De Candolle to consider this favourite plant as a new genus, though the precise nature of its feed-veilis is not known.

KERSHAW, l. 3 and 4, r. 9867—4847.

KESWICK, l. 7, r. 352—1683.

KETTINGER, l. 24, &c. r. 1811—713—3242—587—126.

KETU, l. 4, for Karya r. Kafyapa. Col. 2, l. 4, for or r. 3.

KEW, l. 4 and 5, r. 1811—73—560.

KEYNSHAM, l. 4 and 5, r. 1811; the parish comprised of 313 houfes, and contained 1748 inhabitants.

KHERAS, col. 2, l. 3, r. (See Khiva.)

KHOELE, a town of Persia, in the province of Azerbaijan, 22 furnungs from Tebris. This town is the capital of a rich and extensive diocese, and the emporium of a confiderable trade carried on between Turkey and Persia. It is said to contain a population of 25,000 houfes, and is situated on a plain, famous for a battle fought, in 1514, between Shah Ismael and Selim I., in which 30,000 Persians encountered 300,000 Turks. There is no town in Persia better built or more beautiful than Khoie; 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 tafle.

KHONsar, a town of Persia, in the province of Irak, situated at the base of two ranges of mountains, running parallel with each other, and so 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 five 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 5000 tomans, exclusive of the fadrus, which generally consists of dried fruits and a kind of cotton chintz. Although they have no corn in the valley, fruit is so 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.

KHORASSAN. Add.—Khorassan is a level country, interperfed with sandy deserts, and irregular ridges of lofty mountains; the climate is accordingly various; in some parts temperate, but in others very cold; and the "had-e-fum," which blows in the deserts for 40 days in the year, proves inftan-
infrantaneously fatal to all who are exposed to it. This province was once populous and flourishing, and adorned with many princely cities. The soil is generally excellent, and produces wine, fruit, corn, rice, and silk in abundance, and of the beet quality; but from the success of its commerce and agriculture, it has been changed into solitary deserts. At present the power of the king of Persia extends only over the cities of Methed, Nilapour, Turfih and Tabas. The southern parts, including Herat, are in possession of the Afghans, and some wandering tribes of Patans and Ymuucks; and those to the E. and N. belong to the Lubeck Tartars and Turks. Khorasan is separated from Cabul by the mountains of Bampian and Goor. Its rivers are, the Oxus, the Tadzhik or ancient Oros, the Heriroid, the Murghah or ancient Margus, the Ester or ancient Siderius, from which the province of Aftabad derives its name, and which runs into the Caspian sea. The provinces of Irak and Khorasan are separated by a deep ravine, which interdicts the road leading from Tehran to Methed, 22 furlongs E. of the former place. The districts in this direction are, Sumnum, Damgan, and Billan. The present capital of the Persian division of Khorasan is Methed. That part of Khorasan which extends from the lat. 32° 30' to 34° 40', from 56° to 62° E. long., comprehends the following towns and districts, viz.: Pulhing, Zuzaan, Turfih, Turbat, Jam, Kohlafian, Nilapour, and Sarukhs. McKinner's Persia.

KIBBAN, termed Medan from its mines, a town of the pachalik of Diarbekr, larger and more populous than Argurna Madan; it is situated at the base of a high mountain, and on the verge of a chasm, through which a torrent forces its way to the Euphrates, distant about 1 ½ mile from the town.

KIDDERMINSTER, l. 5 and 6, r. 1811-13, 348-828.

KIDWELLY, l. 5, r. 1811-329-1441; l. 10, add—The vicinity is rich in coals and iron-ore, and some iron and tin manufactories have long been carried on here; l. 11, r. condition; l. 13, add—Its markets are held on Tuesday and Friday, and it has three fairs in the year.

KIGES, a town of Ohio, in Gallia county, having 387 inhabitants.

KILBACHAN. Add—By the parliamentary returns of 1811, the parish contained 360 houses, and 3509 inhabitants.

KILBIRNIE, for Renfrewshire, r. shire of Ayr. In 1811, the parish contained 180 houses, and 1088 persons; viz. 509 males, and 579 females.

KILBRIE. Add—in 1811, the town and parish contained 517 houses, and 2926 persons.

KILBRIDE, W'ldl. In 1811, the parish contained 183 houses, and 1015 persons; viz. 462 males, and 553 females; 76 families being employed in agriculture, and 108 in trade and manufactures.

KILKENNY, in America, l. 1, for Grafton r. Coos; l. 2, r. 28.

KILLBUSH, a township of Stark county, in Ohio, having 332 inhabitants.

KILLEARN, for KILLEAM, l. 1, and l. 3, add—In 1811, the parish contained 157 houses, and 997 persons.

KILLINGLY, l. ult. r. 2512.

KILLINGWORTH, l. ult. r. 2244.

KILMARNOCK, l. ult. r. In 1811, the town and parish contained 912 houses, and 10,148 inhabitants, of whom 1363 families were employed in trade and manufactures.
houses, and 13,779 persons; and Mull, 3010 houses, and 16,834 persons.

KIRCALDY, col. 2, l. 25, r. In 1811, the number of inhabitants in the burgh and parish was 3747, occupying 581 houses, of whom 405 families were employed in trade and manufactures, and 56 in agriculture: the number of houses in the whole district was 4899, and of inhabitants 31,958.

KIRKBY-LOSDALE, l. 5, r. In the year 1811, the town contained 271 houses, and 1368 persons.

KIRKBY-Moorfield, l. 6, r. 1811—319—1673.

KIRKSTAPP. Add—By the return of 1811, the township contained 250 houses, and 1235 persons.

KIRKCUDBRIGHT, l. wh. r. In 1811, the number of houses in the burgh and parish was 392, and of inhabitants 2763.

KIRKCUDBRIGHTSHIRE, col. 2, l. 8, r. 1811—33,684 persons; 15,788 being males, and 17,894 females: the number of houses being 6223.

KIRKHAM, l. 6, r. 1811—424—2214.

KIRKHAM, a township of Apeonde's hundred, in Lancashire, part of Kirkham parish, containing, in 1811, 444 houses, and 2214 persons; viz. 1039 males, 1175 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 manufacture.

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 1715 persons.

KIRKMINSHA. Add—See KIRKMINSHAW.

KIRKMIERUIR, l. 12 and 13—1811, the town and parish were returned as containing 955 houses, and 4791 persons.

KIRTON, l. 6, r. In 1811, it contained 307 houses, and 1531 persons.

KIRTON Lindsey, l. 5, r. 1811—258—1152.

KITTERY, l. 3, r. 2019.

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. 15, r. The population of the borough and township, as returned to parliament in 1811, was 4234, occupying 888 houses.

KNEE, in the Manse, 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. Teplin 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 them over a pledow of towmoilleden with the fame, 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, suppurating will ensue, and should be encouraged by a common poultice, and the cure completed by digestive ointments. Mr. Lawrence propoves to make the hair grow after such accidents, by binding a piece of wet-leat 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 wounded clean with a linen rag and warm soap-fuds, and having wiped the parts dry to apply brandy. Friar's balfam (compound tincture of benzoin) will, he fays, 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, fastened above and below the knee, would be very useful to poll-horses. For broken knees, Mr. Ryding recommends a mixture of 1 dr. of caoutchouc in fine powder with 1 oz. of olive-oil, which should be applied occasionally with the hand to the wounded part. This, he fays, by its gently stimulating power, will brace the parts, promote the fore, and facilitate the growth of hair.

KNIGHTIA, in Botany, fo named by Sir Joseph Banks and Mr. Brown, in honour of Thomas Andrew Knight, Esq., the able president of the Horticultural Society, well known by his numerous writings on vegetable physiology.—Br. Tr. of Linn. Soc. v. 10. 193.—Clafs and order, Tetrandria Monogyna. Nat. Ord. Protales, Juff. Br.


1. 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; sown beneath. Flowers red, in dense lateral clusters, with red flacts. This genus comes very near Aulet's and Schrebner's Rihopalus, (see that article,) differing only in having four seeds winged at the apex, instead of two winged all round.

KNOWLTON, l. 2, r. 2064 inhabitants, including 17 slaves in 1810.

KNUTSFORD, l. 5 from the bottom, r. In 1811 there were in the township of Nether Knutsford 448 houses and 2114 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 Hegira, from the ruins of seven towns, which had composed a small sovereignty under Abdalrahman, an Arabian prince—r. 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 vaft ruin.

KORASAN, or Khorassan. Add—See Khorassan.

KORNA. See Shat-ul-Arab.

KOUOMISS, an intoxicating drink, prepared by the Tartars from mare's milk. See Milk.

KRISSHNA, l. 21 and 24 from the bottom, for Gopia r. Gopia; 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.

KUFR, in Geography, a town of Persia, in the pachalic of Bagdad, between Bagdad and Kerkook, containing about 2000 inhabitants.

KURPI-ALTUN. See ALTUN-Kupri.

KUROBARTARA, l. 18 from the bottom, for beautiful r. bountiful.

KYANITE. See Mineralogy, Addenda.


1. K. calycina.
1. K. calcina. Roxb. t. 215.—Outer calyx four-leaved, longer than the corolla.—Native of the banks of rivulets, in Coromandel and Hindoostan, flowering in the cool season. A tree, with long-stalked, roundish, mealy, slightly threelobed leaves. Flowers small, white, in terminal panicles.

2. K. fraterna. Roxb. t. 216.—Outer calyx six-leaved, shorter than the corolla.—Native of the Cirrar mountains, flowering in the rainy season. A larger tree than the foregoing. Flowers more conspicuous. Leaves whiter underneath.

LABORATORY. Woulfe’s Apparatus, Plate V. Chemistry.

LAC, in Coinage. See Lack and Rupee.

LACK, in Geography, l. 2, r. 165.

LACKAWANACT, 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 \( \frac{1}{3} \) th 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 fetid odor. 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 sulphured 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 table, 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 empyreumatic oil, water, acetic acid, carbolic acid, and inflammable gas.

Lactates.—All the lactates are more or less soluble in water, and hardly any of them can be made to crysurilize. 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 crysurilize. 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 superficilates of those earths which are soluble in alcohol, and into sulflates which are insoluble. The metallic lactates do not possess remarkable properties. There are three lactates of lead; the superficilate which does not crysurilize, the lactate which exists in grey crysurilize grains, and the sulflurate which is insoluble. The lactate of zinc crysurilizes.

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 Towercester.

LACTUCARIUM, a name given by Dr. Duncan to the insipid juice of the lactuca salvia, or common lettuce, and which has been found beneficial in various disorders, especially consumption, as an anodyne, where opium disagreed 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.


   —Native of Cuba. A tender annual, of little beauty. Herb downy, very soft. Leaves stalked, ovate, toothed; the lower ones opposite. Flowers terminal, white.

LAHORE, l. 10, for Schanguiro r. Shah Jehan.

LAKE, a town of Champaign county, in Ohio, containing 450 inhabitants.

LAKSHMI, col. 3, l. 4, for deities r. deity's wives.

LALESTON, Higher and Lower, in Geography, form a parish of Newcalle hundred in Glamorganshire. The Higher in 1811 contained 34 houses, and 177 persons; 81 being males, and 76 females; and the Lower contained 62 houses, and 271 persons; 111 being males, and 160 females.

LAMBERTH, 1. 25, r. 1811-17261; l. 24, r. 410,644, 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. Blagrove and Halley, Ealbury and Bockhampton and Upper Lambourn, was 2674 persons, and the number of houes 527.

LAMP, Aphlogistic. 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 thus constructed received the apppellations of aphlogistic lamp, lamp without flame, &c.

The platinum wire for this experiment should not exceed 1/5th part of an inch in diameter. About twelve coils of this (the coil being about 3/4ths 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 considerable 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.

LAMPIER, l. 2, r. 2301.

LAMPIE Acid, in Chemistry. The name recently given by Mr. Daniell to an acid generated by the combustion of alcohol, &c. by the aphlogistic lamp.

Sir Humphry 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 it for his experiments by burning the aphlogistic lamp under an alembic head, and collecting the products; but we understand it may be formed much more readily by paffing the vapour of ether through a tube containing platinum wire. The lampic acid, when pure as possible, is a colourless fluid, of an intense yellow 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 fp. gr. when rectified as highly as possible, according to Mr. Daniell, is 1.015.

The Lamps of Potash and Soda are delequent fats, and do not readily crystallize. The lampate of ammonia is volatile, and easily decomposed. The lampate of barites readily crystallizes in colourless transparent needles. The lampates of lime and magnesia are delequent.

The lampic acid has the property, according to Mr. Daniell, of reducing many of the metallic oxys; this is particularly the case with the oxys 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 considers 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. 1811-1677-858.

LANARKSHIRE, l. 13, r. according to the parliamentary returns in 1811, the population of the county consists of 191,752 persons, occupying 32,040 houses; the males are 88,688, and the females 103,064: the families employed in trade, manufactures, and handicraft, are 27,672, and those employed in agriculture 5387.

LANCASHIRE, l. 21, r. 1811-144,283-828,309; l. 22, r. 114,522; l. 23, r. 23,305. The number of males was 394,104, and that of the females was 434,205.

LANCASTER. 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.

Afton-under-Lyme (omitted in its proper place) deferves a particular notice as a parish in the hundred of Salford, which in 1811 contained 1042 houses, and 19,052 persons, viz. 9146 males, and 9966 females; 213 families being employed in agriculture, and 2737 in trade, manufactures, or handicraft.

Afton-in-Mankesfield is also a township in the hundred of Wel Darby and parish of Winwick, which contains 864 houses, and 1747 persons; viz. 2332 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 3112 were slaves in 1810; l. 7, r. 6318; l. 8, r. 1646; l. 18, add—by the census of 1810, 4545 inhabitants, including 700 slaves; l. 41, add—Alfio, a township of the same county, containing 928 inhabitants:—l. 43, r. 1694; l. 44, for Grafton r. Coos; l. 47, r. 1810, and 717.

LANDAFF, l. 2, r. 650.

LANDGRIVE, a town of Bennington county, in Vermont, having 299 inhabitants.

X LANDSCAPE,
LANDSCAPE, l. pednul., r. wherein. Col. 2, l. 6 from bottom, r. aims.
LANESHOROUGH, l. 3, r. 1502.
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 of the body marked into complete rings, or circular divisions, resembling those on the body of the amphipus bana, while the extreme or terminal part is covered with small scales, as in the genus anquis. This species is called Langaya nafauta, or large-snouted Langaya, has 184 abdominal scales, and 42 caudal rings: it is a native of Madagascar, and was first described by M. Brugiure 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 perfons, occupying 522 houses.
LANGPORT, col. 2, l. 3, r. 1811—112; l. 4, r. 861.
LANTWIT, MAJOR, a parish of Cowbridge hundred, in the county of Glamorgan, containing, in 1811, 179 houses, and 786 perfons; viz. 357 males, and 429 females.
LANTWIT, LOOEY, a parish near Neath, which, in 1811, contained 116 houses, and 564 perfons; viz. 265 males, and 299 females.
LAR, l. 6, add—It still contains about 12,000 inhabitants, celebrated for the manufacture of muffets and cotton cloth. It has very handsome buildings, and particularly a bazaar, that is reckoned the noblest structure in Perfa. N. lat. 37° 30'. E. long. 52° 45'. See Tarem.
LARISTAN, l. 1, after Perfa, add—extending along the Northern shore of the gulf from E. long. 55° to 58°.
LARUS, col. 3, r. RIBBUNDUS.
LASCAR, a term in India, denoting a camp-follower, but applied to native sailors and artillerymen.
LASCO, 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 clofe, r. 1811—308, and 1711.
LAUGHTER, l. 15, add—See LUNGS.
LAVINGTON, Ethl, l. 11, r. 1811: l. 12, r. 899—1843, l. 16, for Whorlton r. Potter and Canungra. l. 17, r. 1811—1781; 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 verfification, at our universities, particularly at Oxford, a wreath of laurel was presented to the new graduate, who was afterwards usually styled " Poeta Laureatus." Thes scholastic laureations seem to have given rife to the appellation:—l. 19, after Edw. IV. infect—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 bumble poet laureate. The fame appellation occurs under, &c. At the clofe, add—Warton's Hift. of English Poetry, vol. i, p. 128.
LAUROPHYLUS, in Botany, an exceptionable compound name.—Thumb. Prodr. pref. n. 16. Willd.
I. L. capensis. Thumb. Prodr. 31. Willd. n. 1. Ait. n. 1.—Found at the Cape of Good Hope. A tree, with round, brown, fhiming branches; alternate, oblong, fer- rated, smooth, coriaceous leaves; and minute flowers, in terminal panicles.
LAUSANNE, in Geography, a township of Northampton county, in Pennsylvania, having 157 inhabitants.
LAWSVILLE, a township of Luzerne county, in Pennsylvania, having 169 inhabitants.
LEAD, in Chemistry. According to the most recent determinations, maffic, or the prototest of lead, is a compound of 100 lead + 7.692 oxygen; and the brown or ferous, of 100 lead + 15.384 oxygen. Hence the weight of the atom of lead will be 130, 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 minimum, or red-lead, is a combination of these two oxides, or of 2 atoms lead + 3 atoms oxygen.
Red-lead does not appear capable of combining with acids, at least no fact of which it forms a constituent is at present known.
LEAD, page 16, c. 2, l. 3, after gallic, read acid.
LEAD-ORES. See LEAD, and MINERALOGY, Addenda.
LEATHERHEAD. In 1811 the parish contained 312 houses, and 1209 perfons; viz. 580 males, and 629 females: 75 families being employed in agriculture, and 103 in trade, manufactures, and handicraft.
LEBANON, in America, l. 3, r. 1810; l. 4, r. 1938; l. 8, r. 2580; l. 11, 1810: l. 12, r. 1808. Col. 2, l. 3, containing 1434 inhabitants.—Also, a township in the same county, containing 2473 inhabitants.—Also, a town of Hunterdon county, in New Jersey, containing 2409 inhabitants.
Eff. Ch. Calyx in five deep acute segments, with rounded finches. Stamens all connected. Legume cylindrical, with many seeds.
Thumberg and Willdenow 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. contamina, fericus, and cyrofolius, all previously referred to Sparium; see that article.
LECANORA, Ach. Syn. 146. " Lichenogr. 77. l. 7. f. 3—7;" a new genus, containing 139 species, of the Lichen tribe, being the crustaceous species of Parmelia; see that article.
LECHLADLE, l. 16 from bottom, r. 1811; l. 15, r. 993; l. ultl. r. 195.
LECIDEA, in Botany, Ach. Syn. 11. " Lichenogr. 32. t. 2. f. 1—7." A genus of Lichenes, chiefly the tuber- culatus of Linnæus, whose shields have no border from the substance of the frond or clyft, 153 species are now described, whose fronds are various.
LEDIBURY, col. 2, l. 17, r. 1811—3126; l. 18, r. 604.
LEDYARD, col. 2, l. 39, r. Ochotokl.
LEE, in Virginia, l. 6, r. 4954 inhabitants, of whom 336 were slaves in 1810; l. 16, r. 1329; l. 12, r. 1356.
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

contained, &c.; l. 26, r. 12,249 and 62,534; l. 27, r. 11,739 families were flated, &c.

Leeds, in America, l. ult. r. Kennebeck for Cumberland; after county, add—containing 1273 inhabitants.

LEEKE, l. 17, r. 1811—832; l. 8, r. 3792.

LEELITE. See Mineralogy, Addenda.

LEGEND, col. 2, l. 34, r. Sybaris. Col. 3, l. 36, for sound r. secret ; l. 8 from bottom, r. Coningham.

LEH, in Geography, add—Allo, a township containing 1188 inhabitants.

LEICESTER. At the close, r. 1811, 4609 houses, 23,466 inhabitants.

LEICESTERSHIRE, col. 3, l. 24, r. 1811—150—419; add—of whom 10,501 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.

LEIGH, West. In 1811, this township contained 341 houses, and 1960 persons; viz. 927 males, and 1033 females.

LEIGHTON-BUZZARD, l. 5, r. 1811—408 houses, 2114 inhabitants; of whom 187 families were employed in trade and manufacture, and 283 in agriculture.

LEITH. At the end, add—By the parliamentary return of 1811, North Leith had 1085 houses, and 4875 inhabitants; and South Leith had 838 houses, (if not a mistake in the number,) and 15,488 inhabitants.

LEMINF, or LIMINGTQ, l. 2, add—containing 1774 inhabitants.

LEMINF-PRORS, a parish of Warwickshire, in the hundred of Knightlow and Kenilworth division, contained, in 1811, 125 houses, and 543 persons; viz. 275 males, and 268 females. But since that period, it has been much returned to as a watering-place refembling Cheltenham; and the number of private houses, baths, hotels, and public buildings, for the accommodation and amusement of its visitors, has been very much augmented, and is every year increasing.

LEMNIAN EARTH. See Phragide.

LEMON, a township of Ohio, in Butler county, having 1308 inhabitants.

LEMPSTER, col. 3, r. 1810 and 8r.

LEMUR, col. 3, l. 17 from bottom, r. Macaco.

LENIOR, or LERQNE, l. 3, r. 5572, of whom 2449 were slaves in 1810.

LENOX, l. ult. r. 1310.

LENS, Cryphaline of the Eye, Chemical Properties of. See EYE.

LEOMINTH, col. 3, l. 19, r. the population of the borough and parish, &c.; l. 1811—3238; l. 20, r. 730.

LEOMINESTER, in America, l. 5, r. 1584.

LEONINE, l. 12, after Leonis, add—A French monk of St. Victor, at Marseilles, about the year 1135; l. 14, after III. — But rhymes in Latin verbs were in use much earlier. See Warton's Hist. of Poetry, vol. i. diff. ii. At the close, add—See Rhyme.


Four Weft Indian species are described, small plants, each with a thick, solitary, roundish leaf, and one or two clusters of minute flowers.


L. crista, Wildenow's only species, from the East Indies, bears aggregate, sessile, fleshy balls of flowers, chiefly about the crown of the root. The numerous flesms are decumbent, eighteen to twenty inches long, leafy, square. Leaves linsple, oblong, rough-edged. Mr. Brown has corrected the character, as above, from various Chinese and tropical species, in Mr. Banks's herbarium.

LEPIDOLITE. See Lepidolite, and Mineralogy, Addenda.

LEPSIA. Add.—It is now called Lipso.

LERIA, l. 2, after Strabo, add—This little island has three harbours, and is paid to produce abundance of the wood of aloes, so 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 island is a monastery, and it has a town called Lera.

LERWICK. At the close, r. 1811—1049; add—

the number of houses was 252.

LESQGEAN, one of the small islands of the Daghelia, consisting of a stupendous range of mountains, very long but narrow, and forming the whole N.E. frontier of Georgia. The Lefigi or Lefighans, who inhabit this country, are a wild and savage banditti, divided into different tribes and speaking a different dialect. Their houses are situated on the loftiest mountains, and on the most tremendous precipices: they are connected by stone or wooden bridges, and roads carried through rocks; and they are supplied with water by pipes or canals cut out of the rocks. The soil is scanty, and in order to furnish them with the means of subsistence, the surface is increased to the summits of the elevated ground by graduated terraces, the intermediate space being filled up with rubbish, and covered with earth. These people are the bravest, as well as the most turbulent, of all the nations of Mount Caucasus, exciting terror in their neighbours, laying waste their cottages, and carrying away the inhabitants into servitude. They have long preferred their liberty and independence, and resisted their country inaccessible to any foreign invaders. Most of them are Mahometans; and the few tribes that continue in ignorance, never change the object of their veneration, which is either the sun, 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 rubles the campaign, which is to cease at the end of three months from the appointed day. They often take different fides, not caring against whom they fight; and thus it often happens, that the Lefighan falls by the sword of his brother or most intimate friend. They are lightly drest, after the manner of the Tartars, and armed with a gun, pistols, dagger, and sable. Their women surpass in symmetry and beauty all the females of Mount Caucasus, and fetch the largest prices in the markets of Constantinople. M'Kinze's Persian.

LESSERTIA, in Botany, named in honour of the late Mr. Stephen Deleffert, to whose mother Roufseau's celebrated Letters on Botany were addrefized, and who, like all his family, was no less endeared, to those who knew him, by personal worth than by talents.—"De Cand. Alfragal.

3 X 2

37."
LEX


L. annua, (Colut.-a herbacea; Linn. Sp. Pl. 1045.), and L. perennans, (C. perennans; Jacq. H. Vind. v. 3. t. 3.), see Colutea, n. 11 and 12; with L. diffusa, (Galega dubia; Jacq. l.c. Rar. t. 176;) are the only species in Hort. Kew. all natives of the Cape of Good Hope, composing a very natural genus.

LEWIS, in Geography, a township of Gallia county, in Ohio, having 591 inhabitants.

LETTERKENNY, l. 2, r. 1549.

LEVER, col. 2, l. 3, dele (See Plate Surgery.)

LEYVERT, l. 4, r. 769.

LEVES. At the close, r. The population of the rape of Lewes was flated in the parliamentary return of 1811, to be 18,659 persons, occupying 2932 houses.

LewIS XVI. col. 15, r. 44, r. the fon, Lewis XVII., died very miserably June 8th, 1795, and his father, Maria Theresa Charlotte, was delivered up in exchange for deputies, December 26th, 1795. The queen was brought to the scaffold on October 16th, 1793; and Elizabeth, the king’s sister, May 12, 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 subséquent period of the Revolution, (which feé,) first to Petersburg, and was allowed a procéllion by the emporor of Ruffia, April 3d, 1798; he afterwards fought an army in this country, and landed at Yarmouth, under the title of the Count de Lille, October 6th, 1807; and being recalled to the throne of France, made his public entry into London from Hartwell, where he had reféed, April 21st, 1814; and having failea from Dover April 23d, made his entry into Paris May 3d, 1814; but quitted this city again in confection of the landing of Buonaparte in France, March 21st, 1815. After the battle of Waterloo, he returned to Paris, and refumed 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 993 inhabitants.—Alfo, a county of Kentucky, containing 2337 people.

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, eq. late governor of Upper Louifiiana, the discoverer of several new American plants.—Pursh 368.—Clafs and order, Polyandria Monogynia. Nat. Ord.....


1. L. rediviva. Pursh n. 1.—On the banks of Clark’s river, perennial, flowering in July. Leaves radical, linear, rather fuculent. Stalk radical, bearing one or two hand- fome white flowers, whole calyx is elegantly veined with red. Pursh.

LEWISTOWN, l. 3, r. 1028; l. results, r. 474.

LEXIS WACEIN, a township of Wayne county, in Pennsylvania, containing 165 inhabitants.

LEXINGTON, l. 2, add—containing 6641 inhabitants, of whom 1711 were slaves in 1810; l. 19, after univerty, add—or college, a Lancasterian school, and other wel- regulated seminaries; l. 22, r. in 1810, was 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 persons; 1263 being males, and 1383 females; 97 families employed in agriculture, and 391 in trade, manufactures, and handicraft.

LIBEL, col. 4, l. 30, dele pilory.

LIBERTY, l. 12, r. 6228 inhabitants, of whom 4808 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>Ingredient</th>
<th>Weight</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>1.9</td>
</tr>
<tr>
<td>Phosphate of Lime</td>
<td></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>4.6</td>
</tr>
<tr>
<td>Starchy insoluble matter</td>
<td>36.6</td>
</tr>
</tbody>
</table>

We presume in the above analysis the excess of weight (if not an error) was owing to water.

This indefatigable chemist afterwards examined other species of lichen, such as the L. barbatus, L. sylvaticus, and the L. fraxinosus. He found them all characterized by the presence of a species of thclic which poffedles several peculiar properties.

LICHIIFIELD, 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 townships, and 3852 inhabitants.—Alfo, a township of the said county, having 632 inhabitants.—Alfo, a township of Ohio, in Muskingum county, containing 7956 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 25° 45’ and 27° 53’ N. lat. and between 128° 5’ and 129° 6’ 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 36 miles, and its breadth about 11. The longitude of the western extremity is 120° 34’ E., and of its eastern 128° 16’. The latitude of the S. point is 26° 43’ 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. No. 58. p. 460, &c.
LIME, in Chemistry. Lime, according to the recent determination of Dr. Thomson, is a compound of 100 calcium + 38.09 oxygen; hence the weight of the atom of calcium will be 26.25, and of lime 36.25. We expect that the weight of the atom of lime will be hereafter proved to be 37.5. See Atomic Theory.

The salt of lime, commonly known by the name of oxymuriate of lime, and employed for bleaching, has been recently demonstrated by Dr. Thomson to be a real chlorite of lime, and not a chlorite of calcium; that is to say, it is a compound of chlorite and lime. (See Bleaching, Chlorine, and Oxy-Muriatic Acid.) Dr. Thomson has also rendered it probable, that barytes, frontonian, potash, and soda, as well as many of the metallic oxides, likewise unite with chloride and form chlorites of the respective bales.

LIMERICK, in America, l. 4, r. 177; l. 5, r. 1282.

LIMINGTON, Add.—with 1774 inhabitants.

LINCOLD, col. 6, l. 4, and from bottom, r. 1811—1813—8861.

LINCOLD, in America, l. 1, 3, after Warren, Add.—The number of inhabitants, in 1810, was 42,992; l. 22, r. 16359—2489. Col. 21, l. 3, r. 4555; l. 4, 2212; l. 5, r. 8676—2341; l. 11, r. 109; l. 13, r. 221; l. 15, r. 713. Add—Alfo, a county of West Tennessee, containing 6104 inhabitants, of whom 720 are slaves.

LIMONSHIRE, l. 8, r. 1811—46,368—237,891; l. 9, r. 117,022 males, 120,869 females, 13,184 families; l. 11, r. 29,881.

LINCOLD TOWN, Add.—Alfo, a town of Georgia, in Lincoln county.

LINCOLDVILLE, Add.—It contains 1013 inhabitants.

LIME, in Fortification. Add.—See Field-Fortification.

LINGA, col. 2, l. 2, for fire r. fine.

LINLITHGOW, l. 11, r. 1811—4022—535; the country part having 229 houfes, and 1465 perfons; and the town part having 306 houfes, and 2557 perfons.

LINLITHGOWSHIRE, col. 2, l. 15, r. 1811—19,451, occupying 3098 houfes; the number of males is 8874, and that of females 10,577; of these 1560 families are employed in trade and manufactures, and 1132 in agriculture. Col. 4, l. 18, after town, Add.—The number of houfes in the parish is 352, and of perfons 2704.

LINNÆUS, col. 5, l. 24, r. journal. Col. 8, l. 19, r. Caper. Col. 11, l. 12, r. Oeland. Col. 15, l. 7, r. Ham-malney.

LINOZOSTIS, Add.—See Mercurlinis.

LIQUIDS, Expancion 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.

LISKEARD, l. 32, r. in the year 1811, the borough and parish were returned to parliament as containing 523 houfes, and 2884 perfons; the borough having 361 houfes, and 1975 perfons.

LISMORE. At the clofe, Add.—By the returns of 1811, the parish of Lifmore, in the diocf of Lorn, contains 252 houfes, and 1323 perfons.

township contained 266 houses, and 1442 inhabitants. Col. 2, l. 5, for Friday r. Saturday. Add—It has six fairs in the year.

Llandrinod. 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 1891; 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 ores.

Llan-gadog vawr, l. ult. r. 1811—1964; and add—378 houses.

Llangollen, l. 4, r. 1811; l. 5, add—theope of the parish, comprehending three townships, amounted to 612, and the inhabitants to 2897.

Llannerch y medd, l. 3, add—the part of the parish of Amlech contains, by the returns of 1811, 920 houses, and 4210 inhabitants.

Llan rhaiadar, col. 2, l. 6 and 7, r. 1811—1974; add—414 houses.

Llanrwst, near the clove, r. 1811—2502, and 452 houses.

Llanstephan, col. 2, l. ult. r. 1811—927—221.

Llantrissent, l. ult. r. 1811—246—2122.

Llanvyllin, of Llanyllin, l. ult. r. 1811; the parish of Llanvyllin contained 291 houses, and 1508 inhabitants.

Llanydloes. Add—By the return of 1811, the parish contained 470 houses, and 2386 inhabitants.

Llapharne, l. ult. r. 1561; and add—the number of houses was 283.

Loche. See corbit.

Llockerbie. In 1811, the whole parish of Drydale contained 369 houses, and 1893 persons; 504 being males, and 902 females.

Logan, l. 2, r. 11591, including 2285 slaves in 1810.


Lonchurus for lonchurus.

London, in Geography, a town of Rockingham county, in New Hampshire, having 1492 inhabitants.

London Britain, a township of Cheltenham county, in Pennsylvania, having 404 inhabitants.

Londonderry, in America, l. 5, r. 2765; l. 16, add—containing, in 1810, 637 inhabitants.—Also, three townships in Pennsylvania, one in Dauphin county, having 2411 inhabitants; date the rest of the article, and add—the second in Cheltenham county, having 1164 inhabitants; and another in Bedford county, having 486 inhabitants.

Londongrove, l. 2, r. 983.

Long Meadow, l. ult. r. 1026.

Long Sweep, 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 417 in trade, manufactures, and handicraft.

Longtown, a township of Ewesley 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.

Lo-e-choo. See lie-ou-keod.

Loe, Eas., l. 14, r. 1811—128—608.

Loe, Ws. l. 13 and 14, r. 1811—92—433.

Lostwithiel, col. 2, l. 17 and 18, r. 1811; for town r. borough and parish—132 houses, 825 inhabitants.
LYN

LUNENBURG, in Virginia, l. 3, r. 12,261 inhabitants, of whom 7155 were slaves in 1810; l. 6, r. 744. Do. r. 1371.
LURGAN, l. 2, r. 874.
LUTON. In 1801 the parish contained 726 houses, and 3716 persons; viz. 1695 males, and 2021 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—Alfo, a township of Fayette county, in Pennsylvania, having 1538 inhabitants.
LYCOMING, l. 5 and 6, r. 18—11,006; add—Alfo, a township in the said county, having 795 inhabitants.
LYCOPERDON. Add—See Tulostoma.
LYMAN, l. 5, r. 948; l. 7, add—with 1248 inhabitants.
LYME, l. 1, r. containing 670 inhabitants; l. 6, r. 4321.

LYT

LYME-Regis, col. 2, l. 8 and 7 from the bottom, r. 1811—1925—342.
LYMMINGTON, l. 18 and 17 from the bottom, r. 1811—2541—534.
LYNDÉBOROUGH, l. 4, r. 1074.
LYNCHBURG, l. 24 and 25, r. 1811—192—1015.
LYNDON, l. ult. r. 1090.
LYNN, l. 5, r. 4087; add—Alfo, a township of Northampton county, in Pennsylvania, having 1407 inhabitants.
LYNX-Field, l. ult. r. 509.
LYNS-Regis, l. ult. r. 1811—2199—10,259.
LYONS, l. 38, after branches, add—The present manufactures of Lyons confift chiefly of gold, silver, and flilk, galloons, ribbons, and lace, and the produce of furriers, hatters, and booksellers, besides thole of the working of gold-thread, flilk-weavers, dyers, &c. Col. 2, l. 26, add—some reckon the whole population at 150,000.
LYTHIODES. See Mineralogy, Addenda.

M.

MACCLEFIELD, l. 6 from bottom, r. 1811—2518—12,299; of whom 2458 families were employed, &c.; l. 3 from the bottom, for that period r. the return in 1800.
MACHIAS, l. 14, r. 1810—1570.

Vol. XXII.

MACINTOSH, in Geography, a county of Georgia, which, with its town Darien, contains 3739 persons, including in the county 2850, and in the town 107 slaves.
MACKEN, a county of Pennsylvania, containing 254 families, and 143 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.

MACUACO, FLYING, of Pennant, in Zoology, the Lemur volans of Linneus; for an account of which, see Gallophilus volans.
MACUNGY, l. 2, r. 2420.
MADBUR, l. 4, r. 684.
MADDERING, an operation performed in Calico-Printing; which fee.
MADDOX, l. 32, dele to that of St. Asaph; and for and from thence to r. that of Worcester.
MADELEY, l. 9.—In 1811, the parish contained 1026 houses, and 5076 persons; viz. 2502 males, and 2574 females: 18 families being employed in agriculture, and 747 in trade, manufactures, or handicraft.
MADISON, l. 4, r. 8381 inhabitants, of whom 3970 were slaves in 1810; l. 7, r. 11,587—3000. At the end, add—Alfo, a township of Maine, in Somerset county, having 686 inhabitants.—Alfo, a county of New York, containing 25144 inhabitants, of whom 35 were slaves in 1810.—Alfo, a township of Ohio, in Guernsey county, having 1449 inhabitants.—Another in Highland county, with 430 persons.—Another in Knox county, with 138 persons.—Alfo, a county of Ohio, containing six townships, and 1623 inhabitants.—Alfo, a township of Montgomery county, with 426 persons.—Another of Muskingum county, with 426 persons.—Another of Pickaway county, with 406 persons.—Another of Butler county, with 1228 persons.—Another of Columbian county, with 739 persons.—Another of Gallia county, having 170 inhabitants.—Another of Scioto county, with 307 persons.—Alfo, a town of Georgia, in Morgan county, having 124 inhabitants.—Alfo, a county of the Muscogee territory, having 4899 inhabitants, of whom 948 were slaves in 1810.—Alfo, 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, infect—has been suppos'd to consist in l. 2, infect after its—suppos'd; l. 7, del. half.

MAGIC SQUARE, col. 5, l. 18 from bottom, del. and. MAGNESIA, in Chemistry. According to the latest determinations, the weight of the atom of magnesia is 25, that of oxygen being 16; 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 sulphate, and then well washed with a saturated solution of sulphate of lime, which readily diffolves, 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 Chemistry, the metallic balls of magnesia. See Magnesia.

MAGNOTS. At the end, add—See Maine.

MAHBBING, a township of Northumberland county, in Pennsylvania, having 629 inhabitants.

MAHIM, for 17 miles N. of Bombay r. 7 miles N. of Bombay fort.

MAHONING. Add—In Indiana county, having 532 inhabitants.—Also, a township of Mercer county, in the same state, having 1216 inhabitants.

MAHONTOGO, Lower and Upper, two townships of Berks county, in Pennsylvania; the former having 637, and the latter 439 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 houes is 1706.

MAIDSTONE, in America, l. 2, r. 177.

MAIN, a district of the Morea, including that part of the country anciently called Laconia, that lies between the gulf of Melene and Gythium, bounded on the N. by the highest range of Taygetus, from which a chain of rugged mountains descends to Cape Matapan, the southern termination of the country. It is watered by Pamfus, now the Fornetas, 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 fik worms, and various fruit-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 Main, in 1705, refembled that of the Scottish islands in former time. Over each district presided 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 chararach, 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 strong holds of Taygetus. Expert also in the use of the rifle, besides the advantages of their situation, they have been able to defy the Turkish forces. Some of the chiefs were found by Mr. Morritt to be tolerably vered in Roman literature, and some capable of reading Herodotus 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 munimony. Their women were never clad nor enlaved, and therefore neither corrupted nor ignorant. They distinguished themselves by attention to domestic management, and the education of their children. Infanies 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 Maine.

MAKEFIELD del.: add—See Wakefield.

MAKONGO, one of the states of Loango in Africa, of which Malemba is the port. The king of Makongo, or Malemba, refides inland at a town called Chingale, the Kinkale 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 Kerala, as far N. as Nilisuran. See Toolava.


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. 143; a pretty annual, frequently and easily cultivated.

2. M. africana. (Hepheris africana; Willd. Sp. Pl. v. 3. 532. Leucojum gallicum, folio halimi; Bocc. Sic. 77. f. 42, f. 1.)

3. M. littorea. See Cheiranthus, n. 21. (Leucojum marium minus; Cluf. Hilj. v. 1. 298, f. 2.)

MALDEN, col. 2, l. 12, r. 1811; l. 13, r. 250—259.

MALDEN, l. 4, r. 1384.

MALEMB, or Malemba. Add—See Makongo.

MALIC Acid, in Chemistry. See SORBIC Acid.

MALKOHA. See PHENOCHEUS.

MALLENDERS, a cutaneous disease, 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 the want of cleanliness and friction, the hair should be clipped, and the parts well washed with soft-soap 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 acetate water of litharge. Mr. Ryding recommends a mixture of 1 oz. of strong quicksilver ointment, and 10 grs. of muriated quicksilver.
silver in fine powder. When this disease occurs above the knee, it is called tallowing.

MALLING, West, l. 6 and 7 from the bottom, r. 1811—1154—223. Add. —In 1811, the number of houfes in East Malling was 217, and of inhabitants 1256.

Malmesbury, vol. 2, l. 34; r. 1811; l. 35; 237—1154.

Malpas. In 1811, the township contained 103 houfes, and 938 perfons; vin. 478 males, and 460 females.

Malta, a town of the district of Maine, in the county of Kennebeck, having 468 inhabitants.

Måvern, Great, l. 22 from the bottom, r. 1811—1205 inhabitants, occupying 204 houfes.

Mammon, St. r. S. Mamot.

Mammalia. Delte the account of the plates.

The name of mammoh has been given to two very different animals, whose remains are found in a foillil rate; the firft, which has been before ages called fo by the Ruffians and Siberians, occurs abundantly on the north part of the ancient continent. It is a species of elephant, the ivory of which is fo well preferred as to become an article of commerce. This animal, according to the refearches of Cuvier, is a different species of elephant from that of India or Africa, resembling the former moft. The American mammoh, as it has been called, belongs not only to a species different from the European mammoh, but from the Indian or African elephant, and from the form of its teeth must be even clofl as a different genus; he has given it the name of maitodon. See Mastodon, Addenda.

Of the Ruffian maitodon very erroneous accounts have been published, particularly refpefwng its fize. An animal of this kind having been difcovered preferred entire in the ice, by a Tungufian fisherman in Siberia, was afterwards defcribed by Mr. Adams; but, according to Cuvier, the great fize attributed to it by that gentleman does not accord with the actual admeafurement of the bones, the hea1d, weighing, according to this account, four hundred pounds, which brings it nearly to the known fize of the foillil elephant.

The moft remarkable fact defcribed by Mr. Adams is, that the animal was covered with two kinds of hair; the one red, which was both of a finer and cofer fort; the other was long, black, and bright. This hair was very abundant. The fact proves two things of importance in the natural history of the mammoh, namely, that it was a different species from living elephants, and that it was sufficiently covered to enable it to live in cold climates. It is a commonly received tradition in Siberia, that these animals are frequently found entire in the ground, from whence the name of mammoh is derived, which signifies an animal that lives in the earth. According to Cuvier, thefe facts prove that the foillil elephant perifhing by a fudden revolution of the globe that defroyed the whole species, and which froze the individuals that were then in the northern regions: nor can any reafl be advanced why these remains should not continue preferred in the eternal ice of thofe countries, till difcovered by accident, or the hands of man. Thofe which were overthrown and buried in moft southern climates are more decomposed, and their bones have become more or lefs friable; but this decomposition is the only change which they have undergone; they are neither broken nor rolled, and it may be clearly perceived that they perifhed where their bones are now found. Many bones of the fame species of mammoh, or foillil elephant, have been difcovered in different parts of England. We have fed a tooth, one of the molares of these animals, found near Whithby in Yorkshire, which measured fourteen inches round.

Vol. XXXIX.

The greaftest number of the teeth of the mammoh that have been examined refemble at firft light thofe of the Indian elephant; but, according to Cuvier, the fcx, and the variety, on more attentive obervation, will be found somewhat different. In the living species of elephants, the fize of the teeth varies with the fcx, the color, and the varieties; and as they continue to grow during the life of the animal, age determines their dimensions more than any other caufe. The fusks of the African elephant are larger than thofe of the Indian; they are harder, and preferve their whitefnes better. According to Poennant, Mofambique furnifhes fusks of living elephants ten feet in length, which are the largest that are known. The degree of curvature in the fusks differs as much as the fize; some occasionally occur in a fpiral form, and fome in that of the letter S. We are uneafily acquainted with the differences that might exift in the curvature of the fusks of the mammoh occafioned by difference of sex or other caufes. Many of the fusks have the common degree of curvature, but others have much more curvature than occurs in any living elephants, approaching to a femicircle or half an ellipse divided through its tranverfe axis. Some fusks of the mammoh are formed fpiral, like what fometimes occur among living elephants. The height of the mammoh did not greatly exceed that which the Indian elephants can attain. It is neverfey certain from its remains, that the mammoh differed as much from the Indian elephant as the afs differs from the horfe.

The bones of the mammoh, or foillil elephant, are generally found in alluvial foil, 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 horfe, and the antelope; and are often accompanied with the remains of marine animals, fuch as shells, parts of which are attached to the bones. Cuvier fates that he has in his pofeflion a jaw-bone covered with millepores and oylers.

The beds which cover the bones of the foillil elephant have feldom any great depth, and are scarcely ever comafoned of ilone. They are rarely petrified, and only one or two infallances are quoted where they were incurred with a fkeletal ilone. Often they are only accompanied with fresh-water shells. Every thing appears, fays Cuvier, to announce that the caufe by which they were buried is one of the moft recent, that has contrived to change the furface of the globe. It was nevertheless a caufe general in its operation, for these foon bones of elephants are too numerous, and occur in countries too remote and uninhabited to allow us to fuppofe that they have ever been brought there by man.

The beds which contain and cover these remains fhew, that the caufe by which the animals were defroyed was water, and in many infallances the waters were the fame as thofe of the prefent day, since they contained the fame fcx of shells-fish. Thofe bones are not waterworn, and therefore have not been transplanted from a diftance.

The shells and millepores which adhere to them prove that they remained fome time covered only with water. The different fcx of maitodon, the gigantic tapir, and the foillil rhinoceros, lived in the fame countries as the foillil elephant, fince their bones are found in the fame beds and preferved in the fame flate. Every thing therefore leads us to conclude that the mammoh, or foillil elephant, is an extinct fcx, though it differs fes from exiling fcxes than the other remains of quadrupeds that are found in the fame fracutions. In a former part of this work, under the article Megatherium, the difcovery of the foillil elephant described by Mr. Adams is more particularly given; but the animal is erroneously fuppofed to belong to another species.
MAN

species than the elephant, and the tusks are called horns. (See Mastodon, Megalonyx, and Megasaurium, Addenda.) According to Pallas, there is scarcely a river from the Don or the Tanais to Tchutkoins in the banks of which the bones of the mammoth are not abundant, and two ilands of great size near the mouth of the Indigefika. The bones and bones have been generally found in alluvial soil over the chalk formation; but in Dr. Bakewell's Introduction to Geology, it is given of an entire skeleton having been found in a cavern in the mountain lime-stone near Wirksworth, in Derbyshire, in 1663. Its skull was so large that it is flatted to have held four bufenels of corn.

MANCHA, La, l. 1 and 2, r. bounded on the N. by New Caflile; dele north of.

MANCHESTER, l. 10, add—In 1811, the number of houses in Manchester and Salford was 16,533, and that of the inhabitants 98,573; 44,332 being males, and 54,241 females; of whom 15,639 families were employed in trade and manufactures, and 47 in agriculture. l. 15, r. the whole population of which, including Manchester, was 135,449.

Manchester, in America, l. 4, r. 1137; l. 7, r. 1502; l. 9, r. 1579; l. 10, r. 978; add—Allo, a town of Hillisborough, in New Hampshire, containing 615 inhabitants.

MANÈGE, or MANÈGE, denotes an academy, riding-school, or other place for learning to ride, and for breaking horses to their various motions and actions. Allo, the exercise itself, or the art of riding, which teaches at the same time to form the horfeman and the horfe.

MANÈ-SHEET, in the Manège, a covering for the upper part of a horfes 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 curingale, or long girth, upon the horfes back.

MÂNANESE, in Chémistri. The specific gravity of manganese, according to Dr. John, is 8.013. A good deal of confusion still exists respecting the oxyds of this metal. According to Dr. John, there are three oxyds; the green, the brown, and the black. According to Berzelius, there are but two, namely, the olive or protosyd, which combines with acids, and forms the common falt of manganese, and the black or protosyd, 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 protosyd at 45; from which data, if correct, the composition of its falt may be estimated. The following erratum exists in this article in the Cyclopaedia. Col. 3, l. 16, for malats r. metals; also in the same paragraph, 9, at the end of the fentence respecting iron, add—Berzelius has lately shewn, that manganese is a constituent of cast iron.

MÂNGE, a cutaneous diseafe, incident to many domestic quadrupeds, and attended with an eruption and lofs of hair. Its caufe, according to Mr. Ryding, are, sudden changes of temperature, hot fables, bad diet, and want of cleanlines. It is also communicated by infection, as when a found horfe rubs himfelf againft a flall, in which a mangy horfe

had been kept. Its fymptoms are, lofs of flefh, without any apparent caufe, a flaring of the coat, and afterwards eruptions, difcharging a thick yellowish matter, which forms a kind of feur that peals off, and a falling off of the hair. The disorder, though partial at first, soon spreads all over the body, and is attended with an itching, which caufes the horfe to rub againft every thing that comes in his way. It is said, that if the horfes rub their tails, an ointment composed of 1 lb. of prepared hog's-lard, ½ lb. of sulphur, 3 oz. of white helbore 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 fhould be commenced with bleudings, and a ball formed of powdered nitre, powdered robin, and caftile foam, of each ½ oz., 1 drachm of camphor in powder, and honey 2. should be given in the evening. Attention fhould be paid to diet, exercise, and good grooming; the bowels fhould be kept in a proper flate with mashes, in which 1 oz. of nitre is dilufed; the affected part fhould be well washed with a strong folution of loft-foap, and afterwards rubbed morning and evening with an ointment composed of 4 oz. of flowers of sulphur, 3 oz. of hog's-lard, and 2 oz. of quickfine ointment. The ointment may be continued every other day, until the difeafe is removed. Two or three doses of mild phlyce are recommended, and then a ball made of t. Ethiopa's mineral, crude antimony in powder, and cream of tartar, of each ½ oz., and honey 2. should be given every night for a month.

In a flight cafe, strong tobacco infufion with one-third part of filce urine, ufed for washing the affected parts, will be fufficient; but as an efficacious unguent, the following is recommended; viz. ½ lb. of quickfine ointment, 4 oz. of finely powdered brim Stone, 2 oz. of black foap, 15 oz. of crude faf ammoniac, and oil of bays and turpentine q. s.; or tar, gun-powder finely pulverized, black foap, and oil of turpentine, of each about equal quantities; the fores may be washed twice a day with a lotion composed of 4 oz. of muricated mercury (fubsinate) in powder, diluted in 1 pint of boiling water; or muricated mercury, muricated ammoniac (crude faf ammoniac), of each from two to three drachms, and three half pints of boiling water.

MANHEIM, l. 3, r. 1282; l. 5, r. 2207; add—Allo, a township in Berks county, having 1354 inhabitants.

MÂNINGTREE, l. 18, r. 1811; l. 19, r. 1075—217.

MÂNNA, Chemical Properties of. Manna differs from fugar in several remarkable particulars. It diffolves very readily and abundantly in alcohol, and crystallizes on cooling. Nitric acid converts it partly into oxalic, and partly into fufulphuric acid. It does not ferment like fugar, and of course yields no alcohol. The common manna of the fllops, according to Fourcroy and Vauquelin, confits of four different ingredients. Pure manna conftituting about three-fourths of the whole—a little common fugar—a yellow matter with a naufeous odour, to which the purgative qualities of manna are chiefly owing—and a little mucilage, convertible into fufulphuric acid. Manna seems to be formed during the fermentation of many juices, such as the juices of the onion, melon, &c.

MÂNNINGTON. Add—containing, in 1810, 1664 inhabitants.

MANOR, l. 2, r. 2642.

MÂNSFIELD, l. 23, r. 1811—1427; l. 24, r. 6816.

MANSFIELD, in America, l. 3, r. 1810—2058; l. 6, r. 1030; l. 10, r. 58; l. 14, r.—In 1810 the number was 1810; l. 16, 2570.

MÂNTUA,
MANTUA, a township of Ohio, in Portage county, containing 2,425 inhabitants.

MARAZION, l. 15 and 13 from bottom, r. 1811—184—1022.

MARBLEHEAD, l. 4, r. 5900.

MARECHAUSSÉS, denoted, under the French monarchy, several small bodies of troops, composed of officers and soldiers who had been in service, that continued stationary in the principal towns, for the purpose of aiding the civil magistrature. That in Paris consisted of three companies; viz. the company belonging to the "Lieutenant criminel de Robe au Coutre," or to that particular court of judicature, which was fortified by the provost de la Marechaussee, 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 patrols, 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 foap made of hog's-lard and potash in water. Part of the margarate of potash was dissolved, while another part was deposited 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 bases, especially with the alkalies and alkaline earths, forming salts, or rather foaps. Dr. Thomson, from the experiments of Chevreul, fixes the weight of the atom of this acid at 320.

MARGATE, col. 3, l. 9, r. 1811; l. 10, r. 6126—1290.

MARION, l. 2, r. 8884—2771.

MARK ISLAND, a township of Hancock county, in the district of Maine, with few inhabitants.

MARLBOROUGH, col. 2, 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 child-birth of Edward VI.; dele who was defined to suffer the fate of her predecessor.

MARLBOROUGH, in America, l. 4, add—containing 4996 inhabitants, of whom 1709 were slaves in 1810; l. 7, r. 16745; l. 12, r. 1810—145-14; l. 14, r. 1112. Col. 2, l. 1, r. three l. 2, after Pennsylvania, place one in Montgomery county, having 672 inhabitants; and E. and W. Marlborough, in Chester county; the former having 1046, and the latter 917 inhabitants.—Allo, a town of Hartford county, in Connecticut, having 720 inhabitants.—Allo, a township of Delaware county, in Ohio, containing 177 inhabitants: l. 5, r. 1832.

MARLOW, Great, col. 2, l. 16 and 17, r. 1811—225—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.

MARSELESS, The, or Marrelles 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 "ça 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.

MARSHPEE, l. 3, r. 139.

MARTHELLO, or Morello, Tanger, denoting small cabbages erected for the defence of a coal; such are those of Lord Mary Martel, of the town of Jersey, Halifax, in Nova Scotia, &c. Grose defines the term mortelio, from morta, whence morta or mortar, which formerly signified a cale. Others derive it from the Italian "fouare in campana a martello," to found the alarm bell, which, in some parts of Italy, is struck by hammers. In old French, the word signifying the same thing, (now marcello,) was marcel, and marcel en tete was the adage for the humour of annoyance or alarm.

MARTOCK, l. 2, r. 1623.

MARI—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 Khorasan; its fruits were finer than those of any other place, and the walls were on all sides surrounded with flatly palaces, groves, and gardens. It was taken and pillaged by the Ulbecks 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 khan are 20 mounds of grain, and 60,000 rupees annually. It is 88 furlongs from hence to Herat. Delo the next article.

MARY, queen of Scotland, l. 2, infer (or 7th), Col. 2, l. 29, after their own, add—This article, says Mr. Chalmers, "ubi infra" denuded the Scottish queen, who was heir-prefumptive to the crown of England, of all future pretensions to the crown. The fluctuation, 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 of a matter of that importance, in addition to the wordings of the clause, these circumstances created an imperceptible 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 Her 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 privity 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 asphyxiation, and actually suggested and expressed her wishes to this purpose, and she thus acted suitably to the declaration made by her on Palm-funday 1572; viz. "that the queen of Scots' head should never be quiet."

At length, when her 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-councillors differed in their opinion
opinion concerning the law by which she 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. 1. 4to. 1818.

MARY, St. col. 2, l. 8, r. 12,794; l. 9, 6000; l. 13, add—in the county of Camden, which see.

MARYLAND. Add—See United States.

MARYPORT, col. 2, l. 5 and 6, r. 1811—322—312. 313—314.

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 state. It was for a long time confounded by naturalists with the mammoth or woolly 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 tusks and general osteology, 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 moist 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 mastodonts 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 flat 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 1825, many bones of these animals were found in the county of Wythe, in Virginia, about five feet under the earth, upon a bed of limestone. One of the teeth weighed seventeen pounds. But renders this discovery the more remarkable is, that a mass of half-ground branches, roots, and leaves, inclosed in a kind of sack, supposed to be the aliment, was found in the midst of these bones, so as to leave no doubt that these were sublimacies that the animal had devoured. Among the vegetable matter in this sack 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 Oafages were nearly in a vertical portion, 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 tusk, some of which were six 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 rhinoceros 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 Mississippi. 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 lives 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 molars or grinders is nearly rectangular. The sublunacy of the teeth is of two kinds only, the inner or office part, and the outer or enamel, which is very thick, and has no kind of cement or cortical. This very important difference joined 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 transverse 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 finer indentations, like a few. 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 mamillated. 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 six on each side, three above and three below.

The structure of the jaws indicates that the mastodon had tufts like the elephant or mors. The number of tufts 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 tufts varies as much as in those of the elephant; but Mr. Cuvier thinks there is no ground for believing with Mr. Peale, that the tufts turned downwards. The head of the mastodon being of vast size, and rendered exceedingly heavy by the teeth and tufts, 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 tufts 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 Semorre, and many other places in Europe, and also in America.
3. The little mastodon with small grinders. This species is much less than the preceding, and was found in Saxony.
4. Mastodon of the Cordilleras. 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>Height over the shoulders</th>
<th>Feet</th>
<th>Inches</th>
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<tr>
<td>Do. over the hips</td>
<td>11</td>
<td>0</td>
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<tr>
<td>Length from the chin to the rump</td>
<td>9</td>
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</tr>
<tr>
<td>From the point of the tufts to the end of the tail, following the direction of the curve</td>
<td>31</td>
<td>0</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>3</td>
<td>7</td>
</tr>
<tr>
<td>Of the longest rib</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Of the tufts</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Circumference of one tooth</td>
<td>1</td>
<td>6 1/2</td>
</tr>
</tbody>
</table>

The weight of the whole skeleton is 1000 lbs.

MATHIOLA, or Mathiola, in Botany, Brown in Art. Hort. Kew. v. 4. 119. See our former article. Mr. Brown has redorsed this meritorious name, to degitate a new genus of his own, extracted from the more hoary kinds of Cheiranthus, (see that article,) n. 16, 17, 20, 23, 31, 28, and 15. We allow a difference of habit, but fearfully perceive a sufficient character.

MATLOCK, l. 14, r. 1811—523—2497.

Vol. XXIII.

MAURICE, l. 4, add—The town contains 2085 inhabitants.

MAURY, a county of West Tennessee, containing 10,530 inhabitants, of whom 2626 were slaves in 1810.

MAWS, St. In 1811, the parish of St. Jufl contained 272 houses, and 1630 persons; viz. 751 males, and 888 females: 72 families being employed in agriculture, and 99 in trade, manufactures, and handicraft.

MAYOMBA, or MAZUMBA, Cape, a cape on the coast of Africa, in S. lat. 3° 34'. E. long. 11° 13' 30'.

MEAD, a township of Crawford county, in Pennsylvania, containing 786 inhabitants.

MEADVILLE, l. 5, after houses, add—457 inhabitants.

MECKLEBURG, 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 perfumation. Those of the central territories reside mostly in towns; those of the lower countries are 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 Nafier Khan, the chief of Kela; but since his death, in 1795, the authority of his son has ceased, and of the dominions of his father he only retains posseession 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. 39, r. 786.

MEDFORD, l. 6, r. 1443.

MEDICAL ELECTRICITY. Since our remarks on medical electricity (see Medical Electriciy) 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 costing 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 practiced 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 *strogylo vulgaris*, &c. and which, according to him, is distinguished by the following properties. It is insoluble in water, alcohol, ether, and oils. It has neither taste nor smell. It is soluble in nitric acid; but instead of forming fulfure acid, furnishes a quantity of oxalic acid. Its structure is peculiar, and when burnt it leaves a charcoal having a metallic bronze-like appearance.

MEDWAY, in America, l. 4, r. 1213.

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 suppos'd by Mr. Jeffereon to be allied to the lion, and hence received its name. According to Cuvier, however, the megalonix and megarhizium 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. See MEGATHERIUM, Addenda.

MEGATHERIUM. (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 megarhizium of Cuvier, but the foifil or extinct elephant. (See Mammoth, Addenda.) The megarhizium was of the size of the rhinoceros; its foifil 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 Lauzen, 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 MEGIDO, in Scripture Geography, a city of Manaffeh (Joel xvi. 11. Judg. i. 27.), famous for the defeat of King Josiah. (2 Kings xxii. 29, 30.) Herodotus, speaking of this victory, says, Necho obtained it at Magdolob, dib. ii. cap. 159.

MEIGS, in Geography, a township of Adams' county, in Ohio, having 835 inhabitants.

MEKRAN. See MEKRAN.

MELDRUM. In 1811, the parish of Old Meldrum contained 411 houses, and 1635 per sons; viz. 736 males, and 919 females: 345 families being employed in agriculture, and 86 in trade, manufacturers, and handicraft.

MELFORD, Long, l. 5 and 6, r. 1811—415—2068—951—1117.

MELLIT, in Farrowy, a dry flat 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 fore, 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 3132 persons; viz. 1531 males, and 1601 females: 239 families employed in agriculture, and 251 in trade, &c.

MELTON-MOWBRAY, l. 24 and 25, r. 1811—451—2115.

MENALLEN, a township of Fayette county, in Pennsylvania, having 1228 inhabitants.

MENANGEEBOW, for MENANGEBOW.

MENDHAM. Add—containing 1277 inhabitants.

MERA, l. 14 from bottom, after Linga, add a comma.

MERCER, after acres, add—16 townships, 8277 inhabitants; l. 6, 11,587 inhabitants, of whom 3000 were slaves in 1810.—Alfo, a township of Mercer county, having 262 inhabitants.—Alfo, a township of Butler county, in Pennsylvania, having 888 inhabitants.—Alfo, a township of Maine, in Somerset county, having 562 inhabitants.

MERCURY, p. 12, col. 2, l. 12 from bottom, for Todd r. Thomon.

Mercury. This metal boils, according to Crichton, at 65°; according to Heinrich at 69°. These differences respecting the boiling point of this metal, as well as those mentioned in the original article, probably arise in part from the mode in which the thermometers employed were graduated. See further on this subject under Heat.

There are but two oxides of mercury known, and not three, as stated in the Cyclopaedia, the black or protosyl, and the red or peroxyl; the first 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 corryswe sublimates, formerly termed suburate and oxyurate of mercury, is now to be understood, according to the present views of their composition, as applicable to the protochloride and perchloride of mercury. See further on this subject under Chlorine.

MERDIN, l. 7. Its inhabitants amount to nearly 11,000 souls; l. 9, add—there number is supposed to be 1500, having several churches, and a synagogue; and besides here are 200 Jews, and also Turks, Arabs, and Kurds. At the end, add—it is 46 furlongs from Diarbekr. It is the frontier of the pachale of Bagdad, towards Conabantinople, and under the government of a Musulleeam, appointed by the pacha.

MEREDITH, l. 4, r. containing 1940 inhabitants.

MERIDEN, a town of New Haven county, in Connecticut, having 1249 inhabitants.

MERION, l. 3, r. 1156—1835.

MERIONETHSHIRE, col. 5, l. 37 and 38, r. 1811—6022—50924—145086—16616—3619—1270.

MERRIMACK, l. 3, r. 1048.

MERTHYR-TYDVIL, col. 2, l. 30, add—in its five hamlets, by the parliamentary returns of 1811, 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 MURU.

MESCHID, Meschid, or Mifched, l. 1, infer—the capital of the Persian division of the province of Khoraffan, 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 Rufchid. This city, though a great part of it
MIC

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 it is situated. It is surrounded by a strong wall, three forfings in circumference, and the great bazaar is three miles in length. The city is governed by one of the king's sons, and the district belonging to it yields a revenue of 50,000 tomus. It carries on a considerable trade with Bokhara, Bulkh, Candahar, Yezd, and Herat. Velvets of the finest quality are manufactured here; and its fur peltries are much esteemed.

MESHEE. See Meschino.

MESHEE All. See Meshef.

METALL, in Geography, a town of Franklin county, in Pennsylvania, having 1236 inhabitants.

METALS, in the Materia Medica, col. 2, l. 24, for Todd r. Thompson.

METEOR, an iron. See MINERALK, Addenda.

METHERVAN, in Geography, a town of Essex county, in Massachusetts, containing 1181 inhabitants.

METEWOLD, col. 2, l. 4, r. 1811—942—174.

METROXYLON, in Botany, a name given by Rottboll, in the Copenhagen Traductions, to the true Sago Palm, described from Dr. König's manuscripts, by Mr. Charles König, in Ann. of Bot. v. 1. 195. t. 4. This genus appears to differ from Gerten's Sagus, (see that article,) in having a corolla; which is monopetalous and three-cleft. See Sago.

MEXICO, coll. 15, l. 21 from bottom, add—The industrious researches of the ingenious 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 Toltecs, Aztecs, and other tribes, which, since the seventh century, have appeared successively on the elevated plain of Anchua, 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 town of Clermont county, in Ohio, containing 1670 inhabitants.—Alfo, a town of Greene county, in Ohio, having 794 inhabitants.—Alfo, a town of Hamilton county, in Ohio, having 455 inhabitants.—Alfo, a town of Ohio, containing 6 townships, and 3941 inhabitants.

MICHIGAN. Add.—The territory of Michigan includes four districts, viz. Detroit, Erie, Huron, and Michilimackinac, and by the census of 1810, 4702 inhabitants, of whom 24 were slaves.

MICKLEHAM, col. 2, l. 1, r. 1811; l. 2, 416 persons, occupying 54 houses; l. 3, 190—226.


Mr. Pursh speaks of Arenaria saxifragula as probably belonging to this genus, but we know not whether he intends the plant of Limeux, or of Jacq. Aufr. t. 182; see Engl. Bot. l. 1744.

MIDDLEBOROUGH, l. 3, r. 4400.

MIDDLEBURY, l. 6, r. 2188; add.—Alfo, a town of New Haven, in Connecticut, having 847 inhabitants.

MIDDLEFIELD, l. 3, r. 822.

MIDDLESEX, col. 2, l. 4, r. 1811—130,613 houses, 953,776 inhabitants; viz. 434,613 males, and 518,663 females; of whom 135,308 families are employed in trade and manufactures, and 4988 in agriculture.

MIDDLESEX, in America, l. 5, r. 44; l. 6, r. 52,789. Col. 2, l. 9, r. 8—20,723; l. 10, r. 57 were in 1810; l. 14, r. 20,383; add—Alfo, a township of Chittenden county, in Vermont, having 401 inhabitants.—Alfo, a township of Butler county, in Pennsylvania, containing 568 persons.

MILDETTON, l. 3, r. 541; l. 8, after houses, add—2014 inhabitants.

MIDDLETOWN, l. 3, r. 3368 inhabitants.—Alfo, a township of Columbus, in Ohio, having 579 inhabitants.

MIDDLETON, col. 2, l. 23, r. 1811; l. 24, r. 442 persons, occupying 805 houses.

MIDDLETOWN, l. 3, add—containing 439 inhabitants; l. 4, add—having 1207 inhabitants; l. 7, r. 976; l. 17, r. 3849; l. 23, add—containing 948 inhabitants; l. 34, after Cumberland, add—having 2351, and the third in Bucks county, having 1462 inhabitants.

MIDDLEWICH, col. 2, l. 10, r. 1811; l. 11, 279—1232.

MIDHURST, l. 8, r. In 1811, the borough and parish contained 1256 persons, occupying 166 houses; 66 families being employed in agriculture, 127 in trade and manufactures.

MIEMITE. See Mineralogy, Addenda.

MIFLIN, l. 4, r. nine; l. 9, r. this county contains 12,132. Add—Alfo, a township in Allegheny county, in Pennsylvania, containing 637 inhabitants.—Alfo, a township of Rens county, in Ohio, with 445 inhabitants.

MILBORNE PORT, coll. 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 355 houses; 1187 being males, and 1306 females;—278—11.

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 2033 inhabitants; l. 18, and 2674 inhabitants.—Alfo, a town of Hillyborough county, in New Hampshire, containing 1117 inhabitants.—Alfo, a township of Wayne, in Pennsylvania, having 87 persons.—Alfo, 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 3337 persons.—Also, a township of Luzerne county, in Pennsylvania, having 178 inhabitants.

MILK, col. 5, l. 29 from bottom, for oxifying r. offlifying.

Milk, Chemical Properties of. According to Berzelius, 1000 parts of milk deprived of its cream consist of

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>928.75</td>
</tr>
<tr>
<td>Curd with a little cream</td>
<td>28.00</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>25</td>
</tr>
<tr>
<td>Lactic acid, acetate of potash</td>
<td>6.00</td>
</tr>
<tr>
<td>Earthy phosphates</td>
<td>30</td>
</tr>
</tbody>
</table>

In the paragraph describing the fermentation of mares' milk by the Tartars, l. 2, after brandy, add—called \textit{Koumis}.

After the paragraph upon cream, add—Cream of the fp. gr. 1.0244 was found by Berzelius to consist of

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>4.5</td>
</tr>
<tr>
<td>Cheese</td>
<td>3.5</td>
</tr>
<tr>
<td>Whey</td>
<td>92.0</td>
</tr>
</tbody>
</table>

After the observations on curd, add—\textit{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 undissolved, 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 diffuse 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>Weight</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>11.409</td>
</tr>
<tr>
<td>Azote</td>
<td>21.381</td>
</tr>
</tbody>
</table>

MIN

MILTHORP, l. 2, r. Haverhill; l. 14, after population, add—of the townships of Milthorpe and Haverhill; l. 15, r. 1811—1815—242 houses; l. 16, 546—592—129—111.

MILTON, l. 8 and 7 from bottom, r. 1811—1746.

Milton, in America, l. 9, r. 1264; add—Also, a town of Strafford county, in New Hampshire, having 1025 inhabitants. —Also, a town of Chittenden county, in Vermont, containing 1546 inhabitants.

MILVERTON, l. ult. r. 1811—1637; add—and number of houses 322.

MINCHINHAMPTON, l. 27, r. 1811—town and parish; l. 28, r. 3246, and occupying 710 houses; l. 29, 1523 males, and 1723 females.

MINEHEAD, l. 3, r. 144.

Minehead, l. 3, after England, add—By the returns in 1811, the borough and parish were rated to contain 235 houses, and 1037 inhabitants; 443 being males, and 594 females.

MINERAL CAOUTCHOUC. See Mineralogy, \textit{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 classified with minerals. The German mineralogists use the term \textit{mineral} in a more restricted sense. See \textit{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 system of classification introduced by Werner, see \textit{Oryctognosy}; and for the leading principles of crystallography, on which the system of Haüy is formed, see \textit{Crystallography}, \textit{Addenda}. Under the article \textit{Systems of Mineralogy}, we have given a summary view of the chemical system of mineralogy recently attempted to be introduced by the distinguished Swedish philosopher 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 use of multiplication 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 affright them in limine. The
MINERALOGY.

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 comprise 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 underfoot 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 flature 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, demi-transparency, translucence, and opacity, are terms perfectly intelligible to every reader. When the cloudiness in semi-transparent minerals increases, so that the outline of objects can scarcely be seen, translucent 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 sparry, an Iceland crystall, offers a remarkable example. See CRYSTAL OF ICELAND.

Opalescence, a term not unfrequently applied to some minerals, is thus defined by Mr. Jameson: "Some minerals, when held in a particular direction, reflect from some fingle spots in their interior a coloured shining lustre; this is what is understood by opalescence: it is distinguished into simple and stellular; in the latter, the lustre diverges in fixed rays in the form of a star, as in the star-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, refrinous, 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 semi-metallic lustre yield a lighter colour, or have their lustre destroyed when scratched. The adamantine lustre is exhibited by minerals which are translucent, and possess 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 satar spar and fibrous gypsum, it is sometimes called a silky or fatdy lustre.

The refringent lustre is well represented by that of pitch: it exibits in pitch-flake and refrinous flints.

The vitreous lustre is perfectly represented in rock crystal.

Each of these kinds of lustre may vary in degree from the most splendid, which can be seen at a great distance, to shining, glittering, or glimmering. When entirely defective, a mineral is called dull.

The break 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.

Salping 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 reddle.

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 thrown 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, hardness 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 unexceptionable test of their hardness. Thus some minerals scratch crystallized quartz, a stone easily recognized, and whose hardness in that state is always the same; other minerals scratch steel, glas, fluor spar, &c. This method is precise, and gives the real hardness of the parts; whereas striking fire with steel, which is often mentioned as a character, is a vague test, subject to variation from the form of the mineral, the sharpness of its edges, &c.; and soft minerals 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 hardness 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 hardness 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

fuminits
fissures of the ridges. The hardness should, 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 undecomposed 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 feeblyHarder than those of the derivative forms, or than the angles or edges produced by casual fractures, either of crystals or massive 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 obtained by the use of the knife may be thus called. When a mineral does not yield to the point of a knife, it may be called very hard, as quartz and flint. When 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 flour fpar. When it is easily scratched with a knife, it is called soft, as calcareous fpar 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 coherency. 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 fragments, or coarse grains, adhering to the knife, it is called fêêlîle, as in plumbago and soap-stone. When on cutting a mineral with a knife, the particles part 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 flour fpar.

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, and partly on the structure of the mineral. Frangibility must not be confounded with hardness; many soft minerals are more intran-
gible than hard ones. Quartz is much harder than horn-
blende, but may be broken with greater facility. The brit-
tle minerals are the most fragile, whilst those which yield to the knife and are fêêlîle are generally very tough; and the malleable minerals, such as native gold, can scarcely be said to be fragile.

A mineral is more easily fragile 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 elas-
ticity. Some earthy minerals, as beryl, flint, and topaz, are more fragile when first obtained from their native beds, than when they have been exposed for some time to the atmosphere, owing to their containing a portion of moisture which is afterwards evaporated. The degrees of frangibility, from very difficulty fragile to very easily fragile, are enumerated under Quâlities.

Some earthy minerals, and all malleable minerals, bend without breaking, or are flexible; and some minerals are both flexible and elastic, as mica.

Stressure of Minerals.—This is the internal arrangement of the particles of a mineral. The three great divisions of struc-
ture are, the perfectly crystalline, imperfectly crystalline, and the promiscuous structure. The perfectly crystalline structure is described under the article Crystal; and the Wernerian def-
cription of crystalline forms will be treated of in the follow-
ing section. For the imperfectly crystalline and promiscuous structure, see Structure of Minerals, where these impor-
tant characters are described. The structure of minerals is ascertained by the number of joints, or determinate direc-
tions in which a mineral can be split, or exhibits distinct lamine. 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 fpar; quadruple, as in fluor fpar; or six-fold, as in blende and rock-cystal.

The Wernerian fylem takes no measure of the angles under which the planes or lamine 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 Haüy’s fylem 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.

In the triple cleavage, the lamine may intersect each other rectangularly, as in lead-glance or galena; or the cleavage may be oblique, but equiangular, as in calcareous fpar; or oblique and at unequal angles, as in heavy fpar; or may be partly rectangular and partly oblique, as in feldspar.

The four-fold cleavage may either be equiangular and oblique, as in flour fpar and the diamond, or three 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 lamine may meet under equal oblique angles, as in rock-cystal, 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 structure by Haüy. The fracture is the casual division of the whole into fragments, and depends much on the kind of fstroke by which it is produced, whereas the structure exils in the mineral before it is broken. Fracture is either conchoidal, which is composed of convex or concave elevations or depressions more or less regular. When regular they have smooth concentric ridges, as in many shells; hence the name is derived. The conchoidal fracture is distin-
guished according to the magnitude of the elevations and depressions, into large conchoidal, as in obsidian or flint, and small conchoidal, as in pitch-stone. It is further distin-
guished into deep or flat conchoidal, and into perfect con-
choidal and imperfect conchoidal. The conchoidal fracture is characteristic of brittle minerals, which have some degree of lustre and transparency. The uneven fracture presents 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 small and imperfect conchoidal, and also into earthy.

The even fracture is that kind of surface which fows the fewest inequalities, and the 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 end.

The earthy fracture is peculiar to opaque earthy minerals,
MINERALOGY.

The crystalline form of minerals is called by Mr. Jameston the regular external shape. When a mineral occurs crystallized in a simple form which has received a name in geometry, as the cube, the rhombohedron, the octahedron, etc., it is easy to give an idea of it by referring it to that form; but when a crystal presents a great number of unequal planes, or is very complicated, the description becomes difficult without a drawing or model. Mr. Werner has, however, considerably 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 rhombohedron (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 eight triangular planes (fig. 6.); the table, which has two equal and parallel planes, which are very large compared with the thickness of the table, and is bounded by an indeterminate number of sides (figs. 7 and 8.).

The three following forms are very rare. The isohedron, having twenty equilateral planes (fig. 9.); the dodecahedron, having twelve pentagonal faces (fig. 10.); and the hexahedron, 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 rhombohedron, the tetrahedron (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 bafe of each pyramid may be in the same plane, as in fig. 14., or fall on one another, as in fig. 15.

These forms, or models, it must be carefully noticed, have no connection with the true primitive forms of crysvals (see Crystallography, Addenda), 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, 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 bafe at each extremity of the prism are called the terminal baces. 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 bafe 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 fold angle is removed and one plane is formed in its place, as in Plate VII. fig. 16., the cube is said to be truncated on the angles. When planes are formed on the edges of a crytai, as in fig. 17., it is described as truncated on the edges; and when two planes are formed on an edge of the crvystal, 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 cube 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
MINERALOGY.

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 equatorial six-sided prism, acuminate at each extremity by six planes set on the lateral planes. Fig. 25 is a similar prism acuminate by three planes at each extremity set on the alternate lateral planes; and Fig. 26 is also a similar fix-sided prism acuminate 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 unformable.

The octahedron, or double four-sided pyramid (Fig. 27), is a common form of crystals: 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 acuminate 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 fides the terminal planes, and the larger fides 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 crystals. Some of the forms here referred to, particularly Figs. 23 and 24, may be more simply described as four-sided and six-sided prisms, terminated 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 thicknesses, may be regarded as a tabular crystal. Most crystals may be very intelligibly described by alluming the fundamental forms of Werner variably 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 exprests, by the terms truncation and bevelment, the appearance the crystal presents to the eye. The primitive forms, or the true fundamental forms of crystals, as given by Haly, are enumerated under the article Crystal; but Plate VII. Crystallization, compries these forms, and also those of the integrant molecule. The primitive forms are, the paralleloipiped, including the cube and rhomb (Figs. 1 and 2), and the rectangular-table (Figs. 7 and 8), the octahedron (Fig. 27), the tetrahedron (Fig. 13), the hexagonal prism (Fig. 3), the rhomboidal dodecahedron (Fig. 12), and the dodecahedron with triangular faces (Fig. 14). The integrant 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. Aitken, the student will imagine that the real crystals of minerals, such as nature presents them, are formed with the precision that characterizes the models of the crystallographer, he will in general find himself much mistaken. By far the greater number of crystals are either muddled in other fabrics, from which it is difficult to disengage them without much injury, or inhre by one extremity in amorphous or uncryallized matter of the same nature with themselves. Hence it is, that few prisms occur both terminations of which are entire. Not unfrequently also crystals, by being formed in narrow clefs, are compelled, or in other ways variously mutilated, and thus perplex even the most skilful mineralogist. Their minutenees 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 crystals. The latter are generally suppos'd to have been formed in cavities occasioned by the decomposition of real crystals. These are called casts. Spurious or suppoticitious crystals are either casts or incrustations; the latter occurs when a mineral is deposited over a pre-existing crystal and affirms its figure. The crystal either remains forming a nucleus, or it disappears, and the suppotitious crystal is hollow.

In the Wernerian crytography, the magnitude of crystals and their mode of aggregation are minutely enumerated. (See OBSCTOOGNOSY.) In the last edition of Mr. Jameson's external characters, he defines the sopiform or factories aggregation as "composed of a number of thin prismatic crystals, diverging from their point of attachment, and forming a kind of fasciculus or bundle; example, zeolite." The manipulor, or sheaf-like, consist of a number of crystals that diverge towards both ends and are narrower in the middle, thus resembling a sheaf; examples; zeolite and prehnite.

Scalarwise is when many cubical crystals are arranged like the ribs of a flair; example, cubes of connois silver ore.

The surface of crystals is either smooth or streaked, the streaks sometimes crofs longitudinally and sometimes transversely. These streaks are deciding of notice, as they frequently serve to indicate the structure of crystals. See Crystallography, Addenda.

Electricity is a character peculiar to a small number of cristallized minerals, that exhibit the positive and negative electricity at their extremities on being heated. This property was first discovered in the tourmaline. (See TOURMALINE.) 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 fand or foot. The needle and item are influated by placing the foot on a plate of wax or rfin. 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 influated 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.

Magnetcism 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 important.
MINERALOGY.

important characters of minerals, and is obtained accurately by weighing them in the hydrometric balance. (See Hydrostatics.) For most practical purposes, a pair of common gold scales that will turn freely with the tenth part of a grain is sufficiently accurate. The mineral may first be weighed, and the weight be noted, and then it must be suspended 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 platina. The heaviest earthy minerals are the barytic and ilronotic earths, and the gems; these range from 3.5 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 tallow-tone; and others, as the haline, 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 dusty particles, as in coal-buff crust; in other instances, the particles are large and scaly.

The fluid minerals are few in number, and are characterized by their fluidity, transparency, 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 disintegrated, or even rendered plastic. In some cases, minerals absorb water, which alters their transparency and colour. Saline minerals chemically combine with water, and are disintegrated. 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 re-agents. 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; but it requires some precautions in the management to render it efficient. The best and clearest directions for this purpose which we have seen 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 same 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 so 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 preface, and therefore a regular blast. The nozzle also should be tipped with a movable 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 worst, 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 suffused 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 consist of 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.
MINERALOGY.

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 substances imdered 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 charcoal-grained and foundd pieces are to be selected for this purpose; and even the best often split and become gritty after being used for a short time. This will not unfrequently 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 sticks 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 well deserves to be fairly tried. Perhaps simply moistening the charcoal-powder, and then submitting it to the action of a very strong screw is, might be still better. The incombustible supports are metal, glases, 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 bell metallic support is plaita, because it is infufible, and transmits heat to a less distance and more slowly than other metals. A pair of flender forceps of brafs, pointed with platina, is the best possible support for non-metallic minerals that are not very fusible. For the fusible earthy minerals, and for the infufible ones when fluxes are used, leaf-platina will be found the most convenient; it may be folded like paper into any definable form, and the refult of the experiment may be obtained simply by unfolding the leaf in which it was wrapped up. Glases supports are flender tubes or rods of this substance. If the mineral to be examined is of a longith or fibrous shape, one end may be cemented to the top of the glases rod by heating it, and in this state it may be further examined with great convenience. Earthen supports are used only for extemporary copulation; they are bell made of bone ash, and must of necessity be of a certain bulk, in order to absorb the lime, and other impurities, which it is the object of this procés 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 decapitation for the moss part takes place, the fusible inflammables begin to melt, and the metallic and moist other mineral faults 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 meotelophy. At this temperature, also, carbonate of fronton begins to tinge the flame with its peculiar crimson colour, and muriate 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 colours; grey antimony melts; native bismuth runs out from the matrix, through which it is disseminated; and pearl-piar and phathoe 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 pearl-piar, 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, confiding really, though not visibly, of an intermixture of two substances differing in fusibility, undergo the proccss of fritting, in which refractory grains are dispersed through a vitreous mass. In others, a complete fusion takes place, and produces a pongy opaque fenumitricous mass called a flag, or an opaque glass called an enamel, or a more or less transparent or true glases, which latter may vary in texture from compact to porous and pongy or intumescent.

In examining the habits of the earthy minerals with the blow-pipe, no fluxes are required; whereas to moll of the metallic ores, fluxes will be found at almost all times a very useful and often a necessary addition. The ores of the difficulty reducible metals, such as manganese, cobalt, chrome, and titanium, are characterised by the colour which their oxyds give to glases; in all these cases, therefore, vitreous fluxes must be largely made use of, both to disolve the earthy matter with which the oxyds are generally mixed very intimately, and to furnish a body with little or no colour of its own, which may receive and sufficiently dilute the inherent colour of the oxyd. I say sufficiently dilute, because the colour of molt oxyds 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 oxyd, that the glases, 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 disolve the oxyd, but at the same time to retain it at a high state of oxidation, the flux employed should be such as will not or will only slowly change into a mixture of this with a glases of borax, or, will 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 half-half molten it in a platina crucible. For an active, and at the same time non-alkaline 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 glases, 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 cohesive, 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 glases of borax, will, in the space of a few seconds, be melted by the blow-pipe, and converted
converted into a metallic globule, imbedded in a vitreous scoria.

"In all cases where a metallic globule is obtained, it should be separated from the adhering scoria, 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 condescends on the blow-pipe, or falls down on the charcoal in form of a powder, or of spicular crystals, from the colour and other characters of which the nature of the metal may probably be ascertained. If any suspension is entertained of a portion of silver or of gold being mixed with the oxydable metal, the button must be placed on an earthen support, and there brought to a full melting heat; by degrees the oxydable metal will become fecularized, and will entirely sink into the support, leaving on the surface a bright bead 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 Hauy, he has introduced very judiciously what he denominates the definite 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, and the great 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 various species of species that have been long known.

Actinolite, or Albitolite. Fr. actinit. See Strahlstein.

Actinote, Amphibole. See Strahlstein.

Adamantine Spar, or Common Cerundum; Corindon harnophane, Hauy. See Adamantine Spar.

Adhesive Slate, a species of polishing flake, or pefler scibile. See Polishing Slate, Addenda.

Adularia. (See Felspar, Addenda.) This variety of felspar was formerly confounded with glaify felspar. (See Glassy Felspar, Addenda.) Adularia occurs in veins of granite in Bumshire, in the Isle 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; Beldstein, Werner; Talc graphique, Hauy. A mineral which may be regarded as an indurated flatale, or rather, according to Jamelton, as intermediate between flatale and nephrile jade. It occurs massive; 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 transfluent, 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 Klapproth, the conlent parts of agalmatolite are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>3.4</td>
</tr>
<tr>
<td>Alumine</td>
<td>3.4</td>
</tr>
<tr>
<td>Lime</td>
<td>3.1</td>
</tr>
<tr>
<td>Potash</td>
<td>2.65</td>
</tr>
<tr>
<td>Iron</td>
<td>0.75</td>
</tr>
<tr>
<td>Water</td>
<td>1.0</td>
</tr>
</tbody>
</table>

According to Aikin, this mineral occurs at Glyder Bach, Caernarvonshire.

Agaric Mineral, or Rock Milk; Chaux carbonatie Joumgiens, Hauy. See Agaric Mineral.

Agate. (See Agate.) The agate is not a simple mineral, but is composed of various fioiceous fragments arranged in concentric lamelle, 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 fioiceous infiltration in the cavities of bafalitic rocks, the formation commencing from the surface, and the cavity gradually filling by successive depositions on the sides, until the whole forms one solid nodule. According to the direction of the lines or the structure of agates, they are designated ribbon or striped agate, fortification agate, landscape agate, brecciated agate, tabular agate, jasper agate, spotted agate, banded agate, flar agate, marked with radiated spots; petrafiction agate, fofill-hills and zoophytes are sometimes penetrated or filled with agate. In the variety called moja agate, nodules of chalcedony inclufo minute arborizations refembling mofs, some of which are fupposed by mineralogists to be branches of mofs suddenly inclufo and preserved in fioiceous matter.

Alabaster, Calcareous, or Calcifer Alabaster, Gypseous Alabaster, See Alabaster and Gypsum.

Alalite, Diopside, and Maffite, a mineral allied to augit; first found in the Alp of La Maffia, near the town of Ala, from whence the names alalite and maffite are derived. See Diopsie, Addenda.

Alallane, Cerium allanite, Fr. an ore of the newly-discovered metal cerium, first analyzed by Mr. Allan, and hence called allanite. Its colour is a brownish-black; it occurs diffemated and crystalized in rhomboidal prisms, the angles of which measure 117° and 63°. The internal lustrer is shining, and refno-metallic. It is opaque, and yields a greenish-grey streak. It Scratches glass, is brittle and easily fragrable. Before the blow-pipe it froths, and melts into a brown flag. It gelatinizes in nitric acid. The specific gravity is from 3.5 to 4. The conlent parts are:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of cerium</td>
<td>3.9</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>2.5</td>
</tr>
<tr>
<td>Silex</td>
<td>2.5</td>
</tr>
<tr>
<td>Lime</td>
<td>2.5</td>
</tr>
<tr>
<td>Alumine</td>
<td>2.5</td>
</tr>
<tr>
<td>Moiffure</td>
<td>2</td>
</tr>
</tbody>
</table>

It occurs in granite in West Greenland.

Allochroite,
MINERALOGY.

_Allochrocte, idem, Haüy; spintery garnet of Karhen._ It is classed with the garnet family by Werner, but is regarded as a distinct species. It occurs massive; the fracture is uneven, paffing into conchoidal. Its colours are greenish and yellowish-grey; it is translucent on the edges; internally it has a glinting silicious lustre. It gives sparks with file. 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 Vaquélin, the constituent parts are,

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</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>Oxide of iron</td>
<td>17</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>6</td>
</tr>
<tr>
<td>Oxide of manganese</td>
<td>3-5</td>
</tr>
</tbody>
</table>


_Amalgane, regards as a variety of garnet._ See Amalgedin; but for granite r. garnet.

_Alum-Earth, Alum-Slate, Common and Goffy, Alum-Stone._ See Alum, Ores of.

_Alumine, Sub sulphate of Alumine; Reine boronée, Werner; Alumine pur, Haüy._ This mineral has a bow-white colour, verging on yellowish-white. It occurs in reniform pieces, it has no lustre, the fracture is earthy, and the confidences between friable and solid. It is opaque, foils flowing, affords a glinting flake, and adheres freely 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 Suffolk, 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>Component</th>
<th>Quantity</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</td>
<td>1.25</td>
</tr>
</tbody>
</table>


_Amagnese._ See Lecicate.

_Ansalime._ See Zoilite.

_Anastase, or Octahedrite, Titane anatase, Haüy._ See Titanium.

_Andalasite, Feldspath aphyre, Haüy, is of a flesh-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 imperfectly lamellar, with a double rectangular cleavage, parallel with the lateral planes of the prism. It is translucent; it scratches quartz with ease, but is rather easily fragible. The specific gravity is 3.16. Before the blow-pipe it becomes white, but is insuflicient. According to Vaquélin, the constituent parts are,

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</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>
<tr>
<td>Oxide of iron</td>
<td>2</td>
</tr>
</tbody>
</table>

It occurs in veins in granite, gneifs, and mica-flats, along with felspar, quartz, mica, and chlorite. It was first found in the province of Andalasie. It has since been found in Aberdeenhire. The crystals are generally middle-sized or small, and occur imbedded. It is distinguished from felspar by its greater hardness, weight, and insufliciency; and from corundum by its double rectangular cleavage, and its inferior specific gravity.

_Amblydrite, or Anhydrous Gyphrum, 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.

**Compact Anhydrite.**—Its colours are various shades of white, inclining to small blue, bluish-grey, and is also red and brownish-red. It occurs massive, contorted, and reniform. The contorted variety, from its resemblances to the convolutions of the invertebrata, was called tripe-stone, or pierre de tripes. Compact anhydrite is more or less translucent, and is usually a spheny fracture, pitting into even or conchoidal. The fragments are sharp-edged: it is difficulty frangible. Specific gravity from 2.8 to 2.9.

According to Klaproth, the constituent parts are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>41.48</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>56.28</td>
</tr>
<tr>
<td>Water</td>
<td>1.75</td>
</tr>
</tbody>
</table>

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-blue colour, and is sometimes spotted with red: it occurs massive. The structure is radiated, the surface splintery 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; Chaux sulphate laminaire, Haüy.**—The prevailing colour is white, inclining to blue-grey, pale yellow, and red. It is more or less transparent, the lustrous spheny and pearly: it refracts doubly. It is crystallized in rectangular four-sided prisms, and in six or eight sided prisms. It also occurs massive. It has a foliated structure, and a cleavage parallel with the sides of a rectangular prism, which is its primitive form. It etches carboeaceous spar, but is easily frangible. Its 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 in the Tyrol, and in Switzerland, and also in the gypsum of Nottinghamshire. Sealy anhydrite is generally white, inclining to blue or grey: it occurs massive, has a confused foliated structure, and a splenetic and pearly lustrum. It is translucent on the edges, is easily frangible, and is soft. Specific gravity 2.9. According to Klaproth, the constituent parts are:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>41.75</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>55.00</td>
</tr>
<tr>
<td>Muriate of soda</td>
<td>1.00</td>
</tr>
</tbody>
</table>

It occurs in the salt-mines of Hall in the Tyrol.

**Anthophylite.** Its colour is between dark yellowish-grey and olive-brown: it occurs massive and crystallized in reed-shaped crystals, which appear to be four-sided prisms longitudinally flecked. The lustrous 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 etch thick glases with difficulty. It is intubable before the blow-pipe. Its specific gravity is 3.2. The constituent parts are:

<table>
<thead>
<tr>
<th>Substances</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>56.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>13.30</td>
</tr>
<tr>
<td>Magnesia</td>
<td>14.00</td>
</tr>
<tr>
<td>Lime</td>
<td>3.33</td>
</tr>
<tr>
<td>Oxide of manganese</td>
<td>3.00</td>
</tr>
<tr>
<td>Iron</td>
<td>6.00</td>
</tr>
<tr>
<td>Water</td>
<td>1.43</td>
</tr>
</tbody>
</table>

From Baffanes.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>94.57</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>3.96</td>
</tr>
<tr>
<td>Hydrate of iron</td>
<td>70.00</td>
</tr>
<tr>
<td>Water</td>
<td>99.53</td>
</tr>
</tbody>
</table>

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<td>56.00</td>
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<tr>
<td>Alumine</td>
<td>13.30</td>
</tr>
<tr>
<td>Magnesia</td>
<td>14.00</td>
</tr>
<tr>
<td>Lime</td>
<td>3.33</td>
</tr>
<tr>
<td>Oxide of manganese</td>
<td>3.00</td>
</tr>
<tr>
<td>Iron</td>
<td>6.00</td>
</tr>
<tr>
<td>Water</td>
<td>1.43</td>
</tr>
</tbody>
</table>

From Baffanes.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
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<td>3.96</td>
</tr>
<tr>
<td>Hydrate of iron</td>
<td>70.00</td>
</tr>
<tr>
<td>Water</td>
<td>99.53</td>
</tr>
</tbody>
</table>

Werner divides arragonite into common, columnar, and acicular. Arragonite occurs in trap rocks in various parts of Scotland, and we have acicular crystals of arragonite in lave from Vefnivius.

**Arseniate of Copper.** See Copper-Ores.

**Arseniate of Iron.** See Iron-Ore, section Cube-Ore.

**Arseniate of Lead.** See Lead, Ores of.

**Arsenic, Native.** See Arsenic, Ores of.

**Arsenic Bloom.** See Pharmacolite, 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

Vol. XXXIX.
MINERALOGY.

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 Jamefon, we frequently find crystals of basaltic hornblende dispersed through clay formed by the decomposition of basaltic rocks. See Hornblende, Addenda.

Basanite, black flinty flake. See Slate.

Bergmanitite, a mineral which occurs massive with grey and red quartz at Freidichswarm, in Norway, and is classed with scapolite in the seltar family in Jamefon's Mineralogy. Its colours are greenish and greyish-white, or yellowish-grey and muddy flesh-red. It is extremely glithening, with a lustre between pearly and resinous. The structure is delicately fibrous, curved, or diverging. It is faintly translucent on the edges, and feringas felpar. It melts before the blow-pipe without intumeoicing into a white enamel.

Beryl. (See Beryl and Emerald.) In Weis's collection at Vienna, there are two crystals of beryl in a group croosing each other, which are a foot and a half in length, and one foot in diameter. It has been found in alluvial foil, in the upper part of Aberdinehire, and in the county of Wicklow, in Ireland, imbedded in granite.

Bildstein. See Alabamatite.

Bismuth, Native. See Bismuth-Ore.

Bismuth, Glance, or Sulphurated Bismuth. See Bismuth-Ore.

Bismuth-Ore, Plumbago cupriferus, has a steel-grey colour, with a pale copper-red tarnish. It occurs diffuminated and crystallized in oblique four or fixed acicular prisms, longitudinally streaked. The crystals are frequently adhering together, and are sometimes curved, and divided by cros rents. The lustre is metallic. The crofs 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 continuing 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 cupiferous metallic lead, which communicates a blueish green colour to borax. According to John, the constituent parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bismuth</td>
<td>-</td>
<td>43.20</td>
</tr>
<tr>
<td>Lead</td>
<td>-</td>
<td>24.82</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>12.10</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>11.58</td>
</tr>
<tr>
<td>Nickel</td>
<td>-</td>
<td>1.58</td>
</tr>
<tr>
<td>Tellurium?</td>
<td>-</td>
<td>1.32</td>
</tr>
<tr>
<td>Gold</td>
<td>-</td>
<td>0.79</td>
</tr>
</tbody>
</table>

94.89

It occurs near Berezof, in the district of Catharinburg, in Siberia.

Bismuth-Ore, Cupreous, or Cupriferous sulphurated Bismuth-Ore, has a light lead-grey colour, sometimes steel-grey and tin-white. It occurs massive, diffuminated, and in diverging prisms. The lustre is metallic; it is secttile. According to Klaproth, the constituent parts are,

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bismuth</td>
<td>-</td>
<td>47.24</td>
</tr>
<tr>
<td>Copper</td>
<td>-</td>
<td>34.66</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
<td>12.58</td>
</tr>
</tbody>
</table>

94.48

This is a very scarce ore of bismuth.

Bismuthic Silver-Ore. See Silver-Ore.

Bitumen,
MINERALOGY.

BITUMEN, Liquid, Tenacious, Solid, Compact, and Elastic. See Bitumen.

Bituminous Mark-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 lustre, a flat structure, and is soft, meagre, opaque, and fettish. 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 alum- shale 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, Ampelisographica, Fr. occurs in beds, in rocks of the slate formation. It has a blueish or greyish-black colour, a flat structure, an earthy crass fracture, is dull, meagre to the touch, and leaves a distinct mark on paper. It is fettish, and becomes gelatinous in the breeze. The specific gravity is 2.11. According to Wregleb, its constituent parts are,

- Silex 64
- Alumine 11
- Carbon 7
- Water 3

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.

Blende, Black, Brown, and Yellow, various sulphurets of zinc. See Zinc-Ores.

Bog Iron-Ores. (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 successive depositions are formed, which are at first yellowish earthy, and of little confluence. This is morafa-ore. In course of time, it becomes harder, and the colour passes to brown, forming swamp-ore. After the swamp is dried up, the ore becomes much harder, and passes into meadow-ore, which is covered with soil and vegetation.

Bole. See Bole.

Bolognese Spar, or Radiated Heavy Spar. See Heavy Spar, Addenda.

Boracic Acid, Native or Saffoline, is found in saline inclusions 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 nearly scales; it is soft and friable, and is feebly translucent. To the touch, 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, Magnesio boraté, Haüy. (See Boracite.) Vaquelin found no lime in this mineral, and supposes it to be a simple bole 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.

Bozюryolite occurs in mammillary or botryoidal concretions, in a bed of gneis, near Arendal in Norway, associated with quartz, fuchor, calcareous spar, 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 stellar structure, and sometimes a sphynter fracture. It has a pearly glimmering lustre internally, is translucent on the edges. According to Klaproth, the specific gravity is 2.88; and the constituent parts are,

- Silex 36.0
- Lime 39.5
- Boracic acid 13.5
- Oxid of iron 1.0
- Water 6.5

Earthy botryolite occurs with the above, which has a snow-white colour, and an earthy fracture.

Bovey Coal. Bituminous wood coal, found at Bovey Heathfield, Devonshire. See Coal.

Bromellite, Diallage metalloside, Haüy. A mineral nearly allied to Labrador hornblend or hornfels. It has a yellowish-brown or pinchbeck-yellow colour, and a femetmetal lustre; it occurs massive, and coarsely disseminated; it has a foliated and fibrous structure, with a distinct single cleavage. It is opaque. The specific gravity is 3.2. According to Klaproth, the constituent parts are,

- Silex 60.0
- Magnesia 27.5
- Iron 10.5
- Water 0.5

It occurs in silex at Glentilt, in Perthshire, and at the Lizard, in Cornwall, intermixed with jade in serpentine.

Brown Spar, Pearl Spar, or Dolomite Spar; Chaux carbonatée ferre manganesefere, Haüy; Bitter Spatth, 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 joints 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,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>53</td>
</tr>
<tr>
<td>Magnesia</td>
<td>43</td>
</tr>
<tr>
<td>Oxid of iron and manganese</td>
<td>3</td>
</tr>
</tbody>
</table>

4 A 2 The
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 classed with brown spar or spar 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 Geriford 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, bordering on black.

BUTTERMILK, Silver. See Silver-Ores.

BYSOLITE, a name given by Sauvage to a variety of asbestiform actinolite, which occurs in minute acicular diverging crystals, which are elastic. See Actinolite.

CACHOLONG, Quartz agate cacholong, Haüy, 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 refringent 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 Brougnart, even pitchstone is sometimes coated with it; hence it is supposed to be the result of alteration in these minerals, produced by an unknown caufe, 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 chaledony. Cacholongs are sometimes cut and employed in jewellery.

CALAMINE. See Zinc-Ores.

CALCAREOUS SPAR, crystallized carbonate of lime. See Lime-stone.

CALC-SINTER. See Stalactic fibrous Lime-stone, in the article Lime-stone.

CALC.TUFF, or Tuffaceous Lime-stone, a light porous lime-stone, formed by the deposition of calcareous matter, in calcareous springs, or near lakes or rivers. It frequently enclaves the remains of animals or vegetables which have been encased and imbedded in it by successive depositions. See Tuff.

CALP, a name given by Kirwan to a dark ferruginous lime-stone, 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, Quartz agate chatoyant, Haüy; by some mineralogists called fialfe 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 stones. 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 greenish-black. It exhibits a beautiful opalescence when cut in a spherical form, which proceeds from the fibrous structure, and sometimes from the intermixture of amianthus. It is translucent in different degrees; it has a thinning vitreous-refrangible 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>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>2.95</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.75</td>
</tr>
<tr>
<td>Lime</td>
<td>2.50</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>2.25</td>
</tr>
</tbody>
</table>

Cat’s-eye occurs in the Harz, in Hanover, in trap, with amianthus, aethal, axinite, and calcareous spar. It is brought from Ceylon, Malabar, Sumatra, Peria, and Arabia.

CELESTINE, sulphate of bismuth. See Zephyrian.

CERIUM, or Cerite, Cerium oxyde filicifer, Haüy, an ore of the newly discovered metal cerium. (See Cerium.) The colour is between rose-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 refractive. Opalite (Jamefon), transparent (Atkin). It scratches glass with difficulty; it is brittle and easily frangible. 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>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of cerium</td>
<td>-</td>
</tr>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
</tr>
</tbody>
</table>

98.7

88.25

Cerium occurs in a bed of copper pyrites, situated in gneiss, near Riddarhytta, in Vemmland, Sweden.

CEYLONITE, Pleonaste, Haüy, is classified 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 crystals, either perfect octahedrons or truncated on the edges, or with the angles acuminate by four planes, which are set on the lateral planes, also in rhombohedral 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>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>3.25</td>
</tr>
<tr>
<td>Magnesia</td>
<td>1.40</td>
</tr>
<tr>
<td>Silex</td>
<td>5.48</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>4.26</td>
</tr>
</tbody>
</table>

51.62

This mineral was first found in the island of Ceylon, where it occurs in the sands of rivers with tourmaline, zircon, fahalite, and iron-land. It occurs in lava from Vevuvias, with olivine, augit, and mica. It occurs also in balfat, near Anderach, on the Rhine.

CHABASITE and Chabasite. See Zeolite.

CHALCEDONY. See Chalcedony and Quartz.

CHALK. See Chalk and Geography, Addenda.

CHERT, a variety of hornstone: it differs from flint principally by being more opaque, and having less lustre; it occurs in nodules and mafles in the sand under the chalk formation, and in beds in some mountain lime-stone.

CHIANTOLITE, or Hollow Spar, occurs crystallized in slender rhombohedral prisms, the edges of which are sometimes

rounded,
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 the 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 film; 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, inclining 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 glistering lustre, is translucent, and feretishes glafs. The specific gravity is 2.9. Before the blow-pipe, it fuses into a whitish fcoria; the black part affords a black glafs. This mineral occurs in acicular 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 chlortophile as the same fubstance as andalusite; others clasf it with common feldspar, and fome regard it as a distinct species.

Chlorite, Tale chlorite, Haiyi. This mineral is nearly allied to talc and mica. The prevailing colour is various shades of green, hence it derives its name from the Greek 

Chlorite Slate has a greyish or darkish-green colour; it occurs in beds in clay-flake, sometimes associated with tale-flake, into which it passes. It has a glistering refiuous lustre, a flaty structure, inclining to fclay. On minute examination, it appears composed of small scales of chlorite clefely 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 fluor spar from Siberia, which gives out a beautiful apple-green light when placed on a heated iron. Pallad mentions a pale-violet blue variety spotted with green, which becomes phosphorescent when held in the hand, and gives out a pale-whitifh light; in boiling water, it emits a green light, and at a higher temperature a blue light. See Flufor Spar.

Chromate of Iren, Fer chromacie, Fr. has a pitch-black colour, with somewhat of an olive tinge superficially. It occurs massive and difteminated, and also cryftrallized in octahedrons. It has a fhining lustre, between refinous and metallic. The fracture is uneven, or imperfectly small conchoidal, and fometimes imperfectly lamellar. It feretishes glafs, is opaque. The colour of the flake is ah-grey or brownifh. The specific gravity is 4.03. It is rarely magnetic, is infusible, but tinges borax of a beautiful green colour. According to Vauquelin, the conftituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>25.50</td>
</tr>
<tr>
<td>Alumine</td>
<td>18.50</td>
</tr>
<tr>
<td>Magnesia</td>
<td>8.00</td>
</tr>
<tr>
<td>Muriate of soda</td>
<td>2.00</td>
</tr>
<tr>
<td>and potash</td>
<td>43.00</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>98.00</td>
</tr>
</tbody>
</table>

According to Haiyi, the fcaly particles are regular hexagonal prisms when viewed with the microscope.

Common Chlorite is a leek or dark-green colour, intermixed with black. It occurs in rocks of various kinds, in beds and veins, either alone, or with quartz, magnetic iron-flone, iron-pyrites, hornblende, fclay-flate, and other minerals. It is amorphous, has a glistering lustre, an earthy fracture, and a fine granular, laminated, or fcaly 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, Haiyi.—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 refluous, either glistering or fming. The structure is curvedly lamellar, with a fingle cleavage. It is opaque or translucent at the edges; it is soft, fectile, and rather greasy. The specific gravity is 2.8. According to Lampadius, the conftituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>35</td>
</tr>
<tr>
<td>Alumine</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>

105

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 tale-flake, into which it passes. It has a glistering refluous lustre, a flaty structure, inclining to fclay. 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 fluor spar from Siberia, which gives out a beautiful apple-green light when placed on a heated iron. Pallad mentions a pale-violet blue variety spotted with green, which becomes phosphorescent when held in the hand, and gives out a pale-whitifh light; in boiling water, it emits a green light, and at a higher temperature a blue light. See Flufor Spar.

Chromate of Iron, Fer chromacie, Fr. has a pitch-black colour, with somewhat of an olive tinge superficially. It occurs massive and difteminated, and also cryftrallized in octahedrons. It has a fhining lustre, between refinous and metallic. The fracture is uneven, or imperfectly small conchooidal, and fometimes imperfectly lamellar. It feretishes glafs, is opaque. The colour of the flake is ah-grey or brownifh. The specific gravity is 4.03. It is rarely magnetic, is infusible, but tinges borax of a beautiful green colour. According to Vauquelin, the conftituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxid of chrome</td>
<td>43</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>35</td>
</tr>
<tr>
<td>Alumine</td>
<td>20</td>
</tr>
<tr>
<td>Silex</td>
<td>2</td>
</tr>
</tbody>
</table>

100

According to Klaproth,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxid of chrome</td>
<td>55</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>33</td>
</tr>
<tr>
<td>Alumine</td>
<td>6</td>
</tr>
<tr>
<td>Silex</td>
<td>2</td>
</tr>
<tr>
<td>Lofs by heating</td>
<td>2</td>
</tr>
</tbody>
</table>

98

Chromate of iron occurs in beds and veins, and in imbedded mafles, in ferpentine and tale-flake. It has been found at Portfoy, in Bamshire, and is faid to occur in confeiderable quantities in the Shetland iflands. It occurs in the vicinity of Nantes, and in the department of Van. The greatest quantity has hitherto been found in ferpentine, in the Bare-hills near Baltimore. The chronic acid
acids 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.
Chrysocolla. Earthly Malachite. Criore malachite cry-
facolite, Fr. See Copper-Ore.
Chrysolite. Peridot chrysolite, Fr. (See Chrysolite.)
This gem is the finest of the precious stones; its colour change by heat. It is brought to Europe from the shores of the Jefeon.

Chrysoprase. Apple-green chalcedony coloured by the oxyd of nickel. (See Chrysoprase.) It has hitherto been found only in the vicinity of the towns of Glafiendorf, Grochau, and Kofenutz, in Lower Silefia. It is not as common as chaledony. It is used in jewellery.

Cimolite. See Cimolite.

Cinnabar. Mercure sulphure. 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 foil, mixed with gold. In Peru, cinnabar occurs in various parts, particularly near the town of Huancavelicha, at the height of twelve thousand feet above the level of the sea. Cinnabar is found in veins near to Sillacara, interfacing alpine lime-robe; these veins, according to Humboldt, at present furnish all the mercury of Peru.

Cinnamon-stone. This gem was originally found in the lands of rivers in Ceylon. It has been cliffed with hyacinth, but is a variety of garnet. Its colours are, hya-
cinth-red inclining to orange-yellow. It is found in blunted-
angular or in roundish pieces. It has a shining vitreous luflre approaching to splendifer. The fracture is flat and small conchoïdal. It is transparent or semi-transparent, but generally full of cracks. It feraches quartz with difficulty. When cut it feels rather greasy. The specific gravity is 3.6. According to Klaproth, the constituent parts are,

Silex - - - - 38.80
Alumine - - - - 21.25
Lime - - - - 31.25
Oxyd of iron - - - - 6.50

97.80

Before the blow-pipe, it fuses into a blackish enamel. When free from flaws it is of considerable value.


Clay Iron-robe, Argillaceous Iron stone: For oxyde maf-
iffs, Haüy. (See Iron-Ores.) The name has been inapprop-
riately given to this species of iron-robe, as it frequently contains liacerly any alumine or clay in its composition.
The following analysis of Decotels, given in the Ann. de
Chemin for 1812, No. 251, will show how greatly this species of ore varies in its composition.

From Blancheland.

<table>
<thead>
<tr>
<th></th>
<th>Celtebrookdale,</th>
<th>Shropshire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of iron</td>
<td>54.0</td>
<td>38.60</td>
</tr>
<tr>
<td>Oxyd of manganese</td>
<td>2.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Silex</td>
<td>12.0</td>
<td>52.0</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Magnesia</td>
<td>2.0</td>
<td>4.3</td>
</tr>
<tr>
<td>Carbonic acid and</td>
<td>24.0</td>
<td>20.0</td>
</tr>
<tr>
<td>water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In these specimens, the iron was in the flate of carbonate;
in others, it exists in the flate of oxyd. According to Mr. Jamefon, it would appear that the carbonated iron-robe by decomposition lose their carbonic acid, and are in time converted into the oxydated varieties. In those common clay iron-robe which have a yellow or brown freak, the iron is in the flate of hydrate; in those having a red freak in the oxydated flate, and in most of the varieties having a grey freak, the iron is carbonated. When the carbonated varie-
ties begin to decay they become soft, and assume a liver or reddish-brown colour. This species of iron-robe, besides occurring in numerous thin flata alternating with coal-shale and sand-robe in the coal formation, occurs in kidney-shaped and rounded nodules. The greattst repository of this ore in Great Britain is in the coal basin extending from Pem-
brokeshire into Glamorganshire, on the borders of the Britol Channel.

Clay-slate, Argillaceous Schubus. See Slate.

Clay-stone is nearly connected with basaltic and por-
phyritic rocks of the trap formation. It forms the basis of clay porphyrtes. The colours of clay-stone are blueifh and yellowifh-grey or yellowifh-white, lavender-blue and brownifh-red. It is sometimes spotted and striped. It has a fine earthy fracture, sometimes inclining to flaty or con-
choïdal. 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 Shrop-
shire.

Clinz-stone, Phonolite, Porphyry-flust, Feldspath compate
stones, Fr. has most frequently a greenifh-grey colour. It occurs in beds of considerable magnitude in rocks of the trap formation. (See Trap.) The principal fracture is flaty, with a fealy aspect and a glintening pearly luflre. The croz fracture is splintery and faintly glimmering. It occurs columnar and tabular, is tranfluent on the edges, and easily frangible. The thin tables yield a metallic found when fluck. The specific gravity is 2.8. It melts before the blow-pipe into a grey-coloured glafs. According to Kla-
proth, the constituent parts are,

Silex - - - - 57.25
Alumine - - - - 23.50
Lime - - - - 2.75
Soda - - - - 8.10
Oxyd of iron - - - - 3.25
Manganefse - - - - 0.25
Water - - - - 3.00

98.10
MINEReALOGY.

Specific gravity is 3.3. According to Vauquelin, the constituent parts are,

- Silex - - - 50.0
- Lime - - - 24.0
- Magnesia - - - 10.0
- Alumine - - - 1.5
- Oxyd of iron - - - 7.0
- Oxyd of manganese - - - 3.0

Total of 100 parts: 95.5

Colinbite, an ore of tantalum. See Tantalite.

Compact Felspar. See Felspar, Addenda.

Copper Nickel. See Nickel-ores, Addenda.

Copper-ores. (See Copper-ores, and Phosphat of Copper, Addenda.) The following table of the annual quantity of copper raised in Europe is given in the last edition of Jameson’s Mineralogy, vol. iii. p. 196. The authority is not stated.

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 Wefthalia 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>25,000</td>
</tr>
<tr>
<td>Saxony in 1808</td>
<td>1,520</td>
</tr>
<tr>
<td>Prussia after the treaty of Tullit</td>
<td>6,337</td>
</tr>
<tr>
<td>Spanish European mines</td>
<td>6,309</td>
</tr>
</tbody>
</table>

Total of quintals 383,195

Cornelian. See Chalcedony and Agate.

Corundum, Coriand, Fr. The French mineralogists chiefly 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 spher, 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 rhombooids, the angles of which are 86° 38’ and 93° 2’.

(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 micasous schist in Italy.

Cross-stone, Hartnaton, Haüy. See Zeolite.

Cryolite, Alumine fluite, 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 shining or glinting vitreous lustre, inclining to pearly, and is translucent. The structure is imperfectly lamellar, with joints in three directions parallel to the faces of a rectangular parallelopiped. It is softer than fluor spar, and is easily fusible. 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,

- Alumine - - - 24
- Soda - - - 36
- Fluoric acid and water - - - 40

According to Vauquelin,

- Alumine - - - 21
- Soda - - - 32
- Fluoric acid and water - - - 47

Crysoberyl, Cynophane, Haüy. See Crysoberyl.

Cuprous Arseniate of Iron, Martial Arseniate of Copper. See Copper-ores.

Cyanite, or Kyaneite; Sapphir, Sauffure; Dorthene, Haüy. See Kyante, Addenda.

Datolite, (See Datholite,) is composed of boracic acid, united with lime and silex. 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 HANSF in to be an oblique four-sided prism, with angles of 77° 30’ and 102° 30’. It gelatinizes with acids. In the flame of a candle it becomes opaque and friable. Before the blow-pipe it turns to semi-melt, and then melts into a globule of a pale rosh-colour.

Diallage, Smaragd of Sauffure; Diallage vert, Haüy. Its colours are grawa-green and apple-green; it occurs massive and disseminated. The lustré is shining, glinting, and pearly; it is translucent on the edges. Diallage has a lamellar structure, with a two-fold nearly rectangular cleavage, only 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,

- Silex - - - 50.0
- Magnesia - - - 6.0
- Alumine - - - 11.0
- Lime - - - 13.0
- Chrome - - - 7.0
- Copper - - - 1.5

Diallage is found in Corfica with sauffurit, and on Mont Blanc in Switzerland; also in Carithia and Transylvania. The mixture of diallage and sauffurit 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 Metalloid. 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 rote-red and cherry-red. From the latter colour it passes into olive-brown, and yellowish-brown, ochre-yellow, orange-yellow, wine-yellow, and
and sulphur-yellow; further into fikín-green, asparagus-green, pillachio-green, leek-green, and mountain-green, which latter paltes into greenish-grey and greenish-white.

The olive-brown paltes into blackish-brown, pitch-black, and greyish-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, set on the lateral planes; segments of the tetrahedron, either detached or united, forming twin crystals; the rhomboidal dodecahedron, with convex planes or faces; the fame figure somewhat elongated; the dodecahedron, with the planes divided diagonally; an acute double fixed-pyramid, with the lateral planes set on each other, and the apex acuminated by fix planes set on the lateral planes; a flat double three-sided pyramid, with convex planes set laterally on each other, and the angles of the common base acuminated by four planes set on the lateral planes; a flat double three-sided pyramid, on which the lateral planes of the one are set on the lateral edges of the other, and the angles of the common base truncated; a fix-fixed table, with oblique terminal plates; and lattly, 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 firereaked; the external luflre of the natural diamond is adamantine, and alternates from splendid to glimmering; internally it is highly fplendent. It is feldom completely transparent. The black diamonds are nearly opaque. The diamond has a four-fold equiangular cleavage parallel with the planes of the octahedron in this direction; it is rather easily fragile. The diamond feratches all other minerals. Its specific gravity is flated by Mr. Lowry at 3.488. The diamond, besides its other localities, is found in the district of Serro Dofria, in Brazil: it was flrst discovered there about the middle of the last century, in gullies of torrents, and the beds of rivers, where gold is also obtained, but for a very considerable time, the diamonds being unknown, were difregarded and thrown away. Diamonds occur also in other parts of Brazil, in the rivers Giquitig. 

Diaspore is regarded as a variety of wavelitic. (See Wavelite.) It occurs in curved lamellar concretions easily separable from each other; it has a grey colour, a shining pearly luflre, the angular pieces cut glafs. It flies before the blow-pipe, but is infufible. Its specific gravity is 3.43.

According to Vaquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</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>
</tbody>
</table>

**Dichroite.** See Iolite, Addenda.

**Dioside.** See Alalite, Addenda.

**Dioptare.** Emerald Copper Ore, occurs in crystallized fixed prisms, acuminated by three planes set on the lateral edges: it is tranflucent, and feratches glafs feebly. The specific gravity is 3.3. Hairy. According to Luvian, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</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>
</tbody>
</table>

**Dolomite.** Compait, magnesian lime-flone. See Magnesian Lime-flone, Addenda.

**Egyptian Jasper.** See Jasper.

**Elaoilite, Fettlein, Werner; Piez-grafs, Haüy.** The colours of this mineral are dark-greenish or blueish-grey, and flesh-red; it is tranflucent in a low degree, and has a shining refrinous luflre. The bluefs varieties display a peculiar opalence. It occurs massive, and has a diftinct double cleavage. The fracture is uneven. It feratches glafs, is rather
MINERALOGY.

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,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>46.50</td>
</tr>
<tr>
<td>Alumina</td>
<td>30.25</td>
</tr>
<tr>
<td>Lime</td>
<td>0.75</td>
</tr>
<tr>
<td>Potash</td>
<td>18.00</td>
</tr>
<tr>
<td>Oxide of iron</td>
<td>1.00</td>
</tr>
<tr>
<td>Water</td>
<td>2.00</td>
</tr>
</tbody>
</table>

According to Vauquelin,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>44.00</td>
</tr>
<tr>
<td>Alumina</td>
<td>34.00</td>
</tr>
<tr>
<td>Lime</td>
<td>0.12</td>
</tr>
<tr>
<td>Potash and soda</td>
<td>16.50</td>
</tr>
<tr>
<td>Oxide of iron</td>
<td>4.00</td>
</tr>
</tbody>
</table>

This mineral has hitherto been found only in the rock named zircon sienite. (See Zircon Sienite.) It is claffed by Mr. Jamefon in the felpspar family; but is placed by Werner between jasper and cat’s-eye.


Electrum, an argentiferous gold-ore, or native alloy. Its colour is a pale brass-yellow. It is not soluble either in nitrous or nitro-muriatic acid. It contains, according to Klaproth,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>64</td>
</tr>
<tr>
<td>Silver</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

It occurs at Schlangenberg, in Siberia.

Emerald, Emeraldus vertus, Haüy. See Emerald.

Faffe emeralds are sometimes offered for sale, which are either green flour fpar, green quartz, or prafes. The emerald of Brafl 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 crystal or the hexagonal 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 glaucine; but the colouring matter of the emerald chrome is wanting in the beryl. See Geo.

Emery, Corindon granulatâ, Haüy. (See Emery.) This mineral owes its hardness to an intermixture of blue corundum. See Adamantine Spar, and Corundum, Addenda.

Epidote. (See Pizaxite, and Thallite. Under the latter article, for Arundel in Norway, &c.) Epidote occurs at the Malvern-hills in Worceftershire, at Wallow Cragg near Keswick in Cumberland, and near Marazzion in Cornwall.

Episom Salt, Native, or sulphate of magnesia, occurs as efflorescence at Hurlet near Paisley, and sometimes is found efflorescent on old walls, and on the surface of different rocks, particularly pygmm, sand-flone, clay, and compact lime-flone.

Euclare. See Euclare.

Fainlerz, Werner; grey copper ore. See Copper.

Ores. Vol. XXXIX.

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 felpspar, in its original signification, denoted mountain fpar. In the mineralogical systems of Werner and Mr. Jamefon, the felpspar family comprizes various species of minerals, which are supposed to be nearly allied to felpspar. The felpspar species is also divided into adularia, glaffy felpspar, Labrador felpspar, common felpspar, disinte grated felpspar, and compact felpspar.

Adularia. (See Felspar.)—The forms of crystallis of adularia are the fame as those of common felpspar. It poifles double refraction. It melts before the blow-pipe into a transparent white glafs. Adularia occurs in veins in granite and gneifs, in various parts of Aberdeenhine and Bamshire, in the 7ile of Arran, and in the granite of Switzerland, France, and Germany. The largest and most beautiful cryfals are found in the mountain of Stélia, a part of St. Gothard. Rolled pieces having a beautiful pearly light are collected in the island of Ceylon. The variety which exhibits a fhong pearly light is cut in a semi-lobular form, and is called under the name of morn-ßtone, and is usually worn as a ring-ßtone.

Gffluffy Felpspar occurs always cryfllized in broad rectangular four-fided prisms, bevelled on the extremities. These cryfals are very much cracked, and always imbedded. It is transparent, and has a fpleffent vitreous luflre internally. Its other characters agree with adularia. It occurs in pitch-ftone and trap in various parts of Scotland.

Labrador Felpspar. See Felspar.

Common Felpspar occurs variously cryfllized. Haüy enumerates more than twenty of its secondary forms; several of them are represented Plate I, figs. 8, 9, 10, 11, 12, &c. Cryfllallography. The primitive form is an oblique-angled parallelopiped. The structure is perfectly lamellar, with a double, very distinct, rectangular cleavage, and an oblique indiffident cleavage intersecting the two former. The four rectangular planes have pfpentent faces; the faces of the oblique cleavage are dull. This remarkable character is peculiar to felpspar, and may very frequently be observed in the rhomboidal fragments of this mineral. Felpspar has been frequently analyzed with different results. According to Berzuchus, the most probable composition of common felpspar, fo far as we can calculate it from the many analyses of which we are in possession, is, that the alumine bears the fame 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 Berzuchus’s new system of mineralogy. See Syslem of Mineralogy.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>64 - 62 - 68 - 66 - 66.26</td>
</tr>
<tr>
<td>Alumina</td>
<td>20 - 17 - 15 - 17 - 17.61</td>
</tr>
<tr>
<td>Potash</td>
<td>14 - 13 - 14 - 12 - 16.13</td>
</tr>
<tr>
<td>Lime</td>
<td>2 - 3 -</td>
</tr>
<tr>
<td>Protoxyd</td>
<td>of iron</td>
</tr>
<tr>
<td></td>
<td>1 - 1 - 1 -</td>
</tr>
</tbody>
</table>

The lime and protoxyd of iron are regarded as accidental admixtures. Felpspar is one of the principal constituent ingredients of many of the rocks called primary, in many of the trap rocks, and many of the lighter-coloured lavas. It forms an essential constituent part of granite, gneifs, sienite, greenstone, and forms the base of many porphyries, and the rock called white-flone. (See White-Stone.) In green-flone, the felpspar is often tinged of a green colour, from the admixture of hornblende or augit. In many of the porphyries, it exists in a compact state, or as compact felpspar. The colours of compact felpspar are various shades of white, grey, green, or red. The
lamellar structure is nearly lost in many of the compact felspars, particularly in those varieties which have little luftre. 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 mafive and in imbedded crystals which have the same form as common felspar. It is glimmering, glimmering, and dull and soft and felctile. In some instances, it appears to be felspar in a decomposing slate; in others, to be a softer kind of felspar in an unaltered slate.

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 structure, and an uneven cross fracture. Internally it is glimmering. Fibrolite is harder than quartz. Its specific gravity is 3.21. According to Chenevix, the constituent parts are:

| Alumine | - | - | 58.25 |
| Silex   | - | - | 38.00 |
| Iron and loxa | - | - | 3.75 |

100

Figure-Stone. Agalmetolite, or biildteen.
Fish-Eye-Stone, or ichthyophthalmithe.
Flint. See Flint.
Float-Stone, Quaer melinite, Haüy; sometimes called swimming quartz. Its colours are yellowish-white and grey. It is dull, earthy, and friable, absorbs water and becomes translucent. Its specific gravity is less than water, being from 0.448 to 0.793. The constituent parts are:

| Silex | - | - | 91 to 98 |
| Water | - | - | 6 |
| Carbonate of lime | - | - | 2 |
| Oxyd of iron and alumine | - | - | 2 |

It is found at St. Oien, in the vicinity of Paris, along with felspar, and sometimes contains the same petrifactions as those found in flint. Flint is sometimes found in the centre of float-stone, and paffes into it by gradation. Float-stone may therefore be considered as a porous flate of flint.

Flos Ferri, Coralboild Aragonite, occurs in snow-white dendritical branches, either smooth or incrusted with points. It is found in the mines at Dufton Fell, Westmoreland, and is fupposed by count Bouron to be formed by sublimation.

Fluor Spar, Fluor, Werner; Chaux flaitées, Fr. See Felspar.

Foliated Granular Lime-Stone. The name given by Mr. Jamefon to crystaline primitive lime-stone, called by the French chaux carbonatée fraucaire. See Lime-Stone, and Lime-stone, Addenda.

Fossil-Copal, or Highgate Refin, a refracous 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 refracous 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 refraous luftre, is brittle, and yields easily to the knife. The specific gravity is 1.046.

Fullers-Earth, Argile fontairée, French. See Fullers-Earth.

Gadolinite. See Gadolinite.

Galema, or Sulphure of Lead, Lead Glance; Plumb sulphure, Haüy. See Lead.

Garnet, Grenat, French. (See Garnet, Precious, and Garnet, Common.) The garnet family of Werner and pro-fessor Jameson, in their mineralogical systems, comprises the following minerals, supposd to have an alliance with garnet: leucite, velufian, grossular, melatine, allochroite, garnet, granite, pyrope, and cinnabar-stone. (See these articles in the preceding volumes, and in the Addenda.) In the British Museum, these minerals are chaffed together under the name of garnet substances, whereby the confusion of making the same word represent both the genus and species is avoided.

Glance-Coal, Anthracite. The coal which has a splendid luftre, and burns without flame. (See Coal.) It is principally composed of carbon, and paffes into graphite, or black-lead. Werner divides glance-coal into three sub-species; conchoidal glance-coal, flaty glance-coal, and columnar glance-coal. See Coal.

Glauber Salt, Native Glauberite; Soda sulphate, Fr. occurs as a mealy efflorescence in the neighbourhood of some salt lakes, and occasionally encrusting sand-stone and marl-flate. It is sometimes flatactitic, botryoidal, or crystallized in acicular crystals. According to Reufs, the glauber flat of Eger, in Bohemia, contains

| Sulphate of soda | - | - | 67 |
| Carbonate of soda | - | - | 16 |
| Muriate of soda | - | - | 11 |
| Carbonate of lime | - | - | 5 |

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, is doublets once a part of the metallic veins that have been destroyed 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 poffefion of the Rev. Mr. Hennor, of Plymouth.

Native gold was found in alluvial foil 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 summer's a quantity was collected equal to 100,000l. sterling. Gold was obtained a few years since in a ferruginous land 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 Portuguese colonies in America is stated by Humboldt at 45,580 pounds troy, of which 25,000 pounds weight comes from the Spanish colonies; the remainder from the Portuguese, 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 foot of these immense mountains which run in a chain nearly parallel with the coast, from 5° to 35° of south latitude. Many of the silver-ores in America are also rich in gold. (See Silver.)
MINERALOGY.

SILVER. For a more particular account of these repositories of the precious metals, we must refer our readers to the various works of M. Humboldt, to whom we are indebted for almost all 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 1802 and 1805, is stated at one hundred and sixty-fix millions in pounds sterling; an amount some-what exceeding that of the present national debt of England!!

Grammatite, Tremolite. See Tremolite.
Granular Lime-stone, flinty marble; Chaux carbonatée fluorscribe. See LIME-STONE, and LIME-STONE, Addenda.
Graphic Gold and Graphic Tellurium. See Tellurium.

Graphite. Plumbago or black-lead, (see Plumbago,) has an iron-grey colour, and a glimmering or glistening metallic lustre. It is fettile, and when fresh cut has a lead-grey colour: it is uncouth to the touch, yields to the nail, and leaves a distinct lead-grey mark on paper. Before the blow-pipe it gradually burns away, leaving a portion of red oxvd of iron. According to Berthollet, the constituent parts are,

<table>
<thead>
<tr>
<th>Element</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>90.9</td>
</tr>
<tr>
<td>Iron</td>
<td>9.1</td>
</tr>
</tbody>
</table>

The graphite of Borrowdale occurs with ochreous and unctuous clay; it is found in nodules and maffes 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. Three beds of scaly graphite have lately been discovered in a rock of mica-slate or gneiss, near Buxey, in Inverness-shire.

Green Earth, Chlorite zérophrique, French. This mineral, though made a distinct species by Werner, appears to be but earthy chlorite (see Chlorite): it generally occurs in cavities or encrusted agates in amygdaledol. It is of various shades of green, is soft and fettile, and adheres slightly to the tongue. The specific gravity is 2.5. Before the blow-pipe, it is converted into a black flag. It is used as a green colour in water-painting. When lightly burned, it affords a beautiful and durable brown.

Grenatite, Staurosite, Haïy; the fassaule of some mineralogists. (See Staurolith.) This mineral is called 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 cut on the lateral edges, and the edge of the bevelment is truncated. The crystals sometimes interlace each other, forming a croft; hence it has been called croft-stone by some mineralogists: but it is a very distinct species from the harmotome, or croft-stone, which is a member of the zeolite 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-slate, 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, Padlehead, and Huel bays. It is found also at Glenedenning, in Dum-frieshire.

Grey Cobalt-Ore. (See Cobalt-Ore.) This mineral is found at Herland and Doktooth mines, and in some other veins, in Cornwall.

Grey Mangansc-Orce. See Manganese.
Gypsum, felenite; Chaux fulfate, Haïy. See Gypsum.
Harmotome, Croft-stone. See Zeolite.

Haïyne, Latialite, Haïy. A mineral claffed by the German mineralogists with the azure-stone, or lapis lazuli family. It was first discovered in the volcanic rocks of Albano and Frafcati, and called initialite, from ancient Latium, and was afterwards discovered in the bafaltic rock of Andernach, and has been called Haïyne, in honour of the celebrated mineralogist Haïy. Haïyne has a sky-blue colour, passing into pale Berlin-blue and bluein-green. It occurs in imbedded grains, and crytallized in minute splendent rhomboidal dodecahedrons. The fracture is conchoidal, passing into uneven; it has a vitreous lustre, is transparent or semi-transparent, ferstches glafs, and is infusible before the blow-pipe. When pulverized, it gelatinizes with muriotic acid, giving out an odour of sulphuric hydrogen. The specific gravity is from 3.1 to 3.3. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>30.0</td>
</tr>
<tr>
<td>Alumine</td>
<td>15.0</td>
</tr>
<tr>
<td>Sulphate of lime</td>
<td>20.5</td>
</tr>
<tr>
<td>Potash</td>
<td>11.0</td>
</tr>
<tr>
<td>Iron</td>
<td>9.1</td>
</tr>
<tr>
<td>Water</td>
<td>17.5</td>
</tr>
</tbody>
</table>

95.0

It has by some mineralogists been claffed with saphirin, and described under the name of saphirin. It was arranged by Cordier with fpinel.

Heavy Spar, Sulphate of Baryste, 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 maifive and crytallized in many metallic veins. Its colours are various shades of white, yellow, red, green, grey, and blue. Crytallized heavy spar is transparent or tranflucent, and refracts doubly; it has a distinct lamellar structure, and splits into a right-rhomboidal prism, which is its primitive form; the angles of the rhomb are 78.3° and 101.90. The joint parallel to the base of the rhomb is the most distinct. The lustre is shining, between vitreous and piffinous: it yields readily to the knife. Before the blow-pipe it decrepitates violently, and then melts into a hard white enamele. A piece exposed to the blow-pipe, and laid on the tongue, gives the flavour of sulphuric hydrogen. The powder of some varieties of heavy spar, when calcined, absorbs light, and emits it again in the dark. Sulphate of frontian (see Strontian) is the only earthly 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

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barytes</td>
<td>67</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>33</td>
</tr>
</tbody>
</table>

100

Mr. Jameson makes the following varieties of heavy spar, which he clasifies 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.
**MINERALOGY.**

*Earthy Heavy Spar* occurs sometimes loose, and sometimes cohering in the drusy cavities in veins; it is composed of dull or glimmering dusty particles, which feel meagre.

*Compact Heavy Spar* occurs massive, effaced, reniform, semi-globular; it has a coarse earthy fracture, and is sometimes imperfectly foliated; it has a glimmering lustre, is slightly translucent, soft, and easily frangible. It is often marked with dendritic delineations. According to Weilrumb, it contains:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphate of barytes</td>
<td>83</td>
</tr>
<tr>
<td>Silex</td>
<td>6</td>
</tr>
<tr>
<td>Alumine</td>
<td>1</td>
</tr>
<tr>
<td>Water</td>
<td>2</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

In Derbyshire, this mineral is called *crack* 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 lime-stone, but is much heavier, and does not effervesce with acids.

*Lamellar, or Crystalized 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 long horizontal table, either perfect or variously bevelled. 4. Eight 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 chefsuant-brown colour. It occurs in reniform or botryoidal masses, and has a plamose or diverging fibrous structure.

*Radiated Heavy Spar, or Bolognese Spar.*—Its colours are, smoke-grey, ash-grey, or yellowish-white. It occurs in roundish collected pieces, which are always covered with marl 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:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphate of barytes</td>
<td>62</td>
</tr>
<tr>
<td>Lime</td>
<td>2</td>
</tr>
<tr>
<td>Silex</td>
<td>16</td>
</tr>
<tr>
<td>Alumine</td>
<td>14.75</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>97</strong></td>
</tr>
</tbody>
</table>

*Columnar Heavy Spar:* Baryte sulphaté bacillaire, Haüy.

—Its colours are, yellowish, greyish, and greenish-white. It occurs crystallized in acicular oblique four-sided prisms, laterally aggregated into columns; the lustre is shining and pearly: it is translucent, and has a lamellar structure.

*Prismatic Heavy Spar* is heavy spar crystallized in four-sided or six-sided prisms, variously acuminate and modified by bevelments and truncations.

*Hepatite, Baryte sulphaté fétide,* Haüy, may be clasped as a variety of heavy spar, which poissified the property of yielding a fetid sulphureous odour when heated or rubbed. It occurs in globular masses, from an inch to a foot in diameter; these masses have a curved lamellar structure. According to John, the constituent parts are:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphate of barytes, with a trace of tronitien</td>
<td>93.58</td>
</tr>
<tr>
<td>Sulphate of lime</td>
<td>3.48</td>
</tr>
<tr>
<td>Oxyd of lime</td>
<td>0.87</td>
</tr>
<tr>
<td>Water, carbonaceous matter, sulphur, and alumine</td>
<td>2.00</td>
</tr>
</tbody>
</table>

According to Klaproth,

<table>
<thead>
<tr>
<th>Compound</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphate of barytes, with a trace of tronitien</td>
<td>85.25</td>
</tr>
<tr>
<td>Carbon</td>
<td>0.50</td>
</tr>
<tr>
<td>Sulphate of lime</td>
<td>6.20</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>5.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.00</td>
</tr>
<tr>
<td>Lofs, including water and sulphur</td>
<td>2.25</td>
</tr>
</tbody>
</table>

**Total:** 100.00

*Hepatite occurs at Buxton, in Derbyshire.*

*Heliotrope, Quaars agate penduli,* Haüy.

*Hematite, Black and Brown:* For oxyde hematite, Haüy.

*Hematite, Red:* For dolerite concretions, Haüy. See *Iron-Ores.*

*Hepatic Pyrites, or Lower Pyrites.* See *Pyrites.*

*Hematite.* See *Heavy Spar, Addenda.*

*Highgate-Resin.* See *Fossil-Copal, Addenda.*

*Hollow Spar.* See *Chalcedony, Addenda.*

*Honey-Stone.* See *Malachite.*

*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 silt and chalcedonic flint in the sand strata below chalk, is called chert. (See *Chert, Addenda.*) This is a kind of horn-stone. Horn-stone is the *petro-fissé* of some mineralogists, and under that name is often confounded with compact selloar. Indurated flake, which contains a large portion of filex in its composition, is sometimes called *hornstone flake.* Saffure, under the names of palioperite and neoptere, appears to include both the splinterly horn-stone and flinty flake of Werner. Werner divides horn-stone into three sub-species, splinterly horn-stone, conchoideal horn-stone, and wood-stone.

*Splinterly Horn-stone* occurs of various shades of grey, red, and green. It is generally massive, but sometimes found in large balls, and sometimes lenticular, or in the form of crysall, in the cavities where crysall have once occurred, and hence called suppositititious crysall. The lustre is dull, the fracture splinterly; it is more or less translucent, is somewhat less hard than quartz. It is infusible before the blowpipe, which distinguishes it from compact selloar. The latter mineral is not so hard as horn-stone, and has more lustre. Horn-stone paves into compact selloar, quartz, common jasper, and chalcedonic flint. In the latter substance, it is frequently difficult to determine which of these it should be placed. It forms the bals of horn-stone porphyry.

*Conchoideal Horn-stone* is glimmering or glittering, with a vitreous lustre; it has a more or less perfect and flat conchoideal fracture. It is harder and less translucent than splinterly horn-stone. It occurs massive, globular, and sometimes forms suppositories crysall. It is found in veins and beds. Chert appears to belong to this sub-species.
MINERALOGY.

Wood-flone, Quarz agathe xylolide, Haüy, is generally various shades of grey, frequently striped or clouded. It occurs rounded, and in the shape of the trunks, branches, or roots of trees; it is generally translucent at the edges, with little or no lustre. The crosf fracture is imperfectly conchoidal, the longitudinal splintery and fibrous. Wood-flone is properly wood fiilicified, in which the greater part of the vegetable matter has disappeared, and siliceous matter has occupied the place, preferring the form and texture of wood. Some wood is petrified with opal, forming wood opal; and sometimes the mineral matter of petrified wood is quartz, or calcareous earth.

Hornblende, Amphibole, Haüy. 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. Haüy, under the term amphibole, classes 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 rhomboid prism, the alternate angles of which are 124°55' and 56°55'. This is the form of the primitive crystal, and distinguishes it from epidote, which cleaves at an angle of 114°30' and 65°30'; and augit or pyroxene, which cleaves at an angle of 92° and 88°. The crosf fracture of hornblende is coarse-grained, uneven; it melts easily before the blow-pipe into a greyish-black coloured glass. These characters, together with the cleavage, serve to distinguish hornblende from augit or epidote; its inferior hardness distinguishes it from fchorl.

Common Hornblende occurs both massive, disseminated, and crystallized; the crystals are oblique four-sided prisms, aggregated or long flatish prisms, intersecting each other, or confusedly radiated. The structure is lamellar or banded. The crystals are long and deeply streaked longitudinally. The lustre is shining 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 3.26 to 3.28. According to Klaproth, the constituent parts are,

<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>47.60</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
<td>-</td>
<td>26.00</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
<td>-</td>
<td>8.00</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
<td>-</td>
<td>2.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
<td>-</td>
<td>15.00</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>0.50</td>
</tr>
</tbody>
</table>

98.50

This mineral occurs forming beds in mountains, or is disseminated, as a constituent part of many compound rocks. It occurs occasionally in granite, gneisf, mica-flate, and slate, and is an effential part of fienite 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 Charwood forest in Leicestershire, and in Devonshire, Cornwall, and Cumberland.

Bafaltic Hornblende, Amphibole schorbiq bafaltique, Fr.

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 schorl, until Werner pointed out its characters.

Hornblende-Slate occurs in beds in granite, gneisf, and mica-flate; in the latter rocks, it is often much intermixed with mica, and sometimes contains garnets, as is the case near Tyndrum in Perthshire. Its colour is greenish-black. It has in the mass a flaty structure, and is internally laminar or fibrous, and has a glintening or velvet-like lustre. No very well characterized beds of hornblende-slate occur in England.

Horn-Mercury, Mercure muriaté, Haüy. See Mercury-Ores.

Horn-Silver, Argent muriaté, Haüy. See Silver-Ores.

Humite occurs at mount Somia near Naples, in a granular topaz rock, intermixed with brown and olive-green mica and white Haüyne. Its colour is reddish-brown; it occurs crytatallized in octahedrons, which are always more or less truncated and bevelled; the planes are frequently transversely streaked; it has a shining lustre, and is transparent; it fractures quartz with difficulty. This mineral was named humite in honour of Sir Abraham Hume, by the count de Bourron, who has given the preceding characters of it in his Catalogue Mineralogique.

Hyacinth, Zircon hyacinth. See Zircon.

Hyalite, Muller glafs, Werner; Quarz concretion, Haüy. (See Hyalite.) The specific gravity of this mineral is given in the last edition of professor Jansen's Mineralogy at 2.47, from Karlsen. Its constituent parts are given by Bucholz as under:

<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>92</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>6.33</td>
</tr>
<tr>
<td>Trace of alumine</td>
<td>-</td>
<td>-</td>
<td>1.66</td>
</tr>
</tbody>
</table>

99.99

Hydrate of Magnesia has a white colour with a greenish tinge; it occurs malloive, has a lamellar-bladed structure, a pearly lustre, and is more or less transparent, but becomes
MINERALOGY.

comes opaque by exposure to the air. The lamelle are somewhat elastic; it is soft, and adheres lightly to the tongue. Specific gravity 2.3. It is infusible, but soluble in muriatic acid. According to Vauquelin, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesia</td>
<td>64</td>
</tr>
<tr>
<td>Water</td>
<td>29</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>2.5</td>
</tr>
<tr>
<td>Silex</td>
<td>2</td>
</tr>
</tbody>
</table>

97.5

HYDROPHANE. 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 of 80°. It is opaque, and yields a greenish-white streak. It is harder than common hornblende. Its specific gravity is 3.38. Before the blow-pipe it blackens, but is infusible. According to Klaproth, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</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>Oxyd 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>
<tr>
<td>Manganese, a trace</td>
<td></td>
</tr>
</tbody>
</table>

97.5

Until very recently, this mineral had only been found on the coast of Labrador, where it forms a constituent part of a rock composed of Labrador felspar, and sometimes containing common hornblende and magnetic iron-oxide. It has been lately discovered by Dr. Macculloch in Sicenite, at Lock Scawig in Sky, also near Portroy, and is supposed to exist in many rocks which have hitherto been designated green-oxides.

IETHYLOPHTHALMITE, Apophylite, Haüy. See ZEOLITE.

IODCHAS, Vesuvian. See Vesuvian.

INDIANITE, a mineral brought from the Carnatic, of which we have the following account by its discoverer the count de Bournon. Its colours are white and grey, its lustre shining; it has a lamellar structure, is translucent inclining to transparent; it fractures glaas, but is less hard than felspar; it occurs massive, and is associated with hornblende. Its specific gravity is 2.74. According to Chevénix, the constituent parts are,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>42.5</td>
</tr>
<tr>
<td>Alumine</td>
<td>37.5</td>
</tr>
<tr>
<td>Lime</td>
<td>15</td>
</tr>
<tr>
<td>Iron</td>
<td>3</td>
</tr>
<tr>
<td>A trace of Manganese</td>
<td></td>
</tr>
</tbody>
</table>

98

INDICOLITE, Indigo blue, tourmaline. See Tourmaline.

IOOLITE, Diopside, occurs principally crystallized, in small equiangular and equilateral fix-sided prisms, which have rough surfaces. The colour is violet-blue, or dull prussian blue, but when viewed by transmitted light at right angles to the axis of the prism is a brownish-yellow. The structure is indifferently lamellar, with joints passing through the axis at right angles to the lateral faces of the prism. The fracture is uneven, pitting into conchoidal. It paltes from translucent to opaque. Iolite fractures quartz. Its specific gravity is 2.5. It is not affected by acids. Before the blow-pipe, it melts with difficulty into a greenish-grey enamel. This mineral occurs at Cape de Gage, in Spain; it is found imbedded in fragments of gneists and compact felspar, contained in what is supposed by Cordier to be a volcanic tufo, which contains, besides blocks of scoria, obsidian and basalt. Iolite has also been found in trap at Arendal in Norway.

IRIDÉUM, Naïve, has a pale red or grey colour; it occurs in flat irregular, in alluvial, or in South America. It has a shining metallic lustre, a lamellar structure, is brittle and harder than platinum. Its specific gravity is 19.5. It is proved by Dr. Wollaston to be an alloy of Iridium and Osium; which see.

IRON-CLAY is of a reddish or brownish-red; it occurs massive and fuculent, as the bafes of some amygaloids which form beds in basaltic rocks. It is intermediate between basalt and watke, having less hardness than the former, and more than the latter. It is also more easily frangible than either basalt or watke.

IRON-FIINT is generally of a brown or brownish-red colour; it is opaque and hard, and has an imperfeet 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 infusible. 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>Mineral</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>93</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>92</td>
</tr>
<tr>
<td>Volatile matter</td>
<td>1</td>
</tr>
<tr>
<td>Oxyd of manganese</td>
<td>1</td>
</tr>
</tbody>
</table>

99 99-75

Pebbles of iron-fiint are used at Worcester for burning 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.

IRON, Naïve. See IRON-ORES.

IRON, Naïve and Meteoric, Fer naïve meteorique, 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-ORE 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; Fe sulphuré, Haüy; Gemmeiner schmelzfliks, Werner. Capillarity Pyrites, Fer sulphuré capillaire, Haüy; Haarkies, Werner. Cellular Pyrites, Zellkies, Werner. Radiated Pyrites, Fer sulphuré radie, Haüy; Strahltkies, Werner. Hepatic, or Liver Pyrites, La pyrite hepatische, Brochant; Leberkies, Werner. Magnetic Pyrites, Fer sulphuré magnetise, ou magnétique, Haüy; Magnetkies, Werner. Fohlated Magnetic Pyrites, Blatlicher magnetkies, Werner. For an account of these species, see PYRITES, and IRON-ORE.

IRON-STONE, Magnetic, Common, Fer oxydatile, Haüy; Gemmeiner
MINERALOGY.

Gemeiner magnetit, Werner. This ore is highly magnetic with polarity. According to Berzelius, it contains

Peroxyd of iron - - 71.86
Protoxyd of iron - - 28.14

It occurs in various parts of the world, chiefly in primitive mountains; it is found at St. Jull in Cornwall, and Tavistock in Devonshire.

Iron-fond, or Sandy Magnetic Iron-fond, 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-fond, Teneriffe.
Oxyd of iron - - 79.2
Oxyd of titanium - - 14.8
Oxyd of chrome, a trace - - 1.6
Oxyd of manganese - - 0.8
Silex and alumine - - 96.4

According to Thompson,

River Dee, Aberdeenshire.
Oxyd of iron - - 85.3
Oxyd of titanium - - 9.5
Articul - - 1.0
Silex and alumine - - 1.5
97.3

Earthly Magnetic Iron-fond; Fer oxydul fuliginanis, Haüy; Oxydrige magnetitbenz, Werner.—The colour is blueish-black; it is opaque, soft, feitle, and easily frangible. It appears to be common magnetic iron-fond in a state of decomposition. Common magnetic iron-fond and iron-fond 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-fond does not possess the magnetic property when at a depth in the earth, but it acquires it after exposure to the atmosphere.

Specular Iron-ore, or Common Iron Glance; Fer ocellat, Haüy; Eisenglanz, Werner.—This ore, according to different analyses, appears to contain about 90 per cent. of oxyd of iron. See Iron-ores.

Salty Red Iron-ore, or Iron Froth; Fer ocellat rouge luisant, Haüy; Rotter eisernahn. Ochre Red Iron-fond; Fer oxydul rouge graﬃer; Ochrer rotheisenbenz, Werner.

Compaq Red Iron-fond; Fer ocellat specular, Haüy; Dickher rotheisenbenz, Werner.

Red Hematite, or Fibrous Red Iron-fond; Fer ocellat concretionis, Haüy; Rotther glasfop, Werner. See Iron-ores.


—Brown iron-fond is distinguished from red iron-fond by its red streak and inferior specific gravity: it also contains more water, the brown iron-fond being an hydrate. This ore, according to professor Jameson, makes but indifferent cast-iron, but affords good malleable iron and excellent steel. See Iron-ore.

Compaq Black Iron-fond; Dickher sowerzeissenbenz, Black hematie; Mine de fer noir compacts, Fr.; Schwarzer glasfop, Werner.—When melted with borax before the blow-pipes, it yields a violet-blue glas; hence it is conjectured to contain much manganese.

Sparry Iron-fond; Chaus carbonaté ferrifereauer man- gane, Haüy.


Columnar Clay Iron-fond; Fer argileux basaltique, Fr.

Lenticular Iron-fond; Fer oxydul brun granuleux ou lenticalaire, Fr. (See Iron-ore.)—The following analysis of this ore is given by Daubrueil, Journal des Mines, 1816.

Peroxyd of iron - - 73
Water - - - 14
Silex - - - 9
Peroxyd of manganese - - 1
Lofs - - - 3

100


Reniform Clay Iron-fond; Fer oxydul geodi que, Haüy.—The constituent parts of this ore are stated by Daubrueil.

Peroxyd of iron - - 76
Water - - - 13
Silex - - - 7
Oxyd of manganese 2 a trace
Alumine - - - 1

97 99

See Iron-ore.

Pee-ore, or Pifform Iron-ore; Fer oxydul globusiforme, Haüy; Bobnere, Werner. See Iron-ore.


Picky Iron-ore; Fer oxydul pyrinte.—The pitchy iron described under the article Iron-ores appears to be a phosh- phate 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 Pilfs in Upper Silefia. Its colour is greyish-black, passing into dark liver-brown. It is said to occur forming crusts. It has a splendent or shining refrinons lunte. The fracture is imperfectly conchoideal; it is composed of granular dilincent concretions: it is translucent on the edges: the streak is lemon-yellow: it is soft. When placed in water, it becomes semitransparent and vitreus. According to Klaproth, its constituent parts are,

Oxyd of iron - - - 67
Sulphuric acid - - - 8
Water - - - 20

95

Blue Iron-ore; Blue Iron Earth; Fer phophaté terreux, Haüy.
MINERALOGY.

Häuly. (See Iron-ore.) According to Klaproth, this ore contains,

| Oxid of iron | - | - | 47·50 |
| Phosphoric acid | - | - | 32·0 |
| Water | - | - | 20 |
| **Total** | | | **99·5** |

**Chromate of Iron.** See Chrome, and Chromate of Iron, Addenda.

**Cuba Ore.** See Ores of Iron.

**Muriate of Iron, Native, or Pyrolusite, Fer muriaté, Fr.** has a liver-brown colour, inclining to pichachio-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 felicated structure and four-fold cleavage, the most 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 Jamefon's Mineralogy, vol. ii. p. 314.

<table>
<thead>
<tr>
<th>Country</th>
<th>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>1,075,679</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Austria</td>
<td>1,090,400</td>
</tr>
<tr>
<td>Prussia, after the treaty of Tilsit</td>
<td>322,053</td>
</tr>
<tr>
<td>Kingdom of Welfphalia 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>
</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.

**Iserine.** 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 schistus, which covers the granite of the Grampian-lills in Kincardineshire. Jasper occurs in some of the beds of manganite near Exeter.

**Jenite.** See Yenite.

**Jet Pitch-coal, Joyet, 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 refrinoous 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 distillation; 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. Diphacten, Häuly; Sapphir, Sapphire, Saffire.** Its colours are bluish, 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 hexahedral 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 longitudinally streaked. The lustre is shining and pearly, and that of the broad planes is sometimes splendent. 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 fracture of amorphous kyanite is more or less curved lamellar, passing into bladed. It is translucent or transparent; it scratches glass, and is easily fragrable. The specific gravity is 3·47 to 3·51. Some of the crystals becomes positively electric, others negative; hence the name of thene was given to it by Häuly, on account of its double electrical powers. It is infusible before the blow-pipe. According to Klaproth, its constituent parts are,

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99·0</strong></td>
</tr>
</tbody>
</table>

According to Langier,

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>97·05</strong></td>
</tr>
</tbody>
</table>

It occurs in primitive mountains, in mica-flate, talc-flate, and white-fole. It has been found at Boharn, in Bamfie and Bambour, Aberdeenshire. In India it is cut and polished, and sold as an inferior kind of faphphire. Sometimes crystals of kyanite may be seen joined and intermixed with grenolite, (see Grenolite,) which hews the near alliance of these minerals, which have also nearly the fame chemical composition.

**Labrador Peltsparr.** See Felixpar.
**Labrador Hornblende.** See Hyperstene, Addenda.
**Lapis-Lazuli.** See Lazuli.
**Lattialite.** See Häuly, Addenda.
**Laumonite.** See Zeolite.
**Lazmestone.** See Lazuli.
**Lazulite.** See Lazuli.

**Lead-Ores.** (See Lead, where eleven species of lead-ore are described.) The antimonial lead-ore is called the triple sulphuret of lead. Four other species of lead-ores have since been described; cobaltic lead-ore, native mummite, arsenate of lead, and muriate of lead.

**Cobaltic Lead-ore** is a fresh lead-grey colour, and a shining metallic lustre. It occurs minutely diffaminated,
and in extremely minute crystals, aggregated like moss; it is opaque, soft, and feeble. Before the blow-pipe it splits into small pieces, and communicates a small blue colour to borax.

Native Minium; Plomb oxydé rouge, Haüy.—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 ferrets. It has been found at Graffington, and other parts of Craven, in Yorkshire.

Muriate of Lead, or Corneous Lead-Ore.—Its colours are greyish or yellowish-white, paffing 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 cross fracture is conchoidal; it has a splendid 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,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of lead</td>
<td>35</td>
</tr>
<tr>
<td>Arlenic acid</td>
<td>25</td>
</tr>
<tr>
<td>Water</td>
<td>10</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>14</td>
</tr>
<tr>
<td>Silver</td>
<td>2.5</td>
</tr>
<tr>
<td>Silex</td>
<td>7</td>
</tr>
<tr>
<td>Alumine</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>95.5</td>
</tr>
</tbody>
</table>

According to Roffe,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of lead</td>
<td>66</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>12</td>
</tr>
<tr>
<td>Water</td>
<td>1.25</td>
</tr>
<tr>
<td>Silex</td>
<td>16.5</td>
</tr>
<tr>
<td>Alumine</td>
<td>7.5</td>
</tr>
<tr>
<td>Iron and oxys of manganese</td>
<td>2.5</td>
</tr>
</tbody>
</table>

This ore occurs in considerable quantities in some of the mines in Craven, in Yorkshire, and is infested as a rich ore of lead.

Conchoidal Phosphat of Lead contains a small portion of arsenic and muriatic acid. It differs from green lead-ores, described under the article Lead-Ores. When crystallized, the planes of the crystals are generally convex. It occurs also talcitic, reniform, and botryoidal. The colour is orange-yellow, passing into lemon-yellow and red; the fracture is conchoidal; it is translucent; internally the lute is shining and refrinous. Its specific gravity is 7.26. According to Langier, its constituent parts are,

<table>
<thead>
<tr>
<th>Constituent</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyd of lead</td>
<td>76.8</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>9</td>
</tr>
<tr>
<td>Arlenic acid</td>
<td>4</td>
</tr>
<tr>
<td>Muriatic acid</td>
<td>7</td>
</tr>
<tr>
<td>Water</td>
<td>1.5</td>
</tr>
</tbody>
</table>

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>Welfpahia in 1809</td>
<td>35,777</td>
</tr>
<tr>
<td>Austrian dominion</td>
<td>45,809</td>
</tr>
<tr>
<td>Spain</td>
<td>50,000</td>
</tr>
<tr>
<td>Prussia, after the treaty of Tilsit</td>
<td>12,002</td>
</tr>
<tr>
<td>Saxony in 1808</td>
<td>10,000</td>
</tr>
<tr>
<td>Russia</td>
<td>10,000</td>
</tr>
<tr>
<td>Bavaria and the Tyrol</td>
<td>400</td>
</tr>
</tbody>
</table>

Leeelite, a mineral very recently discovered at Gryphus, in Sweden, of which we have only the following description. It has a red colour, the lute and transparence
MINERALOGY.

Silex of horn, and the hardness of flint. The specific gravity is 2.71. Its constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>75</td>
</tr>
<tr>
<td>Alumine</td>
<td>22</td>
</tr>
<tr>
<td>Manganese</td>
<td>2.50</td>
</tr>
<tr>
<td>Water</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Lepidolite. (See Lepidolite.)** When that article was written, it was supposed that this mineral was exclusively found on Mount Hradisco, 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 flint-quadry at Ballachulish, at the head of Loch Fyne, and at Glenfiddich in Perthshire.

**Lecite, Amphigene, Haüy. See Lecite.**

**Limestone, or Tenite. See Yenite.**

**Lithomarge, Friable. (See Lithomarge.)** This variety is characterized by its sable particles foiling, and low degree of coherence. According to Klaproth, it contains

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>32.9</td>
</tr>
<tr>
<td>Alumine</td>
<td>26.50</td>
</tr>
<tr>
<td>Iron</td>
<td>21.0</td>
</tr>
<tr>
<td>Muriate of soda</td>
<td>1.50</td>
</tr>
<tr>
<td>Water</td>
<td>17.56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>94.5</strong></td>
</tr>
</tbody>
</table>

**Lithomarge, Indurated; Argil lithomarge, Haüy. (See Lithomarge.)** This variety occurs in veins in porphyry, gneifs, grey wacke, and serpentine, and in druffy cavities in basaltic rocks. It is intermediate between flåtite and variegated clay, and appears sometimes to laps into mear-cham.

**Lydi-an-Stone. See Flinty Slate, and Horn-stone, Addenda.**

**Lythrodens, a mineral discovered in Norway, which appears allied to chalolite, and was called lythrodens by Karlen, because when frill 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 massive and disseminated; it has an imperfect foliated structure. The lustre 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,

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>44.62</td>
</tr>
<tr>
<td>Alumine</td>
<td>37.36</td>
</tr>
<tr>
<td>Lime</td>
<td>2.75</td>
</tr>
<tr>
<td>Soda</td>
<td>8.00</td>
</tr>
<tr>
<td>Water</td>
<td>6.00</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.73</strong></td>
</tr>
</tbody>
</table>

**Mackle, a name given by the French mineralogists to chlaflolite or Hollow spar; which see.**

**Madrepore, 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 flars of madrepores: it has a minute and indistinctly curved lamellar structure. When rubbed, it emits a strong smell of sulphurised hydrogen gas. Patron supposes that this mineral is fascicular arragonite. According to Klaproth, it consists of

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>93.60</td>
</tr>
<tr>
<td>Carbonate of magnesia</td>
<td>0.50</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>1.25</td>
</tr>
<tr>
<td>Carbon</td>
<td>0.50</td>
</tr>
<tr>
<td>Silicious sand</td>
<td>4.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.75</strong></td>
</tr>
</tbody>
</table>

Other analyses give a small portion of sulphur and magnesia.

**Magnesian Lime-stone, or Compact Dolomite, has generally a yellowish-brown or yellowish-grey colour, a granular structure, a glimmering or brightening lustre, and diffuses fadowly 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 mafes, and variety contorted beds, and also forming a kind of lime-stone breccia in the red marle. According to Tennant, its constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>39.60</td>
</tr>
<tr>
<td>Magnesia</td>
<td>20.00</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>47.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Lydi-an-Stone.**

According to Thomson,

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>56.80</td>
</tr>
<tr>
<td>Carbonate of magnesia</td>
<td>40.84</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>0.36</td>
</tr>
<tr>
<td>Insoluble matter</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**Magneite, Magnesia carbonatæ, Haüy.** It occurs in amorphous mafes and tumberous fongiform. The fracture is fplintery and large, and flat conchoidal. It is opaque, earthy. The colour is yellowish-grey or white, with spots and dendritic delineations of blackish-brown. Magnefite 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 immersed in it, and becomes semi-transparent on the edges. It is feebly soluble with effervescence in concentrated muriatic acid. Before the blow-pipe it is infusible, but becomes sufficiently hard to scratch glass. Its specific gravity is 2.88. According to Bucholz, the constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesia</td>
<td>45.52</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>47.00</td>
</tr>
<tr>
<td>Silex</td>
<td>45.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>0.50</td>
</tr>
<tr>
<td>Magnesia</td>
<td>0.50</td>
</tr>
<tr>
<td>Lime</td>
<td>0.08</td>
</tr>
<tr>
<td>Water</td>
<td>2.00</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th></th>
<th><strong>100.10</strong></th>
</tr>
</thead>
</table>

According to Thomson,
MINERALOGY.

It is found in serpentine in Moravia, along with mearschaum and earthy talc. It is distinguished from mearschaum by its colour, external shape, fracture, meagre feel, and weight.


Magnetite. See Copper-Ores.

Manganese-Ores. See Manganese and Wadd.

Marl. See Marle.

Mearschaum. (See Mearschaum.) This mineral, of which an account is given under the article, appears to be hydrate of magnesia combined with flex; it is flated by Mr. Jameloff to be fusible on the edges into a white enamel. It occurs in veins in the terpentine of Corawall. In Natalia it occurs in beds under the soil, and from 60 to 700 men are employed in digging it. When first raifed, it is soft and greasy, and lathers with water like soap; hence it is used by the Tartars for washing. Mearschaum is extensively manufactured in Turkey into tobacco-pipes, which are boiled in oil or wax; afterwards they are baked and then polished.

Mieonite. See Melonite.

Melanite, Gneis, Haüy. See Garnet.

Melilite and Mellilite, Honey-Stone. See Mellilite.

Menachanite. See Titanium.

Menilite, Quartz, fulgurante brunone, Haüy. See Menilite.

Mercury-Ores. See Mercury, and Cinnabar, Addenda.

Mesoxy. See Zerolite.

Meteor, Native Iron; Fer natif meteorique, Haüy. The colour is pale lead-grey, which inclines to silver-white, like alabaster; it is generally covered with a thin brown crust of oyxid of iron; it occurs in racemose or globular masses, and also minutely disseminated in meteoric flones. (See Stone, Meteoric.) The external surface is smooth and glimmering; the internal glimmering or glutining with a metallic lustre: it yields a splendid irteak, and is malleable and flexible, but not elastic. The specific gravity of meteoric iron is from 6.48 to 7.57; it is magnetic. According to Mr. Howard, the constituent parts are,

Iron - - 96.5 - - 96.75
Nickel - - 3.5 - - 3.25

All the meteoric iron which has yet been examined contains a portion of nickel; the latter metal is also found in most of the meteoric flones. The phenomena attending the deficient of meteoric iron are precisely similar to those which accompany the fall of meteoric flones. In most instances, loud detonations and brilliant light or fire-balls have preceded the fall. These fire-balls appear to be the metallic or mineral matter in a state of vivid ignition. Pliny mentions the fall of a mass of sponge 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 Luriga; and Avemroes says, a mass of iron weighing one hundred pounds fell at Cordova in Spain. In the year 1164, a shower of iron fell in Minia. (Georg. Fabri. Rer. Miniae, lib. i. p. 32.) In the year 1552 fire-dome or masses of iron fell near Milkos, in Tranfylvania. And among numerous other instances in the year 1751, a fire-ball bursted with a loud explosion in the bithorpe of Agram, in Croatia: two masses of iron fell from it; one of which weighed seventy-two pounds, sunk a considerable depth into the earth; and the other, which was sixteen pounds, fell on the surface of a meadow, at the distance of 2000 paces from the former; the larger is still preserved in the Imperial cabinet of Vienna.

Numerous masses of native iron occur in various parts of the world, which agree in external appearance and chemical composition with those whose deposit from the air is well attested. Prof. Pallas discovered a mass of native iron, weighing about 1600 pounds, on the surface of a hill between Krafnojark and Abakunus, in Siberia. It is considered as a holy relic by the natives, who believe that it fell from heaven.

Several masses of native iron have been met with in Mexico; and many years since, a mass of native iron, calculated to weigh about thirty tons, was discovered in the district of St. Jago del Ouro, 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 consists of 90 parts of iron, and 10 of nickel. Similar masses have been found in Africa, North America, and the East Indies.

Mica. See Mica.

Mieenite, Granular, is a variety of magnesian lime-dome, first found at Mieno in Tuscany: 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 set on the lateral edges of the other; the crystals are often joined by the edges, or interfet each other. It is translucent, and has internally a splendent and pearly lustre. The fracture is curvedly lamellar. Its specific gravity is 2.88: it dissolves slowly in acids. The constituent parts are,

Carbonate of lime - - - - 53
Carbonate of magnesia - - - - 42
Carbonate of iron and manganese - - - 98

Pristinatic Mieenite occurs in low, small, three-sided pyramids, deeply truncated on the edges; it appears to contain less magnesia than the preceding.

Milk Quartz, or Roche Quartz. See Quartz.

Mineral Caoutchouc, or Elastic Bitumen. (See Bitu-
men.) This singular mineral has been hitherto only found in the Odin mine, near Cockleton in Derbyshire. According to the analysis of Klaproth, it contains in 100 grains,

Cubic Inches.
Carbonated hydrogen 38
Carbonic acid - - - 4

Grains.
Bituminous oil - - - 75
Acid water - - - 1.50
Carbon - - - 6.23
Lime - - - 1.50
Silica - - - 1.75
Sulphate of lime - - - 3.50
Alumine - - - 2.25

Mineral Oil. See Petroleum.

Mineral Pitch, Earthly, or Maltha. See Bitumen.

Mineral Pitch, Slaggy, or Alphaltum. See Bitumen.

Mispigel, Arsenical Pyrites. See Arsenic, and Py-
rites.

Molydendrum, or Sulphuret of Molybdena; Molybdene sul-
phurate, Haüy; is of a bright lead-grey colour. It occurs massive, disseminated in plates, and crystallized. The form of the crystals is a regular four-sided table, or a very short four-

C 2 fided
MINERALOGY.

Molybdenum, terminated by two low six-sided pyramids. The lutre is metallic and blinding. The structure is lamellar, with a single cleavage parallel with the lateral planes of the table. It is brittle and somewhat flexible, but not elastic. Molybdena is unctuous to the touch, and leaves a mark on paper like plumbago, but on white porcelain it makes a greenish mark. Its specific gravity is from 4.5 to 4.7. Before the blow-pipe it gives off a sulphureous odour, and when urged by the utmost 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 plumbago. (See Molybdeneum, and Sulphur.) According to Buchholz, its constituent parts are.

Molybdenum - - 60
Sulphur - - 40

100

This mineral occurs in some parts of Scotland, and in granite at Coldbeek-fell in Cumberland. It is found also at Huel-Gorland, Cornwall.

Molybdene Ochre is a yellow colour, passing into yellowish-green; it is friable and dull, and occurs incrusting molybdena, on which it is doublefles formed by the decomposition of the latter mineral.

Moon-stone, a variety of adularia. See Adularia, and Felspar.

Moras-Ore. See Bog Iron-Ore.

Mountain Cork, or Mountain Leather; Aphelle truffe, Haüy; it is sometimes called mountain felt and mountain pader. It occurs in thin flexible plates like leather, or in thicker and less flexible pieces like cork-wood. The colours are yellowish and greyish-white; it yields to the nail, is meagre to the touch, and floats as to swim on water. The structure is finely and promiscuously fibrous. According to Bergmann, its constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>56.2</td>
</tr>
<tr>
<td>Magnesia</td>
<td>26.1</td>
</tr>
<tr>
<td>Alumine</td>
<td>2</td>
</tr>
<tr>
<td>Lime</td>
<td>12.7</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3</td>
</tr>
</tbody>
</table>

100

This mineral occurs in some parts of Scotland, and in granite at Coldbeek-fell in Cumberland. It is found also at Huel-Gorland, Cornwall.

Nephrite, or Jade; Jade nephrite, Haüy. The colour is leek-green, passing to greyish-green; it occurs massive. The fracture is uneven and pimplery, with a glimmering and somewhat greasy lustre; it is translucent. Nephrite yields to the knife, but fuses 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 Kallner, its constituent parts are,

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</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>550</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 Alps in Saxony; the most beautiful varieties are from Perithia and Egypt. In Turkey it is cut into handles for flabards and daggers. It was formerly believed that this stone had the property of relieving nephritic complaints; hence it has been called nephritic stone. A flaky kind of nephrite is used by the inhabitants of New Zealand for hatchets, and hence has been called axe-flone. Nephrite is nearly allied to serpentine and flecitite; there is also a kind of nephrite which is more nearly allied to felspar, and is called by Mr. Jameson with the felspar family; it is called fassurite, after the celebrated geologist Saffure, by whom it was first discovered. See Saussurite, Addenda.

Nickel-Ores are, native nickel, copper nickel, and nickel ochre.

Native Nickel has only been found hitherto in the Adolphius mine at Johanngeorgenstadt in Saxony, and at Joachimsthal in Bohemia. Its colour is bronze-yellow, but is frequently tarnished greenish-grey, or fleck or lead-grey, and occasionally invested with a crust of brown iron-flone. It occurs in capillary crystals, which are either promiscuously or ecopiformly aggregated. Internally the flute is splendent and metallic, externally shining or splendent when unattainted.
untarnished. The cross fracture is even palling into flat conchoidal; it is easily frangible, 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, Haüy, 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 dendritic, and very rarely crystallized in six-sided tables; it has a shining metallic lustre. The fracture is imperfectly conchoidal, palling 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 frangible. Its specific gravity is from 6.67 to 7.5. Before the blow-pipe it gives out an arsénilic vapour, and then fusés with difficulty into a dark scoria, mixed with metallic grains: it is fusible in nitric acid, forming a dark green liquor, from which can be precipitated with alkali a dark 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 crusts; it is dull, has an earthy fracture, but becomes refractory and shining in the fumes; it foils slightly. In nitric acid it forms an apple-green solution, which fuses 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 Ocher, Nickel oxyde, Haüy, 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 disseminated; it is in loose powder or friable, meagre to the touch, and brittle. 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 Titanuim.

Nitre, Native, Potas; nitrate, Fr. occurs in flakes, crusts, and capillary crystals on the surface of the ground. In many countries, it appears to form at certain seasons of the year. It abounds in many of the plains of Spain, Hungary, the Ukraine and Podolia, 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, Nitre of.

Obsidian, or Volcanic Glass; Lava vitreuse obisienne, Haüy. (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 fusible lustre; the fracture is large and perfectly conchoidal. It dissolves from transparent to nearly opaque, according to the intensity of the colour; it scratches glass, but is easily frangible. The specific gravity varies from 2.34 to 2.38. The black obsidian of Iceland is said to melt into a pale ash-grey vesicular glass on charcoal; that of Spanish America lost its black colour when exposed to heat, became white, spongy, and fibrous, and increased to seven or eight times its original bulk; hence it appears that some gaseous fluid climate 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 Abhiguard, the constituent parts of obsidian are given as under:

<table>
<thead>
<tr>
<th>Obsidian of Iceland.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>-</td>
</tr>
<tr>
<td>Lofs, supposed to be potash or soda</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

According to Collet Defoils,

<table>
<thead>
<tr>
<th>America.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Manganese</td>
<td>-</td>
</tr>
<tr>
<td>Potash and soda</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>96.5</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 mountain de la Cafagna, in Lipari, according to Spallanzani, is wholly composed of it, which appears to have flowed in feebler currents, like streams of water falling with a rapid descent and suddenly frozen. The obsidian is sometimes compact and sometimes porous and spongy. On the south side of the Peak of Teneriffe, there is a stream of obsidian several miles in length. In the island of Feeric, a current of lava intermixed with obsidian may be traced to the very crater of a volcano.

Obsidian behaves like lava suddenly cooled; it is well known, since the experiments of Mr. Keir, Mr. Watt, and Sir James Hall, that lava or basalt cooled suddenly forms black glass; and we have a specimen of lava from Vulcainia, which flowed in the year 1818, one part of which is compact black lava, the other is a vitreous substance passing from pitch-flake 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 closely mingled by many mineralogists. The colour, lustre, and fracture of olivine and chrysolite, are not precisely the same; olivine is also softer and more fragile than chrysolite. Chrysolite is more transparent, and has a greater specific gravity, being from 3.4 to 3.54; 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.
MINERALOGY.

**Opal, Quartz отfinita opalina, Haüy.** (See Gem.) This mineral is divided into seven sub-species by Mr. Jameron.

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-porphyr, either massive, disseminated, or in plates; it has a shining or splendid vitreous lustre, a perfect conchoidal fracture, scratches glass, and is easily frangible. Some varieties adhere to the tongue. Precious opal becomes white and opaque before the blow-pipe, but is infusible. The specific gravity is 2.110. According to Klaproth, the constituent parts are,

<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>98.75</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>93.50</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 Cafchau, in Upper Hungary, than in any other known situation. It occurs there in clay-porphyr, 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 bafaltic 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 earth, and those which are found are 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, hydrophane 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 hydrophane will remain more or less opaque.

Common Opal differs from precious opal, principally by its inferior lustre and transparency, and the greater variety of its colours, which are either milk-white, grey, yellowish-white, yellow, red, or green. The famous specimen 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 lustre is shining, splendid, and vitreous; the fracture is conchoidal; it scratches glass, and is easily frangible. Before the blow-pipe it is infusible. The specific gravity is 2.01 to 2.14. According to Klaproth, its constituent parts are,
MINERALS.

It appears to be common or semi-opal rendered opaque by the great intermixture of oxied of iron.

Oriental Amethyst, Sapphire, Ruby, Topaz, and Emerald, names given by jewellers to varieties of the sapphire. 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.

Opalite, Red, or Realgar, Sulphure of Arsine; Arsine sulphure rouge, Fr. (See Arsenic.) According to Klaproth, the composition of this ore is,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>-</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Opalite, Yellow, is composed, according to Klaproth, of

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>-</td>
</tr>
<tr>
<td>Sulphur</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Osmium occurs as a native alloy of the metal so called with iridium; it is found in grains along with platina in alluvial soil in South America. The grains 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 structure of the grains is divergingly fibrous, the lustre metallic. The specific gravity is 12.4-14.8. Lowery. Palladium is infusible; but on the addition of sulphur, it melts with ease by continuance of the heat, the sulphur is diffused, 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 vitreux perlée, Haüy. (See Pearl-Stone.) This mineral is regarded by many mineralogists as a volcanic production; it is frequently intermixed with obsidian, and hence is claffed by them as a variety of the latter mineral. It occurs in basic and porphyritic rocks, in large and somewhat angular concretions, which are composed of smaller rounded 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 foppy glass. This mineral has been found near Sandy Bræ, in Ireland, in the island of Iceland, and in Mexico; it was first discovered in Hungary, where it occurs in large beds. It is claffed by Mr. J. B. Werner with obsidian, pitch-stone, and pumice, as forming a member of the pitch-stone family.

Pea-Stone, Péfolite, Fr. This mineral is composed of carbonate of lime, slightly coloured yellowish-white or brown by the oxide of iron; it is properly a calcareous tufa, containing rounded globules, varying in size, from a pea to a hazel-nut; these consist of concentric lamelle, 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-cystal; but in some instances, the centre of the globule is hollow. Pea-stone occurs in great masses in the vicinity of the hot springs at Carlsbad, in Bohemia; its formation we conceive to be analogous to that of rose-stone, and to be the result of crystallization; the particles included having diffused the calcareous matter to crystallize round them, in the same manner as a thread or fragment of a stone in a saline solution, generally disperses the crystals to shoot round them.

Perovskite, the name given to a new mineral found at Erby, near Abo, in Finland. The following imperfect account is the only one we have of its character. It has a green colour; its form is an octahedron, with a cleavage in three directions; it is harder than foppy spar. The specific gravity is 4.11. Before the blow-pipe, it melts into a mass with a pearly-white lustre. Its constituent parts are given as under:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Magnesia</td>
<td>-</td>
</tr>
<tr>
<td>Lime</td>
<td>-</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Oxid of iron</td>
<td>-</td>
</tr>
<tr>
<td>- of manganese</td>
<td>-</td>
</tr>
<tr>
<td>- of unknown metal</td>
<td>-</td>
</tr>
<tr>
<td>Fluoric acid and water</td>
<td>-</td>
</tr>
<tr>
<td>Lofs</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100.09</td>
</tr>
</tbody>
</table>

Peridot Chrysolite. See Chrysolite and Olivine.

Petaite, 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 80°, forming a four-sided prism with a rhomboidal base. Its colour is white with a flight 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 infusible, 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 whitens 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 prulated alkali threw down a green precipitate, and the solution assumed an amethystine colour, which afterwards changed to brown. The constituent parts of this mineral are flated to be,

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>-</td>
</tr>
<tr>
<td>Alumine</td>
<td>-</td>
</tr>
<tr>
<td>Manganese</td>
<td>-</td>
</tr>
<tr>
<td>A new alkali</td>
<td>-</td>
</tr>
</tbody>
</table>

And this alkali proves to be the oxied 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 salts that are remarkably deliquescent. With alcohol, lithion yields a rofe-coloured flame, like that communicated by ilrotian. The metal of lithion bears a strong resemblance to fodium. The alkali found in petaite contains 84.84 oxygen, united to a metallic base.

Petroleum, Liquid Bitumen, or Mineral Oil. (See Bitumen.)
Bitumen. It is essentially composed of carbon and hydrogen, containing less carbon than the solid bitumens, or than any kind of mineral coal. In Piedmont, Peru, 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 arsenictée, 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 incrusts other minerals, or is crystallized in small diverging capillary crystals. Externally, it has a silky glimmering lustre; internally, it is shining or glistening. The structure is delicately radiated, either straight, diverging, or fanned, 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>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>25.00</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>50.54</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>24.46</td>
<td></td>
</tr>
</tbody>
</table>

According to John,  

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>27.28</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>46.58</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>23.86</td>
<td></td>
</tr>
</tbody>
</table>

There is an earthy variety of pharmacolite, which occurs in thin crulfs, and is dull and opaque. Pharmacolite is found in veins in granite, with ores of cobalt and native arsenic.

Phosphate of Copper, Cuivre phosphatée, Haüy. Under the ores of copper, one species of this mineral is described, which was the only one then known. Mr. Jameon 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 phosphatée rhomboïdale, Haüy, has a greyish-black colour externally, but internally it is emerald-green, verdigris-green, and leek and olive-green. It occurs crystallized in octahedrons, which are sometimes lengthened or cuneiform; also in rhomboheds with small curvilinear faces; the edges and angles are sometimes truncated. The structure is lamellar, the lustre shining, between vitreous and pearly; it is transluclent. 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 facets. According to Bucholz, it is a compound of copper and phosphoric acid. It has been found in the neighbourhood of Neufotl in Hungary, and at Virenberg, near Rheinbrechenbach, on the Rhine; at the latter place it occurs with fibrous phosphate of copper; the latter mineral is found massive, botryoidal, and in crulfs; it has a diversely fibrous or radiated structure.

Compact Phosphate of Copper, Cuivre phosphatée compacte, 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 fracture may sometimes be observed. It contains near 1.81 parts of phosphoric acid united with 68 of copper.

Phosphate of Manganese. See Manganese-ores.

Phosphosphate, Common, and Phosphorite, Earthly. These minerals have been classified by mineralogists as varieties of apatite; but Mr. Jameon makes phosphorite a distinct species, which he divides into two sub-species.

Common Phosphate, Maffre Apatite, Aikin; Chaux phosphatée terreuse, Haüy; has generally a yellowish, greenish, or reddish-white colour; it occurs massive, foliated, 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>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime</td>
<td>59.0</td>
<td></td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>34.0</td>
<td></td>
</tr>
<tr>
<td>Silic</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Fluoric acid</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Mariatic acid</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

In part of Extremadura in Spain near Lagonfan, it forms whole beds that alternate with limestone and quartz.

Earthly 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.

Phosphorite, Phosphate of manganese. See Manganese.

Pirrolite, a mineral described by Hanfmann. It is principally composed of the carbonate of magnesia. According to the description of Mr. Jameon, (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 passes by gradation to flat conchoidal. In some instances, it throws a delicate concentric fibrous structure. It sometimes occurs in concretions which are either concealed or have undulating lamelle. It is translucent on the edges, and is rather hard, and difficultly frangible. It feels meagre, and is insalubrious. The specific gravity is 2.53. It appears to be allied to fergusonite and talc.

Pilite. 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 pilite also occur in thick and straight lamellar concretions. (See Pi·nite.) 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, Rutilite, and Petro-files rutilite, 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 glinting or shining vitreo-luminous lustre. It occurs mafive 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 flat structure. The fracture is more or less perfectly conchoidal, or passing into splintery. The fragments are angular and sharp-edged. It feraches glasfs, is rather easily frangible, 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,

Pitch-stone of Meiffon.

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>73.00</td>
</tr>
<tr>
<td>Alumine</td>
<td>14.50</td>
</tr>
<tr>
<td>Lime</td>
<td>1.00</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>1.00</td>
</tr>
<tr>
<td>Oxyd of manganese</td>
<td>10</td>
</tr>
<tr>
<td>Soda</td>
<td>1.75</td>
</tr>
<tr>
<td>Water</td>
<td>8.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.85</strong></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 glasfs, into which it appears to pass, and also into pearl-stone. It is regarded by many geologists as a volcanic product. Like bafalt, it intersects rocks of different formations, from granite to fand-stone, and is intimately associated with bafaltic rocks.

Plasma has generally a dullish-green colour, with yellowish or whitish dots, a glinting lustre, a conchoidal fracture, is translucent, and rather harder than quartz. It consists of about ninety-seven parts of silex, and appears to be a properly green variety of frit. It was confidered 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 Platinum.

Pleonaste. 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 thicknesses in the parish of St. Stephen's. According to Wedgwood, it consists of fifty parts alumine, and forty of silex. 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 essential properties; that of remaining white after burning. The Kaolin or Chinese porcelain-clay contains a much larger portion of silex than of alumine.

Porcellanite, or Porcelain Jasper. (See Jasper.) It appears to be formed accidentally by fires in coal-mines, which have indurated and femitrivulled beds of coal-thole or slate-clay.

Pot-stone, Lapis ollaris; Tale ollaire, Haïy. (See Vol. XXXIX.)

Pot-stone. This mineral appears to be indurated talc, passing into serpentine; with the latter rock, it is frequently associated. It has a curved and undulating-lamellar structure, passing into flaky. It is very soft, lecithic, and greasy to the feel, is translucent on the edges, and affords a white-coloured streak. It is fusible before the blow-pipe. The analysis of this mineral given by Tromsdorf is,

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>39</td>
</tr>
<tr>
<td>Magnesia</td>
<td>16</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>10</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>20</td>
</tr>
<tr>
<td>Water</td>
<td>10</td>
</tr>
</tbody>
</table>

Near Inverary there is a quarry of talcous flake, 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 reflect the action of fire, and did not communicate any taste 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 Pienas. 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.

Fraske. Quarz kyanit vers obfuir, Haïy, is translucent green quartz, the green colour being derived from an intimate intermixture of quartz and actinolite. See Quartz, and Plaissis.

Precious Garnet. See Garnet.

Prehnite. (See Prehnite.) This mineral is divided into two sub-species by Mr. Jamefon; foliated prehnite and fibrous prehnite. The prevailing colours are, green, greenish-white, and yellowish-white. It occurs both mafive and crystallized in oblique four-sided tables, or in fix or eight-sided tables; also in four-sided and fix-sided prisms. The crystals are generally attached by their lateral plains, and form diverging groups. The cleavage is single, 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, feraches glasfs with difficulty, and intumecees before the blow-pipe. Prehnite was discovered by Mr. Bakewell in a rock bafaltic amygdaloid, near Berkley in Gloucestershire, accompanied with green earth and mafive lamellar prehnite, or kenhphite. 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 cellullar. According to Langier, its constituent parts are,

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>42.50</td>
</tr>
<tr>
<td>Alumine</td>
<td>28.50</td>
</tr>
<tr>
<td>Lime</td>
<td>20.40</td>
</tr>
<tr>
<td>Soda and Potash</td>
<td>0.75</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>3.00</td>
</tr>
<tr>
<td>Water</td>
<td>2.00</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 Pumicestone, and Volcanic Products.

Pycnite Schorlic, or Schorlaceous Beryl. (See 4 D Pycnite.)
MINERALOGY.

PYCnite.) The crystals of this mineral are long hexahedral prisms, and are deeply streaked longitudinally. They have a cleavage at right angles to the axis of the prism. Pycnite is now considered by Haüy as a variety of the topaz.

PYRITES. See PYRITES.

PYROPE. This mineral is now regarded by Haüy as a variety of the precious garnet, with an accidental portion of magnefia derived from the rock in which it is imbedded.

PYROPHYSALITE. See PYROPHYSALITE.

PYROMALITE. Native muriate of iron. See IRON-Ores, Addenda.

PYROXENE, Augit. See PYROXENE and AUGIT, Addenda.

QUartz, Quarz hyalin, Fr. See QUartz.

Common Quartz, Rock Cristal, Amethyst, and Caïrgorm Stone, or Clove-brown Quartz, Aventurine Quartz, and Rose or Mild Quartz, are essentially the same mineral substance or pure crystals, varying only in transparence or colour, owing probably to a very slight admixture of the other earths or metallic oys, an admixture which may be regarded as accidental, and which is scarcely appreciable by chemical analysis. According to Buchholz, rock-crystal is composed of 99.5% of silica. 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 silica in such proportions as to constitute them distinct species. This opinion is rendered more probable by 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 hercophore unknown. See PETALITE, Addenda, and Rock-Crystal.

QUICKSILVER. See MERCURY, Ores of.

REALGAR. See ARSENIC-Ores, and REALGAR.

RED Antimony-Ores. (See ANTIMONY-Ores, and RED Antimony.) A variety of red antimony-ore, called tiderore, is described by Mr. Jarmaston as occurring in delicate flexible leaves, which are opaque and friable, foil strongly, and swim on water. Tiderore contains a portion of silver.

RED Cobalt-Ore. (See COBALT-Ores.) This species of ore is divided by Mr. Jarmaston into three sub-species, earthy red cobalt-ore or cobalt ochre, flag red cobalt ochre, and radiated red cobalt-ore or cobalt bloom; Cobalt arseniate aciculare, Haüy. The analysis of this ore by Buchholz gives

<table>
<thead>
<tr>
<th>Cobalt</th>
<th>Arenic 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-stone in Liliithgowshire, and at the Dolcoath mine in Cornwall. Slaggy red cobalt ochre has a muddy crimson-red colour, or dark hyacinth-red, which passes into chefneut-brown. It occurs in thin cruits, and sometimes reniform. It has a shining and reflexive lustre, a conchoidal fracture, and is translucent, soft, and brittle.


RED Lead-ore, or Chromate of Lead. See LEAD-Ores.

RED Manganeis-ore. See MANGANESE.

RED Silver-ore, or Ruby Silver, where read—before the blow-pipe on charcoal.

REDDLE, Red Chalk, or Red Ochre. See REDDLE.

RETIASPHALTUM. See RETIASPHALTUM.

REFUSEITE, the name given to a salt which occurs in the country round Sodlitz, and at Pirl 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

| Sulphate of soda | 66.04 |
| Sulphate of magnesia | 31.35 |
| Muriate of magnesia | 2.10 |
| Sulphate of lime | 0.42 |

100

RHOMB Spar. See BROW Spar, Addenda.

ROCK Butter. (See ROCK Butter.) This mineral appears to be a sub-sulphate of alumine. It oozes from aluminous rocks.

ROCK Cork; Aâpletre, Haüy. See ROCK Cork.

ROCK-CRYSTAL. (See QUARTZ.) This is the purest variety of quartz. Very large and brilliant rock-crytals occur in many parts of Scotland. The smoke-grey or clove-brown crystals are called caïrgorm, from a place in the upper part of Aberdeen, where they occur in alluvial soil along with beryl and topaz. The largest rock-crytals 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-cystal 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-crytals artificially, by heating them and plunging them into different-cooured solutions.

ROCK-SALT. (See ROCK-SALT.) According to the analysis of Dr. Henry, the rock-salt of Cheshire contains, in 1000 parts,

| Muriate of soda | 93.9 |
| Sulphate of lime | 6.1 |
| Muriate of magnesia | 0.7 |
| Muriate of lime | 0.7 |
| Infusible matter | 10 |

1000

ROCK-WOOD, or Ligniform Aâphlus. See ASBESTUS.

ROE-STONE, or Oolite; Chaus carbonate globuliform, Haüy. See ROE-STONE.

ROSE Quartz, or Milk Quartz. See QUARTZ.

ROBELETTE, called Red School, a variety of tourmaline. See ROBELETTE, and TOURMALINE.

RUBY, Oriental, or Red Saphire. See GEMS, and SAPPHIRE.

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 crystallization, 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 cochenile ruby is called the balas ruby, from Balaschan, the Indian name of Pegu, where it is found. The specific gravity varies from 3.50 to 3.53; that of oriental ruby from 3.97 to 4.28. The latter is a true sapphire.

RUTILE,
MINERALOGY.

RUTILE, or Sphene; Titane oxide, Haüy. (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, disintegrated, membranous, and in crystals. The crystals are rectangular four-sided prisms, oblique four-sided prisms, and also fix and eight-sided prisms. The crystals are small and often capillary. It occurs imbedded in drusy cavities, in granite, fennite, gneifs, mica-flate, chlorite-flate and hornblende-flate, and in lime-flone. It has been found in the granite of Cairngorm, the lime-flone of Kanneich, and at Craig Cailleach, near Killin, imbedded in quartz, also near Bedgalliet, in Caernarvonshire.

RUTILE, Titane silice calcaire, or Sphene. See Rutile and Sphene.

SAHLITE. (See Sahlite.) Pyroxene laminaire gris verdâtre, Haüy. According to Bourron, the primitive form of fahlite is a rectangular four-sided prism, having rectangular bases, which are inclined on the two opposite fides of the prism, so as to form angles of 103°, 15°, and 73°, 45°, 

hence he considers it as a distinct species from augite. 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 first are made with great facility. The cros fracture of fahlite is uneven and dull; that of augite, though uneven, generally inclines to conchoidal, and has a considerable degree of luster.

SAL AMMONIAC, Native; Ammoniaque muriatée, Haüy. (See Sal Ammoniac.) This salt is divided into two sub-species by Werner, valcanic fahl ammoniac and conchoidal fahl ammoniac. The former occurs in fissures, 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 Bucharia. According to Klaproth, it contains 250 of sulphate of ammonia, with 97.50 of the muriate.

SAPPANCE, Kymanite; Diopside, Haüy. See Sappace, and Kyanite, Addenda.

SAPPHIRE, Telcete, and Caridon byalina, Haüy. The common forms of the crystals of sapphire are the perfect fix-sided pyramid and fix-sided prism, or the double fix-sided pyramid. These forms are frequently modified by truncations on the angles and extremities. (See Gems, Sapphine, and Ruby, Addenda.) The red sapphire is the oriental ruby; it differs a little from the blue sapphire in its constituent parts, which, according to Che nevix, are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumine</td>
<td>99</td>
</tr>
<tr>
<td>Silex</td>
<td>7</td>
</tr>
<tr>
<td>Oxyd of iron</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Sapphire occurs in alluvial soil along with pyrope, zircon, and iron-flone, at Podfeclitz and Trzibith, in Bohemia; in the shafts of the stream Ruot, near Expaill, in France; also at Brendole, in the Vicentine, and in Portugal.

SARCOLITE, Red Zeolite. See Sarcolite and Zeolite.

SARDE, Sardoine, a reddish-brown cornelian, which appears of a deep blood-red when held between the eye and the light.

SARDONIX is a cornelian composed of white and red layers.

SASSOLIN, Native Boracic Acid. See Sassolin.

SATIN-SPAR, Chaux carbonatée fibreuse conjointe, Haüy. See Sattin-Spar.

SAUSSURITE, Felspath Tenace, Haüy; a mineral so called after the older Sauvur. It was confidered by him as nearly allied to nephrite or jade, (see Nephrite, Addenda,) but is now placed with the fispur family. It occurs massive, disintegrated, and in rolled pieces, in various parts of Switzerland and Norway, Finland, Italy, France, and Savoy, and it forms a confinuent part of the well-known rock in Corfica, called the Verde di Corfica, which is composed of diastyle and saussurite. It occurs with diastyle metalloide near the Lizard Point, in Cornwall. The colours are white-grey and green, of various tints; green or yellowish, or greenish-white, are the most prevailing colours. Internally the luster is dull or faintly glimmering.

The fracture is splintery; but according to Mr. Jamefon, an imperfectly foliated fracture may be discovered with a double rectangular cleavage. It is faintly transparent on the edges, is extremely tough, and so hard, as to scratch glass; the feel is somewhat unctuous. The specific gravity of saussurite is 3.20 to 3.31. According to Sauur, the constituent parts are,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>44</td>
</tr>
<tr>
<td>Alumine</td>
<td>39</td>
</tr>
<tr>
<td>Lime</td>
<td>4</td>
</tr>
<tr>
<td>Soda</td>
<td>6</td>
</tr>
<tr>
<td>Potash</td>
<td>0.25</td>
</tr>
<tr>
<td>Iron</td>
<td>12.50</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.05</td>
</tr>
</tbody>
</table>

According to Klaproth,

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>49</td>
</tr>
<tr>
<td>Alumine</td>
<td>24</td>
</tr>
<tr>
<td>Lime</td>
<td>10.50</td>
</tr>
<tr>
<td>Magnesia</td>
<td>3.75</td>
</tr>
<tr>
<td>Soda</td>
<td>5.50</td>
</tr>
<tr>
<td>Iron</td>
<td>6.50</td>
</tr>
</tbody>
</table>

Before the blow-pipe, saussurite melts on the edges and angles; but according to Mr. Jamefon is not entirely fusible.

SCAPOLITE, Paranthine, Haüy. (See Scapolite.)

This mineral has been divided by Mr. Jamefon into three sub-species; radiated scapolite, foliated scapolite, and compact scapolite. Foliated scapolite has a three-fold and rather oblique-angular cleavage; the cros fracture is small and fine-grained, uneven or small conchoidal. This mineral, besides occurring with the other sub-species in Scandinavia, is found along with scapol in granitic mafses that are imbedded in compact fispur, or white-flone, on the north-western ac tivity of the Saxon Erzgebirge. Compact green scapolite is the wernerite of Haüy. It occurs both mafive and crys tallized in rectangular four-sided prisms, acuminated by four planes set on the lateral edges. Compact red scapolite occurs along with the green sub-species, but is of a blood-red colour. All the varieties of scapolite decay very readily on exposure to the air.

SCHORL, Tourmaline noir, Haüy. (See Schorl.) The constituent parts of schorl, as stated by Klaproth, vary considerably.
conferably from the analysis of Gerhard, which we have
given, and are,

|        |       |       |    |     
|--------|-------|-------|----|-----
| Silex  | 36.75 |       |    |     
| Alumine| 34.50 |       |    |     
| Magnesia| 0.25 |       |    |     
| Oxid of iron with a trace of manganese | 21 |       |    |     

According to Gerhard,

|        |       |       |    |     
|--------|-------|-------|----|-----
| Silex  | 36.50 |       |    |     
| Alumine| 31.0  |       |    |     
| Magnesia| 1.25 |       |    |     
| Oxid of iron with a trace of manganese | 23.50 |       |    |     

The crysals of School are longitudinally fretted, and have externally a shining lustre. 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 cockle. Very magnificent crysals of School have recently been discovered near Bovey Heathfield, in Devonshire. See Tourmaline.

**Schiller-Spar**, Diagglication metalloide, Haey, occurs most frequently in lamatine disseminated in serpentine, and is regarded by some mineralogists as crysallized serpentine. The colours are, olive-green, pincheke-brown, and yellowish-brown. The lustre 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 laminate. According to Bournon, the primitive form is a acetangular four-sided prism, in which the baxes are let on the broadest lateral planes, forming with them angles of 87° and 95°. The prism is diabolic both in the direction of the lateral and terminal planes, but molt easily parallel with the latter. Schiller-spar is translucent in thin laminate; it yields a greenish-grey f rack, is seftile, and softer than hornblende.

**Schloraceous Beryl.** See Pycnite.

**Selenite, or Crystalized Gypsum.** See Gypsum.

**Serpentine, Noble and Common.** See Serpentine.

**Shale, Coal-Shale and Bituminous Shale.** A name given to the argillaceous strata which accompany coal. These consist of clay more or less indurated and flaty, and intermixed with a portion of carbonaceous or bituminous matter.

**Siderite,** a name given by some mineralogists to Rubellite; which fee.

**Silver-ore.** (See Silver.) A species of native silver occurs in Norway, which contains 28 parts in the 100 of gold, and is called auriferous native silver. On account of the gold, its specific gravity is greater than native silver. Its other characters, except the colour, (which inclines to brafs-yellow,) agree with native silver; which fee, under Silver-Ores.

An ore of silver containing bismuth has been found in one mine on the Schappbach, in the Black Forest. It is called bismuthic silver. It is a pale lead-grey, is soft, seftile, and eaily fragrable. 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, 33 of bismuth, and 15 of ful-

**Cornes Silver-Ore, or Horn Silver.** is divided by Mr. Jamefon, in the last edition of his Mineralogy, into four sub-species; conchoidal, radiated, common, and earthly cornes silver-ore.

**Conchoidal cornes Silver-Ore.—** Its colours are greyish or greenish-white. It occurs massive in compact lime-stone, at Guantahoygo in Peru; it has an adamantine lustre, and is the purest kind of cornes silver known, containing

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Silver</td>
<td>76</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7.6</td>
</tr>
<tr>
<td>Muratic acid</td>
<td>16.4</td>
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</table>

The radiated cornes Silver-Ore has a dark-green colours, and, like the preceding, has hitherto been found only in South America.

**Common cornes Silver-Ore,** (see Silver-Ores,) has been found in some of the mises in Cornwall, particularly at Huel-Mexico, and in a mine near Peranzabula, on the north-eall of Cornwall. In the analysis of this ore, we have stated the constituent parts at 68 of silver, and 28 of muratic acid; but 6 parts of the latter are oxygen.

**Earthly cornes Silver-Ore** is very soft, and almost friable. This mineral is an intermixture of cornes silver-ore and alumine.

**Earthly Silver-Flake** appears to be a decomposing phosphuret of silver. It has a blueish-black colour, and varies from friable to solid; it is dull or glimmering, but yields a metallic f rack; it occurs with other ores of silver in veins.

Under the localities of silver in England, in the article Silver-Ores, for Benallen r. Beeralten, Devonshire. One of the richest repositories of silver is the Weal Duchy Mine, on the banks of the Tamar, above Plymouth. Silver-ores occur there in regular veins, but are also disseminated in nodules, through the rock itself, which is kilas or clay-flate. 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:

<p>| | |</p>
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<tbody>
<tr>
<td>Gold</td>
<td>£2,635,316</td>
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<tr>
<td>Silver</td>
<td>77,729,738</td>
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</tbody>
</table>

Total annual value 10,368,109.; 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, Chaus carbonaticus nacré, Fr.** (See Slate-Spar.) Though this is made a distinct species of the limestone family by some mineralogists, it is composed of carbonat of lime with an admixture of about three or four parts in the hundred of manganese or iron with water, to which probably its nacy lustre may be owing. It occurs in some parts of Cornwall, and in Scotland.

**Slikensides, a name given by the Derbyshire miners to galena or lead-glance, when it forms a smooth polished surface or lining to veins.**

**Smargadite, green diagglication; Diagglication vertue, Haey.** See Diagglication.

**Soap-Stone,** a variety of fléetite, is found in Cornwall, and
and extensively used in the porcelain manufacture at Worcester. It has a milk-white or greenish-grey colour, mottled with a muddy-purple; it is veryunctuous 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

\[
\begin{align*}
\text{Silex} & \quad - & 45.00 \\
\text{Alumine} & \quad - & 9.23 \\
\text{Magnesia} & \quad - & 24.75 \\
\text{Oxide of iron} & \quad - & 1.00 \\
\text{Potash} & \quad - & 0.75 \\
\text{Water} & \quad - & 18.00 \\
\end{align*}
\]

Under the article Steatite, it is stated to differ from common silexite by the absence of alumine; it should have been by the excess of alumine. Some varieties of silexite scarcely contain a trace of the latter earth.

**Soda.** *Native,* or *Natron.* See *Natron, Addenda.*

Sodalite. (See *Sodalite.*) This mineral is claffed by Mr. Jameson with the felspar family, on account of its external character; it differs from felspar in the proportions of its constituent parts, and foda supplies the place of potash, which is a constituent of molten felspars.

**Somatic,** or *Nepheline.* See *Somatic and Nepheline, Addenda.*


**Specular Iron-Ores.** See *Iron.*

*Spheine.* See *Spheine, Rutile,* and *Titanium.*

Spinel. See *Gem, Rutile,* and *Spinel.*

Spodumene. (See *Spodumene.*) According to D'Andrade, this mineral before the blow-pipe first 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 *Granite.* See *Staurolite and Granite, Addenda.*

Staurotide, the name given by Haüy to staurolite.

**Steatite.** See *Steatite and Soap-stone, Addenda.*

*Stilbite.* See *Zolite.*

Striped Jasper. See *Jasper.*

*Strontianite,* or *Strontian; Strontian carbonate,* Fr.

See *Strontian.*

**Sulphate of 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.

Sulphate of Soda, *Native.* See *Soda.*

Sulphur, *Common and Volcanic.* See *Sulphur.*

Sulphurets, *Native,* are combinations of the different metals with sulphur. See *Pyrites* and the different metals.

**Scurturbard, or Fibrous Brown Coal, or Bituminous Wood, Fravros.* See *Coal and Wood-Coal.*

Swine-stone, or *Fetid Lime-Flote.* See *Swine-stone.*

*Tabular Sear.* See *Tabular Sear.*

*Talc.* See *Talc.*

Tantalite. See *Tantalite.*

Telesia, the name given by Haüy to the faphire.

Tellurium Ores, and *Tellurium.* See *Tellurium.*

Thallite, or *Epideite.* See *Thallite.*

Thummerstonite, or *Arsinite.* See *Thummerstonite.*

*Tile-Ore, Earthy and Indurated,* an ore of copper (see Copper); the latter is considered by Werner as an intimate combination of red copper-ore and brown iron ochre, containing 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 (Pabero, Werner.)

**Tin-stone.** See *Tin.*

**Tin Pyrites, or Bell-Metal Ore.** See *Tin.*

**Titanium.** See *Titanium.*

Topaz, Topaza, Fr. See *Topaz and Gem.*

Tourmaline, Tourmaline, and *Le schott électrique,* Fr. See *Tourmaline.*

Tremolite, Grammaitie, Haüy. See *Tremolite.*

Tripoli, or *Rottenstone.* See *Tripoli.*

Tufa. See *Tufa.*

Tungsten. See *Tungsten.*

Variegated Copper-Ore, Calivre pyriteux lapatique, Haüy, a native sulphuret of copper, which has a variegated or iridescent tarnish. See *Copper-Ores.*

Veispiel, *Iodrace, Haüy.* (See *Veispiel.*) The primitive form of the cryftals of Veispiel is a right prifm with square bases, differing little from the cube. Veispiel is cut for ornamental purposes by the lapidaries at Naples, and is called the chryfofite of Veispiel.

*Umbre, Argile ocreuse brune,* Fr. See *Umbre.*

*Uran Mica, or Uranite, and Uran Ochre.* See Urani- um, Ores of.

Wacke, or *Wacken.* See *Wacke.*

Wad. See *Wad and Manganeese.*

Wavellite, or *Hydrargillite, Divifopere,* Haüy. See *Wavellite.*

White Slate, or *White-Slate, or Noerucalite,* Fr. See *Slate* and *White-Slate.*

White Antimony-Ore, White Copper-Ore, White Manganece-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 *Witherie and Barytes.*

Wolfram, *Scheell Ferrugine,* Haüy. (See *Wolfram.*) This mineral occurs most abundantly in many of the mines of Cornwall, but has not yet been applied to any ufe.

Yenite, *Livre,* Werner. See *Yenite.*

Yttro-tantalite. See *Tantalite and Yttro-tantalite.*

Zeolite. See *Zeolite.*

Zinc. See *Zinc, Ores of.*

Zircon and Zirconite. See *Zircon.*

Zoisite. See *Zoisite.*

MINGRELLA, l. 12, after gem, add—a kind of pafe made of. At the close, add—According to Reineggs, it contains four millions of founs, and annually exports 12,000 faves.

MINKALLI, an African term, denoting a quantity of gold, nearly equal to 10s. fering.

MINOT, in *Geography,* a town of America, in the district of Maine, and county of Cumberland, having 2020 inhabitants.

MIRRIN, r. *Wolein.*

*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.

MOGO, l. 2, after gulf, add—which has one of the most fecure roadsteads in the gulf, formed by Cape Bollana to the E. and the point improperly called Certes to the W. and capable of holding the largest fleets.

MOHOCKS, a denomination given to a mob of disorderly 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 100l. was offered by royal proclamation for apprehending any one of them.

MOLD, l. 6, r. 1811, the parish, &c. 5083 persons, occupying 1026 houses; 2457 being males, and 2618 females: of whom 217 families are employed in trade and manufactures, and 180 in agriculture.

MOLE. See NUVES.

MOLLA, in Botany, Ait. Hort. Kew. v. 2. 62. See POLYCARPS and HAGEA.

MOLTON, South, col. 2, l. 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 protoxid, the blue or molydbus acid, and the white or molybde 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. 3, r. even for fix; l. 4, r. 22,150

—1501. —Alfo, a town of the district of Maine, in the county of Kennebeck, containing 1262 inhabitants.

MONMOUTH, col. 3, l. 37, r. 1811; l. 38, r. 3553. Add—The number of houses is 661; that of males 1630, and of females 1873, of whom 375 families are employed in trade and manufactures, and 116 in agriculture.

MONMOUTHSHIRE, l. 10. In 1811, the county was returned as containing 11,766 houses, and 62,127 persons; 30,087 males, and 31,140 females; 5815 employed in agriculture, and 4812 in trade, manufactures, and handicraft.

MONONGALIA, l. 2, r. 12,703 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 fin caudal. The only animal of this genus hitherto discovered is the M. javanicus, blackish, with a very shapely 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 476 were slaves in 1810.

MONSON. Add—containing 1674 inhabitants.

Vol. XXIV.

MONTAGUE, Edward, col. 2, l. 8, for fine ships r. fire-hips.

MONTAGUE, l. 4, r. 934.

MONTAGUE. See MOUNTAGUE.

MONTENEGRINS, so called from the Monte Negro, or Black mountain, near Cantaro, have been reckoned amongst the most daring inhabitants of Dalmatia; which see. The whole amount of these, who are scattered over mountains, has been estimated at about 60,000. All profess the Greek religion, but with several remains of superstition. The Morlacs, and other inland tribes of Dalmatia, are honest and sincere barbarians, and the dregs of their vaivodes somewhat resembles the Hungarian. The general peace of Europe has restored tranquillity 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. 30; l. 15, r. 29,703; l. 16, add—containing 580 inhabitants; l. 17; having 2693 inhabitants; l. 18, r. 8430; l. 19, r. 1696 slaves; l. 21, r. 8499 inhabitants, of whom 1099 were slaves; l. 24, r. 17,980—7572; l. 25, r. 8026 inhabitants, of whom 2629 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—932—442 males, and 490 females.

MONTGOMERYSHIRE, col. 6, l. ult. r. 1811—

51,031—25,373—26,558. Col. 7, l. 1, r. 3164 families; l. 3, r. 6309.

MONTICELLO, a town of Georgia, in Randolph county, having 89 inhabitants.

MONTIQUE, a town of Sussex county, in New Jersey, containing 661 inhabitants.

MONTROSE. In 1811 the burgh and parish contained 1064 houses, and 8953 persons; viz. 3837 males, and 5118 females: 170 families being employed in agriculture, and 1520 in trade, manufactures, and handicraft.

MONTVILLE, l. 3, r. 2187—Alfo, a town in Maine, in Lincoln county, with 864 inhabitants.

—MONTVILLE Plantation, a township of the fame, having 130 inhabitants.

MOON, a township of Alleghany county, in Pennsylvania, having 1622 inhabitants.

—MOON, Half, a township in Centre county, in Pennsylvania, having 560 inhabitants.

MOON, First and Second, two townships of Beaver county, in the same state, the former having 1035, and the latter 1245 inhabitants.

MOONBEE, an Indian term signifying a letter-writer or secretary, and applied by Europeans to the native who instructs them in the Perian language.

MOONSTERLING, in Geography, a township of Kentucky, in Montgomery county, with 325 persons, of whom 76 were slaves in 1810.

MOORE, a township of Northampton county, in Pennsylvania, having 1108 inhabitants.

MOOSH, the ancient Moxene, called also Daran, a town of Armenia, occupying a small eminence, walled by the Ephraites, over 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 Turkish pashalics of Armenia, are a degenerate race, and paid to amount to 80,000 souls; 12,000 of whom are Yezedis. Considerable quantities of tobacco and manna are exported from hence.

MORAYSHIRE, col. 4, l. 32, r. 1811—6208—

28,188; viz. 12,401 males, and 15,787 females; l. 32, r. 2635 families; l. 34, r. 1886.

MORELAND, l. 2, having 400—the other having 1692 inhabitants.

MORETON-HAMPSTEAD. In 1811 this parish contained 337 houses, and 1653 persons; viz. 770 males, and 885
MOU

883 females; 263 families being employed in agriculture, and 43 in trade, manufactures, &c.

Moreton in the Marsh. In 1811 this parish contained 194 houses, and 928 persons; viz. 457 males, and 471 females: 60 families being employed in agriculture, and 91 in trade, manufactures, &c.

Moreton, a town of Chittenden county, in Vermont, having 405 inhabitants.

Morgan, a town of Orleans county, in Vermont, having 135 inhabitants.—Alfo, a township of Greene county, in Pennsylvania, having 1621 inhabitants.—Alfo, a township of Knox county, in Ohio, having 388 inhabitants.

—Alfo, a county of Georgia, having 2294 inhabitants.

Moriah Plantation, a township of Maine, in the county of Hancock, having 224 inhabitants.

MOROKINNEC, r. Morokinnee or Morotinnee, a place of Klaproth to an acid, principle obtained from a film 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 puzzle the following properties:—It exists in the form of needle-like crystals, having the taste of succinic 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 bell mode of obtaining it in a state of purity. The moroxylates are little known, and do not appear to puzzle 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 existing in opium; the description of which, and of the other principles existing with it, will be found under opium. See Opium.

Morris, 1. 3, for five r. ten. Col. 2. 16, r. 21, 828—856 were slaves in 1810.—Alfo, a township of Washington county, in Pennsylvania, having 1679 inhabitants.—Alfo, a township of Greene county, having 944 inhabitants.

Morristown, 1. 4, r. and in 1810, 3753 inhabitants, 214 being slaves.—Alfo, a town of Orleans county, in Vermont, having 550 inhabitants.

Morrisville, 1. 2, r. Bucks; add—having 961 inhabitants.

Mortlake. In 1811 the parish contained 346 houses, and 2021 persons; viz. 832 males, and 1189 females.

Mosul, 1. 2, after Nineveh, add—though others think that the village of Nuni, on the opposite bank of the Tigris, presents the position of this ancient city. It is situated in the pachalic of Bagdad; delv. in the province of Dabekir, situated.—1. 12, infer—The inhabitants are said to amount to 35,000 souls.

Mucacilla, r. Rubecula.

Mother-Kill. Add—containing 7445 inhabitants.

Moultonborough. Add—It contained, by the census of 1810, 994 persons.

Mount Holly, 1. 3, r. 922.

Mount Jef, after Lancaster r. county, having 1551; at the close, add—having 656 inhabitants.

Mount Pleasant, 1. 4, add—having 1105 persons.—Alfo, a township of Wayne county, having 522 persons.—Alfo, a township of Washington county, having 1165 inhabitants.

—Alfo, a township of the same county, in Wellmoreland county, having 1788 inhabitants.—Alfo, a township of Jefferson county, in Ohio, with 846 persons.

Mount Takour, a town of Rutland county, in Vermont, containing 209 inhabitants.

Mount Vernon. Add—containing 1098 inhabitants.—Alfo, a town of Hillborough county, in New Hampshire, containing 762 persons.

Mount Montague. Add—See Montague.

MOUNTAIN CORK. See Mineralogy, Addenda.

Mountains, col. 7, under Ireland, instead of l. 3, infer—Sleibh Donard, a mountain in the county of Down—2500. Col. 13, l. 10, r. Varenus.


Mumbo-Jumbo, a kind of bugbear dressed in a maskerade 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 Kadirs, or infidels, are not restricted in the number of their wives, every one of them as many as he can conveniently maintain; and as it frequently happens that the ladies disagree, family quarrels sometimes arise 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 decisive. 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 red 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 stage 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 visit is intended, is alarmed, but when summoned mull appear; and the ceremony commences with fongs and dances, which continue till midnight, about which time Mumbo fixes the victim, whose unfortunate victim being thereupon immediately fized, is stripped naked, tied to a poll, and severely flogged with Mumbo's rod, amidst the fhouls 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 filler. Day-light terminates this indecent and unmanly revel.

Muni, col. 2, l. 3 from bottom, for many-mothered, for r. many-mothered ion.

Muræna, col. 5, r. Myrus.

Muriate of Ammonia. See Sal Ammoniac.

Muriatic Acid. Muriates, in Chemistry. See Chlorine.

Musci, col. 8, l. 18, r. shrinks; l. 7 from bottom, r. exuval.


Muskingsum, l. 5, add—This county has 11 towns-ship, and 16,076 inhabitants.

Mussophaga, Plantain-Eater, in Ornithology, a genus of birds of the Picæ or order; the characters of which are, bill flout, triangular; the upper mandible elevated at the base, above the front; both mandibles dentated at the edges; nostrils in the middle of the bill; tongue entire, thickish; feet with three toes before and one behind. This genus is conflatuted by the blackish-violet plantain-eater, with crimson crown and quill-feathers, and a white stripe beneath the eyes. The bird, which is highly elegant, is
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 Leveiri-
num, 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 weasel; l. 3, r. Guiana.

MUSTELIA, in Botany, in memory of Mr. Muffel, who wrote, in Phil. Trans. v. 63, some “New Observations upon Vegetation.”—Sprengel Tr. of Linn. Soc. v. 6. 152.

—This plant is said to differ from Eupatorium, (see that article,) in having five minute scales accompanying the brily feed-crown. How far such exist in any Eupa-
torium, or not, and whether they ought to make a generic distinction, merits inquiry.

MYLOCARYUM, from μυλος, a mill, and καρυς, a nut, alluding to the four spreading wings of the feed.—Wild. Enum. 454. Pursh 363. (Walkeriana; Frazer's Cat.)—Cháis and order, Decandria Monogynia. Nat. Ord. Erica, Juft.


MYOXUS. At the close, add—Dr. Shaw enumerates some other species, such as the Chryfrus, or gilt-tailed D., the M. guerhucus, or guerlinguet, and the African, or earles Dormouse.

MYRIANDRUS. Add.—According to Xenophon, it was a Phoenician city, a mart-town, and many merchant-
ships lay at anchor before it.

MYRICIN, in Chemistry, a name given by Dr. John to the substance that remains after bees' wax, or the wax of the myrica cordifolia, has been heated with alcohol. This sub-
stance is insoluble 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 these. It melts between 100° and 140°, and is somewhat glutinous, but of the con-

MYTHOLOGY of the Hindoo, 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 Nadacos, refides about 30 miles N. of Nacogdoches, upon the headwater of the Angelina, where they were found near a century ago by the French and Spaniards. The Nadacos are a poor inoffensive race, in peace with all their neighbours, both white and black.

NAGA, a name of the Hindoo mythological serpent, otherwife called Sisra; which fee.

NAGANTEKA, in Hindoo Mythology, is a name of the hypogriff Garuda, the vehicle of the god Vishnu. It means the destroyer of serpents. Another of its names is Superna; which fee.

NAIRTI, is one of the eight regents of the winds, or points of the heavens. He rules the south-west quarter, and is subordinate to Indra, regent of the firmament. (See INTRA.) These rulers of the cardinal and intermediate points are sometimes called Marut (which fee). See also VIRUPAKSHA, meaning with a disagreeable countenance.

Another of his names is Karbara. He has a fakir or con-
fornf alligned him, usuall named Nirriti; which fee.

NAIRN, i. alt. for 632 r. 613.

NAIRNSHIRE, col. 2, l. 45, number of houses was 1746, and the inhabitants, 6.

NAKAL, one of the champions of the Hindoo heroic poem, entitled the Mahabarata (which fee). As that poem is supposed to be allegorical, and to represent the conflicts between man’s virtues and vices, Nakal, one of the five fons of Pandu, is said to be a personification of temperance, and is made the twin-brother of Sahadeva, or chaffy. Other commentators make them to represent beauty and wisdom. Their mother was Maderi, a wife of Pandus which fee.

NAKSHATRA, in Astronomy, is the name given by the Hindoos to the mansions which they allign to the moon. They seem to be the same, though not exactly coinciding, with the lunar fages of the Arabians, which they call mansil. The “Nakshatras, or asterisms, marking the moon’s path,” are twenty-four or twenty-eight in number. A
table of them is given in the ninth volume of the Arabic Religions, by Mr. Colebrooke, the president of the Arabic Society. See also the second volume of the same work, together with the Indian zodiac, accompanied by an effay on its antiquity, by Mr. W. Jones.

The Hindoos ascribe 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 Nakhatras as the daughters of Daksha.

NALA, in Hindu Romances, is a perlonage of considerable importance, though described as an ape. Others begat by the divine architect Pīṣakārma (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.

NANCÉMOND. See Nansemond.

NANDANA, the name of the garden, or city, affigined 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 sometimes said to belong to Ganeta, or Patacar. One of them is called Swa-nandana-puri, the self-delighting city; nandana meaning delightful or happy.

NANDI, in Hindu 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 also of generation or protection. See Siva.

NANSEMOND, l. 14, r. 10,324—4462.

NANTICOKE, l. 12, 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 Inl. of Menu, c. *, v. 88, 89, 90.

NARAMEDEHA, a term in the Sanskrit language signifying the sacrifice 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 Rarskia.) To the godfess Parvati, or Bhavani, the consort of Siva, under her name of Kali, or the black goddess, these offerings, it would appear, were usually, if not always, made. The rules and regulations for this horrid sacrifice are laid down in a chapter, emphatically called the fanguiary chapter of the Kalika-Purana, which has been translated by Mr. Blaquiere, and published in the fifth volume of the Asiatic Researches, art. xxiii. No religious rite can be more minutely ordered and detailed.

Although it must appear evident, that human sacrifices were formerly legal and practifed 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 man-sacrifice, is emphatically forbidden; and in the fifth book of the Sri-Bhagavat, (see that article,) fr W. Jones has pointed out the following emphatical words: "Whatever men in this world sacrifice human victims, and whatever women eat the flesh of male cattle, those men and those women shall the animals hereplain torment in the mansions of Yama, (see Yama,) and, like slaughtering giants, having cleared their limbs with axes, shall quaff their blood." Asiatic Researches, vol. iii.

In the first Veda an emblematical or vicarié sacrifice is ordained, in which men and animals are the victims, but are released after certain ceremonies.

Vol. XXXIX.

NARA-SINGHA, in Mythology, is the designation of the fourth avatara or incarnation of the Hindoo deity Vishnu. It means literally man-lion, such being the form in which this defecit is related to have taken place.

Sir W. Jones furnished that this avatara, and the following of Yamana, (see Vamanavarata,) were allegorical references to the two presumptuous monarchs Nimrod and Belus, under the names of Hiranyakasipu and Beli, the former name meaning with a golden axe, or, according to other authorities, clad in gold. Hind. Panth. Af. Ref.

The three avatara, or defecits of Vishnu on earth, that preceded that which is the subject of this article, were the Matasya or fish, the Kuruma or tortoise, and the Varaha or the boar; under each of which words, having the common denomination of avatara prefixed, some account of them will be respectively found. A list of the ten grand defecits, or dyaavatara, will be found under the article VISHNU. This is sometimes written Nri Sinha.

NARASINHI, or Narshini, or Nris@di, is the name given to the Hindoo goddess Lakhmi, who became thus incarnated to accompany her lord Vishnu in his avatara or defecit of Narasingha, as sufficiently explained under that article, and the others thence referred to.

NARAYANA, is a personification of rather a bold and apparently reprehensible nature. "The waters are called nara, because they were the first production of Nara, or the Spirit of God; and since they were his first aya, or place of motion, he is thence named Narayana, or moving on the waters." Inf. of Menu, c. *, v. 10. See Menu.

On the whole, Narayana seems to refer in character more to Vishnu than to any other of the Hindoo deities.

NARAYANI, a name and form of the Hindoo goddesses Lakhmi. In this character, she is considered as the Sakti or comfort of Narayana; which see, and Matri.

NARBETH, l. 9, r. 388.

NAREDA, or Narada, in Hindu Mythology, a personage among the Hindoos, deemed the mythological offering of Brahma and Saraswati. In the popular histories of Krihna, Nareda is represented as his humble friend, on whom he paffes many jocose 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 wise 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 excellent musician. Hence Saraswati, the patroness of science and harmony, is said to have been his mother. He further invented the vina, a sort of lute, which Sir W. Jones remarks as a singular fact, is otherwise called ksetrapa, having the fame meaning as tftudo and Nareda being also a frequent meffenger of the gods, to one another, or to favoured mortals. His character is highly admired, and is a favorite poet of Homer or Mercury.

NAS, l. 2, r. 7268—2897.

NASTICK, in Philosophy, the name of a sceptical sect of Hindoos. The word in the Sanskrit tongue means negative, and is intended to designate thofe 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-cress and its allies, separated by Mr. Brown from Stracophum, (see that article,) sect. 2.—Br. in Ait. Hort. Kew. v. 4. 109.—Class and

Eff. Ch. Pod nearly cylindrical; valves concave, without rich or keel. Cotyledons accumbent. Calyx spreading.

N. affinale, (Silwybr. Nafurtium; Linn. &c.), with fylwybris, terrepsi, amphibium, pyrenicum, and fylwybris, are the species mentioned in Hort. Kew. We have already described all but pyrenicum, which is a well-known species.

NATICK, l. ult. r. in 1810, contained 766.

NATRON. See Mineralogy, Addenda.

NATUNZ, in Geography, a town of Peria, in the province of Trak, 63 miles from Ipahan, and 43 from Cahani, situated on a very delightful spot, in a valley surrounded by high and rugged mountains; and famous for the salubrity of its climate, pears, peaches, and handmome females. It has a fort in the centre of the valley, an excellent warm bath, and an old mosque, with a very handmome mineral, said to have been built 300 years ago.

NAVY. Add—having 56 inhabitants.

NEAKIA, l. 10 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, col. 2, l. 34, add—Lower Nazareth is a township containing 758, and Upper Nazareth is a township in the same county and state, containing 535 inhabitants.

NEATH, col. 2, l. 5, r. Saturday for Thursday; l. 6, add—It has three fours; l. 12, r. was for is.

NECYDALIS, Minor, add—in fields and about hedges in the summer months. Cerelea, add—in woods during the summer months.

NEEDHAM, l. 7, r. 1097.

NEIFF, or Meshed Ali, a holy city, being the supposed burying-place of the caliph Ali, a town of the pachylo of Bagdad, nine furlongs from Hilleh, and four miles from Kafa, 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. Neiff 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 handufome 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 intimidated on account of the constant 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 Peria to be interred either here, or at Kerbela, Kazamem, Koom, or Meshed in Khoraflan.

NELSON, l. 2, r. 13,257—2908. Add—Alfo, a county of Virginia, containing 9684 inhabitants, of whom 4678 were slaves in 1810.

NEMESIA, in Botany, a name borrowed by Venentat from Dioecories, who is faid to have applied it to fome kind of Antirrhinum, we know not in what part of his writings. The present genus is nearly allied to Antirrhinum—Venentat, Mufalifi. 41. Ait. Hort. Kew. v. 4. 16.—Clafs and order, Didynamia Anglopermia. Nat. Ord. Peresonate, Linn. Scrophularia, Julif.

Eff. Ch. Calyx in five deep segments. Corolla spurred at the bafe; throat clofed by the palate. Capsule compreffed, of two cells, and two boat-like valves; partition linear, covered with hairs.


2. N. icornis. Horned Nemedia. Ait. n. 2. See Antirrhinum, n. 24. (Linaria; Burm. Afr. 211. t. 75. f. 3.)—Leaves lanceolate, with tooth-like ferratures. Clufter terminal, rather lax.—From the fame country. Annual. The specific name applies to the calyptra.

3. N. feta. Fettid Nemedia. Vent. n. 1. t. 41.—Leaves linear-lanceolate; upper ones entire. Cluthers terminal, defne. Stem shrubby.—From the Cape. Flowers white, marked with red; palate yellow.


NEPANESE, in Geography, a township of Lycoming county, in Pennfylvania, having 298 inhabitants.

NEPER, col. 1, l. 22 from bottom, for Neper’s rods r. Neper’s bones.

NEPHELINE, or Somicite. See Mineralogy, Addenda.

NEPHRIT. See Mineralogy, Addenda.

NERANTEKA, in Hindo Mythology, is the name of a malignant demon, mentioned often in their heroic poems, flan by Krihu, and by other divine warriors. The name generally means deftroyer of men.

NERKA, one of the many halls of the Hindous. See NARAKA.

NEROS, in Chronology, an ancient Chaldean period of 600 years, and equal to the Sofos of 60 years multiplied by 10.

NESENPACK, in Geography, a township of Luzerne county, containing 450 inhabitants.

NESHANSACK, a township of Mercer county, in Pennsylvania, having 700 inhabitants.

NETCHEZ, or weftern branch of the Sabine, a river of Louifiana, formed from the united streams of the Angelina, Atouquea, Nena, and the Attaoecito. The Netchez, though not fo 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 fertile compared with thofe on the margin of many rivers in Louifiana.

NETTING. Add.—The netting is ufed in different parts of a ship; thus, the boarding-netting is thrown over the fides, to prevent the enemies boarding. Bow-fprit-netting is fntened near the outer end of the bow-fprit, to the man-ropes or horfes, to flow away the fore-topmaft-flay-fail and jib. Breaff-work quarter and main nettings are ufed to keep the hammocks in the fiamons. Head-netting is fntened to the horfes in the head and upper rail, to prevent the men from flipping overboard. Quarter-deck netting is fuaped under the officers’ heads, to prevent any thing falling thereon. Top-netting is fntened to the rail, fhrouds, and top, to preferve the men from falling.

NEWARK, in America, l. 2, add—having 88 inhabitants; l. 12, add—and in 1810 contained 8008 inhabitants, of whom 360 were slaves.

NEW BRAINTREE, l. 2, after Worcefter, infer—Massachus-
NEW

—Massachusetts; l. 5, add—in 1810 contained 912 inhabitants.

NEWBURY, or Newberry, l. 2, add—It contained, in 1810, 13,063 persons, of whom 4066 were females; l. 3, r. 1709; l. 10, r. 1303; l. 13, r. 5176.

NEWBURY Port, l. 4, r. 7634.

NEW CANAAN, a town of Fairfield county, in Connecticut, containing 1599 persons.

NEWCASTLE, l. 5, r. 9 hundreds, and 24,429; l. 6, r. 1087; l. 16, add—It contained 2340 inhabitants, including 174 slaves; l. 19, r. 592; l. 26, r. 1232. At the close, add—Alfo, a township of Muskingum county, in Ohio, having 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, containing 772 inhabitants.

NEWFIELD, l. 3, r. 1376.

NEW LEBANON, a town of 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, Stock, a village of the county of Middlesex, in the Pinbury division of Offullstone hundred, and parish of St. Mary’s. In 1811 the parish contained 342 houses, and 2149 persons; viz. 895 males, and 1254 females.

NEW KENT, l. 3, r. 6478 inhabitants, of whom 3745 were slaves in 1810.

NEW L.Sc. Add—containing 780 inhabitants.

NEW LONDON, l. 4, r. 14; l. 6, r. 1810—34,707—77; l. 14, r. 3283; 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. 1061. 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 3237. At the close, add—it has 797 inhabitants.

NEWPORT, in Cornwall. In 1811, the parish of St. Stephen’s contained 159 houses, and 896 persons; viz. 433 males, and 463 females.

NEWPORT, col. 1, l. 4, r. 1427; l. 7, r. 16329; l. 19, r. 7907. Col. 2, l. 9, add—containing 566 inhabitants. Add—Alfo, a township of Washington county, in Ohio, having 243 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. 4543; 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.

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 consistent 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 pursuing 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 efluary of the Rio Formoso, and Benin river the western branch, Vol. XXV.

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; l. 14, having 1551 inhabitants; l. 17, and 2082 persons; l. 25, add—See Newton; l. 27, add—See also Newton.

NEW VINEYARD, l. 1, for Kennebeck r. Somerfield. Add—containing 484 inhabitants.

NEW YORK. See New York.

NIAGARA. See Niagara.

NICHOLAS, l. 2, r. 4898 inhabitants, 509 being females.

NICKEL, in Chemistry. The weight of an atom of this metal, according to the recent determinations of Dr. Thomson, is 33.75, from which date the composition of its salts may be easily ascertained. See Atomic Theory.

At the end of the article in the Cyclopaedia, add—from the experiments of Tuppini, it appears that preparations of nickel poiffees 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 Vanquelin 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 occasions violent feverishness. It is soluble both in alcohol and water; it fels colourles, and distilled by the peculiar taste and smell of nicotin. It is precipitated from its solutions by tincture of nutgalls. It is volatile, and some-what reembles in short the volatile oils in its properties. It poiffees poisonous properties. See further in the Annales de Chemie, lxx. 139.

NILA, in Mythology, is one of the many names of the Hindoo goddes Parvati. The word means blue or dark-azure, and is one of the Sanskrit names for the Nile, as is also Kali.

NILAKANT'HNA, a name of the god Siva, meaning blue-throated, similar to Shitakantha, or Shitakouatha, under which word some account is given of the origin, &c. of the appellation.

NILE, in Geography, a town of Ohio, in the county of Scioto, having 396 inhabitants.

NIMMISHITHAN, a township of Ohio, in Stark county, having 385 inhabitants.

NIobe, 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 father 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 dispute Latona, who in revenge induced Apollo and Diana to put all her children to death, in the manner related by Ovid and Plutarch. This episode, as it is said by some writers, contains a history no less true than tragic. The city of Thebes was defeated by a pestilence, which destroyed all Niobe's children; and as contagious diftemper has 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 Sipylys, upon which she was seen, according to Pausanias, a rock that, viewed at a distance, resembled a woman in deep melancholy and despair. 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 same poet, in his Electra, says, that Niobe sheds tears in a tomb of stone.

NIPPER, in Rope-making, is formed of two flued 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 than is required, and what is squeezed out drops into a trough and returns into the kettle.

NIRRITI, is the name of a Hindoo deity, comfort or fakiti of Nirrit 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 his flatae was feen in it till the Arabs destroyed it. This city was taken in the 54th year of the Hegira by the Tartars, who completely ruined it, that when the original inhabitants returned to take 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 furfungs in circumference. It is at present subject to the dominion of the king of Persia, and has nine disritcts 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 5 atoms oxygen + 1 atom azote; hence the weight of its atom 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, thorned; the upper ones, in fix of the species, divided into florets. Flowers white. Petals free, capitate, bracteate, purplish.—Four species are mentioned in Hort. Kew.

1. N. Sceptrum. (Protea Sceptrum; Linn. Suppl. 116. Spar. Stockh. Trans. for 1777. 53; not 55. t. 1.)—Upper leaves obviate or lanceolate, flatish; simple at the edges. Corolla silky, with clove hairs.


3. N. siccata, and 4. N. crithmifolia, the latter P. Lagopus; Andr. Repof. t. 243, have all the leaves doubly pinnatifid.

NOBLEBOROUGH, l. 3, r. 1206.

NOCK, the foremost upper corner of a boom; and of flay fails cut with a square tack.

NOCKAMIXON, l. 2, r. 1327.

NOCTURN, Littering, the divine office of the night, as distinguished from that of the day. The latter consisted of the seven canonical hours, the former of three nocturns, each consisting of several psalms, lections; &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 hundreds, 3 boroughs, viz. King's Lynn, Thetford, and Great Yarmouth, and one city, viz. Norwich; 51,774 houses, occupied by 291,999 persons; 138,089 being males, and 153,910 females; of whom 31,454 families are employed in agriculture, and 23,082 in trade and manufactures.

NORFOLK, in America, l. 4, r. 22; l. 6, r. 31,245; l. 8, r. 18,679—5647; l. 4 from bottom, r. 1441.

NORMAN. Add.—Alto, a square and oak, or short carling, fixed through the head of the rudder of East India ships, to prevent the loss of the rudder, in case of its being unhinged. Alto, 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-We] Fort, a hundred of Suffolk county, in the state of Delaware, containing 3203 persons, of whom 382 were slaves in 1810.

North-West Paffe, l. 15, after Labrador coast, add—nor of the Cortecares of Portugal in 1500, nor of the Cartiers and others from France in 1508 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. 1. 19, such as Edward Fenton in 1577, Arthur Pet and Charles Jenkinson in 1580, sir Humphry Gilbert in 1584, John Davis in 1585, 1586, and 1587, Cornelis Cornelison, Brands Yibrants, and William Barentz of the United Provinces, in 1594, of Barentz in 1599 and 1596, William Adams in 1596, George Weymouth in 1602, James Hall in 1605–6–7, John Knight in 1606, Henry Hudson in 1607–8–9–10, sir Thomas Bat- lion in 1612, James Hall in 1612, Gibbons in 1614, Robert Blyt in 1615, Blyt and William Baffin in 1616, Jens Mank, a Dane, in 1619. 1. 41, and, after the failure of Samuel Hearne in 1760, 1770, Confiantine John Shipps (lord Mulgrave) in 1772, captain Cook, &c. Col. 2, l. 39 add—our limits will not allow us to continue the voyages of captain (now admiral) Lowenorn, lieutenant Egede, and lieutenant Roth, Danes, in 1786 and 1787, nor the travels of Alexander Mackenzie in 1789, nor those of Charles Duncan in 1790 and 1791, nor the discoveries made by the Russians on the northern coast of Siberia during the 18th century, nor the voyages for farther discovery, undertaken in the early part of the 19th century by lieutenant Kotzebue 1815 to 1818, of John Rofs, David Buchan, William Edward Parry, and John Franklin in 1818. Add to the references—Barrow's Chronological History of Voyages into the Arctic Regions, &c. 8vo, London, 1818.

Northington, col. 9, l. 7, for 1623 r. 1576.

Northampton, in America, l. 4, r. 32–38, 145; l. 5, r. 1175; l. 8, r. 710; l. 10, r. 13082; l. 11, r. 7258; l. 17, r. 7474; 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 79,074 females, of whom 12,100 families were employed in trade and manufactures, and 15,235 in agriculture.

Northborough, l. 3, r. 794.

Northbridge, l. 3, r. 713.

Northfield, l. 3, r. 426; l. 6, r. 1218; l. 10, r. 1057.

Northampton, l. 2, r. 651.

North Haven, l. 4, r. 1239.

North Hero. See Hero.

North Kingstown, l. 5, r. 2957; l. 6, r. 7 flaxes in 1810.

Northport, l. 2, r. 786.


Northumberland, in America, l. 1, for Graton r. Coos; l. 4, r. 28; l. 7, r. 26; r. 36, 327; l. 15, r. 8308 inhabitants, of whom 3847 were slaves in 1810.

Northwood, l. 5, r. 1095.

North Yarmouth, l. 5, r. 3295.

Norton, l. 3, r. 1038.

Norwalk, col. 2, l. 1, r. 2983.

Norway, l. 3, r. Oxford; l. 5, r. 1010.

Norwegian, a township of Berks county, in Pennsylvania, having 415 inhabitants.

Norwich, in America, l. 3, r. 1812; l. 5, r. 968; l. 17, r. 2976 inhabitants. Norwich, except the city, contains 552 inhabitants.

Notoceras, in Botany, from νότος, the back, and κέρας, a horn.—Brown in Ait. Hort. Kew. v. 4. 117—Clais and order, Tetradynamia Siliquosae. Nat. Ord. Sili-
quoseae. Linn. Crucesfere, Jull.

Eff. Ch. Values of the pod harned at the back, near the top. Cotyledons accumbent. Stigma capitate. Calyx nearly erect, equal at the base.

N. canariens. Canary Horn-crests. Ait. ed. i. (Ery- stemum bicorné; Ait. ed. i. v. 2. 394. Willd. Sp. Pl. v. 3. 514.)—Brought by Mr. Maffon, from the Canary islands. A small, branched, annual plant, covered with close bristles; the lower lanceolate, entire; flowers yellowish, minute.

Nottingham, in America, l. 3, r. 1063; l. 6, r. containing 2615 inhabitants. Add—Alto, a township of Washington county, in Pennsylvania, having 2047 inhabitants. Alto, a township of Ohio, in Tuscarawas county, having 412 inhabitants. Col. 2, l. 2, r. 1376.

Nottinghamshire, l. 16, r. 31, 344; l. 17, after number, add—the males being 79,037, and females 83,843.

Nottoaway, a county of Virginia, containing 9273 inhabitants, of whom, in 1810, 6928 were slaves.

Numbers, col. 2, l. 2, after "4 and 220/2 + infert"

* "220 + ." Col. 18, &c. x = n.

4 Numbers, Planetary, col. 5, l. 10, for 25° 24° 8° r. 25° 14° 8°. Col. 6, l. 17 from bottom, for successful r. suc-
cessive. Col. 21, l. 26, for 2054 r. 2064.

Nux Vomica, Chemical Properties of. MM. Pelletier and Caventou, 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, refines the colour of turnsole after it has been reddened with an acid, does not reddem turmeric, combines with acids which it fatuates, and forms with them crystallizable salts. The discoverers have suggeted the name Vanguin for this substance, in honour of the celebrated chemist Vau-
quelin, who is said to have first discovered the alkaline properties of a substance obtained by him from the daphne alpina.

Nycteriurn, in Botany, a genus entirely artificial, made by Ventenat in Hort. Mdmart. 85, out of such species of Solanum, (see 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

OAKHAD, in America, 1. 3, r. 848.

OBSIDIAN. See Mineralogy, Addenda.

OCATAHOOTA, in Geography, a parish of New Orleans, in Louisiana, resembling in its soil and produce Oachitita; which see.


Ed. Ch. Lip articulated with a kind of claw which bears the petals. Anther a moveable deciduous lid. Males of pollen eight.

We know not of how many species this genus is composed. One only occurs in Hort. Kew.


OGHAM, col. 3. l. 35, for Diflfrt. r. Diflfrb, and for bifidktb r. bifidkltb.

OGLETHORPE, l. 3, containing, with its town Lexington, 17,297 inhabitants, of whom the slaves in the county are 38,235, and in the town 1,133.

OHIO, l. 8, add—Bradbury, in his “Travels,” estimates the area of the Ohio state at 38,460 square miles, and its population at 230,760 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 600 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 198,464 square miles, four times the extent of England and Wales, the surface of which is supposed 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. 8175 inhabitants, of whom 446 were slaves in 1810; l. 6, r. 3682; l. 7, r. 497. —Add—Alfo, a township of Alleghany county, in Pennsylvania, having 832 inhabitants. —Alfo, a township of Beaver county, in Pennsylvania, having 1124 inhabitants. —Alfo, a township of Ohio, in the county of Clermont, having 1803 inhabitants. —Alfo, a town of Gallia county, in Ohio, having 350 perfons. —Alfo, a township of Knox county, in Indiana territory.

OIL of Caraway, l. 1, for Carua r. Carum.

OPA

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 digging hog's-lard in potash ley. When this soap is put into water, a portion was deposited in pearl-coloured scales, which was the margoiate of potasb. (See MARGARITE AcID.) Another portion, confuting of the oleate of potash, mixed with some margoiate of potash, remained in solution. These two were then separated, and the oleic acid obtained in a state 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 .909. Sometimes it remains liquid at 35°, though other varieties of it congeal at 43°, or even higher. When congealed it crystalizes in needles. It reddens litmus with great energy. It is insoluble in water, but very soluble in alcohol. It combines readily with the alkalies and earths, forming fatis, or rather foaps, none of which poofes very remarkable properties. Dr. Thomson, from Chevreul's ex- periments, estimates the weight of its atom at 360. It may be obtained from mofl 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 researches r. researchers; 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 Tus- caraw, having 610 inhabitants.

ONDANDO, l. 16, r. 25,987, of whom, in 1810, 50 were slaves.

ONSLOW, l. 3, r. 6669—2299.

ONTARIO, l. 3, number of inhabitants in 1810 was 43,032, of whom 212 were slaves.

OPETHUS, Touraco, in Ornithology, a genus of birds of the order of Pice; 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 Parra of the Linnan fyltem. Shaw.

OPAL. See Mineralogy, Addenda.

OPELOSUS,
OPELOUSAS, in Geography, a county and parish of the territory of Orleans, containing, in 1810, 5048 inhabitants. This territory presents a great variety of soil, or, if we except the sugarcane and orange-tree, the cultivation of most valuable vegetables has succeeded. Cotton, indigo, and tobacco, have been and the former now is the staple commodity of the country; to which we may add, cattle, hides, leather, sheese, beef, and pork.

OPHIDIUM, l. 25; add—See Dr. Broussonet's description of this fish in the Phil. Trans. vol. lxi.


OPIUM, Chemical Properties of. M. Derose in, 1803, published an analysis of opium, in which he announced the existence of a peculiar crystallizable substance to which that drug owes its narcotic properties, whence it was named the Narcotic Principle (which see). Soon afterwards, M. Serttiner 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, purified 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 narcotic principle of Serttiner, according to Serttiner, is a compound of morphia, and a peculiar acid called the meconic, which opium contains. This latter circumstance, however, has been since called in question by Robiquet.

According to Serttiner, morphia occurs in opium combined with meconic acid. There are different methods of separating morphia from opium. Serttiner 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 bases 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 fulphoric ether. All these solutions change the infusion of Brail wood to violet, and the tincture of rhubarb to brown, thus denoting different alkaline properties. They have a bitter and peculiar astringent taste; and the faturated 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 Serttiner 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 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 assumes a plumose appearance, and is much less soluble than any of the other salts of morphia. The nitrate of morphia crystallizes in prisms.

Dr. Thomton estimates the weight of the atom of morphia, from the experiments of Choulant, at 82.5; but this probably differs considerably from the truth.

Meconic Acid.—This acid may be obtained from the infusion after the morphia has been separated by ammonia as above-mentioned, by adding muriate of barytes as long as any precipitate falls, which is meconium of barytes. To obtain the meconic acid from this salt, M. Choulant triturated it in a mortar with its own weight of glasse boracic acid. This mixture being put into a small glass flask exposed gradually to heat in a sand-bath, the meconic acid sublimed in the flake of fine white fcles 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 redens 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 flake of protoxyd. This acid unites with the different bales 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 efflorecce. The meconiate of ammonia crystallizes in star-form needles, which when sublimed lose their water of crystallization, and assume the form of flakes. The meconiate of lime crystallizes in prisms, and is soluble in eight times its weight of water. Dr. Thomton 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 infer here.

ORANGE, l. 2, r. 23,247. Col. 2, l. 4. r. 1686; l. 7, r. 229; l. 11, r. 764; l. 13, r. 34,347; l. 14, r. 566; l. 22. The number of inhabitants in 1810 was 226,66, including 48 slaves; l. 27, r. 12,523 inhabitants, of whom 6516 were slaves in 1810.

ORANGEBURG, l. 6, r. 13,229—5564.

ORES, Chemical Analysis 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 Meopotamia. In the early ages of the Roman empire, this division of Meopotamia bore the name of Orthoeone. It had subsisted 843 years as an independent kingdom, when it was reduced under the form of a province by 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 Ophirhoe, became a Roman colony, and was regarded as one of the bulwarks of Mepotamia against the Parthians and Persians. It was the residence of the Coutneys, counts of Edessa, and fell, together with the adjoining territory, into the hands of Zangi and Sallahadeen. In the thirteenth century it was sacked by the Moguls, and by Timur in the 824th year of the Hegira. It is now subject to the grand geignor, and the residence of a pacha of two tails. It is situated in a barren country, 232 miles from Diarbakr, 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 Nefiorians, 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 Nimrood, and several extraordinary subterraneous apartments, apparently very ancient. McKinnier’s Peria.

ORFORD, L 4, r. 1265.

ORGAN, col. 8, l. 12 from bottom, r. thoroughly repaired.

ORLAND. Add.—It contains 480 inhabitants.

ORLANDO. See Lassus.

ORLEANS, l. 4, r. 23; l. 10, r. 5830; l. ult. and in 1810 of 1248 persons.

ORLEANS, New, l. 3, infert 105 miles, &c.; l. 3, add—or, by the statement of Mr. Darby, N. lat. 28° 57’ W. long. 90° 8’. At the close, add—By the census of 1810, it is stated as comprising the following counties; viz.

Orleans, German Coafl, Acadia, La Fourche, Iberville, Point Couppee, Concordia, Ouachatta, Rapides, Nertchitoches, Opelousas, and Arkanfas, which include a number of parishes, and a population of 75,536 souls. The city and suburbs of New Orleans contained 175,247, and its preceding 73,740: the number of slaves in the former is stated at 5961, 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 1800 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, language, 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, some Indians, and dispersed individuals of all the nations of Europe. For a further account, see United States.


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 Wasame.

OSMAZONE, in Chemistry. See Blood and Fluids, Animal.

OSRINGTON, l. ult. r. 1341.

OSNABURG, a township of Ohio, in Stark county, having 301 inhabitants.

OSSIPPEE, l. 2, r. Strafford; l. 4. r. 1205. Ossipee Gorge, a township of the same state and county, having 157 persons.

OFAHEITE, l. 6 from the end, add.—From a survey made by captain Wilson in this voyage, he estimates the whole number as not exceeding 16,550 persons; and Turnbull, in his "Voyage round the World," performed from 1820 to 1824, says, that they cannot now be estimated at more than 5000.

OTALGIA, derived from otis, the ear, and akos, pain, signifies the disororder, 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, prickking, piercing, throbbing, or gnawing description; or it may consist of an unpleasant sensation of whispering 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 organ.

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 cause. Callen mentions five varieties of the disorder; viz. the otalgia inflammatoria, catarrhalis, purulentula, melatística, (a cæa which the modern doctrines in pathology hardly allow us to admit,) and the otalgia a corporibus alienis intrafu.

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, excruciating pain in the deeper part of the organ, exquisite sensibility to the slightest noise, intolerance of sounds, redreelves, sometimes a great deal of delirium, convulsions, &c., coldness of the extremities, and, according to the accounts of several respectable writers, the disease 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 nafs discharges a very small 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 cutaneous swelling of the face.

The inflammatory otalgia sometimes terminates in the formation of an abscse, 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 membrana tympani, or, in a more favourable way, through the Eustachian tube. When the abscess occupies a full 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 cariosa 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 abscess from extraneous substanaces in the ear, as malleus 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 compcrflion of the Eustachian tube may also become a cause of otalgia, as Callisen affects, by confining fluids in the tympanum.

From what has been stated, it is obvious that although otalgia may indeed sometimes be an idiopathic disorder, it is more commonly really symptomatic, in which latter 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 case or difficulty of removing the cause. The following circumstances relative to the prognosis seem to deserve remark.

Young persons usually suffer much 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 trunks 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 Callisten. 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 abscess, are events which augur a favourable termination of the disorder. When suppuration has occurred in the cavity of the ear, and the abscesses uncomplicated with any curious affection has burst and discharged itself through the meatus auditorius 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 exit 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

Vol. XXXIX.

matter is collected, the bursting of the abscesses should be accelerated by 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 sensibility in the nerves of the ear must be lefened by suitable internal and external remedies, the use of opium, anodyne fomentations, the exhibition of conium or framonium, the introduction of a droph of soft cotton into the meatus auditoriius, dip 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 Maffachuetts, containing 1111 inhabitants.

OTSEGO, l. 6, r. 38,802 inhabitants, of whom 74 are natives.

OUACHITA, a county and parish of the terity of Orleans, which, in 1810, contained 1077 inhabitants. The fpecies 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 fize of canoes.

OVERTON. Add—Alf, a county of West Tennessee, containing 5643 inhabitants, of whom 535 are natives.

OUGAIN, col. 6, l. 39, for here r. vol. 5.

OUNDER. In 1811, the parish of Oundle contained 362 houses, and 1833 persons; 821 males, and 1012 females: 62 families being employed in agriculture, and 302 in trade, manufactures, and husbandry.

OWHYHIE, 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 composed of

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>-244</td>
</tr>
<tr>
<td>Carbon</td>
<td>-32522</td>
</tr>
<tr>
<td>Oxygen</td>
<td>-66534</td>
</tr>
</tbody>
</table>

which nearly correspond with 1/4th atm 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. 1433.

Col. 2, l. 5, r. 1810, 2470 inhabitants, including 36 natives; l. 6, r. 0731; l. 15, r. 700 inhabitants; and another, called Lower Oxford, with 769 inhabitants.—Alf, a township of Ohio, in Guernsey county, having 440 persons.—Alf, a township of Ohio, in Tuscarawas county, having 271 inhabitants.

OXGEN 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 and pressure, will weigh 33.888 grains. See Atomic Theory.

OXGENIZED Acids. M. Thenard has recently been enabled to combine oxygen with acids almost to an unlimited extent, chiefly by means of the peroxys of barium. His general method was, to diffuse the peroxys in the acid intended to be oxygenized, and afterwards to separate the barytes by means of sulphuric acid; the oxygen was thus transferred from the peroxys 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
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.

OXYPRESSIC Acid. See Cyanogen and Prussic Acid.

P.

PACKERSFIELD, L. 3. P. 1076.

PAOCLET. Add—Alfo, a town of Rutland county, in Vermont, containing 2233 inhabitants.

PADMA, L. 2. delo of.

PAINT, in Geography, a township of Fayette county, in Ohio, having 534 persons.—Alfo, a township of Highland 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 said, 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, joins them together with 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 substances 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 tone, 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 blifling 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 base. 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 defraction 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 slightest degree, there was found wanting that union between the enamel 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 it is its adhesion to the copper, that if broken it invariably brings a lamn of the copper with it. The mode of preparing the enamel plate for painting is exactly similar to that for watch and clock dialling (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, is 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.
overcome. It is true he may lessen it by having by his side a plate on which he has made trial of his colours, and by which he has ascertained their positive colour, and what their various combinations can produce; but it is also necessary that he should have in his mind’s eye the effect which the fire will give, and calculate the depth and brilliancy of his work; without this, he will be ever in danger of using one tint for another, and continually subject himself to disappointment.

It is of the greatest importance that the colours should all agree. This will entirely depend on the properties of the fluxes made use of. It would be very desirable that all the colours should be fluxed with the same materials; but as this cannot be, care should be taken that they are not of discordant principles. This disagreement manifests itself by some of the colours destroying the others when mixed, or by occasioning a bubbling of the tint in the fire, and a roughness on the surface when cold.

Some writers on the subject have considered it necessary, that to paint in enamel two sets of colours should be made use of; one hard, for the beginning of the picture; the other soft, for the later paintings. This idea could only have originated with a person totally unacquainted with the principles of the art, as if it were not more necessary to have the full power of the colours at the finishing than at the beginning of the work: the softness or hardness of the colour depending on the greater or less degree of flux mixed with it, it is evident that in proportion to the quantity of glairy matter mixed, so will the strength of the colour be diminished. It is much better to continue the old mode of using the same colours from first to last, more freely and in greater body in the beginning, and more thinly towards the finish.

It has been said, that the French painters in enamel have discovered the mode of making the colours appear the same before as after palling the fire. If this were really the case, the advantage is not so great as at first sight it seems to be. The disadvantage is not so much the different appearance of the colour, as the want of its proper depth. This is not to be overcome but by the admission of a greater evil. To bear a colour out, an oil must be used, which will not evaporate, and the confluence of this would be, that on its application to the fire corrosion would take place, and the picture must undergo an operation which would much reduce its power before it would be fit for again proceeding with. It is towards the finish of the picture that the enamel painter’s greatest difficulties begin; for such is the nature of his colours, that the parts he touches, when it is not necessary to cover the whole, whether he heightens the lights or deepens the shades, appear the same, and much lighter than the general tint. This is an operation which renders great practice and great caution equally necessary.

The principal colours whose tints are most altered by the fire are the reds, and as they are essential in the painting of the flefs, their alteration necessarily affects the whole; as the same colour which after fire becomes a bright carnmine, is before that operation of a dirty-brownish hue: this inconvenience may be lessened by exposing the colour to a slight heat, by which it will acquire somewhat of its right tint. Some painters for this purpose have mixed a portion of carnime, or some other colour which is destroyed by fire, with their rose-colours or reds, to render them when painted with the same in appearance as after they are fired: this, to say the least of it, is a very fallacious mode of proceeding, and one which an artist’s practice would soon teach him to despise.

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 gold; 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 essential, and they are such as on application to the fire evaporate with a slight degree of heat; for this purpose, the oil of Ipske 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 process which the enamel picture undergoes is that of palling 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 fliows him what he has accomplished, and points out to him what remains to be done. The last time of palling through the fire is, as may naturally be supposed, a moment of great anxiety to the artist, as he may, in an infall, witness the destruction of his picture, and see the labour of months rendered unavailing, by the enamel ground opening and shrinking 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 esteemed while Babylon remained, and, like that majestic city, was overwhelmed with such entire ruin, as fearfully to leave a wreck behind.

The coloured heads which enrobe the mummies, and the painted idols of the Egyptians, prove that this art was not unknown to that extraordinary people; although nothing which exactly deserves 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 furnish some inludes in which, departing from this simplicity, they have displayed a variety of colours with great success.
PAINTING IN ENAMEL.

By the Romans, if this art were not unknown to them, which, considering their intimate knowledge of the acquisitions 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 other 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 glaft. Other monuments of a subsequent period prove, that the art regularly descended, although with varied success, 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, which are only mentioned here to prove that it was never entirely lost sight 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 dishes called Raffaelle ware, copied from the designs of that immortal painter and his disciple Julio 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 Petiot, 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 deferving 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 justly cenasured. The reputation of Petiot 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 Petiot. Although his pictures are not so highly finished, his best works have less of that particoloured effect, and consequently more the appearance of nature, than those of his great predececor. Petiot'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 poffessed of considerable ability and sweetness in the execution, has too many of the defects of early enamels, and by no means conveys an idea of the style of the great original from which it is copied, for John 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 wish or thought it impossible to obtain depth and richness; his pictures, therefore, are little more than beginnings. The other professors of this art, of this period, were Hone, 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 anatimist, 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 desirable 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 superior 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 diffusion 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 scrupulously 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 Raphael, the glow of Titian, or the splendour of Rubens, is enthralled 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 enamel painting, it would be superfluous 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 paint for eternity is the peculiar province of the enamel painter. To him the hyperbolical compliment which Pope paid to Jarvis is justly due:—

"Beauty, frail flow'r, which every fen/en fears,
Blooms in his colours for a thousand years."

How often have we mingled pity with our admiration of the fine works of the great masters, colourists 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 preserved in all their original splendours. How invaluable at present would the portraits of the illustrious characters of Greece and Rome appear! Had enamel painting then been known as it is practiced at present, we should not now have to seek their imperfect remembrances in bulbs and gems.

Thus has this art, sometimes shining forth in full splendour, sometimes nearly merged in obscurity, survived 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 in 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 perpetuating the best efforts of native genius. See ENAMELLING.

Painting of Clocks and Watches. See the preceding article, and ENAMELLING.

PAISLEY, col. 4, l. 21, for Salto f. Salvation.

PALAVER, an African term denoting a court of justice, 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 Chemistry. According to the recent determinations of Dr. Thomson, the weight of the atom of this metal is 75, 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 renown, and being engaged in all the public works. Their disadventure with a celebrated architect and sculptor, named Vittoria, furnishd Palma with a patron, who endeavored to lower the esteem of his enemies, used his utmost efforts to establish the rival painter, affixed him with his advice, and found him employment. Their united endeavors failed however of success, and Palma was obliged to contend 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 flight in execution, so much so that Cefare d'Arpino, remarking upon the lightness of the style in which he painted, observed, that he meant to make some play 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. Cofma and Damiano; the celebrated naval battle of Francesco Bembo, in the public palace; the Saint Apolonia at Cremona, &c. The compositions of the younger Palma are more distinguishing 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 deftively admired for his richnefs, lustre, and freshness.

PALMER, in Geography, l. 4, r. 1114.

PALMYRA, a township of Maine, in the county of Somerset, having 117 inhabitants.—Alto, a township of Wayne county, in Pennsylvania, having 336 inhabitants.—Alto, a township of Knox county, in the Indiana territory.

PALOMINO Y VELASCO, Don Antonio, in Biography, a Spanish painter, born in Valencia, in 1633. He studied at Cordova in grammar, philosophy, theology, and jurisprudence; 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 Cienzo, and pleaded 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, poffefes invention, defign, and colour, in the effential, and taste 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 praise lavished on it by Luca Jordano.

Palomino may be considered as the Vafari of Spain, as copious, as cedulous, and as negligent of dates, too garulous 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 two first bear one title, viz. "El mufico Pictorico y efcula optic." The third part, distinguished by that of "El Parnaso Espanol Pintoresco lubreida," &c. Madrid, 1754, though perhaps only intended as an appendix to the two former, is by far the most important and interesting.

PALOU, or PALO, L. 446, add—pachalic of Erzeroum, 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 before the melting of the snow. The district of Polo 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 seat of reeds (the septem differentia vocum of Virgil) is called the contra basso, or double-basso; the next fagotto, or bassoon; the third, feptenary, 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 lefs than three or four parts. The instruments with which they accompany themselves with their hands are the cymbals, the triangles, the double drum beat at both ends, the mezza luna, a Turkish instrument, and the tambour de basque.

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 seeming facility, without moving the instrument by manual affinence. (Et sapra calamos uno percurrere tabro, Lucretius.) 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 nfe 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 septenary.

PANIS. Add—See Towilaches.

PANTON, in Physisology. See LUNGS.

PANTON. Add—Containing 520 inhabitants.

PAPER CURRENCY. l. 8 from the end, dce where; l. 5, infect—not.

PAR of Exchange, col. 2, l. 24, for lods r. lefs.

PARADISE, l. 2, r. 1548.

PARASANG. Add—The farang at a mean was little short of 3½ British miles. The parang of Xenophon was no more than 3 Roman miles, or 278 British miles. Herodotus and Xenophon say, that the parang was confized of 30 fladia; and as there may be suppted to have been of the Grecian itinerary standard, the parang would be equal to 2.9 British miles, or 3½th only longer than that of the Arabafis. Rennell's Illustration of the Expedition of Cyrus.

PARHELION, col. 2, figs. 23, 24; l. 14, r. 1320.

PARI, 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 distinguished 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. Anderfon, a reputeable surgeon at Selkirk; and after refiding 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 alacrity 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 Dickfon. Upon his removal to London, this eminent botanist introduced him to Sir Joseph Banks, by whose recommendation he was appointed assistant-surgeon to the Worcester East Indian. In 1792 he failed for Bexcenol, 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 Linnaean 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 Mr. Ledyard and Lucas, major Houghton, and Mr. Hornemann, who fell sacrifice 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 past 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 better qualified for such an arduous 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 Jillifree, 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 abstract was annexed an important Memoir by major Rennell, confiding of 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 earlier 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 reprobation, 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. Whilf 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 incon sistency without impeaching his integrity, we should recollect how he was circumstanced whilst 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 West 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 person poising 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 severely 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 misunder-stood, 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 ful-\fision of his integrity should attach to this part of his pub-\lication; and we can well imagine, that he did not perceive the bias of his mind, or the caucuses that produced it, which were apparent to every one besides himself. Such a bias would naturally result from the assiaince afford d 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 influence 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 occa-\sion 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 discussion. The narration of Mr. Park, written as we have reason to believe by himself, entitled 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. Anderson of Sel-kirk, with whom he had served his apprenticeship. In the month of October 1801, he settled at Peebles, with a full purpose of pursing his medical profession; but as he de-\voted much of his time and attention to the poor, the profits of his business were inconsiderable; nor could he forbear 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 pre-\\nted to him by a letter from Sir Joseph Banks, soon after the signature of the preliminaries of peace with France, in Octo-\ber 1801; but it was not till the autumn of the year 1803, that a specific proposal was made to him for this purpose. Pre-\\viously 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, confi-\dently 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, 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 commissio of a captain in Africa; and to his friend Mr. Alexander Ander-\\fon a similar commissio of lieutenant; and Mr. Scott was ap-\\pointed to attend him as a draughtman. He was empowered to enroll at Goree any number of the garrison that would be necessary for his purpose, not exceeding 45, with such bounties as would induce them cheerfully to accompany him. From Goree he was directed to proceed up the river Gambia, and thence, crossing 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 pur-\\se the course of the river as far as it could be traced; to es-\tablish 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 em-\\powered to draw for any sum which he might want, not ex-ceeding 5000l.

When the preparations for the expedition were completed, Meffrs. Park, Anderson, and Scott, proceeded to Port-

mouth,
PARK.

mouth, and being there joined by four or five artificers from the dock-yards appointed for the service, they set sail on the 28th of January 1805, and on the 28th of March arrived at Goree. On the 27th of April 1805, Mr. Park took his departure from Kayee, a small town on the Gambia, a little below Piania, having previously engaged a Mandingo priest, named Ilacco, who was also a travelling merchant, and much accustomed to long inland journeys to serve as a guide to his caravan. On the 15th of May, he arrived at Madina, the capital of the kingdom of Woolli, and on the 14th he reached Kuffia, 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 Nerito, 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 Tenda, at fun-fet. On the 26th reached Tendico or Tambeco, a village belonging to Jallacotta, lat. 15° 53', half a mile from which is a pretty large town, called Bady. May 21st at eight, halted at Jeningalla, near Buutra or Katabtada. On the 24th, flopped at Mansafara, which consists of three towns, contiguous to each other, and distant from the village of Nutakorra, on the north bank of the Gambia, eight miles due south. Next day entered the Tenda or Samakara wilderments, and halted at Sootectabba, lat. 13° 31' 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° 52' 43'', 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 Sibikillin, after travelling four miles, on the 27th; and on the 28th, arrived at Badoo, a small town, consisting of about 400 huts, near which is another town of the same name; but the two towns are distinguished by the names of Sanfanding and Sanfsaha, at each of which custom is demanded of all carriages or caravans, lat. 13° 32'. From Badoo proceeded to Tumacunba, about four miles east of it, and about four miles distant from the river Gambia, south of Badoo: leaving Tumacunba on the 30th, entered the woods, and at dark arrived at Tabba Goo, which was left at day-break the 31st of May, and halted during the heat of the day at a small village, called Mambari. On the 1st of June, arrived at Jufunda, a considerable trading town, containing about 2000 persons, who trade on credit, and are called "Jull," by way of distinction from the Sante, who trade with his own capital. At this place, lat. 13° 32'', they were exorbitantly taxed by Manfa Kuffan, who is reckoned one of the most avaricious chiefs on the road. On the 4th of June, arrived at Banferle, a Mahometan town, whose chief, Fodi Brahima, was one of the most friendly men they met with, lat. 13° 35'. The kingdom of Dentla is famous for its iron; and the flux used for smelting it is the ashes of the bark of the kino-tree. On the 7th of June, in prosecution of their journey, crossed the bed of a stream that runs towards the Falme river, called Sumako, on account of the vast herds of elephants which wash themselves in it during the rains. At noon of the 8th, reached Madina, and halted by the side of the Falme river; in the evening went to Sattadoo, one mile east of the river. On the 10th reached a small town called Shondo at sun-set; 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 some gold-mines, which were inspected, and which afforded occasion for witnessing the expeditions mode practised by the female na-
31st, they halted at Sobec, 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 Kooolkor, 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 Wouli, a very deep river, flowing at the rate of four or five miles per hour. They purfued their route, until on the 13th, thofe of them who furvived reached Koomikoom, where they halted; lat. 13° 16' 29". On the 15th, they reached Doombila, where Mr. Park met with an old friend, Karfa Taura, a worthy negro whom he had known, and whose kindnels he had experienced in his former travels. From Doombila, they proceeded on the 18th to Toniba, and from thence they affended the mountains fouth of it, till having attained the fummit of the ridge which separates the Niger from the remote branches of the Senegal. Mr. Park had the fatisfaction of once more feeing the Niger rolling its immense flood along the plains. But this fatisfaction was accompanied by the mortifying reflection, that three-fourths of the foldiers had died on their march, and that in their weakly state, they had no carpenters to build the boats in which they propofed to prosecute their discoveries. It was, however, a pleafing confideration, that in conducting a party of Europeans, with immense baggage, through an extent of more than 500 miles, he had always been abfe to preferve the moft 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 feafon, with a probability of not lofling more than three or at moft four out of fifty. But Mr. Park was unfortunate in undertaking fuch a journey with the prospect of the rainy feafon, and the event proved, that this feafon fell in before his journey to the Niger was more than half completed. The effect produced on the health of the foldiers by a violent rain, preceded and accompanied by tornadoes, on the 18th of June, was almoft infamite; 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 Bamkakoo, where the river begins to be navigable, on the 19th of August, there remained out of thirty-four foldiers and four carpenters, who left the Gambia, only six foldiers and one carpenter, and the principal perfons who comphed the expedition, besides Mr. Park himfelf, were three, viz. Mr. Anderson, Mr. Scott, and lieutenant Martyn, who were more or lefs affected by the diffeafe of the climate; the two former very ferioufly, fo that Mr. Scott was left behind at Koomikoom, and died without reaching the Niger. Mr. Park had been ftrongly afected, and it is wonderfule, that the anxiety and fatigue which he muft have experienced did not break down both his fpirits 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 three foldiers who came by land. Ifacoo was immediately dispatched to Sego, the capital of Bambara, to negotiate with Manfong, the sovereign, for a free paffage through his dominions, and whilst Mr. Park waited for his return, he was feized with the dyfentery, that threatened the termination of all his projects. But by the aid of medicine and the advantage of a good conftitution, he was soon refored to health. Many difculties and delays occurred in the negociation, which was conducted on the part of Mr. Park with fingular judgment, and addrefs; but at length, after many unfavourable rumours, which kept his mind in a flate of diftreffing fufpenfe, Manfong defeuted a messenger to conduct him towards Sego. Under his eftort, he left Koolkorro (N. lat. 12° 52') on the 13th of September, and enjoyed the beautiful views which his voyage afforded him; "the river," as he fays, "being sometimtes as smooth as a mirror, at other times ruffled with a gentle breeze, but at all times sweeping us along at the rate of fix or seven miles per hour." On the 14th, they departed from Deena, where they had lodged, and arrived at Yaminna, (lat. 13° 15') where they halted on the 15th; and on the 16th reached Samee (lat. 13° 17'). A depufation of Manfong's friends visited Mr. Park, in order to hear from himself a fatement of his views and purpofes in the voyage he was under-taking. His fatement was fatisfactory to the grandees that had executed this commiffion, and Mr. Park was afured of permiffion 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 preffents which they received on the occafion. Accordingly, on the 26th of September, Mr. Park proceeded from Samee to Sanfanding which is here. He intended to provide a proper veffel for his further navigation down the Niger; but it was with difficulty that he procured from Manfong and his fon, in return for the preffents he had given them, two decayed canoes, which merely afforded him materials for conftucting with his own hands, and some affifiance from one of the surviving foldiers, a flat-bottomed boat, to which he gave the founding title of His Majesty's Schooner, the Juliba. In the meanwhile, Mr. Park was informed of the death of Mr. Scott, and he had now occafion to lament the losf of his friend Mr. Anderson, who died, after a lingering attack of four months, on the 26th of October. The fenfibility he expreffed on this occafion did honour to his feelings, and yet considering his preffent perilous fSituation, and the dreary and difcouraging prospects which prefented themfelves with regard to the projects of his undertaking, he muft pollfs a very high degree of equanimity, firmness, and felf-poffeffion. 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 courfe of the fucceeding days, previous to his embarkation, which was on the 19th, he wrote feveral 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 offender, which proved a differing feature of his character. From this period, we have no strictly authentic information concerning Mr. Park, on the progres and termination of his expedition. In the courfe of the year 1806, 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 confequence of these unfatisfactory and alarming rumours, lieutenant colonel Maxwell, then governor of Senegal, obtained permiffion from government to engage a proper perfon to investigate and afcertain the truth of these rumours.
rumours. Accordingly, he engaged Ifsaco, Mr. Park's guide, to conduct this business. In January 1810, Ifsaco 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 department. 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, nine in number, proceeded in a canoe to Jimma; and as they paddled Sibby, or Dibbe, 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 Tomboctoo, they refilled another similar attack, escaping by force and by the slaughter of many of the natives. As they advanced, the number of hostile canoes increased, till at length it amounted to 60, and in self-defence they killed a very considerable number of perons; their own number being now reduced by the death of one of the white men to eight. At length having paddled Kasso and Gournon, and having supplied themselves with provisions, they entered the country of Haoufia. 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 Bouffa, 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; against 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 slave 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 ford-belt, of which the king had made a girdle for his horse; and this belt Ifsaco afterwards recovered. Amadi, according to Ifsaco'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 enlarge, after the details 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 person, he was about six feet high, and well proportioned. His whole aspect was interesting, and his corporeal frame robust and active, and fit for great exertion, and for enduring severe hardships. His family consisted 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, 2vols. For some other particulars, we refer to the articles Africa, Niger, and Zaïre.

PARKER, in Geography, a township of Butler county, in Pennsylvania, having 390 inhabitants.

PARKER'S TOWN, a township of Kent county, in Vermont, having 100 inhabitants.

PARSONSFIELD, L. 4, r. 1763.

PARTHENOS. See Parthenia.

PARVATI, col. 2, l. 34, deli the point after Kaila. Col. 3, l. 7, for cap r. cup. Col. 4, l. 35, for beauty's. Col. 5, l. 2, for Karikya r. Karikéa; l. 3 from bottom, for central is r. central eye.

PASQUATUNK, in Geography, a county of North Carolina, containing 7674 inhabitants, of whom 2293 were slaves in 1810.

PASTE-WORK, in Calico-Printing. See Discharge-Work.

PATMOS, l. 14, add—Such is the account given by Sonnini; but Dr. Clarke (Travels, vol. ii.) informs us, that he visited the library, which is a small oblong chamber, with a vaulted stone roof, and found it to be nearly filled with books of all sizes in a most neglected state; some lying upon the floor, a prey to the damp and worms; others standing confusely on the shelves, which were printed volumes, some of which were well bound, and in good condition; but neither of the superiors of this college was able to read. At the extremity of the chamber he found a heap of Greek MSS., some of which were of the highest antiquity; amongst other specimens of Grecian calligraphy, the author found a copy of the 24 first dialogues of Plato, written upon vellum, in the same exquisite character, which remained in the hands of his friend professor Peron until his death. But it is now, with the other MSS. from Patmos, &c. in the Bodleian library at Oxford.

PATRICK, l. 2, r. 4699 inhabitants, of whom 724 arc slaves.

Patrick Town, a town of America, in the district of Maine, and county of Lincoln, having 138 inhabitants.

PATROCLEIA, or Patrocles, in Geography, one of the Grecian islands, called by various other names, as Gaitharionesé (Ales't ile), the island of Ebony, Gaidromefa, Gardener's, &c. which difference of names has caused it to be multiplied and represented as a cluster of islands rather than as one island. It has been said, that ebony grows upon this island; but Mr. Clarke and his companions could not find a single specimen of the Ebenus, either cutisca or pinnata.

PATTON, a township of Centre county, in Pennsylvania, having 297 perons.

PAVARA, for sacrifices r. sacrificers.

PAUCA COLLATA, for Paccarotta.

PAULSBURGH, in Geography, a township of Coos, in New Hampshire, having 14 inhabitants.

PAXTON, l. 2, r. 2232 l. 3, r. 2180—2998 l. 6, r. 619. Add—Alto, a township of Ohio, in Rofs county, having 661 inhabitants.

PEACHAM, l. 5, r. 1301.

PEARL RIVER, l. 12. This is the largest river between Mississippi and Mobile. Before it enters the Regulus 0 Rialetes, it divides into several channels.

PEARL-SPAR. See Mineralogy, Aduenda.

PEARL-STONE. See Mineralogy, Aduenda.

PEASE, in Geography, a township of Belmont county, in Ohio, having 1573 inhabitants.

PEA-STOKE. See Mineralogy, Aduenda.

PEDAL HARP. The machinery of this instrument was invented by M. Simon at Brussis, about the year 1760, and was soon adopted in France. In the eighth volume of the folio Encyclopdia, printed in 1765, it is said, that the "foundations of the pedal harp are more sweet and melodious than those
the centre of oscillation, and the vibrations in both positions will be performed in equal times. As the distance of the centre of oscillation from the point of suspension 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 suffer a change. Suppose then a body to be furnished with a point of suspension, 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 suspension and centre of gravity. If the vibrations in each position should not be equal in equal times, they may be readily made so by shifting a moveable weight, with which the body is to be furnished, in a line between the centres of suspension and oscillation; when the distance between the two points about which the vibrations were performed being measured, the length of a simple pendulum, and the time of its vibration, will at once be known, uninfluenced by any irregularity of density or figure. This principle being adopted for the construction of the pendulum, the next object of importance is to select a mode of suspension equally free from objection. For this purpose a knife-edge was preferred, and the grounds of preference are briefly stated. The pendulum is formed of a bar of plate brass, an inch and a half wide and one-eighth of an inch thick. Through this bar two triangular holes are made, at the distance of 39 inches each from the other, to admit the knife-edges. Four strong knees of hammered brass, of the fame width as the bar, six inches long, and three-quarters of an inch thick, are firmly screwed by pairs to each end of the bar, in such a manner, that when the knife-edges are passed through the triangular apertures, their backs may bear steadily against the perfectly plane surfaces of the brass knees, which are formed as nearly as possible at right angles to the bar, which is cut of such 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 same thickness as the bar, are inserted in the spaces thus left between the knee-pieces, and are firmly secured there by pins and screws. These slips of deal are only half the width of the bar; they are flained black, and in the extremity of each a small whale-bone point is inserted, for the purpose of indicating the extent of the arc of vibration. A cylindrical weight of brass, 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 knife-piece of one end of the pendulum. This weight being passed on the pendulum, is so 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 distance on the bar by two screws with which it is furnished. A third weight, or slider of four ounces, is moveable along the bar, and is capable of nice adjustment by means of a screw fixed to a clamp, which clamp is included in the weight. This slider is designed to move near the centre of the bar; and it has an opening, through which may be seen 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 serve as an index for determining the distance of the slider from the middle of the bar. The knife-edges are made of that kind of steel 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 straight edge. They were then carefully finished on a plane green
höne, 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 feathers, which being pasted 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 flaw 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 Kater 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 Mr. G. Shuckburgh’s flandard 3013860
- By general Roy’s scale 3013717
- By Bird’s parliamentary flandard 3013842

The latitude of the place of observation being 51° 31’ 8034 north.

PENKIRIDGE. In 1811 this township contained 106 houses, and 293 persons; viz. 438 males, and 485 females.

PENN’S, l. 2, r. 3798. Add—Alto, a township of Northumberland county, having 2072 inhabitants.

PEN’S Neck, l. 2, add—Upper Penn’s Neck contains 1658, and the lower 1163 inhabitants.

PENNSBOROUGH, EAST. Add—-containing 3265 persons.

PENNSBOROUGH, West. Add—It contains 1264 persons.

PENNSYLVANIA, l. 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 810991, including 795 towns. See each county, and United States.

PENOBSCOT, l. 5, r. 1302.

PEORIA, a township of St. Clair, in the Illinois territory, having 93 inhabitants.

PÉPERELL, l. 4, r. 1333.

PEQUANOCK. Add—containing 3853 inhabitants.

PERCHLORIC ACID, in Chemisty. See CHLORINE.

PERGASITE. See MINERALOGY, Addenda.

PERICARDIUM, Liquor of, Chemical Composition of. See Fluids, Animal.

PERQUIMINS, l. 5, r. 6052—2017.

PERSIA, col. 8, l. 18 from bottom, r. See PERSIAN Language. Col. 13, l. 12 from bottom, r. Kejer. At the end, r. Kinneir’s.

PERSIAN GULF, &c. l. 1, for Omar r. Oman.

PERSON, l. 2, r. 6442; l. 3, 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. 19, for point r. line. Prob. xxxi. Meth. 1, 112 and 113, the lines which should have been drawn from Q to c and d are in the plane improperly drawn from the point 3. Method 8. l. 32, r. representation. Method 11. l. 13, and for a c, r. and a t.

PERTH, col. 4, l. 23 from bottom, for 4715 r. 4510; and after 16948 inhabitants, r. Viz. 7687 males, and 9261 females.

PERTH-AMBOY, l. 11, r. 815 inhabitants.

PERTHSHIRE. In 1811 this thire contained (exclusive of the town) 21894 houses, and 116975 persons; viz. 55177 males, and 61799 females: 8500 families being employed in agriculture, and 9602 in trade, manufactures, or handicraft.

Vol. XXVII.

PERU, in America. Add—Alto, a town of Berkshire county, in Massachussetts, containing 912 persons.—Alto, a township of Bennington county, in Vermont, having 239 inhabitants.

PERUVIAN BANK, Chemical Properties of. See CINCHONA.

PETALITE. See MINERALOGY, Addenda.

PETERSBOROUGH, in America, l. 3, r. 1537.

PETERSBURGH, a town of Huntingdon county, in Pennsylvania, having 194 inhabitants. Col. 2, l. 19, for Albert r. Elbert. At the close, add—It contains, together with the county and Elberton-town, 12356 inhabitants; the flames of the county being 4291, those of the town 225, and those of Elberton 59.

PETERSHAM, l. 6, r. 1450.

PETROLEUM. See MINERALOGY, Addenda.

PHÆNICOPHEUS, MALAOKA, in Ornithology, a genus of birds of the order Picæ: the characters of which are, beak strong and slightly incurved; feet simple, two toes pointing forwards, and two backwards, the outer toe the longest; head naked round the eyes and warted. This genus is readily distinguished from Cutucus by the naked and papillated space that surrounds the eyes, and from Polophius by the structure of the hinder toes; the head is somewhat square, and very thick; the wings rather short, and the tail remarkably long. Shaw.

PHANAGORIA for PHANAGORA.

PHARMACOPEIA EQUINA, a dispensatory adapted to the purposes of veterinary practitioners, and designed more especially to comprehend those drugs and medicines which pertain to the diseases of the horse. Such a pharmacopeia is a desideratum in veterinary science. The drugs and preparations that are chiefly used are described, as far as our limits would allow, under their several titles on the disorders to which they are appropriated. The form under which they are most commonly administered is that of balls, under which many of them are recited, and the general method of preparing them described. Veterinary writers have arranged these balls under several denominations, founded on the medical purposes for which they are administered. Accordingly we have alteratives, purging, diuretics, cordial, astringent, refortificatory, and diaphoretic; for the preparation of which a variety of forms have been given by modern practitioners.

For alteratives balls we have the following instructions:

Mr. J. Lawrence directs flowers of sulphur and cream of tartar, of each ½ oz.; 1 dr. of canella alba in powder, and treacle q.v., half of which ball should be given twice a day on an empty stomach:—or, flowers of sulphur, cream of tartar, gum guaiacum and turmeric, of each 2 drs., and 1 dr. of canella alba, may be made into one or two balls with treacle, and given as above:—or, prepared antimony and gum guaiacum, of each 3 to 4 drs. prepared with treacle, may be given every day:—or, antimonial Ethiops, from 4 to 6 drs. made into a ball with treacle, may be administered every night for a fortnight, and discontinuing it for a week, resumed for another fortnight; which is said to have great effect in the farcy, the mange, and oblitinate dry coughs in horses. Mr. R. Lawrence recommends a ball made of 1 dr. of tartarised antimony, 1 0z. of liquorice-powder, and ½ oz. of Venice turpentine, given
given every other night for four or five nights, for horses affected with greafe. 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, 2 oz. of unwhashed calx of antimony, 2 drs. of calomel, and 4 oz. of powdered aniseeds, mixed with treacle, and divided into 8 dozes:—or, ½ dr. of calomel, 1 dr. of aloe, 2 drs. of Caltife opop, 30 drops of oil of juniper, and ½ 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 Caltife opop, 3 drs. of oil of juniper, formed into a mafs with honey q.f., and divided into 12 balls, and one to be given every morning for three or more weeks, in cases of greafe, after purging with a common ball:—or, milk of sulphur, prepared antimony, cream of tartar, chinarbar of antimony, of each 5 oz., 4 oz. of Ethiop's mineral, and honey q.f., 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 fococotane aloe, 2 drs. of rhubarb, jalap, and cream of tartar, of each 1 dr., 2 scrupules of ginger, oil of cloves and oil of aniseed, of each 20 drops, and fyrup of buckthorn q.f. Mr. White orders 5 drs. of fococotane aloe, 2 drs. of prepared natron, 1 dr. of aromatic powder, 10 drops of oil of caraway, with fyrup q.f.:—or, 7 drs. of fococotane aloe, ½ oz. of Caltife opop, 1 dr. of ginger, and 10 drops of oil of caraway, with fyrup q.f. — or, 1 oz. of fococotane aloe, 2 drs. of prepared natron, 1 dr. of aromatic powder, 10 drops of oil of aniseeds, and fyrup q.f. Mr. White affirms 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 laft. Mr. Ryding directs 6 drs. of Barbadoes aloe, 1 scruple of ginger, and soft-fop fop q.f.:—or, ½ oz. of Barbadoes aloe, 1 dr. of calomel, and miuelage of gun arabic q.f. The ffirf 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:—wax, from 12 to 14 drs. of fococotane aloe, from 1 to 2 oz. of cream of tartar, a tea-spoonfull of powdered ginger, a table-spoonfull of olive-oil, and fyrup of buckthorn or treacle, q.f. Mr. R. Lawrence, for the fame purpofe, 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 ¼ oz. of Venice turpentine, 2 drs. of tartarified antimony, and 1 oz. of liquorice-powder, with treacle. By Mr. White, they are made to contain of 4 oz. of Caltife opop, and powdered rosin and nitre, of each 2 oz., ½ oz. of oil of juniper, linseed-powder, and fyrup q.f. 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 Caltife opop, 2 oz. of Venice turpentine, and powdered aniseeds, and treacle, q.f. to 28 to form 6 balls:—or, balls from 1 to ¼ oz. of each prepared, according to Mr. Ryding's directions, of yellow rosin, Caltife opop, and Venice turpentine, of each 1 lb. diffolved slowly over the fire and formed into a mafs. These balls, he fays, are excellent diuretics, and may be given in grifes, fwellled legs, greafe, or in difeafes of the eye, &c.

Cordial balls are prepared by the fame of 2 oz. of grains of paradise, finely powdered, ginger and canella afo, of each ½ oz., aniseeds and caraway-seeds, of each 1½ oz., 2 oz. of liquorice-powder, and honey q.f.; to be given occasionally. By Mr. White, these balls are prepared by making a mafs with treacle of cammin-feeds, aniseeds, caraway-seeds, of each 4 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, moift fennel-feeds, or liquorice-powder, of each 4 oz., ginger and cuffia, of each ½ oz., made into a mafs with honey, and given in a dofe of about 2 oz.

Astringent balls are prepared by Mr. Taplin's directions of 6 drs. of diafocodium, gum arabic, prepared chalk, and Armenian bote, of each ½ oz., 1 dr. of ginger, 40 drops of oil of aniseed, with fyrup q.f.; they are given in cafes of laxness or fcooring, 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 ½ oz., columbo 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 bote, gum arabic, and prepared chalk, of each ¼ oz., 2 drs. of ginger, and fyrup of poppies, may form a ball.

Reforative ball is formed, according to Mr. Ryding, of ¼ lb. of Peruvian bark, 2 oz. of grains of paradife, gigant, and columbo, of each 3 oz., and honey q.f.; the mafs is to be divided into 16 balls, and one to be given every morning in cafes of indigefion or lofs of appetite. Mr. Taplin directs a ball for this purpofe to be made of 4 oz. of Peruvian bote, 2 oz. of mithridite (or diafocodium), canella alba, snake-root, and camomile, of each, in powder, 1 oz., or formed into a mafs with honey q.f., and divided into 6 balls, one to be given night and morning:—or, ½ oz. of Venice treacle, 6 drs. of Peruvian bark, columbo, and camomile, of each 2 drs., 25 drops of oil of caraway, and honey q.f.

Diafoparetic balls are prepared, according to Mr. White's directions, of 1 dr. of opium, 2 drs. of camphor, 3 drs. of tartarified antimony, ¼ oz. of powdered aniseeds, and fyrup q.f.

PHNIS, l. 9, infert—it is at the town of Serpafa that it becomes navigable, and after collecting the freams of the plain of Minerea, it enters the Black sea. It pursues a courfe of 500 miles, 40 of which are navigable for large vessels. At its discharge into the sea, it has a small woody island in the midst of the channel.

PHASMA, in Entomology, a genus of inferfa formed from some of the Limane Mantes, and differing from that genus in having all the legs equally formed for walking, and without the falciform joint that dilinquare the fore-legs in mantes. The characters are, head large, antenne filiform, eyes small, rounded; femmata three, between the eyes; wings four, membranaceous; the upper pair abbreviated, the lower pleated; and feet formed for walking. They feed entirely on vegetable food. The most remarkable is the P. gigas or M. gigas of Linnæus. It is a native of the island of Ambona. Another extraordinary species is the P. dilatatum, decribed in the 4th volume of the Transactions of the Limane Society. Some of this genus, as well as thofe of the antics, have their upper wings refembling the leaves of trees; nature having thus provided for their fecurity against 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; l. 7, r. contained, in 1810, 574,88 inhabitants. Add—Allo, the metropolis of Pennsylvania, and now a distinct county, containing 14 wards, and, by the census of 1810, 53,722 inhabitants.

PHILADELPHIA Stores, l. 3, after city, add—in Allo.

PHIJLIPS
PHILIPSBURG, a town of York county, in Maine, with 1427 inhabitants.

PHILOSTROPHE, l. 23 from the end, r. should not encourage.

PHOCA, l. 4, r. fix (or four, Shaw.)

PHOSPHATE of Copper, in Mineralogy. See Mineralogy, Addenda.

PHOSPHORITE. 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 phosporous acid 25, and that of phosphoric 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 phosphorous or phosphoric acid, and was formerly considered as the protoxyd or first compound of phosphorus and oxygen. Dr. T., however, is lately disposed to consider the hypophosphorous acid as a compound of 2 atoms phosphorus + 1 atom oxygen; but this is by no means ascertained. We may also observe, that all the boil analyses of the phosphates shew that the weight of the atom of phosphoric acid lies between 40 and 45.

We may mention here, that Dulong has observed an acid formed during the flow combustion of phosphorus, composed, as he supposes, of 1 atom phosphorous acid + 1 atom phosphoric acid, and which he has named phosphatic acid.

PHYRGIA Minor, l. 6, r. N.W.; l. 26, r. Alexandria-Troas. Col. 3, l. 8, r. Podarces.

PICÉ. At the clofe, add—See Aves, Classification, and Natural History.

PICROLITE. See Mineralogy, Addenda.

PICRÔMEL, in Chemistry. See Bile.

PIGMÉNTS. Add—The refults 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 ochres, in some cafes mixed with chalk, in others with red-lead. The ancients likewise used orpiment and maffeot as yellow paints. The blue was a pounded glafs, composed of soda, silica, lime, and oxyd 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 confifted 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 whites chalk or clay. White-lead was likewise known to the ancient painters.

PILKINGTON, l. 1, after Lancashire, add—in the hundred of Salford, and parish of Redwick, containing 7353 persons, occupying 1196 houses, of whom 123 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 3389 were slaves in 1810.

PITTSTOWN. Add, at the clofe—containing 694 persons.

PITTSYLVANIA, l. 2, add—of whom 6312 were slaves.
POINTE, in Geography, a township of Northumberland county, in Pennsylvania, having 431 perfons.

POINTE COUPÉ, a county and parish of New Orleans, containing 4539 perfons.

POIRET, See PIKNIOPHILS.

POISON, col. 3 l. 15 from bottom, for versus r. 

POLAND, col. 9 l. 31, add—From a statistical account of Poland, published at Warsaw, it appears, that this kingdom in its present state contains 1291 square miles, of which 15 is a degree), 481 towns, 22,604 villages, and a population of 2,732,324 perfons, of whom 219,244 are Jews.

POLAND, in America, col. 2 l. 2, r. 850. Add—Also, a township of the county of Tribull, in Ohio, with 827 inhabitants.

POLARIETY 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 Copley medal.

POLASKI, in Geography, a county, containing 2091 inhabitants, of whom 228 were slaves in 1810.

POLE, l. 2, add—the fourth son of the countess of Salisbury, who was cruelly and unjustly beheaded by Henry VIII., and whose father, the duke of Florence, was drowned in a butt of maltmuy by his son.

POLOPHILUS, COUCAL, in Ornithology, a genus of birds of the order Picz; 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 reside in woods, feed on insects and fruits, and construct their nests in trees, and (contrary to the manners of cuckoos) bring up their young, from which circumstance their generic name is derived. Shaw.

POLYPHERUS, in Ichthyology, a genus of the abdominal fishes; the character of which is, that the gill-membrane is fingle-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 oolous and the carinogamous fishes. It seems most nearly allied to the genus Etox. It is known to the Egyptians by the name of Bichir, among whom it is rare, and fupposed in general to inhabit the depths of the Nile among the soft mud. Its flesh is white and favoury, though it is hardly possible to open its skin with a knife, and therefore the fish is firly boiled, and its skin drawn off whole. Its specific name is "Niloticus," and it is characterized as the green P., with the abdomen spotted with black. Shaw.

PONT-VOLANT, dele the description, and let the reference remain.

PORANTHERA, in Botany, from ποράς, a pore, and ανθον, an anther.—Rudge Tr. of Linn. Soc. v. 10. 302.


EFF. Ch. Involucrum of eight leaves, many-flowered. Perianth none. Petals five. Anthers of four cells, each with a terminal orifice. Capsules three, with numerous seeds.

P. ericifolia. Rudge as above, t. 22. f. 2.—Native of New South Wales. Dr. White. A very extraordinary little plant. Stem branched, round, leavy, four to six inches high. Leaves scattered, numerous, linear, glaucous. Flowers corymbose, minute, white. The dried specimens resembile some small kind of Loftidium.

PORCELAIN, col. 24 l. 31, r. in a melted state.

PORCELAIN Jasper. See Mineralogy, Addenda.

PORCELIA, in Botany, so called by Ruiz and Pavon, in honour of Don Antonio Porcel, a Spaniard, whom they celebrate, in the highest terms, as a promoter of botanical pursuits. Our reasons for adopting this name, in preference to any other, for the genus we are about to describe, may be found under the article Asiminux. That we presume to confer the Asiminaux and Porceliaux 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. Peruv. v. 1. 144. Prodr. 84. to 16. Dunal Anonac. 85," De Cand. Syll. v. 1. 482. "Perf. Syst. v. 2. 98." Purba 478. (Asim. ; Adans. Fam. v. 2. 367. Dunal Anonac. 81. De Cand. Syll. v. 1. 478. Orchidisparum; Mich. Boc. Amer. v. 1. 329. Anonace spec. Linn. Juff. Gen. Willd. Ait. &c.—Clas and order, Polyandria Polygynea. Nat. Ord. Contrauan. Linn. Anona, Juff. Anonaceae, De Cand.

Gen. Ch. Col. Perianth inferior, of one leaf, in three deep, equal, ovate, concave, permanent segments. Cor. Petals fix, unequal, in two rows, sefifile, ovate-oblong, spreading, coriaceous; the three innermost either larger or smaller than the rest. Stam. Filaments scarcely any; anthers very numerous, nearly sefifile on the convex receptacle, oblong, curving at each side. Pet. Germens from three to fix, ovate-oblong, sefifile; styles none; stigmas obtuse. Pet. Berries as many as the germens, sefifile, crowned, ovate or nearly cylindrical, more or less succulent, of one cell. Seeds numerous, elliptic-oblong, ranged transversely in a single or double row, inserted into the inner margin.


A shrubby or arboreous genus, with oblong, undivided, deciduous leaves, and axillary, nearly solitary flowers, either sefifile or filiiform, in some infumata excided before the foliage. All the species are natives of the cooler parts of America. The able professor De Candolle separates Asiminaux of Adanson from Porceliaux of the Fl. Peruvi., the latter having its three inner petals rather the large, the fruit more cylindrical and coriaceous, the seeds in a double row. In Asiminaux the three outer petals are much the largest, and the fruit more oval. 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 Asiminaux, can hardly be much relied on, nor is this admitted by De Candolle among his most efficient characters. p. 465. The more or less cylindrical or ovate form of the fruit will not, surely, be inlined on; nor can that of the original Porcelia differ essentially in substance from the others, being like them succulent and edible.

1. P. nitidifolia. Shining-leaved Porcelia. Fl. Peruvi. v. 1. 144. De Cand. n. 1.—Leaves ovato-lanceolate, pointed, smooth on both sides. Flower-flanks aggregate. Inner petals rather the large.—Native of moun-
tainous woods in Peru. A tall and very handomene tree, forty eills in height, with greyish, rugged, minutely dotted branches. Leaves alternate, on short stalks, oblong-lanceolate, rounded at the base, entire, veiny on both sides, shining above. Stalks axillary, several together, drooping, thickened upwards, each bearing on one or more yellowish-white flowers, about an inch in diameter. Berries cylindrical, tumid, rather coriaceous, but juicy and eatable, each marked externally 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. (Aimina parviflora; De Cand. Syst. v. i. 478. "Dunal Anonac. 82. t. 9." Orchidocarpum parviflorum; Mich. Boreol.-Amer. v. i. 320.)—Leaves obovate-egg-shaped, pointed, clothed with rusty down beneath, as well as the young branches. Flowers sessile. 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 sefle, coming before the leaves, from the axillary fears of last year's foliage. Their flalks, if any, as well as the outsides of the calyx and corolla, are clothed with reddish down. Berries two or three from each flower, aggregate, ovate, smooth, rather flaky, "the size of a plum." De Candolle.

3. P. triloba. Three-leaved Porcelain. Pursh n. 1. (Aimina triloba; De Cand. Syst. v. i. 479. "Dunal Anonac. 83." Annona triloba; Linnae. Sp. Pl. 758. Willd. Sp. Pl. v. 2. 1267. Ait. Hort. Kew. v. 3. 335. A. foliis lanceolatis, fructibus triphillis; Mill. 1c. v. 1. 23. t. 35. A. fructu lutefcente heri, fierunt arieti referent; Catacb. Carol. v. i. 85. Trew Ehret t. 1. 7. Duhum. Arb. v. 1. 51. t. 19. 20. Orchidocarpum arctiniunum; Mich. Boreal.-Amer. v. I. 329.)—Leaves elliptic-oblong, pointed at each end, nearly smooth as well as the young branches. Flowers on stalks. 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 thofe 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. Catacby and Ehret make them of a pale yellow-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 flower-flasts are solitary and single-flowered, from one to two inches long, downy with purplish hairs. Berries ovate, yellow, two or three inches long, not perfect 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 perfect from each flower.

4. P. pygmaea. Dwarf Porcelain. Pursh n. 3. (Aimina pygmaea; De Cand. Syst. v. i. 479. "Dunal Anonac. 84. t. 10." Orchidocarpum pygmaeum; Mich. Boreol.-Amer. v. i. 335. Annona pygmaea; Bartr. Trav. t. 1. Willd. Sp. Pl. v. 2. 1268.)—Leaves oblong-lanceolate, obtuse; wedge-shaped at the base; smooth, as well as the young branches. Outer petals larger, 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 Anona fipunamata. Pursh. This is smooth in every part, with very long leaves, and short, single-flowered, solitary, bracteate flower-flasts. Flowers white; their inner petals smallest, elliptical and obtuse. De Candolle. Pursh, by a faulty punctation, makes the inner petals longest.

5. P. grandiflora. Large-flowered Porcelain. Pursh n. 4. (Aimina grandiflora; De Cand. Syst. v. i. 480. "Dunal Anonac. 84. t. 11." Orchidocarpum grandiflorum; Mich. Boreal.-Amer. v. i. 330. "Anona grandiflora; Bart. Trav. t. 2." A. obovata; Willd. Sp. Pl. v. 2. 1269.)—Leaves obovate-egg-shaped, obtuse; clothed beneath with rusty down, as well as the young branches. Flowers sessile. Outer petals obvate, many times larger than the calyx.—In fandy shady woods, of which there are several kinds, in Georgia and Florida, flowering in May. A small shrub. Flowers very large in proportion, white. Pursh. Older branches smooth, as well as the upper surface of the leaves. Inner petals linear-oblong. Berries smooth, oblong-ovate. De Candolle.

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 parth of St. Cuthbert's contained 1958 houes, 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. 5, 1 oz, for tons r. cwt.

POTASSIUM, Potash, in Chemistry. The most recent determinations make the weight of the atom of potashium to be 35, and that of potash of course to be 60. Potashium, when heated in oxygen gas, combines with a larger quantity of oxygen than exists in potash, and thus forms a compound of a 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., 1726, for 1726 r. 1736.

POTZDAM. 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 ½ peck of bran and water, q. f. boiled for ten minutes, and then thickened with linseed-meal, having the addition of 3 oz. of hog's-lard: or, ½ peck of fine pollard, 2½ lbs. of linseed-meal, and boiling water, q. 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. Satureine poultice is had by adding to the common poultice 3 drs. or ½ oz. of extract of lead, and mixing them well together: or, 1 oz. of acetate of ceruse, (fugar of lead,) 3 quarts of boiling water, with the addition of bran and linseed-meal, q. f. A suppulsive poultice may be made by stirring a sufficient quantity of common turpentine into fome
some of the common poultice. An anodyne poultice may be prepared in the same way, by adding a sufficient quantity of tincture of opium.

POWATAN, l. i. r. 8073 inhabitants, of whom 5291 were slaves in 1810.

POYANG, l. 2, add—According to a statement in "Ellis's Journal of an Embassy to China," (vol. ii.), this lake is very inferior in extent to the Tung-ch'ing-ho, in Ho-guang, the one being 180 lees, and the other 800 acres; the lake being rather more than one-third of a mile, wide.

POWDER-CHEST. 1. peri. for fixed r. fired.

PRAIRIE, or MEADOW, a term used in North-West America, to denote a tract of land divided of timber. In travelling W. from the Alleghanies, such tracts occur more frequently, and are of greater extent as we approach the Mississippis. 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 Mississippis to the gulf of Mexico, an extent of territory which probably equals in area the whole empire of China.

PREBBLE, in Geography, a county of Ohio, containing 7 townships, and 8304 inhabitants.

PREHNITE. See MINERALOGY, Addenda.

PRICE. See Political Economy.

PRINCE EDWARD, l. 2, after inhabitants, add—of whom 6996 were slaves in 1810.

PRINCE George, l. 3, inferf—for of whom 4486 were slaves in 1810.

PRINCE George, l. 5, inferf—for of whom 9189 were slaves in 1810.

PRINCE William, l. 3, add—for of whom 2220 were slaves in 1810.

PRINCESS Anne, l. 4, inferf—for of whom 3926 were slaves in 1810.

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 coloured mordants previously applied to the cloth. This art has sometimes been denominated TOPICAL dying, and the various branches of it are calculated to attune 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 dying. He says the Egyptians began by painting or drawing on white cloths, (doublestifns linen or cotton,) with certain drugs, which in themselves possessed no colour, but had the property of attracting or absorbing colouring matters. After which, these cloths were immersed in a heated dying liquor; and though they were colourless before, and though this dying 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 discharge 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. Play, lib. xxxv. cap. 2. vol. XXXIX.

This account contains so plain a description of one of the branches of calico-printing, that no one who is conversant with the present practices can entertain any doubt but 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: viz. Pliny's "Natural History," the 26th volume of "Recueil des Lettres Edifiantes, &c." Strabo, lib. xv.; Delaval'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. 10; Beckman's "History of Inventions," in vol. 8vo.; Mr. Parkes's "Chemical Essays," vol. ii. p. 67, &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 fodia, madder, tin, the juice of the buccinum, cochineal (or an insect 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 at frequent dryings in the rays of an intense fun-shine. Afterwards they were soaked for a time in the mixture of the alriment fruit of the yellow myrobalans, and of curdled buffalo's milk. When thoroughly impregnated therewith, they were fuzed, 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 fun-shine, 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 superfluous mordants, as well as from the buffalo's milk, &c.; and lastly, they were dyed in water, with certain roots answeringly 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 pallam-poor, 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 pallam-poors; 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 mullin 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 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 goodness 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 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 sublimate colours which are thus applied, or whether they use any species of mordants in their fall work, we are unquestioned, 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 also 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 intereting 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 use. In doing this, one or two preliminary remarks will afford us.

The colouring substances chiefly employed in this art are divided into two classes, viz. sublimate and adjutine. A sublimate 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, platinas, 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 23rd of Queen Elizabeth, chap. 9, where it is called Anck, or Blue Ind. Bancroft on Permanent Colours, p. 138.

By adjutine colours are meant all those which are incapable of giving permanent dyes without the aid of certain intermedia, which form as it were a bond of union between them and the substances intended to be dyed.

These intermedia are what are 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 acet of iron, the acetate of alumine, 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 adjunctive colour, they are first immersed in a solution of one of these mordants, then hung up to dry, and to afford the oxygen of the atmosphere. When sufficiently exposed to the air, they are wafted or dunged, 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 dung employed.

Whenever it is meant that the colour should be partially inflected, 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 anything but the chemical mordants, the busines 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,
PRINTING ON CALICO.

yet having in it self no affinity with the vegetable with which the decoration is impregnated, the whole of the colouring matter will be easily removed by exposure to the air, and the ground of the piece relored to its original whiteness; whereas parts to which the mordant was applied, will retain 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 state; 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 impolitable 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 diluted 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 procéeds in bleaching has been explained 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 dressed by fingeing 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 steeping, which consists merely in soaking the pieces for twenty-four hours in a vessel of weak alkaline ley, at a temperature of about 100°. These operations of fingeing and steeping 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 bowked in a solution of potash (some workmen prefer to have this alkali in a pure caustic state); they are then well cleaned by thorough washing in wash-wheels, or in blocks, to ensure their being entirely divested of the alkali. The intention of this 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 slopping.

By some observant calico-printers it has been imagined, that the rendering of the ley caustic is apt to impair the beauty of the cloth; and we doubt not but that this has often been the case. Under the eye of the maller, 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 dressing 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 fingeing; and if it be not taken out before bleaching, it will not come out afterwards by the usual process of slopping and fouring; 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 oeligious 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 flain 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 to gradually over a roller, as to give the superintendant 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 goodnecess of bleaching might be proved. Let a few of the suspected 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 so little flained, 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 state, 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 immersed 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 flains 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 souring.

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 the
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 uses 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 fast colours, the artist usually proceeds in this way: he lays the piece of calico, which has been already smoothed 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 cafe 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 bufinefs, and was called black-cutting. Of late years, however, a considerable improvement has been made in this part of the bufinefs 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 slender pieces of one of these metals being firmly fixed to the block, fo as to produce the pattern intended. This alteration was occasioned by the pernicious nature of wood, on account of which every printer incurred great and unnecessary expense. The pattern when thus fixed 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 encaflhed 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 cafe in black-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-slin or oil-cloth. These hoops are both so broad as to give to each of them the appearance of a tambarine. That which is covered with the woollen cloth is called a fieve, the other a cafe. The fieve 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 muddy 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 unformed it will 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 cloths or mordants which are prepared with nitrious acid. A solution of gum fenegal would be coagulated in an infblent 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 pitch pul-

verized, and then calcined till it attunes a cinnamon-brown colour.

When the apparatus is thus prepared, the mordant is applied by a bruth to the surface of the fieve. This is called nering.

It should have been remarked, that when a colourless mordant, like the acetate of alumine, 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-lightening and is for the purpofe of making the pattern more obvious to the workman, that he may fee its progres, 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 fieve, fo 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 fieve 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 fame piece of goods. This is chiefly 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 fieve, where a certain degree of heat is given to it by means of flues, which go round the room on the infide, 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 long muriate of tin has been employed, lefts time is sufficient, and for the latter seldom more than half an hour is allowed. The inten-

<insert next sentence here>tion 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 bafe more surely 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 atmo-

<insert next sentence here>sphere, after their removal from the fieve, 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-vessels, as will be explained hereafter, and the colours will rife higher and brighter when they come into the copper of bark or madder. The iron in an acceous solution is in the state of the black oxyd; but by expofore to the air it acquires a further dofe of oxygen, and the more nearly it is made to approach to the state of the red or peroxyd, the more fit 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 fhort time in the fieve, but were hung up instead for several days, exposed to a current of air at the temperature of the atmo-

<insert next sentence here>sphere; 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 fieved, they are passed, by means of a winch, through water at various temperatures, with a little cow-dung mixed in it. This part
PRINTING ON CALICO.

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. Those erected by Mr. Wright, a very ingenious calico-printer, at Strines, near Dilye, 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 stain the white or unprinted parts.

We suppose the dung of the cow is serviceable in another way besides that of cleaning, though the printer may not be aware of the nature of its operation. To clean calicases by immersion in a dung-veil, 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 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 premise, 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 attracts 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 extract of alum, be divided into two parts, and the superfusor 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 flax 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 calicases, 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 winch, 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 blue and most 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 tight in a cach, 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 the roots been used as soon as they were ground.

This process, which is called muddering, 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 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 flose would not fail to injure such colours; for flose-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 where a higher temperature has been employed.

The mordants generally used in calico-printing are acetas of iron for browns, blacks, lilacs, &c. and acetate of alum 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 veifel of any kind with a proper aperture to allow the vapour to pass, this vapour on being condensed forms the acid in question, and is now known to be a kind of impure vinegar. The wood in this case 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 until within the last fifty years. This discovery formed an important era in the trade, as it afforded the manufacturer the means of varying his dyles 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 aquafortis 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 oxidized 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 galls 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 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.

Since the demand for this article has been increased 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 first passed through a full, to dilute 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 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.

And here it may be necessary to caution the manufacturer against a misfortune that may befall him if he be not conversant with the chemical nature of the sublimates he employs.

Magnesian lime-stone 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 unfit for the use of the calico-printer. But we must be more explicit.

In employing the common lime in conjunction with alum, a sulphate of lime will be formed, as mentioned above, and this being nearly an insoluble salt, will precipitate. But here, sulphate of magnesia would also be formed, which being a soluble salt, would remain in solution, and increase the specific 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-stone be employed, the liquor will appear good by the hydrometer; but, as it will contain more Epson salt than acetate of alumine, it will be unfit for every purpose for which it was intended.

While speaking of acetate of alumine, we cannot avoid remarking that the processes which have just been described for making this mordant, and which is followed invariably by many of the manufacturers in the North, is extremely improper, 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 sulphate of alumine by means of faccharum faturni, or acetate of lead.

In reverting to the remaining processes 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-bran and water, in which they are winched for a considerable time, for the purpose of freeing the white grounds from the stain 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 peculiar richnecf may be imparted 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 first instance. Mr. Parkes tells us, that he has sometimes produced colours in this way which whole brilliancy 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 stain 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 sufficiently branned to clear the whites entirely by that one operation; [the temperature at which the operation of branning is performed, is very important. If bark yellows are dyed at 100°F, it is customary to brann 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 brann'd at a boiling heat] such goods, therefore, are partially cleaned in the branning-copper, and are then laid on the grafs for some days, till they become perfectly clean.

But within a few years a new method has been introduced, which consists in immersing the pieces for a certain time in a very weak solution of one of the bleaching salts, such as oxymuriate of potash, soda, or magnesia. [A Scotch house of great consequence had practised this method a considerable time; and in the year 1812, a person visited Lancashire for the purpose of instructing the English printers in the method.] This simple process, which effects in a few minutes what would require more than as many days in grafs-bleaching, is now much practised, and promises very soon to supercede crofting entirely. This is a most important 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 after-work, is now done in considerable quantities. It is conducted in the following manner:

A certain preparation of copper, mixed either with flour-paste, with gum, or with pipe-clay and gum, is printed on the calico, in any shape or of any pattern that may be desired. [The sulphate, the nitrate, the muriate, and the acetate of copper, have all been employed for preparing the after-paste; but the sulphate is the best for the purpose; unless a very concentrated solution of the four salts were prepared by successively dissolving each of them in pure water.] When this is sufficiently dry, the goods are repeatedly dipped in the blue vat till they have acquired that depth of tint which may be required; and then, when they are washed, and passed through dilute sulphuric acid, those parts which had been printed with the preparation of copper, are found to be a good white; the preparation having effectually refiled the operation of the indigo, [the art of making an indigo-vat confists in forming such a mixture of lime and sulphate of iron as shall most effectually deoxydize the indigo; as indigo has no affinity for cloth in its natural or oxygenized state. Hence, those parts of a piece which are printed with a solution of copper will never be dyed blue in one of those vats; because the deoxydized indigo becomes oxygenated the moment it touches the copper, which parts with its oxygen to the indigo, and occasions it to become insoluble, and consequently incapable of forming a dye. Thus, while sulphate of iron has the power of deoxydizing indigo, sulphate of copper, or any other salt of that metal, is incapable of retaining its oxygen, whenever it comes in contact with that singular substance in a state of deoxydization; and it is a curious instance of the different degrees of intensity by which oxygen is held by the different metals,] though all the other parts of the cloth have received a permanent dye. The various deep blue calickees with white spots or white figures, which are now so common, are generally done in this way; and by a familiar management with infrequent dyeing in madder, weld, or bark,
PRINTING ON CALICO.

bark, figures in red or yellow are exhibited upon a blue ground.

In some particular styles of work, the operation of certain colours is resorted to by means of hopping out with wax; but this is too expensive a method to be adopted often in these times, when it is the object of every manufacturer to finish his prints at the least possible expense. In printing those flk handkerchiefs called Bandanas, a procés 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 fluid 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 confused in very large quantities by this procés. [A very singular-looking sub stance was discovered a few years ago near Stockport, which being hawked about from one to another as an undescribed sub stance, created considerable inter est in that neighbourhood. Every body supposing it to be a natural production, specimens of it were sent to a variety of per sons into 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 bulky engaged in examination and conjecture respecting this unknown substance, it was announced, that some seventy or eighty years before a calico-work had had its spot on the article was found, and that this was nothing more than a large heap of the refuse compound of flour, wax, and gum, above-men tioned.

The reader will perceive that these shafts 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 is 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 manage ment is necessary, and the colour is imparted by a procés which is called pencil-blue.

Here the indigo is deoxygenized by means of sliver, which is a fulphenuret of arsenic; and formerly, whatever ob jects 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 orpiment. These proportions require one gallon of water, and the whole is to be thickened with gum tangelo.] See Colour.

Another kind of procés 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 sub stances; and calicoes thus prepared are laid to be dyed of full-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 diffuse 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 the colours.

Thus a piece treated with a decoction of Brazil-wood, and dyed black by being padded [by the term padding is understood the operation of pasting the pieces from a roller through a trough containing a solution of iron, or any other mordant. Blotching 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 fur rowing portion of the dye will be dissolved, and the printed part will instantly be converted from a deep black to a brilliant crilmom.

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 slates of every shade which have iron in their composition, will undergo as sudden a 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. Now the deep gold colours, or torgnent buffs, are produced by iron only, namely, 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 white ness.

By similar management, calicoes dyed of a light blue in the indigo-vat, then run through sumach and copperas, 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 enveloped by the iron of the copperas, which overcomes the other colours, till the solution of tin is applied, which removes the iron from those particular parts, and gives a brilliancy 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 sumach and copperas, and then running them through an alkaline solution of anatto; and here the figures produced by the application of a colourless solution of tin will be of a bright orange. But it is needless to enumerate more in fluences, 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 purposes 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 procés 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 fall; 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,
PRINTING ON CALICO.

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 best chintz-work and other furniture patterns. But, in what is called fast-work, there is a great variety of qualities, and some of it little devolves 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. Illet of London, and which devolves 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 then fastening the indigo within the fibres of the calico by means of that proccee, 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 sulphate of iron and in lime-water. A description of this proccee 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 cleansed by croft-bleaching, &c.

Upon this ingenious proccee, Mr. Parkes has the following observation. "Having," says he, "formed a very high opinion of this invention, I procured several interviews with Mr. Illet, soon after he obtained the patent, and from him was fully informed of the whole proccee. — 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 practiced lately, and therefore devolves notice. This consists in printing some solution of iron, and then paffing 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 perplicity and correctness.

Here, the agent which is employed is the citric acid, and this is used in various Ilates of 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 fundry other dyes. For this intention the acid, in whatever Ilate of concentration it may be, is mixed with either gum or with palse, [when citric acid is used for refil-work, it is always mixed with gum fennegal and pipe-clay. The clay gives it a greater body, and likewise acts mechanically as a refiller.] 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 arises in its stead. [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 dissolved again, and redisolved and recrystallized, till it became as white and pellucid as any other pure salt in a crystallized state, and was then generally sold for 36s. the pound, at which high price it could only be employed on the best styles of work. Now, however, it is oftener used in the brown, or bistre state of crystallization; and some of the larger printers purchase lime juice, and concentrate it themselves; and in many cafes, they use it largely both for discharge and refill 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 Clitheroe, 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 nitrates, and sometimes the nitro-muriatic acid. It is used for the purpose of putting yellow figures upon blue silk handkerchiefs. The following is the proccee which is principally adopted.

Acqua-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, 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 consequence 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 tinned, by paffing 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 prescribed; otherwise, there are many proccees in the printing of silks which are curious and interelating, on which we might copiously expatiage. The Bandana handkerchiefs which are printed upon cotton in imitation of India goods, are produced by a very different proccee, 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 practiced, and yet has a very good effect. The proccee 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 brilliancy 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 possezes,
PRINTING ON CALICO.

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 immersed for about half an hour, more or less, in a warm decoction of querciton bark, the Quercus nigra of Linneus; 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 pompadours 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 colours 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 said 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-printings, 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 dao as it is called, passing over their surfaces the moment they have charged themselves with the thickened 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
five inches in diameter; and these maffy rollers have the patterns encahnted 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 los 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 so 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 Parkin of Manchester 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 different 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 fix 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 ever have been imagined before the introduction of this invention.

Besides 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 refit 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 amazing facility these machines have afforded to the production of printed calicouces; 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 consists 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 foaking 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 dissatisfaction; 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 of plain white calicouces.

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 incalculable benefits and vast importance, excited at once the profound admiration and gratitude of the world; and this inestimable discovery has been claimed by several individuals, alike anxious for the honour of giving to 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 potter, 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 1422.

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 1769.

The Royal Porcelain Works in Worcester, belonging to Messrs. 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 practiced 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 conrant the queen, with the princes royal, the princes Augusta, and the princes Elizabeth, visited the Worcester 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 Worcester 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 well 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 Worcester Porcelain Works, is as follows:—The engraved copper-plate having
first been warmed on the iron, is prepared to receive the colour, which, being previously mixed with oils of a proper consistence, is then rubbed into the engraved lines, and the superfluous quantity of colour is carefully cleaned 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 flannel, and being fixed between two iron cylinders, it is drawn through by turning a wheel, exactly on the plan practiced 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 vise, 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 liquid vitreous substance called the glaze, is burnt a second time, and the colour, which is the oxide 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 iron 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 consistence is cut out and laid on the copper-plate, and so ductile as to adapt itself to the form of any vessel intended to be printed; and by the simple preface of a flattened leathern ball with the hand, produces a perfect impression of the subject in oil on the smooth face 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 porcellain, 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 finish the design by adding some decorations in gold; and it is then passed through the enamelling 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. Messrs. 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, shells, &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.

PROFUVIUM, l. 2, for veneeris r. venteris.

PROJECTION of the Sphere, Orthographic. Prob. I. l. 8, for C. and F. G., r. I. C.

PROMEROPS, in Ornithology, a genus of birds of the order Picae; the characters of which are, habit as in the genus Upupa; feet formed for walking; tail lengthened, and in molt species cecamed. Dr. Shaw enumerates and describes the following species: viz. Corvus, or blue P. with black bill and legs; the Upupa indica, or blue promerops of Latham; a native of India: Cafer, or brown P., tufted beneath, with rufsetent 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: Striatus, or brown P. beneath white, with black undulations and very long tail; the 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, filiated golden shining scapular feathers, and very long tail; the Upupa superba and great P. of Latham; a magnificent species, exceeding all the rest in the splendour and elegance of its plumage; a native of New Guinea: Paradisfeus, or chefnut P., the Upupa paradisa of Linnaeus and Latham, and crested P. of the latter: Mexicanus, or grey P., with green and purple glofs, bluefe wings, yellowf 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 P. of Latham; the Upupa aurantia, or orange P. of Latham; native of Guiana, frequenting the small islands in the mouth of the river Berbice; Fernandez describes the suppos'd female of this species under the name of Cochtiulf: Erythrocynthos, 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 erythrocynthos, or red-billed P. of Latham; an highly elegant species, an inhabitant of Africa.

PROPERTY, LITERARY. (See Literary Property.)

The statute of literary property has been considerably improved since the article on this subject appeared in the body of this work. By 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 palling 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 become the property of the public at the time the act passed, which was on the 20th 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 Inns Library.
PUR

Library at Dublin. This delivery has been felt to be a severe burthen, 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 sessions 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, shall also be 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.

PROPHETIC, col. 3, l. 126, for Wolston r. Woolton.
Col. 5, l. 10 from bottom, for Woodfaton r. Woolton.
PRUSSIC. l. 33, add—See Wax.
PROPORTIONAL. Compass, l. 2, r. proportional.
Col. 2, l. 5, r. fig. 1. Plate I. of Proportional Composites.
Col. 5, l. 10 from bottom, insert fig. 10. Col. 1, l. 30, r. fig. 11.
PROVERB, col. l, l. 17 from bottom, for print r. fruit.
PROVIDENCE, Nether, l. 1, r. Delaware for Luzerne. Col. 2, l. 2, r. Delaware.
PRUSSACID, in Chemiftry. See Cyanogen.
PUFF-BALL, l. 2, add—and Tuftostoma.
PULASKI, for Pulasin, l. 2, add—of whom 528 were flakes in 1810.
PULTNEY, a township of Belmont county, in Ohio, having 645 inhabitants.

Vol. XXIX.

PURANA, col. 3, l. 6, for Varishta r. Varishtta.
PURPURIC ACID, in Chemiftry. 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 substance produced by the action of the nitric acid and heat upon lithic acid, has been long known to chemists. This purple substance is a compound of the acid in question and of ammonia. This acid, which may be likewise formed 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. Wallaston.

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 affeets litmus paper, though it readily decomposes the alkaline carbonates by the assistance of heat. It is soluble in the strong 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, pruffic 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 golden-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 fever seems to be owing to the purpurate of ammonia. Dr. Prout also thinks, that some of its salts might be used as paints, and also for dying, as they appear to possess strong affinities, especially for animal substances. See Philosophical Transactions for 1818.

PURSHIA, in Botany, so called in jult commemoration of Mr. Frederick Pursh, author of the rich Flora America Septentrioralis.—De Cand. Tr. of Linn. Soc. v. 12. 157.—Cliffs and order, Tezandria Homegynia. Nat. Ord. Scuticofa, Linn. Rafaces, Jaff.
PYMATUNING, l. 3, r. 379.
PYRAMID, col. 2, l. 36, del. and character and feet.
PYROACETIC SPIRIT, in Chemiftry. 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 disease or deltempor, 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 avert 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 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 flagged here, for their consuls and public functionaries abroad are instructed to convey, with the utmost promptness, intelligence of the appearance of any epidemic deltempor 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 injunctions, 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, restrictions are likewise imposed for similar purposes, and intercourse thereby cut off by proper 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 indifferent exposure, in such cases they will refrain from halfly rushing into society, without submitting to such salutary precautions which are so absolutely necessary, or at least to satisfactorily 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 "les detenus;" 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 theucceds of the measures that have long been adopted to prevent its introduction, persons in general have no actual knowledge, and full 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 paralyse 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 distempering 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 deltempor, no further detention is generally required, than is necessary to transmit the safe to the consideration of those who are intrusted with the general safety. If on the contrary the certificate states, that an infectious deltempor 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 Diseafes, Plague, Yellow
QUARANTINE.

Yellow Fever, Contagion, &c. to which the reader is respectfully 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 speedy 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 houses, 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 may 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 infuse (rigid inquiry into the rumour, and either to take prompt measures to contrariety 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 illude such directions as the case may require, which they are specially authorised to do by 45 Geo. III. ch. 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. 80. as repealed the former acts,) by the 45 Geo. III. which passed 12th March 1805, and which embodies many of the former provisions and amendments.

Three other acts have passed subsequently, (46 Geo. III. c. 98. 50 Geo. III. c. 20. and 51 Geo. III. c. 45.) making further provision 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 mutt 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 whence his majesty shall declare it probable the plague or other infectious disease or diarrhoea 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. By 5 Geo. III. c. 25. sect. 3.

Letters are to be given to the superintendent, who is to dispatch the same in the usual manner, after due precaution.

2. All ships, vessels, and boats, receiving any person, goods, wares or merchandize, 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 on 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 Clafs 1 and 2.

4. Ships and vessels coming from any place in Europe, without the freights of Gibraltar or America, (where there is not a regular establishment of quarantine,) having on board any goods enumerated in the first class, the produce of Turkey, or Africa within the freights, 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 Clafs 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 Lazzaret.

6. Ships and vessels arriving from any place whatever, 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 disease on board, or if any infectious dilatation has appeared in the course of the voyage, although she 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. whether 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.
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. 15. 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 of the act 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 straits of Gibraltar or West Barbary, from any port in Europe without the straits, or on the coast of America. And by further order, dated 7th November 1805, it was declared, that an infectious distemper 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; boll, or any article made thereof; beads, bracelets, or necklaces, in strings; beds, bed-ticks; books; brooms; brushes; bedkettles; camblet; canvas; carumen 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; flax; furriers' wales; goats' hair; gold or silver in thread, cotton, hair, silk, or wool, or any other fibulation herebefore enumerated; grogram; hats, caps, or bonnets of straw, chip, cane or any other material; hemp; hoop; horns and horn tips; hair of all sorts; leather; linen; liquor of any kind, in bottles or flasks; saddles, bridles, or harness; maps; mappletre: mats and matting; mohair yarn; nets, new or old; paper; packthread; parchment; pelts; plating of bait, chip, cane, straw, or horse-hair; quills; rags; sail and sail-cloth; silk; vin. crapes and tiffanies, huilks and knubs, raw silk, thrown or organzine silk, waife silk, wrought silk; flks, hides, and fur-s, and parts or pieces of skull, hides, and fur-s, whether undressed, or in part or wholly tanned, tawed, or dressed; sponges; straw; or any article made or mixed with straw; stockings; thread; tow; vellum; whiffs; wool, whether raw or anywise wrought; yarn of all sorts.

Class II.—Senna; jalap; gum arabic; gum tragacanth; myrrh; opium; scammony; antimony; cantharides; alum; juniper-berries; pomegranates, flowers and seeds; fel nitre; fal ammoniac; madder; sumach; galls; tobacco; coffee; wood in rapsings; cork.

Class III.—Grain; pufle; and other seeds in bulk; grain; lignum, and other seeds in facks or, and or, and or bagels of rufl mat; dried fruits in baskets, or packages made of articles enumerated in the first clas, 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 straits of Gibraltar, the is to go to one of the foreign lazarets (at Malta, Ancona, Venice, Melilla, Leghorn, Trinelle, Genoa, or Marseille); but if it appears without the straits, then she is to go to the harbour of St. Helen's-Tean and North Withal, (two of the islands, one of which is 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 conformable hereto, or any directions of the privy council, are to suffer death without benefit of clergy. If the vessel cannot make those islands or other places appointed, or shall be forced by itselfs of weather to go up either of the Channels, she shall not enter any port in Great Britain, or the islands of Guernsey, Jersey, &c, but shall remain in some 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 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 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 perfons, ships, or boats from going within the limits of any station which may be affigned 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 5th 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 go within the compas of the yellow buoys, but separate from his majesty's ships and ships without clean bills.

The two west buoys are placed to the eastward of Wooton Creek, and the two north ones near the Isle 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, Rochefelt, Pa-verham, or any creeks or places belonging to or within any or either of the above ports, are to perform quar-}
[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 fend down perfonns
at his own expence 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.
Dunngale v. Jolliffe, 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 Carhile, and the ports
and creeks extending from thence
to, and including Beaumaris and the
Isle of Man,

bound to Sandwich and Covens,
and the ports inclusive,

bound to Poole and Selby, and
the ports inclusive,

bound to Bridgewater and Swan-
sea, and the ports inclusive,

bound to St. Ives and Aberyst-
with, and the ports inclusive,

bound to Jersey, Guernsey,
Sark, or Man, or any part of them,

bound to Leeds, and all the ports
or creeks extending from thence
along the eastern coast of Scotland,
as far as including Aberdeen, -

bound to Glasgow, and all the ports
or creeks extending along the
western coast of Scotland, as far as
and including Wigtoun,

bound to Inverness, and all the
northern coast of Scotland, as far as
and including Stornaway,

bound to Dunfries and Kirk-
cudbright, 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 Scot-
land, not within any of the before-
mentioned limits,

Vessels liable to quarantine, and having a clean bill of health
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 circumstance, may, on proof on
oath that it was unintentional, and not with the view of avoid-
ing the regulations of quarantine, repair (and shall be com-
pelled to go) to any other place at the discretion of the
quarantine of the place, to which the ship is bound; and

Whitebooth Roads,
between Hull and
Grimby.

Bromborough Pool,
or Milford Haven,
by orders, dated
18 Oct. 1809, and
27 June 1810.

Motherbank near
Portsmouth.

St. Ives' Pool, with-
in the harbour of
Falmouth.

King's Road and
Portthune Pill.

Milford Haven.

The Motherbank, or
St. Ives' Pool.

Inverkeithing Bay.

Holy Loch, in the
Firth of Clyde.

Inverkeithing Bay,
by order 21 July
1806.

Holy Loch, by or-
der 21 July 1806.

At the nearest of the
above stations to
the place to which
she is bound; and

Vessels not bound to this country are not to touch at 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 con-
sequence of fires 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 depart-
ing and repairing to any other place, as to all other regu-
lations, &c. touching quarantine; and if they do not
comply, they may be compelled to put to sea; to aid 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. 10. sect. 19.

Vessels 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 Clas I. and II., fifteen days. Order,
sect. 12.

Ships arriving without clean bills of health, thirty days.
Order, sect. 37-40.

Ships arriving from places in Europe without
the freights, or on the continent of America, where there is not
a quarantine establishment, bringing goods of the 1st,
the produce of Turkey, or Africa within the
freights, or West Barbary, to perform quarantine for
fifteen days. Order, sect. 5.

Vessels bringing touched, i. e. 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.
QUARANTINE.

The duration for goods performing quarantine to be as follows:—

Goods of the 1st Clafs, coming without clean bills of health, forty days at the lazaret. Order, feft. 33.

Goods of the 2d Clafs, coming without clean bills of health, thirty days. Order, feft. 33.

Goods remaining after those of the 1st and 2d Clafs are removed to a floating or land-lazaret, are to perform quarantine for thirty days, and are to be afterwards fumigated. Order, feft. 37.

Goods arriving from or through the Mediterranean, or Wefl 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, feft. 14. and 40.

Goods coming from thofe places with clean bills of health are to be aired one week in the fame ship; except goods of Clafs I. and II., which are to be removed to the lazaret, and be aired for fifteen days. Order, feft. 13.

Goods coming in ships with fupfected bills of health to be treated as ships coming without bills of health, except that they are to perform ten days' quaranfine. Order, feft. 41.

Dried fruits having been shifted from baskets and packages made of articles in Clafs I., or confidered fupfetfible, if all the perfon's on board are in health may be delivered in twenty days. Order, feft. 38.

Dried fruits in wood, may be delivered in ten days. Order, feft. 38.

Oil in barrels, the bungs being tarred, and the barrels brushed and dipped in sea-water, may be delivered in ten days. Order, feft. 38.

Grain, pulse, and feed in bulk, or in facks, or casks, or mats, when shifted, and packed through a fieve, may be delivered in ten days. Order, feft. 38.

And the packages, when made of fupfetfible 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 32d claufe 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 freights of Gibraltar, or on the continent of America, &c. to affure their growth, and that they were not the produce of Turkey, &c., but that claufe has been fupplanted by order of 8th Aug. 1810; and they may be admitted without performing quarantine, on the matter making oath that no infeftious 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 freights, or Wefl Barbary: but whenever that declaration is produced, the oath of the matter or of the importer is not required. Order in Council, 27th Oct. 1818.

Veffels having performed quarantine at any of the foreign lazares, and producing proper documents to prove that fact, are not required to do fo again; nevertheless, fuch part of the cargo as confifts of articles in Clafs I. are to be taken out and perform quarantine in the usual manner for fifteen days (Order, feft. 43.) But no goods are to be landed or removed therefore until the matter has given notice to the quarantine superintendent, 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 200l. 45 Geo. III. feft. 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 shall proceed to state the manner of doing it, which is to be by opening and airing in the manner directed by order in council (Act, feft. 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 veflel are firft to be opened, and as many of the bales as can be ranged upon the deck are to be taken from the hold, (as foon as the pilot and paflengers are removed,) and the ends opened, and the contents handled by the failors, under directions of a quarantine guardian for fix days; and after this, any further parcels are only required to be opened and aired for three days, unlefs any fupficious circumftances afire, 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 neceffary, and then they are to be conveyed to the lazaret. Order, feft. 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' wool, Carnen wool, and hair, are to be taken out and ranged in heaps of four feet high, and often rummaged. Bales of filk to be opened on one fide, from end to end, the cords laced, and the filk aired for twenty days; then the other side to be opened in like manner for five days more. Cottons, yarn, thread, fluffs, and linen, are to be piled in rows or pyramids, and turned every four days, and completely spread out and fuspended on cords for feveral days. Paper, books, parchment, sponges, and lockings, are to be un-packed and feparated, fo as to admit thorough airing. Feathers, fwab-hats, artificial flowers, coral beads in furnishings, and brushes, fpread out in the fame manner. Carpets, furs, hides, and skins to be unbale, and each piece spread and fuspended on cords in the open air, and frequently turned; and all goods packed with fraw, cotton, or articles flated in Clafs I., 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, feft. 34.

Goods of the 2d Clafs, unaccompanied with clean bills of health, though lefs liable to infeflion, are to be carried to the lazaret, and be un-packed, opened, and aired as much as poifible; and by moving them as much as practicable from time to time, fo as to admit free ventilation for thirty days. Order, feft. 35 and 36.

Goods not mentioned in thefe claffes, 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 perfon's on board, and those employed in the expurgation on shore, are well, the ship, goods, crew, and paflengers, are to be fumigated and discharged. Order, feft. 37.

There are other regulations and enactments on this fubjeft which it is neceffary to notice, and though they relate to the firft arrival of the ships, and take effed from that time, yet being rather regulations to affure the nature of the voyages, and the fate of the crews, and the goods con- poled in the cargo, than any part of the performance of quarantine, this is conceived a proper place to introduce them.

It is manifeft, that without the earliest information of the arrival of veflels from countries inflected with the plague, &c. and of the kind of goods of which their cargoes are composed, many of the above-mentioned falutary regulations would be ufeless, either by perfon's quitting veflels imme-

Vol. XXXIX.
diately on their arrival, or from having intercourse with other ships, or with the shore, or by breaking bulk and sending goods into the common stock of the country. To this end, the law has imposed the necessity of the masters of ships liable to quarantine shewing proper signals by day and night, by which the quarantine officer and others are apprized of their arrival; and to prevent any abuse herein, for the purpose of covering any smuggling transactions, persons exhibiting them, when not liable to quarantine, are liable to 200l. penalty by 45 Geo. III. c. 10. fect. 15. And as persons, especially passengers, may innocently render themselves liable to those penalties, as well as those statutes which affect their lives, it is necessary they should be set out for their information. The severity that has been annexed to the violation of the quarantine regulations is a sufficient proof how irksome the constraint is, and how regardlefs persons are to the general safety of others, for nothing short of imposing the penalty of death, on a violation of some of the enactments, has been found sufficient to impose respect to the law on this subject.

By 45 Geo. III. c. 10. fect. 14. ships subject to quarantine are required at all times, when they meet any other ship at sea, or shall be within four leagues of the British or Irish coasts, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, to have a signal hoistedit, to denote that they are so liable, which they are to keep hoisted so long as they remain in sight of such ship, or are within such limits of the coast, until they shall have arrived at their quarantine port, and been legally discharged. The signals are to be, by day, a large yellow flag at the main-head; for which purpose, every ship leaving Great Britain for the Mediterranean, or West Barbary, or any place suspected or liable to have the plague, &c. shall be provided with one or more quarantine signal-flags and lanterns, and proper materials and instruments for fumigation and infection, and shall keep them on board, to be used upon the ship’s return (Order, fect. 45.); and if coming without clean bills of health, then with the addition of a large black spot in the centre: and by night a lantern with a light therein, also at the main-head; on failure whereof, the master is subject to a penalty of 200l. (45 Geo. III. c. 10. fect. 14.) Ships actually having the plague on board are to hoist a signal flag of yellow and black, borne quarterly, of eight breadth of bunting at the main-topmasts-head; and in the night two lanterns, one over the other, to be kept up when in sight of any other ship, or within four leagues of the coasts or islands, and until arrived at the proper quarantine port, and legally discharged from quarantine, upon penalty of 200l. 46 Geo. III. c. 98. fect. 1.

Masters of ships are also further required by fect. 16. of the act of the 45 Geo. III. to give the pilot who shall go on board a written paper containing a true account of the place at which they have touched or loaded on the homeward voyage, and any neglect or refusal, or any false representation, or willful omission therein, subjects them to the penalty of 200l. And by the 46 Geo. III. c. 98. fect. 2. masters of ships that are not liable to quarantine in respect of the place from whence they come, are also to give a true account of all the different articles of their cargoes, under the penalty of 200l. And if by proclamation or order in council, ships are liable, as coming from any place mentioned in any order in council, or by reason of bringing any goods mentioned in such order, the pilot is to give the master notice of being liable, so that he may hoist the proper signal, under the penalties of 50l. and 100l. by the 45 Geo. III. c. 10. fect. 16. and 46 Geo. III. c. 98. fect. 2.

Pilots, not conducting ships to the proper places, (except prevented by fref of weather, adverse winds, or other accidents,) to forfeit 100l. (45 Geo. III. c. 10. fect. 17.;) and not requiring such paper, 100l. by 46 Geo. III. c. 98. fect. 2.

Masters 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 superintendent of quarantine, or officer of customs, and omitting to hoist the proper signals, shall be guilty of felony, and suffer death. 45 Geo. III. c. 10. fect. 19.

Masters of vessels ordered to perform quarantine are to deliver to the officer 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. fect. 20.

Masters of ships liable to quarantine, although the plague, &c. shall not have then appeared, who shall quit the ship, or suffer any feaman 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 perons (by necessary force) may compel such 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. fect. 21.

Such of the passengers and crew of ships not furnished with clean bills of health as are the defiers of performing quarantine in a separate vessel, (to be hired at their own expense,) may, if the superintendent and medical attant of the place consent thereto, do so, and may quit the ship before the hatches are opened and go on board such ship, (a guardian 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, fect. 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, fect. 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 sicknotes on board; but if otherwise, they are to be sent to the pest-house, or other place appointed for perons 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, fect. 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 pest, or place provided for perons so afflicted, the external guard to be doubled, and notice immediately given to the privy council. Order, fect. 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
QUARANTINE.

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.

Perfons 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 assigned 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.

Perfons 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 all 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. c. 10, sect. 23.) And may be feized 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. c. 10, sect. 24.

Perfons 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. f. 27.

Perfons on board ship, or in a 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 shut open (Order, sect. 16.); but letters to perfons on board are to be taken by the quarantine superintendent only, and no conference is to be had by perfons not under quarantine with perfons who are under quarantine (except by permission of or in the presence of the quarantine superintendent or his attitant), 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 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.

Affluence 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 guards 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 discharged 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 Class 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? Maiter? From whence? Where bound? At what port has the ship touched on the homeward voyage, or what ships spoken with? Whether the plague, or any infectious disease, exist in at the time of leaving the port the ship loaded at? What kind of goods the cargo is composed of, and of what country are they the produce? and whether the brings a bill of health?

If the ship is deemed liable to quarantine, she is then to be directed to the quarantine station, and 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, quartered on the gangway, and is to put further questions to them. They are in the first instance 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 a sick or died, and the nature of the disease; whether they are in the same, or in what manner, and 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 pilots she has had; and any particular 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 person employed in doing cargo was taken ill, or on arrival at the port, whether the cargo had long warehoused, or packed, handled, or brought on board by any person affected with the plague; did the touch at the ports of Rhodes, the Morca, and what part of Africa; if so, where? and had she 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 matter 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
QUARANTINE.

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 they 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 1 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 merchandize, 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 embezelling 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 desert 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.

Persons 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. 35. 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 oath 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 therewith 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 file 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 fine 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 attainder of felony to work corruption of blood or forfeiture of goods, &c. 45 Geo. III. c. 10, f. 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. 53.), 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 have been factually 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
QUARANTINE.

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 gaol till he does 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 prosecutor 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 eight 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., if such person is delivered, the prosecutor 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. 41.)

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 swear falsely, or procure others to do so, he shall be deemed guilty of perjury or falsification of perjury, 45 Geo. III. c. 10. sect. 57; 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 failing out of the ports of Great Britain or the islands, until bond is given by the master, with sufficient sureties for 300l., 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 or vessel, 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 50l. 45 Geo. III. c. 10. sect. 32.

By the 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 conveys in company, if he has no plague sore upon him, he shall be punished as a vagabond by whipping, and be bound to his good behaviour. But if he has any infectious sore upon him uncured, 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 state 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 expenses, 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, enables, that the ship-owners may recover from the Inland Board all the tonnage of their ships 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 25 Geo. III. c. 60. 45 Geo. III. c. 10. sect. 5. They are to be levied and recovered as duties of custom, 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. f. 5.

1. For every ship which shall have arrived from any part of Turkey, or from Africa within the frigates of Gibraltar, or in the
   West Barbary on the Atlantic Ocean, with a clean bill of health, the ton
   £ 2 0
   0 7 6

2. Do, without a clean bill of health, the ton
   £ 15 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
   £ 3 0

4. Do, without a clean bill of health, the ton
   £ 10 0

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 frigates, 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 so 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
   £ 7 6

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
   £ 15 0

8. For every ship which shall enter inwards in the port of London, an additional duty of per ton
   £ 1 0

Exempted from the said Duties.

Ships of war, transports, and other vessels employed in the service ofgovernment.

Ships or vessels not bound to Great Britain or the isles, and having put in in ditrefs. (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 tit Clafs on board,
QUARANTINE.

board, and not producing the proper declaration or document as to their growth, &c.

Ships or vessels, with a clean bill of health, in ballast, or whose cargo shall consist wholly of salt, (unless coming from Turkey, or some place in Africa within the straits of Gibraltar, or in the West Barbary.)

Ships and vessels, with their cargoes shall have performed quarantine in the foreign lazarets, and produce proper documents and vouchers attesting the same. (Or when goods, which have performed quarantine there, and been carried to other countries, are afterwards brought here. Treasury order.)

Ships and vessels rendered liable solely by reason of having received on board by force, and against the will of the master and crew, any person from a vessel coming from or having touched at an infected place. 46 Geo. III. c. 98. feet. 4.

Ships which have failed in ballast from places considered liable to infection, and which shall afterwards bring a cargo from a place not deemed liable to infection, Treasury order.

To prevent as much as possible the plea of ignorance of the laws, the order in council of 5th April 1805 directs, (feet. 44.) that the collector of the port where any vessel shall clear out for the Mediterranean or Barbary coast, or any other place respecting which an order in council is made, shall furnish the master with an abstract of the quarantine regulations, and it is to remain up during the voyage in some conspicuous part of the ship till his return, provided he returns in twelve months.

Ships of war which shall meet any vessel liable to quarantine coming to any port in Great Britain, or the islands of Guernsey, &c. are to take care to prevent the landing of any goods or persons, &c. until they shall be put under the direction of the quarantine superintendent, &c. (Sect. 45.) And the commanders of ships of war, and forts and garrisons on the sea coast, and all justices, mayors, sheriffs, bailiffs, chief magistrates, constables, headquarters and tythingmen, &c. shall be aiding and assisting to the superintendent of quarantine and his assistants, and to the officers of the customs, and in bringing such ships to places appointed for performance of quarantine, as well as in the due performance of the same. Orders, sect. 48.

The commissioners of the customs are ordered to use their utmost vigilance and care that the regulations of the acts of parliament and orders in council be duly observed (sect. 47.) and the lords of the treasury, the lord high admiral, the lord warden of the cinque ports, and the master general and principal officers of the ordinance, his majesty’s secretary at war, and the governors and commanders-in-chief of the said isles of Guernsey, &c. are to give the necessary directions herein as to them they respectively appertain. Order in council, sect. 50.

It now remains to state the best mode of fumigating vessels and apartments infected with infectious diseases, and to offer such hints as are applicable to the subject.

Odoriferous woods, gums, sweet herbs, and aromatics, have been recommended as fumigations, but with little certainty as to their effects; perfumes still less so; besides which, they rather conceal the mal-odour than correct contagion. The evaporation of common vinegar by heat is often employed as a fumigation, but it is not possessed of much power of diminishing the fetid odour of putrid air. The acetic acid or radical vinegar is better; its powers are however limited to a small space, and therefore, though it may be useful about the persons of those who attend the sick, it is inadequate to the purification of large rooms.

The stronger and better fumigations are the nitrus or marine acid, and the oxyuratic acid vapour, the former of which is made thus: half an ounce of nitre reduced to powder and nitric acid (oil of vitriol) in equal quantities, mixed in small pots, and placed in various parts of the room.

Oxyuratic 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, (suppose 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 nitric 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 white-washed, and the floors well scoured.

It may be stated once for all, that the great object of quarantine laws is the separating of those affected, or suspected to be infected with an infectious distemper, from those who are not, and nothing would be so salutary or absolutely 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 person 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 person or his bedding, clothes, &c. And they might be furnished with gloves made of oiled silk, as well as drieves made 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 uses. Whatever he leaves of his meals should be burnt or wholly destroyed. The excrementitious discharges should also be received into cold water, and instantly 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 bubble, 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 used. Furniture
QUI

Furniture consisting of chairs, bedsteads, &c., should be scoured and fumigated with sulphur and faw-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 admission 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 belt preventive of infectious disease, and the most effectual mode of diminishing the effects of its contagion, is by the free admission 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 Principles.

QUEEN Anne’s. Add—It contains 16,648 inhabitants, of whom 6,981 were negroes in 1812.

QUEMAKO, a township of Somerset county, in Pennsylvania, having 1,592 inhabitants.

QUERCITRON. See QUERCEUS Tinctoria, and PRINTING on Calico.

QUILOA. At the close, add—An island of Quiloa was visited by Capt. 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 six 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 splendid 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 Capt. Beaver found the deputy of the Imam of Mufcat, who controlled 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 flaxes, ivory, gold-dust, and many other articles exported from this part of the coast. The Moorish king is the only nominal sovereign both of the islands and of the shores of the continent.

QUINCUNX, l. 21, add—The notion, however prevalent, that plants thus set 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 Castilian quintal is divided into 4 arrobas, 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. Castilian weight equal to 102 lbs. avoirdupois; but the more accurate proportion is as 123 to 125.

QUIRA, or QUIRIA, in Geography, a province of the ancient kingdom of Colchos enclosed by the end of the Muffian hills. It is a pleasant and fruitful country, and, from the ruin that still remain, we may conclude, that it was formerly flourishing and populous in an extraordinary degree. The residence of the prince of Quiria is Titi-zigh or Ighina (the ancient Pitius), situated on the shores of the Black sea, with a secure and spacious harbour. The only considerable river of Quiria is the Bos, which rises 30 versts from Titi-zigh, 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 Soami ridges and being increased by the snow-streams which descend from the Georgian side of the Caucasus, enters the Phasis, in the neighbourhood of Cotaxis.
RACOON, in Geography, a township of Gallia county, in Ohio, having 295 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 ascribes 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 thus 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 scarcely half as much heat as one of porcelain; and even the very slightest varnishing of gold, platina, 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 flow 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 is lately been most 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 seven 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 net 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 flutings, 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." See Heat. See also Dew, Rays of Heat, and Refrangibility of Radiant Heat.

RADNOR, 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. 4, 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 Bethor and the modern Rama are the places
places mentioned by St. Jerom, where he says, “Rama et Bethoron et relicuæ urbis nobilis a Salomone constructæ parvi villuci demonstratur.” Rama was a village in the time of Jerom, and the situation of Bethoor is distinctly marked in the Apocrypha, with reference to the plain of Rama. (I Maccab. iii. 16. 24.) (However, the prophecy of Jeremiah (xxxvi. 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 Molems under Solomon, for it is flated 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 Arimathea, 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 Molems. 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 by Bethoron by St. Jerom, as the only remains of the two cities fo named, which were built by Solomon. According to Reland, 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 Palesine; 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 reposed in a magnificent temple at Lydda or Diopholis. 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 Adrichonius seems to have confounded it; and places the church of St. George within the latter city; which position, although disputed by Reland and other authors, not only seems to coincide with the testimony given from the Alexiad of Anna Commena, but also with the evidence afforded by Bernard the monk, who mentions a monastery of St. George near Ramula. There is not a part of the Holy Land more fertile than the plain around Rama; it resemhles a continual garden; but cultivation had been neglected at the time of the arrival of Dr. Clark, the traveller now cited, owing to the dreadful plague with which the whole country had been infected. Rama and Lydda were the two first cities of the Holy Land that fell into the hands of the Christians 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 fretted 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 cavalry, to reconnoitre the place, and to summon the city to surrender, found the gates open, and 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 Diopholis and Rama, to whom the auspicious commencement of the enterprise was attributed. Hence probably originates the peculiar consideration in which St. George was held by the inhabitants of England, during the early periods of its history.

RAMSBURY. By the returns of 1811, the parish of Ramsbury contained 396 houses, and 2025 persons; viz. 1028 males, and 1057 females: 248 families being employed in agriculture, and 85 in trade, manufactures, and handicraft.

RAMSDAL, dea.

RANDOLPH. Add—in 1810, their number was 1170; l. 3 of next article, infert—including 708 slaves.

RANDOLPH, a county of the Illinois (dele Indiana) territory, containing four townships; viz. Kalkakia, United States’ Saline, Shawanee, and the residue of Randolph county, and 12,832 inhabitants, including 168 slaves,—Also, a township of Montgomery county, in Ohio, containing 336 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. (fays Mr. Darby, 1816,) in the parish of Rapides. This place is a thriving little village, and standing at the head of conjunt boat navigation, is of considerable commercial importance. The staples of the parish are, cotton, timber, beef, pork, and maize; the four first being the principal.

RATE, l. 8, for Ireland r. India; in Ireland fix, 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 slopes of war, have two lieutenants. Col. 3, l. 14, add—See Ship.

Rate of Ships 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.

2d rate. All of 80 guns, and upwards, on two decks.

3d rate. All of 70, and under 80 guns.

4th rate. All of 50, and under 70 guns.

5th rate. All of 36, and under 50 guns.

6th rate. All of 24, and under 36 guns.

1st rate, 900, 850, and 800 men.

2d rate, 700 or 650 men.

3d rate, 650 or 600 men.

4th rate, 450 or 350 men.

5th rate, 300 or 280 men.

6th rate, 175, 145, or 125 men.

RAVA, in Geography, a town of the Persian empire, in the pachalic of Bagdad, situated between Kerkefia (the Roman Cicryfum) and Annah (the Amatho of Ammianus Marcellinus); and confiding of about 200 flame houses in the midst 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 Persia, in the province of Kerman, which, like Tchroot and Mahim, is surrounded by numerous gardens.

READING, a township of Fairfield county, in Ohio, having 780 inhabitants.

REALIZE, r. Realize. or Realize.
REV

RED ASTIMONY-OBE. See Mineralogy, Addenda.
REDSTONE. Add—the township situated in Fayette county contains 1224 inhabitants.

REEL. See Manufacture of Cotton.
REFRACTION, col. 14, l. 40, for sign r. fine.
REFRIGERATION. The following laws have been deduced by MM. Dulong 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 excess 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.

REVOLUTION, French. At the close, add—On the 4th of June 1814, 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 hastened 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 15th 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 Belleroiphon, July 15, 1815; and at Torbay he was transferred to the Northumberland, which conveyed him to the island of St. Helena, deeded 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 restored 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 from the capital, his confinement in the island of St. Helena, the re-establishment of Louis XVIII., the withrawment 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 easy of access for a minute detail and more ample information.

RHEE. See Mineralogy, Addenda.
RHEA, in Geography, a county of East Tennessee, containing 2504 inhabitants.

RHODE
RHODE ISLAND. Add—See United States.

RUMB, col. 2, l. 20 from the bottom, for right angles r. equal angles.

RICCI, Domenico, called Bruna-Verri, in Biog., an eminent painter, was born at Verona in 1494, and became a disciple of Giovanni Francesco Caroto, under whose instruction he laid the foundation of his subsequent celebrity. For further improvement he studied the works of Gorgione and Titian at Venice; and his proficiency was such, that his works have been generally admired and sought 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 Farinato. In the church of St. George at Verona is a picture by Riccio, which represents the gathering of the mena in the wilderness, and which is accounted a fine composition, and distinguished by the force of its colouring. This master died in 1567, at the age of 73 years.

RICE, Chemical Composition of. Bracamont has lately analyzed this grain: according to his experiments, 100 parts consist of

<table>
<thead>
<tr>
<th>Ingredient</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>Vegetable 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 starch</td>
<td>0.71</td>
<td>0.10</td>
</tr>
<tr>
<td>Oil</td>
<td>0.20</td>
<td>0.25</td>
</tr>
<tr>
<td>Phosphate of lime</td>
<td>0.33</td>
<td>0.40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
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RICHBOROUGH. The parish of Abh, in which this hamlet is situated, contained, in 1811, 334 houses, and 1685 persons; viz. 868 males, and 817 females.

RICHFIELD, a township of Grunefield county, in Ohio, having 2429 persons.

RICHLAND, l. 4, add.—It contains 927 persons, of whom 5238 were slaves in 1810. At the close, add—Alto, a township of Belmont county, in Ohio, having 2851 persons.—Alto, a township of Clinton county, in Ohio, having 783 inhabitants.—Alto, a township of Fairfield county, in Ohio, having 881 inhabitants.—Alto, 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; l. 54, add—of whom, in 1810, 2115 in the county, and 1321 in the town of Augusta were slaves. At the close, add—Alto, a township of Kentucky, in Madison county, having 366 inhabitants, including 102 slaves.

RINGINO, an operation in calcio-printing, for an account of which, as well as of printing, see Prints, Calcio, Rio, &c. col. 2, l. 15, r. Helen.

RIOT, l. 20, after pillar, infect—(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", l. 1", 32", and 22 yards; l. 9, for 6300 r. 7272; l. 7, for 255150 r. 294516.

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 fin-
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 blush to own it."

The father of Sir Samuel was an eminent jeweller, and realised a handsome fortune; his mother, whole 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 Frieth-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 affinuous culture, augured his future advancement to eminence of station 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 throughout 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. Roget, 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 presented 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 acuteness, his deep knowledge of the law, his correct notions of the practice of the court, were all calculated to give due weight to arguments selected with skill, propounded with modesty, and enforced by a chauked eloquence."

Raised 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 marquess of Lanfdowne, he met with a daughter of Francis Garbett, esq. of Knaill-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 assiduity. Accordingly when Mr. Fox and Lord Grenville assumed the reins of government in the year 1806, he was nominated solicitor-general, after some suipenfe 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 pros, 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 affrighted 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 system 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 freehold estates of persons liable to the bankrupt laws, who might die indebted, affetes for the payment of their simple-contray debts, for which he was allowed to bring a bill into the house of commons in 1807, which bill was lost 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 honor 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 deploreging the return of Lord Melville to office, notwithstanding his acquittal, as no one had moved for refinding 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 subjected, 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 1st 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 compensation to persons who were unjustly accuited 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 purified his refutation of the theory of Dr. Paley. "The certainty of punishment,"

ROMILLY.
ment," says this excellent writer, "is much more efficacious than any severity of example for the prevention of crimes. So evident is the truth of this maxim, that if it were possible that punishment, as the concomitant of guilt, could be reduced to an absolute certainty, a very slight penalty would be sufficient to prevent almost every species of crime, except those which arise from sudden gusts of ungovernable passion. If the restoration of the property stolen, and only a few weeks', or even a few days' imprisonment, were the unavoidable concomitance of theft, no theft would ever be committed."

Sir Samuel, having actively concurred in the abolition of the slave-trade, could not forbear expressing his indignation, when the house of commons, in the year 1814, took into consideration that article in the treaty of peace which allowed of the prosecution of the slave-trade for a period of five years, and when he found that the ministers of this country had acceded to any convention, in which this was a prominent stipulation. "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 nuisances 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 business 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, considering the force of several expressions which I find scattered in your lordship's pamphlet, that you will think me difrepectful 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 unusual quantity of business, sit on a greater number of days and at unusual hours, in order to dispatch it." His letter, and as some have thought his bell speech, was delivered, at the close of the last parliament, against the "Alien-bill," and so powerful were his arguments, that, on his succedion, the amendments introduced by the lords were thrown out. In this speech, the eloquent senator details and reprobrates the measures adopted and pursued by the parliament just expiring, and he closes with the following reflection: "who our succeffors may be I know not; but God grant that this country may never see another parliament so regardless 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 perilof it cannot be otherwise than awful and impreffive.

Nothing ever deviated 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 abdicated 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 repose and sleep. It is not at all surprizing that talents like his, and so employed, should command general notice and respect. In a former parliament many enlightened and respectable members of the city of Bristol directed their views to him, and wished for such a representative; but other interludes prevailed against his abilities and character, and the influence of his friends. At the last general election, he was propofed as a fit representative for Westminster, 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 disheartening, 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 convivial 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 Tanchur, in Surry, in August 1818, her complaint seems 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 irremediable; and after various fluctuations, which excited alternate hope and alarm, she died of a dropsy in the cheif, 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 suspense 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 said, that on one occasion, after having been in a state of great distress, he intimated to a friend, that he felt a burning sensation in his head; and this seems to have been the only occasion on which he made a complaint of this kind. Alarmed about himself, he fought relief, and tried a variety of medicines without any permanent effect. "He frequently expressed 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 uneasiness 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 infanty—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
tation was certainly disordered, and we may trace, in the intensity of this dread, the incipient flame of mental derangement. A striking instance of this feeling appears in one of the entitled 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 lunatic. It may be remarked also, that the circumstance of his losing right, 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 sorrows at the suggestion of his friends without hesitation or demur. At Marble-green, where they lodged in their way to London, we learn from Dr. Roget, who puffed the night in the same room with him, that, although he was of a general reliefs, yet, at intervals, he enjoyed tranquil 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. Marcet, who inquired particularly concerning the state of his head, and was informed by sir Samuel, “that he had no head-ache, nor any uneasy sensation whatever in his head.” “The symptoms present 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 depair of his recovery, in spite of every endeavour 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 must necessarily pass a wretched night, and that if he were to use any medical prescription, it would only have the effect of taking away all his confidence in the powers of medicine.”

During the greater part of the night, Dr. Roget, who slept in the same room, reports that he was perfectly tranquil and apparently asleep; though in the morning sir Samuel assured him, that he had never, for an instant, dropped asleep.

The next morning the reftlessnes returned, and was attended with symptoms of fever; the tongue became white during the night, and the pulse at one time rose to 150 in a minute. Upon consulting Dr. Marcet, it was proposed, at his suggestion, to apply ice to the head, and to have recourse to cupping; but before these measures were adopted, Dr. Babington was sent for, and before he arrived the excitement had subsided, and sir Samuel was much relieved by a copious perspiration. Upon consultation it was agreed, that the measures proposed by Dr. Marcet, in existing circumstances, would not be expedient; and other medicines of an active nature were preferred. These were taken by sir Samuel without reluctance; and he continued tranquil and apparently asleep till about two o’clock. His daughter remained at the side of his bed, who observed upon his awaking, that he became restless and agitated. Upon being asked whether Dr. Roget should be called, he replied in the negative; but upon a second inquiry, he faintly assented. During the short interval of sir Romilly’s absence, a sudden paroxysm had seized him, hurried him from the bed, and armed his hand against 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 expired, as his biographer proceeds in the relation of the melancholy catastrophe, he made signs that he wished to write, but though supplied with pen and ink, nothing intelligible could be collected from his attempts. He then defied 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 state, 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 same time, in the same grave, at Kailly, the seat of her ancestors, in Herefordshire. The funeral, agreeable to the instructions of his will, was private; being attended only by his nearest relations and most intimate friends. Six fans and one daughter survived to lament the irreparable loss which they sustained. The calamitous event, which thus awfully 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 solicitors suspended their practice; the counsellor abandoned the courts; while the judge forsook the bench, after he had shed a torrent of tears!” The following singular circumstance is mentioned by his biographer, viz. that in the parish church of St. Bride, Fleet-street, there is a simple undecorated 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, seven days after the deceas of a beloved wife. For the materials and authentic documents that have furnished this article, we refer to the “Annual Biography and Obituary for the Year 1819.”

ROMNEY, in Geography, a town of Grafton county, in New Hampshire, containing 765 inhabitants.

ROOFS, in Rural Economy. — Accepted of iron have lately been introduced with advantage. Mr. T. Pearfall of Bath has constructed several in the neighbourhood of Brisol and London: and on a comparison of a roof of this kind with that of timber, he observes, 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 those of wood; and that the prevention of fire should not be forgotten. By his statement, the whole expense of such a roof, erected over a brick-kiln near Brisol, 25 feet 3 inches in length, and 18 feet 6 inches in span, appears to have been 182l. 11s. 11d.

ROSAMOND, col. 2, l. 17, r. if it cannot be, &c.

ROSS, in Ohio, l. 1, r. 16. — Add—also, a township of Butler county, in Ohio, having 1321 inhabitants.

ROSSO OF Florence, in Biography, called by the French Maître Ross, 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 style he endeavoured to imitate without servilely following it. hurried away by a lively imagination and great command of the pencil, he could not attach himself to the study of nature, or the antique, so freely as they ought; hence, though his works exhibit great brilliancy of invention,
invention, grandeur in their mazes, 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. Salvatore. 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 Arétin 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, Rosso 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 Rosso affords a lesson to those whose minds are inclined to indulge fanciful speculations. 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 Rosso'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 Fontainbleau published a suit and severe impeachment of his cafe, and appealed for justice to this Rosso had nothing to plead, and to avoid the infamy and remorse to which the injustice he had been guilty of must 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, 1, for 15,348 r. 12,829; and after inhabitants, add—viz. 27,640 males, and 33,213 females; 7,450 families being employed in agriculture, and 2,400 in trades, manufactures, and handicraft.

ROSTRINGA. See Whales.

ROT. Dry, l. 2, add—See Boletes. Col. 7, at the close, add—Mr. Robert McC-William, in a valuable "Essay on the Origin and Generation of the Dry-Rot, with a View to its Prevention or Cure;" to which are annexed, Suggestions on the Cultivation of Forest-Tree, and an Abstract of the forest Laws, from the Reign 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 to be avoided; and that the felling of timber is not less important as a means of preventing this disease. This ingenious author confers 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 further thancertained. Dr. Darwin, in his Speculations on the Origin of Microscopic Beings, adopted the incomprehensible doctrine, that their vitality is spontaneous. Buffon, Raymer, Prielely, Ellis, Ingen-
calculation 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 withnoxious 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 influences have occurred that prove the antiseptic properties of water acting on wood entirely submerhed in it. But when water is applied as a substitute for air in cellars, vaults, &c. care must be taken that it does not flagmatze, but flow regularly through the drains; in which case it will carry off with it much of the carbonic 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 repainting 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, and handicraft.
RUBY, SPINEL. See Mineralogy, Addenda.
RUDGELEY. In 1811, the parish contained 453 houses, and 2213 persons; viz. 1089 males, and 1124 females; 127 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—Also, a county of West Tennessee, having 10,265 inhabitants, of whom 2701 were slaves in 1810.
RUTILE. See Mineralogy, Addenda.
RUTLAND, in America, l. 7, r. 17 townships.
RYE, Chemical Composition of. This grain has been analysed by Einhoff; according to whom 100 parts of good rye-meal consist of

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Albumen</td>
<td></td>
<td>3.27</td>
</tr>
<tr>
<td>Gluten not dried</td>
<td>9.48</td>
<td></td>
</tr>
<tr>
<td>Mucilage</td>
<td></td>
<td>11.09</td>
</tr>
<tr>
<td>Starch</td>
<td></td>
<td>61.09</td>
</tr>
<tr>
<td>Saccharine matter</td>
<td>3.27</td>
<td></td>
</tr>
<tr>
<td>Hulk</td>
<td></td>
<td>6.38</td>
</tr>
<tr>
<td>Lofs</td>
<td></td>
<td>3.42</td>
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</tbody>
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100

According to the same chemist, 100 parts of good rye-feed yield

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<tbody>
<tr>
<td>Hulk</td>
<td></td>
<td>24.21</td>
</tr>
<tr>
<td>Moisture</td>
<td>10.15</td>
<td></td>
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<tr>
<td>Pure meal</td>
<td>65.64</td>
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Vol. XXXI.

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° 51', 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 slow gradation; and as we advance the woods include the river on both banks, the stream becoming contracted to the width of 150 yards, and so 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.

SACIALCTIC Acid, in Chemistry. This acid has been recently analysed both by Gay Lussac and Thenard, and

by
by Berzelius. According to these chemists, it is composed of:

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<tr>
<th></th>
<th>Gay Lussine and Thenard.</th>
<th>Berzelius.</th>
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<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>
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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—Alfo, a township, containing 2174 inhabitants.

SADSURY. Add—Alfo, a township of Lancaster county, in Pennsylvania, having 843 inhabitants.—Alfo, 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 townes in 1810; l. 24, r. 12,593; l. 52, for two r. three; l. 54, add—and a third in Mercer county, having 470 inhabitants.

Salem, New, a town of Hampshire county, in Massachusetts, containing 2107 inhabitants.


SALFORD. 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, perish fall victims to the afflicting malady called by the French Coup de Soleil (a sun-stroke), 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 west and north-west, from the low shores to the call and north-call. 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>
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<tr>
<th></th>
<th>Water</th>
<th>Peculiar animal matter</th>
<th>Mucus</th>
<th>Alkaline muriates</th>
<th>Lactate of soda and animal matter</th>
<th>Pure soda</th>
</tr>
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</tr>
<tr>
<td></td>
<td>902.9</td>
<td>2.9</td>
<td>1.4</td>
<td>1.7</td>
<td>0.9</td>
<td>0.2</td>
</tr>
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The peculiar animal matter is soluble in water, insoluble in alcohol, and is precipitated by subacetate of lead. Hence it appears to be a species of mucus. What Berzelius has termed mucus, Dr. Bottock and Dr. Thomson appear to consider as colagulated albumen.

SALMO ALPINUS. Dr. Shaw fugues that, this is the gilt char of Pennant, and the next species or Salvinus is his red char. Taimen, l. pennit. r. 33 feet. Kundsha, l. 3, r. 2 or 3. Lavaretus, add.—See Gwiniad. Dr. Shaw supposed that the gwiniad of Pennant is the S. Wartmanni. L. Leechiihys. Edentules, or tooth-leaf, olive, fawnion, with compressed yellow head, lanceolate red fins, and forked tail: a native of Surinam, where it is highly esteemed as food; r. Anamopus.

SALT, Col. 3, l. 31. r. 2. Silvery for fishes. Col. 4, l. 7, r. Silvery for fishes.

SALT, Lewis 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 5. 8d. city-duty on the cargo, whether it be five tons or fifty tons of the salt imported.

SALTS, Supertartrate of Potash. Col. 1, 8, infert.—See Tartrate.

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.—Alfo, a township of Pickaway county, in Ohio, containing 810 inhabitants.

SALT-LICK TOWN, l. 1, add—in the county of Pennsylvania, having 994 inhabitants.

SAM, col. 2, l. 24 from bottom, for fiction r. friction.

SAMBORNTOWN, l. 2. r. Straford.

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 senior and junior department. The senior 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 serving with their regiments.

The studies pursued at this department are as follows:—

Mathematics in all its branches; fortification; gunnery; cañonmetation; military drawing and surveying; the recon-
noitring of ground; the disposition and movement of troops under all the various circumstances of offensive and defensive war; rules for eliminating the military resources of a country; and the German and French languages.

There are six professors in this department, viz. one mathematics, &c.; one fortification; two military drawing; one French; one German.

Public examinations on points of science are held half yearly, in presence of the collegiate board, upon which occasion one or more members of the supreme board, not being members of the collegiate board, attend. These officers who have gone through the regular course of studies, and have passed that examination by which they may be duly qualified for staff appointments, receive certificates thereof, signed by the board, and sealed with the seal of the college.

The junior department was first established at Great Marlow in 1802, (but has recently been removed to Sandhurst, near Bagshot,) to afford a provision for the sons of officers who have fallen, or been disabled, in the service of their country; and the means of education to the sons of those officers who belong to any regular regiments. It consists of four companies, of 103 cadets each. They are admitted upon three different establishments, viz.

1st, Orphan sons of officers who have fallen or been disabled in the service, are admitted free of expense, except in bringing the first suit of uniform on their admission, and keeping up their flock of linen during their residence at the college. They are provided with board, clothing, and education, by the establishment, free of charge.

2d. The sons of officers actually serving in regular regiments of the line, who pay a certain sum per annum (from 106 to 664,) according to the rank of their fathers.

3d. The sons of noblemen and gentlemen, who pay 100L per annum each.

Applications for admission must be addressed to the governor. Every candidate previous to admission must pass an examination in Latin and English grammar, and the first four rules of arithmetic. No candidate can be admitted who is under thirteen years of age, or above fifteen.

There are examinations held monthly, which are conducted by the professors of the senior department, to ascertain the progress of each cadet, previous to his removal from one class to another. There are also public half yearly examinations upon the same principle as those at the senior department, previous to the cadets receiving commissions from the college; and, according to their proficiency in the course of studies, they have certificates of qualifications to serve in the army as officers, granted to them by the board of commissioners, in whose possession the examination takes place.

The studies pursued at this department are as follows:—Mathematics; fortification; military drawing; landscape drawing; history, geography, and classics; French; German; and fencing.

There are seven masters of mathematics; four of fortification; five of military drawing; three of landscape drawing; four of history, geography, and classics; five of French; one of German; three of fencing.

Gentlemen cadets are allowed to purchase commissions at any time during their continuance at the college; but no gentleman cadet can be recommended for a commission by private interest until he has made a certain progress in his studies. See Woolwich and High Wycombe.

SANDSTONE, l. 10, r. to be visible. In other sandstones, the grains, &c.

SANDY CREEK. Add—Allo, a township of Mercer county, in Pennsylvania, containing 327 inhabitants.

SANDY LAKE, a township of Mercer county, in Pennsylvania, having 493 inhabitants.

SANGUISORBA. Add after S. officinalis.—Mr. Parkes, 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 Badoon, and in Park's last million to Africa is represented as a small town, consisting of 300 huts; another Badoon, N. of this, is called Sanfanba. 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, floored 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, Housia and Jinnie cloth. Here are also, antimony, sulphur, 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. gr. did not differ from that of common water. It did not affect litmus paper, and contained no little of solid matter, that 2300 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 faphies are prayers, or rather sentences from the Koran, which the Mahometan priests write on scraps of paper, and fell to the simple natives, who regard them as polluting 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 dominii, grigri, fetiche, &c. &c.

SAPHIRE. See Mineralogy, Addenda.

SARASWATI, col. 2, l. 23 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 107 were females.

SARKFOOT. Add.—In 1811 the parish of Graitey contained 333 houses, and 1749 persons; viz. 797 males, and 952 females.

SARS, l. 4, add—Berothus used this period, and also Nerus and Sosia (which see), 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, I. penuit. infer—of the flames 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 propounded 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 benevolent 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 accidents or contingencies, are, however, preferable to common insurance offices, inasmuch as the members infure each other, and retain all the profits in their own hands for the general advantage. In these societies, there is, also a benevolent principle that influences those who form them, and induces them to feel and express a solicitude for each other’s welfare. Nevertheless, 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 shilling 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 Industrious Poor;” and this was accompanied with the suggestions 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, sir 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 “Anals 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. g. 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 held 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, such 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 benefiting those by whom she was surrounded, “or of whatever age, whether belonging to a member or not, are permitted to lay any sum above a penny to the monthly meeting of the rewarders, to be laid up in the funds of the society; where their small earnings may accumulate in safety, until wanted for an apprentice’s fee, clothing, or rations 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 forethought; and by introducing them to notice, it teaches them the value of character, and of the effect of those who, by the dispensations 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 expectations; 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 1804, 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 responsible to the amount of 100l. for the repayment of the principal with interest. Any sum above 1. was to be received, and, to encourage perseverance, interest at the rate of five per cent. was to be allowed for every year which should remain a year with the trustees. For every additional 100l. 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 reference 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 little property from that fluctuation of value to which the public funds are liable. This was the first distinct "Bank for Savings," publicly set 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," she says, "I account after every monthly meeting, 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 excellent female adds, that the benefits resulting from this institution 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 allusion whatever, except that I send any money I have to the treasurer, and now and then compare his cash-book with my own. The only care I have is to keep the respective accounts correct. I have a ledger, a cash-book, an interest account, and a home 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 encouragement 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. Roff'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 name and others of a similar kind had been established soon after the commencement 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. Whilst his zeal was applauded, his recommendation was disregarded. However he fealdly persevered, and determined to make the experiment in his own parish; and denominated his new establishment "The Parifh Bank Friendly Society of Ruthwell." He so far succeeded, that at the time of publishing the second edition of his essay, his capital amounted to a sum exceeding 1400l. About the beginning of the year 1813, a very respectable and useful society was established at Edinburgh for the protection of beggars. Mr. J. H. Forbes, an active director of this anti-mendicant society, having acquainted himself, by a perusal of the reports for bettering the condition of the poor, with the plan of the charitable bank at Tottenham, and with the regulations of the servants' fund at Bath instituted in 1808, proposed a plan and adopted regulations for the establishment of a savings' bank in the metropolis of Scotland. From the time of the publication of the first edition of the Essay on Parifh Banks, the second Report of the Edinburgh Society, and the Report of the Provident Institution at Bath, saving banks have multiplied to such a degree as to leave no room for doubt that the benefit of the system will be soon communicated to every town and village in Great Britain and Ireland. It does not appear, however, that any institution of this kind of any note was opened in London till the end of January in 1816, when the "London Savings' Bank" commenced its operation. But they are now prevalent through various parts of the city and suburbs. Of their importance and utility none can entertain any doubt; although, like other useful schemes, they may be liable to some objections. The lords' committee in their report on the poor laws, bear the following testimony in their favour. "The committee are decidedly of opinion, from every information they have received, that it is expedient to recommend the adoption of 'Provident or Saving Banks,' as likely to increase the comforts and improve the condition of the poor, and to render them less dependent on parochial relief; which, under the belt and mofit considerate administration of it, can never be so satisfactory to the person who is the object of it, or so confident with those honourable feelings of pride and independence, which are implanted in the breast of man, as that refluence which is the result of his own industry and the produce of his own exertions."

"The commons' committee also report, "that they have had no difficulty in perceiving how every extension of the poor's fund is in a perusal of the reports for bettering the condition of the poor, that it is done with the view of increasing the actual poverty of the state itself. The encouragement of frugal habits would, in any state of society, be an object of importance, but your committee are strongly impressed with the opinion, that, in the present situation of the poor of this country, it is chiefly by the gradual reformation of a feeling of reliance upon their own industry, rather than upon the parochial alleviations, that the transition to a more wholesome system can be affected."
"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 deposit 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 justified by ample evidence 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, frugality, prudence, and foresight. The very general adoption of the plan of instituting savings' banks shews, 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 leems 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 approach 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 wasteful expenditure of money nourishes;—it produces that frugality of mind, and steadiness of conduct, which afford the least 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 surprized to find it asserted 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 slaves.

SCALE of Chemical Equivalents. The description of this ingenious and useful instrument, contrived by Dr. Wolfaet, 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 estimates 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 in part understood 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 35,45, carbonate of lime is placed at 63. In the second figure, the slider is represented drawn upwards, till it 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 35,8 soda and 13,6 oxygen; or if viewed as chloride of soda, that it contains 65,2 chloride and 39,8 soda. With respect to re-agents it may be seen, that 283 nitrate of lead containing 191 of lardth employed to separate 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 serve to make 232 corrosive sublimate, containing 81,5 red oxiy 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 purposes of obtaining the whole of the acid in distillation, the quantity of oil of vitriol required is nearly 84, and that the residue 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 facts 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 scarcely add, that the numbers laid down upon it differ a little from those recently determined by Dr. Thomson. The 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.

SCALPOLITE. See Mineralogy, Addenda.

SCHILLER-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 formal knowledge both in theory and practice, are the Royal Academy of Woolwich, the institution at Sandhurst near Windsor, and the academy at Portmouth.

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.
Vol. XXXII.

SCOTLAND, col. 22, l. 29, for extent r. extinct.
SCOTS, l. 2, infert—of the town included.
SCREEN, Skreen, or Altar-Skreen, in Architecture. (See Reredos.) 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.
SCRUFFOULUS, or SCRUFFOULOUS Tumours. See SCRUFFOULUS, HIP-JOINT, Diseased of, White-swellings, &c.
SCRUGBRASS, in Geography, a township of Venango county, in Pennsylvania, containing 540 inhabitants.
SCULPTURE, col. 2, l. 22, omit the colon after required, and insert a 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 1st, 1801.
SECRETIONS, Secreted Fluids, Chemical Properties of. See Fluids, Animal.
SECTS of Hindost, col. 2, l. 8 and 23 from bottom for Bhon r. Blow. Col. 10, l. 31, transpose the points.
SEDATIVE SALT. Add after SALT—under the article SALTs.
SEEING, col. 3, l. 5, add—Dr. Wells, in his "Effay on Single 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 Sir 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 Dr. Wells objects, that they must be considered as mere conjectures, founded upon certain suppositions changes in the brain and nerves, the existence 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 phenomena 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 single 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 Aguilonius, and it has been since adopted by Dechales, Dr. Porterfield, Dr. Smith of Cambridge, and Dr. Reid of Glasgow.
Aguilonius, 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 intersecion of the optic axes, parallel to the interval between the eyes, this from its office is denominated the horizon; and a plane, supposed to pass through this line perpendicular to the plane of the optic axes, is called by Aguilonius 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 as 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 proportion to the angles which they subtended at the eye; e. gr. 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 vision, 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 same 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 outward place of an object is connected with both these sensations; 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, since custom might have connected the sensations of any other two points with the information of its unity from feeling? To this objection, suggested by Dr. Reid, the reply may be made in Dr. Smith's own words (vol. i. p. 46.): "When we view an object steadily, 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 than 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.
SEEN.

admitting the fact

and, for instance, the information of the former seems 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 information is not constant and original, but variable and derived. When a difference occurs between the information of the two senses, it is natural to require what rule have we for determining which is most worthy of credit. But supposing that the sense of touch to have originally and constantly informed us that objects are single, it would not follow that we are hence taught to see them also single. For, since the place which an object seems to either eye to possess, 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 same 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 sight 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 same plane 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 intersection 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 many 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 as two bodies, 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 intersection of the optic axes. Dr. Smith, accordingly, maintains that it does. In the first place, Dr. Wells appeals to experiment for a direct proof that it does not; and, in the second, he observes, that, as the two bodies in the optical 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 sight 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 concurrence 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 left 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 conveniently all bodies will have their visible places. But this was the very opinion of Agnolius, 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 an 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 shewn, 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,8 believed upon them for this special purpose by nature; it being reasonable to expect, that such a property should be found, if any where, in those parts of the retinas which are the most like to each other.

Anatomists have commonly taught, that the centres of the ophera, 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 axis 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 shewn 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 inward; 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 Winlow's observation, that the centres of the pupil and iris do not coincide, but that the former is nearer to the node 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 whatsoever can pass unbent 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 two 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 of the one organ, to the innermost of 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 frractile muscle of the right eye performs the same office, with respect to that eye, as the other internal frractile 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 same 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 held 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 all our observance to refer these to the author's own account. If objects, it may be said, appear single neither from custom, nor from any 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 fleeing 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 light, 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 separately 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 consist altogether in fleeing, in what manner the two apparent directions may coincide, conveniently with the attending phenomena.

From the time of Kepler's discovery of the law 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 eye, to 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. From 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 interfection; 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 argumentation: 1. Objects situated in the optic axes 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 base, through the point of interfection 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 intersecion of the optie
optic axes to the visual bafe, do not appear to be in that line, but in another, drawn through the same interfection, to a point in the visual bafe diftant half this bafe from the familiar extremity of the former line, towards the left, if the objects be seen by the right eye, but towards the right, if seen by the left eye. In the application of the theory which Dr. Wells has endeavoured to establish in the preceding propositions, he obferves, that, if the question be concerning an object at the concurrence of the optic axes, it is seen fingle, because its two familiar appearances, in regard to fize, shape, and colour, are seen 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 distance be truly or falsely 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 fingle to the young gentleman mentioned by Mr. Cheifelden, immediately after his being condeited, and before he could have learned to judge of distance by fight.

When two familiar objects are placed in the optic axes, one in each, at equal distances from the eyes, they will appear in the fame place, and therefore one, for the fame reason that a truly fingle object, in the concurrence of the optic axes, is seen fingle. Here again, as the two visible directions coincide in every point, it is not necessary that the united appearance should be judged to be at any particular distance; that it should be referred, for instance, to the concurrence of the optic axes, where the two other theories of visible direction are obliged to place it, in opposition to the plainest observation.

Objects, any where in the horopter, will be seen fingle, because their apparent directions to the two eyes will then completely coincide. And for a contrary reason, those placed in any other part of the plane of the optic axes will appear double. To make these things evident, let a line pass through the point of interfection of the optic axes and any given object, to the visual bafe, which is to be produced, if necessary; and let it be called the line of the object’s real position. Take afterward, in the visual bafe, or its production, two points, one on each side of the line of real position, and both distant from its termination there, half the visual bafe. Lines drawn from these points, through the point of interfection of the optic axes, must confcquently contain the two visible positions of the object. But when this is ftuated in the horopter, the line of real position will coincide with the horopter, and will not therefore reach the visual bafe, unlefs at an infinite distance from the eyes. For which reafon, the two lines, containing the visible positions of the object, must fall upon the visual bafe at a like distance, and must consequently be regarded as coinciding with each other. When the object is not in the horopter, the two lines of visible direction will be found, by the fame means, not to coincide.

SEGO, col. 2, l. 13, r. Manfong; l. 17, r. Sanfanding.

SELENIUM, in Chemistry, the name of an elementary ftufaftance recently discovered by Berzelius, and confidered by him as a kind of femi-metal. This ftufaftance was ftift made for tellurium. It was obtained from a sulphuric acid manufactory at Grifiphon, where pyrites from the mines of Fahan were employed, and which of course contained the ftufaftance in queftion. It alfo efhils in the fame mines combined with copper. Selenium has the properties of a metal combined with thofe of sulphur to f0 great a degree, that it is difficult to know under which head to clasf it, and in fhort whether it might not be rather confidered as a new fpecies of sulphur. In its metallic flate it has a brilliant metallic luflre externally, with a tinge of red. The fracture is vitreous, like that of sulphur, but with a very brilliant luflre of a grey colour. It becomes hot at a temperature of 212°, and at a higher temperature it melts; and at a temperature about equal to that at which mercury boils it may be diffilied. When in a gafous flate, it is yellow, like sulphur. When diffilied in a large veftle, it is deposited in the form of flowers of a cinabary colour, but not oxydated. During its cooling, it preffures for fome 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 ruby-red colour when held between the eye and the light; but by reflected light they exhibit a brilliant metallic luflre. It burns with an azure-blue flame when heated with a candle, and exhales a forcful odour of baffe-radiith.

Selenium combines with metals, and generally produces a reddish flame. The alloys are commonly grey, with a metallic luflre. The feheliuret of potafium diffiolves in water, without evolving any gas, and produces a red-coloured folution, which has the tafe of hydrofulphuret of potafia. When muriatic acid is poured upon this feheliuret, a feheliuretted hydrogen gas is diffengaged, which is soluble in water, and precipitates all metallic folutions, even thofe of zinc and iron. This gas has the odour of sulphuretted hydrogen gas when it is diffiited with air, but if it be breathed fels diffined it produces a painful fenfation in the nose, and a violent inflammation, ending in catarrh, which continues for a confiderable time.

Selenium combines with the alkalies both in the humid way and by fusion. Thefe combinations are red. The feheliurets of barytes and lime are also red, but they are infoluble. It alfo diffiiles in melted wax, and in the fat oils; the folutions are red, but have no hepatic odour. There efist alfo feheliuretted hydrofeleniums of the alkalies and of the earths.

Selenium diffiiles in nitric acid by the affifance of heat; the folution evaporated and fublimed yields a mass crys- talized in needles, which is a pretiy forcful acid. It has a pure acid flavour, and forms peculiar fballs with the alkalies, earths, and metallic oxdies. The felenium is fofulble in water and in alcohol: its combinations with potafia and amonia are deliquefcent; the latter is decomposed by fire, water is given out, and the felenium is reduced. The feleniates of barytes and lime are fofulble in water. The felenium acid mixed with muriatic acid is decomposed by zinc, and the felenium is precipitated in the form of a red powder; by sulphuretted hydrogen gas an orange-yellow precipitate is formed.

Such is a brief Summary of the properties of this curious ftufaftance. From the small quantities in which it has hitherto been found, we believe noperiments have been made to afcertain the weight of its atom, &c.

SEIKIRK. l. 23 from bottom, for 440 r. 439.

SEIKIRKSHIRE. In 1811 this fhire contained 1680 houfe, and 5889 perfons; viz. 2750 males, and 3139 females; 500 families being employed in agriculture, and 363 in trade, manufactures, and handicraft.

SÉNECA. Add.—Alfo, a county of New York, containing 16,690 inhabitants, of whom 101 are flates.—Alfo, a town of Guernfey county, in Ohio, having 300 inhabitants.

SEPOY, a term ufed in India to denote a native folder.

SERA-WOLLIES, See KAJAGA.

SERICA. Add.—(See Thiber.) Hugh Murray, efq., in his “Ancient Geography of Eastern and Central Asia,” published Vol. XXXIX.
published in the Edinburgh Transactions, concludes from the works of Ptolemy and his contemporaries, that Serica was China.

**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. africanus, or ash-colored snake-eater, with the hind-head crested, the tail cuneated, and the middle tail-feathers lengthened. This is the V. Serpentarius or Secretary vulture of Latham, and the Falco Serpentarius of Gmelin's Linneus. 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, for it is an inhabitant of dry open plains in the lower parts of Africa.**

**SERPENTES.—ATES, l. 1, r. is white with black bands.**

**SEVIER, l. 2, r. 4595, and 294.**

**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—Alto, a town of Hillborough county, New Hampshire, having 416 inhabitants.—Alto, 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—Alto, a township of Mercer county, having 634 inhabitants.—Alto, a township of Beaver county, having 679 inhabitants.**

**SHEPEY. Add—The largest parish in this island is that of Minster, which in 1811 contained 840 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 Shafton, in the county of Dorset, which in 1811 contained 75 houses, and 385 inhabitants; 163 males, and 222 females. On the right of the village are two high hills, called Hood and Hawkeldon, on which are the remains of an ancient Roman encampment.**

**SHORES, col. 3, l. 29 from bottom, for felt r. left.**

**SHORES, in Botany, in honour of Sir John Shore, lord Teynemouth, late governor of Bengal.—Roxb. Corom. v. 3, 9.**


**Gen. Ch. Calyx of five imbricated leaves, subfusequent, enlarged, permanent. Petals five. Capsule superior, of one cell and one valve. Seed solitary.**

1. S. robita. Saul-tree. Roxb. t. 212. —Found on the skirts of the northern mountains of India. A majestic tree, whose timber is much used, and next in value to the teak, (see Teckona) being stronger, though far less durable. Leaves alternate, filleted, ovate, entire, acute, smooth, from four to eight inches long. Panicule downy, axillary and terminal, of numerous, pale yellow, barry flowers, not an inch wide. Capsule accompanied by five oblong, ribbed, unequal wings, formed of the calyx. This genus is nearly allied to Dipteroncarpus; 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—Alto, a township of Lycoming county, containing 294 inhabitants.**

**SHROUD, l. 3, add—but the statute for this purpose has been repealed.**

**SHUKUSKU, r. or Shukashu.**

**SHUSTER, l. 24, for magnitute r. magnificence.**

**SIDH, a district of the Persian empire, in the province of Mekran, confiding of an extensive plain, governed by a chief, who resides in a small town of the same name. The country, is 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 formerly 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 sedate fludivus disposition; and he zealously improved every advantage for gaining knowledge, which he enjoyed, first at Shrewsbury school, and afterwards at Oxford, where he was entered at Christchurch 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, willing to have repose to Leicester, and probably with the peridious design of lulling into security the Protestant party in France, previously to the horrid massacre of St. Bartholomew'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 purged his tour to Germany; and at Frankfort formed an intimate acquaintance and friendship with Hubert Languet, then resident 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 Roderick II.; and entrusted 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 recompence 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 renunciation addressed to queen Elizabeth on her projected marriage with the duke of Anjou; and such was the estimation in which he was held by the queen, that she did not manifest her displeasure against Sidney, though others suf-
feder for their interference. Actuated by the spirit of chivalry, he exhibited his skill in military manœuvres at a tournament held, in 1586, in honour of the queen; and in the same year, he ascertained his rank as a gentleman, against an inquest 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 relieli of the excellencies of that art which he undertakes to patronize and illustrate." In the year 1583, 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 he 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 designs." Of his nomination as a candidate for the command of Polonia, during the death of Stephen Bathori in 1585, we shall say nothing, as one of his biographers has stated 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 determining to affilt 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 English soldiers. He was soon joined by his uncle Leicestcr, as general of the auxiliaries, and Sir Philip was appointed general of the horde, under his command. It soon appeared that Leicestcr was unfit for the trufi reproached in him; his nephew was dishonoured, and endeavoured to allay the discontent 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 horse 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 Leicestcr'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 soldier in the agonies of a mortal wound; he renounced 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 composure, 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 specimen of grave or heroic romance; that it was left in scattered fragments of MSS., which his editor collected and published; and from this circumstance, it was denominated "The Counteys 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.**

Sidney, or SIDNEY, Algernon, the second son of Robert, earl of Leicestcr, 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 destined 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 he 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 arrest; but 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 Manchefter 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 1645 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 violation of his political sentiments, his father writes to this purpose: "It is said that the university of Copenhagen brought their album to you, desiring you to write something therein, and that you did scribere in albo the words:"

"Manus habe, nimina tyrannis,
Enfe petit placidam sub libertate quietem,"

and put your name to it; also, that a minifier, 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 just and brave act that ever was done in England, one of

4 N 2
Confidently whilest fo but and and this retired beneficial had centenarian anxious was charo-e. it finding some mention ought to others, France, time return, the king's rank. He made for his stock the reparation he might have of all this, however, he was found exasperated, and at the court. He was, in little, 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 enmity of those who were disposed 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 preparation 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 penitent 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 lil of those persons in England who were at this time penitents 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 astonished 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 perusal 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, all circumstances considered, most beneficial to his country. Upon his father's death, he joined the opposition party without diffidence, 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 engaged, 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-houle 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 assassinating the king was the plea for arresting him, together with Russell and several others, in June 1683. When Lord Ruffell 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 paillages from a manuscript found in the closet, in which the writer maintained the lawsuness of, refuting 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 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 sixty-one years, delivering to the sheriffs 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 reversal of his attainder, 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 Christian, but in a particular form of his own; he thought it was to be like a divine philosophy in the mind, but he was against all public worship, and every thing that looked like a church. He was stiff to all republican principles, and an enemy to every thing that looked like monarchy. He had studied the history of government in all its branches beyond any man I ever knew; and had a particular way of magnifying 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 "Discourses on Government" were first printed in 1698, fol. reprinted in 1704 and 1751, and in 4to. 1772 at the expense of Thomas Hollis, Esq., with his letters, trial, and memoirs of his life prefixed. Lord Orrey 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 established in the temple of literature than I have hitherto found it placed." Biog. Brit. Gen. Biog. Memoirs, &c. prefixed to Hollis's edition.  

SID

SIL

SID SILEN. I. 20, for facchno R. Jaccho; I. 35, for second r. fixth.  

SIFERD ROOK. See ROOD.  

SILEN, 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 silicin. 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 silicin, from the experiments of Berzelius and Stromeyer above-mentioned, at 19, and of silica at 29. The same chemist also considers silicin 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 ORE. See Silver, and Mineralogy, Addenda.

SILURES, col. 2, l. 35, r. Wilk or Ul.?

SIMIA FATTUERULS, l. 1, for tailles r. long-tailed.

SITACA. Add—twelve geographical miles below Bagdad, and nearly opposite to the embouchure of the Dealla river.

Vol. XXXIII.

SITTINGBOURNE, a town and parish of Kent, 40 miles from London, in the road to Canterbury; contained, in 1811, 230 houses, and 1362 persons; 653 being males, and 729 females.

SKIDDWAL, l. 15, after sea, add—which differs little from 3017 feet, the barometrical measurement of Mr. W. Allen, according to the method proposed by Mr. 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.

SLAVE TRADE, abolition of, 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 invention of the slider 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 dry nights. The cause of this additional cold is not, indeed, constantly operate; but its prevalence, 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 deliquescent 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 straw 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 radiation of the heat of the ground to the air, either by radiation or conduction. Wells's Eff. p. 258. See DEW and HEAT.

SNOWDON, l. 17, after sea, add—according to Mr. W. Allen's barometrical measurement, 3595½ feet.

SOAP-STONE. See Mineralogy, Addenda.

SODA. See Sodium. Add—under NATRON, l. 5, r. Natron, from an erroneous supposition of its being of the nature of nitre. This has been up to many times. Col. 2, l. 35, dele vegetable alkali. Col. 4, l. 35, for a further account of barilla, see CARBONATE OF SODA. Under the article LEATHER, l. 17, for a species of felt-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 23, and consequently the weight of the atom of soda at 46, that of oxygen being 16.

SODAIC POWDERS, denote powders which are used as a substitute for soda-water. Profeur 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 difengagement 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 fold as the citric, is in reality the tartrate acid, produced from the fulbitance known as cream of tartar. When the powders are dissolved, the tartaric acid unites with the alkali, and the carboxylic acid, or fixed air, immediately escapes, occasioning a momentary effervescence. A felt 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 felt formed is nearly insoluble, and has a harsher taste, and an irritating effect on the stomach. Thus, a quantity of alkaline tartrate is taken into the system, which rather tends to increase than remove obstructions, and in many instances must be highly injurious. Soda-water, if prepared in the bell 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 for many hours after it is poured out. This gas, acting as a solvent of all the different earths, and various other substancess, gives to the soda-water a more dilute and defolvent efficiency, than is posessed by common water; and to this cause we may ascribe the good effects of soda-water in removing bile and calculous concretions. The carboxylic acid, in its concentrated state, 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, l. 6, r. 14725.

SOONTAARS, a wild and unlettered tribe of Hindoos, who inhabit the districts of Ramgur, the least civilized part of the Company’s possessions, and who have reduced the detection and trial of perils 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 Benares.

SORBIC Acid, in Chemistry. This acid was so named by Mr. Donovan its discoverer, because obtained from the berries of the mortaria gigantea (formerly denominated forbus aucuparia), but now pyrus aucuparia. The juice of the ripe berries is to be strained and mixed with a filtered solution of acetic 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 lustre and beauty. These crystals are to be boiled for half an hour with 2.3 times their weight of sulphuric acid, specific gravity 1.090, supplying water as fast as it evaporates, and taking care to keep the mixture constantly stirred. While still hot a stream of sulphuretted hydrogen is to be sent through the refiuning liquid, which will precipitate the lead, and leave the forbic 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 forbic of potash, soda, and ammonia, are crystallizable forms, containing an excess of acid. They are soluble in water, but not in alcohol. The forbic of barytes and lime are neutral and white insoluble powders. The forbic acid combines with lead in three proportions. The subforbic is a hard mass or a gritty powder. The forbic is a white powder, which by solution in forbic acid may be obtained crystallized in beautiful silvery crystals. The superforbic has a sweet taste, and is soluble in water. The other forbics are little known, and do not seem to be very interesting.

There appears to be a great resemblance between the forbic and malic acids. Indeed it has been alleged 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 forbic acid.

SOSOS, a Chaldæan 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 fun and moon to the same points of the heavens, astronomers found a period of 600 years, called the Neros; 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 estimate of the expense was 287,000., and that of the tolls, on the supposition that London bridge should be rebuilt, was conjectured to amount annually to 50 or 60,000. 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 hulls of oats, by a process not unlike that by which common flour is made. The hulls of the oat after having been separated by the sieve still retain a considerable portion of farinaceous matter. It is mixed with water, and allowed to remain till the water becomes four. The whole is then thrown upon a sieve; the milky water passes through loaded with farinaceous matter, which then falls. The four liquor is poured off, and about an 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 flax gives the whole a pleantful acidity.

SPANGLES, paillettes, are small thin round leaves of metal, pierced in the middle, which are sewed on garments, &c. as ornaments. They are prepared by first twirling wire round a rod into the form of a screw; this is then cut into small 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 small bite 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 manufactories, 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 mischief 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 exterminate the moles every vegetable was for a considerable time destroyed by cockchaffers, which grubs had been thus preserved by the short-lighted policy of the farmers.

SPARTA, l. 13, for country r. city.

SPARTA, col. 2, l. 3, containing 179 inhabitants.

SPAVIN. Add—In healing the blood spavin, Mr. Denny recommends repeated blistering, and afterwards a compress of folded linen, moistened in the following lotion, and confined by a long bandage: Take 4 oz. of sal ammoniac, 2 oz. of acetated cerule, 2 quarts of vinegar, and 4 oz. of water, mix them. The usual method of treating the bone spavin is by blistering and firing.

SPÉCULUM, col. 15, l. 23 from bottom, for cord r. card.

SPEECH. See LARYNX.

SPERMACETI, Chemical Properties of. See Cetic Acid.

SPERMADICTYON, in Botany, from στερμα, seed, and δικτυω, a net, because of the reticulated tunics of the seeds.—Roxb. Coromand. v. 3. 32.—Clas and order, Pentandria Monegynia. Nat. Ord. Rubiaceae, Juff.


S. fusco-velux,
1 S. *fuaveolens.* Fragrant Net-feeding.—Discovered by Mr. William Roxburgh, on the Rajamahal hills. Stem erect, shrubby, with opposite branches; downy when young. Leaves opposite, stalked, with triangular intermediate *filipus,* lanceolate, acute, entire, near a lpan long, smooth. Flowers white, an inch long, delightfully fragrant, copious, in numerous terminal tufts. A very curious and distinct genus, which we hope to see introduced from the Calcutta garden to the flowers of England.

SPHAGEBRANCHUS. See *Synebranchus.*

SPRIG, or *Spinig.*

SPRONS. Add—See *Uxahyer.*

STAMMERING. See *Larynx.*

STAPHYLINUS, 1. 15, add—The larvae are subterraneous, and much resemble the complete animals; 1. 15, add—Mr. Marshall, in his "Entomologia Britannica," enumerates no fewer than 87 British species.

**Vol. XXXIV.**

STARCH, Chemical Composition of. Starch has been analyzed by three different experimenters. The following were the results:

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<td>Hydrogen</td>
<td>6.77</td>
<td>5.90</td>
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<td>Carbon</td>
<td>43.55</td>
<td>45.39</td>
<td>43.481</td>
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<td>Oxygen</td>
<td>49.68</td>
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<td>Azote</td>
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Berzeus 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 suga; and M. T. de Sauffure 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.

STEÅRIN, in Chemisty. A name given by Chevreul to a substance existing in animal tallow or fats. It may be separated by alcohol, or simply by pressure. Bracconet 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 clain (see Elain) was imbibed by the paper while the stearin remained behind in a solid state.

Steerin thus obtained is white, brittle, and something 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 109° and 120°; 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 alkalis, forming soaps.

STEUELEN, 1. 15, add—of whom, in 1810, 87 were

Stipling, 1. 7 and 9. 9. pecks.

STIRLINGSHIRE. In 1811, this shire contained 8010 houfes, besides 55 unfinished, and 58,174 persons (including 803 local militia); 27,745 being males (militia included), and 30,429 females: 2425 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 horsecback without any assistance. (Virgil, Æneid, l. 12. 888.) 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 stools, which were placed close to the horse when persons wished to mount: and this gave rise to the barbarous practice of making conquered generals and prisoners jump up, that the victor might more easily get on horsecback, by leaping upon their backs as upon a stool. In this ignominious manner was the emperor Valerian treated by Sapor, king of Persia. Some horses were so taught, that they kneel’d until the rider mounted; and warriors had on their spears or lances a step or projection on which they could rest the foot until they got on horsecback. (Strabo, lib. iii. Sil. Ital. lib. x.) See Anabathra and Anaboleus. The first certain account of stirrups, says Beckmann, (History of Inventions, vol. ii.) is in a book written by Mauritius, respecting the art of wars, about the end of the 6th century. Eutathius, 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, caused to be engraved by Montfaucon, the faddles 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.

STOKES, in Geography, a township of Madison county, in Ohio, containing 267 inhabitants.

STONE in the Bladder. See Lithotomy, and Urinary Calculi.

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 Chemisty, the name of an elementary substance or earth, the description of which has been omitted.

Strontian is always found in nature combined with the carbonic or sulphuric acids. (See Strontianite and Celestine.) It may be obtained pure from these minerals precisely in the same manner as barytes and lime.

Strontian thus obtained is in porous masses of a greyish-white colour. Its taste is acid and alkaline, and it converts vegetable blues to green. Its fp. gr. according to Hassenfratz, is 1.647. It does not act on strong 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 *strontium,* 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 strontian.

Dr. Thomson, from the recent experiments of Stromeyer and...
and others, fixes the weight of the atom of stroniat at 65; from which the composition of its fats may be readily estimated.

The fats of stroniat require to be briefly noticed. They are in general more soluble than the fats of barytes, but less so than the fats 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 stroniat. When a piece of paper is dipped into a solution of a fat of stroniat, it burns with a red flame. The fats of stroniat are not precipitated by the prufiate of potash, nor are they poisonous.

Nitrates of Strontian.—This fat crystallizes in fix-sided pyramidal dodecahedrons with apexes truncated, so as to have the appearance of hexahedral plates with bevilled edges. Sometimes in eight-sided prisms. It is perfectly transparent. It has a strong pungent cooling tinge. Its fp. gr. is 3.066. 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 in hot coals. When a crystal of nitrate of stroniat is put into thewick of a candle, it communicates a beautiful purple flame.

Muriate of Strontian.—This salt crystallizes in long slender hexagonal prisms. Its taffle is thick and penetrating. Its fp. gr. is 1.402. 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 crystals do not deliquece on exposure to the air, except in very damp weather.

Carbonate of Strontian.—This, when precipitated, is a white powder without taffle or smell, and soluble in about 1336 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 taflteless, soluble in 3840 parts of boiling water; readily soluble in sulphuric acid when allfified by heat, and poifles other properties very analogous to the sulphate of barytes.

Phosphatc of Strontian.—This salt is likewise taflteless, insoluble in water, and not altered by exposure to the air.

Acetate of Strontian.—This is soluble in little more than twice its weight both of cold and hot water. It may be crystallized, and the crystals are not altered by exposure to the air. It renders vegetable colours green.

The other fats of stroniat do not in general poifles any remarkable properties. The oxalate, tartrate, succinate, and citrate of stroniat, are all more or less soluble in water; the oxalate being the leaft soluble, and the citrate the moft. The malate of stroniat 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 conveys 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 apppellations; 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 contrast 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, or subjects which represent the actions of deities, or of heroes, or which relate to the higher qualities of the mind of man: the only just 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 add 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 undulation of line, and fulness of form. This feclusion of form and of action requires an appropriate chiaro-ocuro, arranged and combined in broad and simple masses, and painted with a ferior tone of colour; in fact, such a combination of the prime qualities of the art, as will most efficaciously 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; witnesses many of the beautiful bronzes and gems of the ancients, and the effect, as described by Statius, of the statue of Hercules made by Lyippus, which "though not more than a foot in height, filled the imagination in a manner equal to the Hercules Farnefo." Raphael's small picture of the vision of Ezekiel is also an efficacious influence of the truth of this assertion.

STYLE, for that word alone is adopted as signification of that mode 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 Springer, 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 artist whose 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 agrandifie, 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 muscles which ought to have been represented tranquill.

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,
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 tasse 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 conflicts 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 selection 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 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 constellation of perfections recognized in his Helen; viz. by selecting 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 unison 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 ignorable and gross to treat it 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 constitutes 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 grogget 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 diction, 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 Parmeggiano in his latter and more perfect works, as his Moses and his Vifion of St. Jerome, has effected more than any other painter this desirable 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 riches 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 selection 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 selection 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 Van Dyke, sufficiently prove.

In a lower degree, the Dutch and Flemish masters have most successfully wrought in this style, as Jan. Steen, Oltade, Teniers, Rembrandt, Metsu, 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 essays; but in none more abundantly than among the works of the artists of the German and Flemish schools of the 16th century. Even in those of Albert Durer, mezzas 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 esteem, and extending through every part of the compositions, be it of figures, drapery, or back-ground.

Of the four species of style above enumerated, all others are
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 Tintoretto and Salvador Rosa, compounds of all that elevates and graces; 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 matter 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 Tintoretto had been more pure and true in expression, his productions would not have been more interesting. (See the article Picture.)

Combination, which will justify such expectations have been formed, and we have seen them in our own great sir John's productions, where fine form, rich and full-toned colour, and just chiaro-ocuro, have been blended in skillful and free execution.

**SUCCOWIA**, in Botany, in honour of professor Suckow, a learned botanist of Heidelberg.—“Moench. Meth. 265.”


Eff. Ch. Pouch nearly globular, beaked with the awl-shaped style; valves hemispherical, prickly; cells single-fed. Cotyledons folded together.


**SUFFOLK**, col. 6. 1. 13. add.—In 1811 Suffolk contained 37,227 houses, 2015 then uninhabited, and 234,211 persons; 111,988 males and 122,223 females: 26,406 families being employed in agriculture, and 15,850 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,** 1. 26, inert—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 98; from which data the composition of the compounds of this substance can be accurately ascertained. See Atomic Theory.

Sulphur Island, 1. 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° 56'. E. long. 128° 11'. Ellis's Journal of an Embassy to China. 1818.

**SULPHURETTED CHYAZIC 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 Nordhausen 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 everywhere, and consequently a perfectly anhydrous sulphuric acid can exist.

**SULPHURIZED MURIATIC Acid, in Chemistry.** The substance described under this name in the Cyclopædia is a chloride of sulphur. See Chlorine. See also the original article Sulphur.

**SULTANABAD.** For Tarshish r. Turkish.

**SURABHI,** col. 2. 1. 44, for prorsis r. prefereb.**

**SURRY, in Virginia, l. 4. r. 685.**

**SURYA,** col. 5. 1. 24, for drawn r. driven.

**SUTTETE,** l. 3 and 4 from bottom, r. thus—out number. As well as meritorious suffering for religion's fake, false is in some cafes illegal, and even commendable.

**SUTTON,** a village and parish of Surry, in the second division of Wallington hundred, which in 1811 contained 121 houses, and 638 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 fish living near the surface of the water containing least 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 inefible</td>
</tr>
<tr>
<td>Ditto</td>
<td>-</td>
</tr>
<tr>
<td>Murzenophis helena (Lacepede)</td>
<td>very little.</td>
</tr>
<tr>
<td>Sparus annularis (Linn.), female</td>
<td>.09</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>.08</td>
</tr>
<tr>
<td>Sparus fargus (Linn.), female</td>
<td>.09</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>.20</td>
</tr>
<tr>
<td>Holocentrus marius (Lacepede)</td>
<td>.12</td>
</tr>
<tr>
<td>Labrus turdus (Linn.)</td>
<td>.16</td>
</tr>
<tr>
<td>Sparus melanurus (Linn.)</td>
<td>.20</td>
</tr>
<tr>
<td>Labrus turdus (Var. Linn.)</td>
<td>.24</td>
</tr>
<tr>
<td>Sciencia nigra, female</td>
<td>.27</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>.25</td>
</tr>
<tr>
<td>Labrus turdus (Linn.), female</td>
<td>.24</td>
</tr>
<tr>
<td>Ditto, male</td>
<td>.28</td>
</tr>
<tr>
<td>Sparus dentex (Linn.), female</td>
<td>.40</td>
</tr>
<tr>
<td>Sphyraena pet. (Lacepede)</td>
<td>.44</td>
</tr>
<tr>
<td>Sparus argentus</td>
<td>.50</td>
</tr>
<tr>
<td>Sparus erythinus</td>
<td>much.</td>
</tr>
<tr>
<td>Holocentrus gigas</td>
<td>.69</td>
</tr>
<tr>
<td>Gadus merlicins (Linn.)</td>
<td>.79</td>
</tr>
<tr>
<td>Trigla lyra (Linn.)</td>
<td>.87</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 lesser depths was only .20. The same 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 1532 inhabitants.**

**SYMPATHY.** See Mental Philosophy.
TAY

Vol. XXXV.

TAIGAREE, for Tegerly r. Tegerhy.

TALBOT. Add—of whom 478 were slaves in 1810.

TAMUL, the name of an Indian language, which is spoken in the tract extending to the south of the Telinga, 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 Coimbetore, 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 Kangesa; in the central portion of Myfore it is named the Drauvader, and further N. the Arawes.

TAMWORTH, l. alt. 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 Lan-Chiu in the Tcheou dynasty, and to have been more philosophical than religious. In the Koong-foo, or postures 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, col. 2, l. 11, for inflexions r. infeclions.

TAPIOLA. See CASSAVA and JATOPHA.

TAPIOCA. Chemical Properties of. See CASSAVA.

TARTARIC Acid, Chemical Composition of. This acid has been lately analysed by Gay Lussac and Thenard, and also by Berzelius. The following are the results of these chemists.

<table>
<thead>
<tr>
<th></th>
<th>Gay Lussac and Thenard</th>
<th>Berzelius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>6.629</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 696 inhabitants.

TATNALL. Add—The number of inhabitants in 1810 was 2206, of whom 542 were slaves.

TAUNTON, l. 5, add—in Bristol county, containing 3907 inhabitants.

TAYLOR, Henry, l. 23, for rector r. vicar; for Rotherhithte r. Reading; l. 24, for four r. eight; for two r.

three. Col. 2. l. 9, for Discourse r. Dialogue; l. 10, r. 1817.

TAZWELL, in Geography, a county of Virginia, containing 3907 inhabitants, of whom 328 were slaves in 1810.

TCHUKOTSKIIA. Add—See ChuKotskiJa.

TEGERHY, r. Taigaree.

TELESCOPE, p. 5, col. 1, l. 9, for Plate XXIV. r. Plate XXVII. P. 25, col. 2, l. 27, for I E M r. I F M. P. 27, col. 1, l. 6, 8, 15, and 23, for 13827 r. 13-3287; l. 23, for 12.61 r. 12.17774. 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 glass must be at the other side." P. 55, col. 1, l. 25, for $\frac{120 \times 45^\circ}{68^{\circ} - 45^\circ}$ $\frac{120 \times 45^\circ}{68^{\circ} - 46^\circ}$

TELEFAIR, in Geography, a county of Georgia, containing the census of 1810, 744 persons, of whom 218 were slaves.

TELINGA, formerly called the Kalinga, and by the Europeans Gento, an Indian language occupying the space to the E. of the Mahatta, from near Cicaico, its northern, to within a few miles of Pulcat, its southern boundary, with the intervention of a stripe of small dimension. This space was divided into the Anda and Kalinga countries; the former S., the latter N. of the river. At the period of the Mahometan conquest, the southern part of these united provinces seems to have been known to that people by the name of Telingana, and waraikul 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 telleutsted hydrogen gas has been given. This compound was discovered by Sir H. Davy, and its properties were afterwards investigated by Berzelius.

Telleutsted 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 beak 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 poffeffes the mechanical properties of common air. It has a strong peculiar smell, something like sulphuretted hydrogen. It burns with a blueflh 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

4O2

poffeffes
poffefles the properties of an acid, combining with alkalies, and precipitating most metallic solutions like sulphurated 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 Sebastien Cabot in 1487, 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 affililiated, 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 Suerie also failed up the Mississippi, and proceeded to the distance of 2280 miles from its mouth. In 1762 France ceded it to Spain: in 1800-181st 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.

Bradbury's Travels, p. 214.

TEST-ACT, col. 10, l. 4, for office r. offence.

TEUTATES. Add—See Druids.

TEUTHIS, Hepatus, l. penult. r. Tang.

TWEKESBURY, in Geography, a town of Hertford county, in New Jersey, containing 1598 persons, of whom 66 were slaves in 1810.

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 lately 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, suggested to 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 deities of Reaon, has led some persons to repress the Theophlan-
thropists as partisans of the tyrant, and their meetings as Jacobin 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'Aubermenil, a romantic enthusiast, who wished to revive a part of the doctrines of the ancient Magi. In his work intitled "Culte des Adorateurs," which is a rubric, a liturgy, and a treatise of morals, eight days are appointed for labour, and the ninth for rest; but the temples were to be con-

stantly open, and the sacred fire kept burning in them with the most religious care. The priests, whose costume was preferred, 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 apotrophe 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 reprent the number and shortue 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 eldset of his relations was to throw water on the fire, addressing the element in a prepared formula. D'Aubermenil proposed to denominate his followers "Theanthropophiles," 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 drefs of their orators, or the circumstances attending their worship, and their marriage-service, nor shall we detail their moral lefion, 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 sitting was held in the cathedral, Feb. 29, 1798; and that on the 18th of August, 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 latter trace of it being that Chemin, who wrote a work defending their principles, made use of their manual as a school-book in a leminary at Paris, where he taught Latin. See Abbe Gregoire's Histoire des Septes Religionens, &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 Gadolinite of Kvarvar, and afterwards in the deutoflite of cerium, and the double fluoride of cerium and yttria, both minerals found at Fahlin.

Thorina may be obtained from the minerals containing protoxyd of cerium and yttria in the following manner. Precipitate the iron by means of the ferricen 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 fluixes 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 disfengaged 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 dissolves with effervescence in acids. Though calcined it retains its white colour. After a violent heat it is diSolutely 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 tafse, which is neither bitter, sweet, saline, 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 infusible per se before the blow-pipe, but with borax it melts into a transparent glass. It differs from alumina by its insolubility in hydrate of potash; from yttria by its perfectly alrigrate table without sweetseas; and by the property its solutions possess of being precipitated by boiling, when they do not contain too great an excess of acid. It differs from zirconia by the following properties: 1. After being heated to redness, it is still capable of being dissolved in acids. 2. Sulphate of potash does not precipitate it from its solution, while it precipitates zirconia from a solution containing even a considerable excess of acid. 3. It is precipitated by oxide of ammonia, which is not the case with zirconia. Sulphate of thorina crystallizes readily, while sulphate of zirconia, supposing it free from alkali, forms when dried a gelatinous transparent mass, without any tendency to crystallization.

Thorina combines with the different acids. The sulphate of thorina is soluble, and yields transparent crystals, which are not altered by exposure to the air, and which have a flinty tactile.

The nitrate and muriate of thorina do not crystallize. The carbonate of thorina is very readily formed, the earth having a very great affinity for this acid. None of the other salts of thorina known appear to be capable of crystallizing.

THORN, in Geography, a township of Fairfield, in Ohio, having 457 inhabitants.

THORNBURY, a township of Chester county, in Pennsylvania, having 202 inhabitants.

THORNTON, a town of Grafton county, in New Hampshire, containing 794 inhabitants.

THRIPS, col. 2, under VARIEGATA, l. 13, add.—The Thrips phylaphus has been supposed to do much injury to wheat, rye, &c. by cutting the young flowers to decay, and thus preventing the growth of the embryo grain. Some, however, have disputed this opinion, contending that the thrips does not attack itself to fuch of the cerealia as are in a perfectly healthy state, but rather to fuch as are diseased, by having the germinia covered with the dust of a very minute fungus, often growing on wheat, &c. and belonging to the genus Ascidium or Lycoperdon, and which appears in the form of a flattish, smooth, irregular exudation of a yellow colour in various parts of the plant. (See on this subject, vols. iii. iv. and v. of the Transactions of the Lin- nean Society.) The ingenious Mr. Kirby, however, feems convinced, that the thrips is in reality an insect highly injurious to corn, by deriving its nourishment from the embryo grain. Shaw's Zool. vol. vii.

TIC DOULEUXE, in Medicine, an extremely painful disease of the nerves of the face, commonly, if not exclusively, affecting some branch of the fifth pair of nerves, and most frequently the infra-orbital branch, where it passes through the foramen, so named in the check.

The complaint commences with flight and almost imperceptible attacks of pain, and generally without any warning; though some patients feel in the affected part peculiar and inexplicable sensations preceding its approach, from which they announce with horror the coming enemy; the patient at the same time enjoying a good or an indifferent state of health. The pain, however, soon becomes most 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 space of one minute. It returns at intervals more or less frequent; there being sometimes several 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 same patient.

The pains vary in their degree of intensity, at one time exciting the most piercing cries, and distracted writhings and motions in the miserable patient; while at another, they are more bearable. When at the aee of their violence, the parts affected are often convulsed, and sometimes various contortions and grimaces are observable. These are to be distinguished from the convulsive twitchings of the muscles, with which the diseased nerves communicate, and which are occasioned by irritation from the excessive pain; while the contortions and grimaces are voluntary, being caused by the patient's writhing and twirling from the agony of his torture, and may be prevented by a firm resolution to reft all impulse of shringking from the attack.

The pain does not always confine itself to the seat of the diseafed, 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 firit sign of an attack, is the patient's startling up in a state little short of phrenzy. In this condition, some patients beat the part with violence, or forcibly rub it with some rough substance till excitation takes place; and in some instances, they have succeeded in diminishifhing the intensity of the pain. The pains are more frequent during the day than in the night, probably from there being fewer causes of irritation; and they are more frequent during conversation than in silence; and still more so, at the time of mafliciation, when the attacks often succeed each other with such rapidity as to appear like one continued paroxysm, with scarcely one interval of effafion. The eye at times is red, inflamed, and watery, as we sometimes observe in fever tooth-ach. In other cases, it is particularly dry, and in some patients a copious flow of saliva succeeds a paroxysm. In general, only one side of the face is affected with this dreadful malady. But as there are cafes recorded in which both sides suffered at the same time, we cannot lay it down as a certain characteristic of the disease. Fouquet observed at Montpellier two women who had both cheeks affected at the same time; and Pajol knew a lady, who, for several months, had the pain in one cheek, which after a while was free from pain; but the other cheek was immediately attacked in the corresponding place, the pain continuing for two months, and then refuming its former position.

When the disease continues for a great length of time with increafing violence, the patient can neither obtain rest by night nor by day. His appetite fails; and, as may be expected, there is fae degree of feverishness. But this rarely happens, and only in cafes of the utmost severity. The complaint usually terminates without any apparent cause, leaving the patient for a time to enjoy the comforts of life. But whoever has had one attack may with confiderable certainty anticipate another; and though he is to-day well, and free from all pain, to-morrow's dawn may usher in a renewal of his torment. So varied is the duration of this affection, and so limited is our knowledge of it, that we can assign no determinate or even probable period for its continuance; and unless a cure is effected it returns at intervals more or less frequent, and with increased violence, till the great final catastrophe, which, however, it does not seem to accelerate. For though Dr. Banch is said to have died of it, we can place little reliance on the report, and frequent cafes and observa- tions do not corroborate such a fuppofition.

Hartenfiiel,
Hartenbeil, Hildebrande, and Baldinger, and some other Germans, relate cases of what they call tic douleureux; 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 Saltzburgh. But the pain was periodic, recurring generally 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, however, were obviously cases of hemiplegia; for that has, in many instances, been observed to attack the patients periodically, and to yield to bark. See HEMICRANIA.

The predisposing cause of this disease would seem to be a certain period of life, when the strength begins to fail, the functions to be impaired, and the whole corporeal 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 Pujiol, from their greater femininity.

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 disposed to hysterical and hypochondriacal affections. Experience, however, teaches us, that people very far removed from excesses 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 of water; particularly when the patient is fatigued by previous exhaustion. Exposure then to stormy, damp, moist, windy, and tempestuous weather, frequently excites an attack; also external injuries, as blows or contusions on the face. Paffions of the mind, as excess of anger or of grief.

The disease being once established in the system, the slightest cause 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 handkerchief, or any other substance to the nose, lips, cheek, &c. of the afflicted side. Shaving is an operation most particularly disliked and dreaded by the unhappy patient; and often cannot be endured till after a considerable interval of ease. Blowing the nose is absolutely impracticable; or, if attempted, a most pungent and distracting torture attends the performance. M. Andréé, in a work entitled "Observations sur les Maladies de l'Uûrûte," mentions a very obstinate 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 astonished 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 whenever 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 accessions for a length of time, a most distressing scene is sometimes witnessed. The patient, whose health at the time is generally good, after deftitting from eating and drinking, till the kenmarks of his appetite, and the intensity of his thirst, are too irresistibly 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 solicit a ceasation 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 tried with no success are, opium, cicut, zinc, framonium, belladonna, argentum nitrum, and arsentic. But the influences in which a cure was effected by their use are very rare; indeed some practitioners, from painful experience, deny their efficacy altogether. All manner of topical applications, from blisters to the smoking entrails torn from living pigeons, have been in vain applied, and baths and bleeding of all sorts.

M. Waton, professor of chemistry in the central school of Vaucluse, relates two cases of tic douleureux arising from venereal causes. The first was that 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 distinguishing characteristic darting pains in the direction of the nerves. We learn nothing more from them, however, than that, where the symptoms of the tic douleureux are excited by the existence of a venereal taint in the habit, they 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 cautery, and finally, to the section of the affected nerves. Electricity sometimes produces temporary cases, but as frequently increases the pain; though Mr. Blunt, 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 electrified twice in the day for several minutes each time; first with sparks, then with thoccks, after having previously endured a long and ineffectual course of powerful medicines. Immediately after the second application of electricity she ventured to eat, and performed that necessary operation without any inconvenience. The pains afterwards recurred very slightly; the electricity was continued; and in the course of a short time, she became entirely free from the complaint. The decided successes 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 cautery 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. Andréé, however, has tried it, and recommends its general use. In his work will be found an account of the method of operating.
TIN

The section 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 1768, Veillard published a thesis, in which he decided this question in the negative. "Utrum in pertinacissimus capitis, faciisque doloribus, aliquid promesse poe festio morborum nervi quinti 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. Marechel, 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 Rival, 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 find that what was at first supposed to be the most decisive case in its favour, the operation performed, and the account of it so falsly recorded by Dr. Haigton, is now not to be relied upon. Mr. A. P. Cooper has frequently performed the operation with similar premature success, but with what permanency time only can determine.

There is a case related by Darwin, in the Zoornia, of a gentleman who first had the second branch of the fifth pair of nerves divided; then the fifth 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 man, through the masticatory muscles to the jaw-bone, through the parotid gland. And lastly, 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. Dr. Haen has divided the suborbital nerve, as have also Moreau and Guevrin, without any bad consequences. For the best method of operating, see Dr. Haigton'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 so 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 ease 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 Linnaei, and the fulphureous baths of Meudon.

A French writer relates a method of taking nutriment for those patients who feel an appetite, but dare not indulge it, on account of the extreme pain; and that is, to suck through a small tube, as a quill, reed, &c. soup, broth, milk, or any nourishing fluid, so gently as 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 waterings, or terre aitonique. 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 designs resembles mother-of-pearl, and reflects the light in the form of clouds. The process is this:

First, dissolve four ounces of muriate of soda 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 stone-ware; it is to be poured in separate portions, until the sheet is completely watered; it is then to be plunged into water, slightly acidulated, and washed. The waterings obtained by the action of these different mixtures upon tinned iron, imitates very closely mother-of-pearl and its reflections; but the designs, although varied, are quite accidental. By heating the tinned iron to different degrees of heat, stars, 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. These 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 dried, are thinly polished, will set off the beauty of the waterings. When the tin is upon copper, the crystallization occurs in the form of radiations or stars. M. Lewis Felix Vallet obtained a patent for an invention of this kind, upon delivering the following specification, Feb. 5th, 1818. The procédés of giving the new ornamental surface on metals or metallic compositions, consists in employing those acids and saline compounds and substanishes 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 differently 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 graces remaining on the tinned surface in consequence of tinning is to be taken off with a solution of potash, soap, or any other alkaline solutions. 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 stated, and mix it with one part of the diluted nitric acid, and then apply this mixed acid to the tin, or to the tin-plates, with a pencil or sponge, as above directed, and repeat the application of the said composition for several times successively, or until the result you expect proves satisfactory. When this has been done, the crystalline surface may be covered with a varnish or japan more or less transparent or colourless, or covered, 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 manufactory of Mr. Burnell, at Battersea. But the proceeds being generally known among chemists, the manufacture declined, 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 major John Hanbury, 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 Trewelli church.

TOGAGA, in New York. Add—By the census of 1810, the number of its inhabitants was 7599, including 61 slaves.

Togoa, a county of Pennsylvania, including two townships, and 1687 inhabitants.—Also, a township of the said county, having 803, the other Delfer, having 884 inhabitants.

TISBURY, including the Elizabeth islands, in Duke's county, Maffachusettts, contains 1202 inhabitants.

TITANUM, Chemical Properties of, are given under钛, in Mineralogy.

TITICACA. Add—See CUSCO.

TOBACCO. l. 3; for 1560 & 1584. See Drake.

TOBAINA, a township of Cumberland county, in Pennsylvania, having 1799 inhabitants.

TOBY. Add—Also, a township of Armstrong county, in Pennsylvania, having 611 inhabitants.

TOLERATION. l. 18, add—The late abbé Gregoire, in his "Histoire des Sectes 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 case 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 denominated toleration, ought to be called liberty of worship. It has been already observed, and cannot be too often repeated, that the only authority which the civil magistrate possesses over religious associations is to see that they neither suffer molestation nor molest one another." Col. 6. l. 13, add—and extended to Ireland by 57 Geo. III. c. 70.

Vol. XXXVI.

TOLAND. Add—Also, a town of Maffachusettts, in the county of Hampton, having 758 inhabitants.

TOOLAVA, an Indian language, which extends from Niliuram to Sedehagar, S. of Geo.—Also, the name of a country considered as a subdivision of Kéreda, which extended from Gocuro, round Cape Comorin, to the river Tumbrapuri in Tinnavelly.

TOOMBUDRA, a river of Hindooftan, which is a southern branch of the Kijbe; which see.

TOPASSES, an Indian denomination of native black Christians, the remains of the ancient Portuguese.

TOPHANIA, or TOPHANIA, the name of a woman who refided first at Palermo, and afterwards at Naples, and who rendered herself infamous by preparing and administering poison. She sold these drops which from her acquired the name of Aqua Tophania, Aqua della Topfana. It was called also Acqua di Napoli, or only Acquetta; but the distributed her preparation, by way of charity, to such wives as wished to have other husbands. From four to six drops were sufficient to destroy a man; and it has been affirmed, that the dose could be so proportioned as to operate in a certain time. As the was watched by the government, she fled to an ecclesiastical asylum; and when Keyfley was at Naples in 1730, she was then living; her life being secure under that protection. It was her practice to distribute her poison in small glass phials, upon which was this inscription, "Mamma di St. Nicholas of Bari," and ornamented with the image of that saint, whose reputation prevented its being particularly examined by the culfum-houfe officers. About the year 1769, Tophana fled from one convent to another; but she was at length seized 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 Topohana'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 ingratiate the archbishop, her body was thrown, at night, into the area of the convent from which it was taken. Her secret did not die with her; but her poison was secretly prepared and administered at Naples after her death. It was afterwards preferred, from the effects of her poison, that it was a preparation of arsenic. Keyfley. 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 steam-boat. Add—This submarine mine, however it may give celebrity to the ingenuity of the inventor, will, we truft, for the sake of humanity and the honour of naval conflicts, never be adopted in any civilized nation.

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 Zigandra. 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 post, which covers two great roads leading to Lisbon from this point, one by Mafra, the other by Euxorâ dos Cavaleiros. 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, presenting 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 distinguished marshals, to expel the Anglo-Portuguese from the
the Peninsula. This line of defence (with another about five miles in its rear), stretched from the Tagus to Alhendih to the sea where the Zigungara falls into it, being a direct line of about twenty-six miles. The whole of this most extensive, varied, and gigantic position, was selected and formed under the duke of Wellington's direction, with the most unwearied 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.

TORRINGTON, l. 1., after Connecticut, add—in the county of Litchfield, containing 1586 inhabitants.

TORSK. See GAUS BROIUE.

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.

TOURACO. See CCULUS and Opethius.

TOWIACHES, l. 1, infect (see PANIS); l. 5, after miles, add—N. lat. 35° 20'. W. long. 97°.

TOWNSEND, l. 1, add—in the county of Middlesex, containing 1246 inhabitants.

TOWNSHIP, Upper, Middle, and Lower, three townships of Cape county, in New Jersey; the first having 1664, the second 1106, and the third 862 inhabitants.


T. inesia. Smooth Trachymene, or Botany-hay 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 edible, and like a carrot. The herb is smooth, two or three feet high. Stem round, slender, alternately branched, each of the long, terminal, naked, simple branches bearing a dense, simple umbel, fearely 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, muricate all over, when quite ripe, with crowded, blunt tubercles. One seed is often abortive. The flowers are chiefly radial, flaked, smooth, terrace, with wedge-shaped, three-keft, notched segments.

T. pilosa. Hair Trachymene.—Stem leath, hairy, as well as the leaves and footstalks. Umbels lateral.—Gathered by Mr. Menzies, at King George's Sound, an the west coast of New Holland. Whole herb rough with short shaggy hairs. Umbels on stout stalks, from the fork or sides of the stem. Tubercles of the fruit acute, briskly-pointed. See Fuscaea.

TRAETH COCH, or REDWHARF in REDWARTh.

TRELECH, or TRELLEG. 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 division, the town division, and the Grange division: the former contained 131 houses, and 568 persons; 225 being males, and 243 females; and the latter included 20 houses, and 134 persons; 74 being males, and 60 females.

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—Romare, r. Jonthone.

TRICADYLUS, a species of Braidspus; which see. See also SPATH.

TSCHUTSKI. See CHURSTSKA.

TURCOMANIA. Add—See Armenians.

TURNEF, l. 2, add—and county of Oxford, having 1129 inhabitants.

TURBSTILE, in Fortification, a kind of barrier, which consists of two or three pieces of timber, formed croisways, 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. TESCARAWA.

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 Threepwood, in the county of Northumberland, was born on the 18th of June 1769; 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 "Prodolus Academicae" attired 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 tho of the sages and philosophers of Greece. He visited Switzerland, Germany, and 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 tenderest 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 Greek 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, possessed 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

Vol. XXXIX.
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 carefully deposited at about three or four feet beneath the surface. The part of the temple where it has been buried is now converted into a Greek church, dedicated to St. George; but as this 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 Pentelician marble from the Parthenon, for recording the merits of the deceased. The completion of this business 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, l. 2, add—of whom 642 were slaves in 1810. TWIST, and Twisting. See MAnUFACTURE of Cotton.

V and U.

VAN

VAMANAVATARA, col. 3, l. 11, for admirer r. advicer.

VANDELLIUS, VANDEL, in Ichthyology, a genus of fishes of the order Thoracici, considered by Dr. Vandelli of Coimbra as nearly allied to the genus Trichiurus; the characters of which are, body extremely long, sword-shaped, gill-membrane five or six-rayed, and teeth subulate, those in front largest. This fish is the silverly vandel, 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 time he distinguished himself by many grand compositions in a large size, and was considered as one of the first Flemish artists who improved the national taste, dividing it in some degree of the Gothic, and manifesting grace in the airs of his head, as well as correctness in his design. 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 soldiers, on the complaint of a mother, whose son had been murdered by him; and that of another is Archambrant, prince of Brabant, flaying 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 amusement, 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, 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 Snyders 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 2653 inhabitants.

VATICAN. Add.—The Vatican, despoiled during the French revolution, can again boast of possessing 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 Raffaelli, the St. Jerome of Domenichino, and the St. Petronilla 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 Tottihl-fields to Eaton-street, 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 rudified stone, formed of fragments, united by means of Parker's cement. The total width is 809 feet, the span of the arches 78 feet, the height 29 feet, and the clear breadth of the road-way 36 feet. The embattled colt of this bridge was above 300,000l.

VELOCIPEDE, ACCELERATOR, or Swift-Walker, a machine originally invented by baron Charles de Drais, matter 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 five 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 defective, 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 perch, on which is placed a faddle 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 refted, and by it doing the machine and the traveller are kept in equilibrio.

The management is as follows:—The traveller, having placed himself on the faddle, with his elbows extended, and his body a little inclined forward, must rest his arms on the cushion, and preserve his equilibrium by preffing lightly on that fide which appears to be rising. The rudder (if it may be fo 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 lefs effential 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 foon acquired by attention and practice; then, placing lightly the feet on the ground, long but very flow steps are to be taken in a right line, at firft care being taken not to turn the toes out, the heels should come in contact with the hind wheel. Dexterity in managing the equilibrio 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 fame rapidity as when his feet are in motion; and in defcent it will surpass the beft hores in a great distance, without being expofed to the risks incident to them, as it is guided by the mere gradual motion of the fiders, and may be infantly flopped by the feet. The faddle, as well as the cushion, may be railed or lowered at pleafure, fo as to fuit the height of different perfons. The inventor propofes to conftruct these machines to carry two perfonis, and to be impelled by each alternately, or by both at once; and with three or four wheels, with a feat for a lady; besides the application of a parafol or umbrella: and he also propofes to avail himfelf of a fail, with a favourable wind.

The velocipede has been introduced into this country under letters patent, by Mr. Johnfon, a coach-maker in Long Acre, by whom it has been much improved, both in lightnefs and strength.

VENICE, col. 5, l. 10 from bottom. Add—At the last cenfus, taken about the year 1815, the population was flated to be about 100,000; and it is faid to be decaifing.

VENTRILQUOUS. l. 7, add—LARYNX.

VOL. XXXVII.

VERMILION, col. 2, l. 20, add—the painter’s vermi- tion is a facultious cinabara, made by fublimating a compound of fulphur 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 Angelic.

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 violion, which they have to encounter; as upon that depend the force, sweet-

ness, and penetrating power of the tone. They muft pay great attention not to prefs too hard upon the string, fo as to make it curve and deviate from a right line; for then the tone would be harfth and coarse. Neither must the bow be laid too lightly on the strings, as the tone would then whifte 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 muft not act too near the bridge, nor too distant from it, as only dull and unpleafing sounds would be produced.

VIRG. L. 11, for her r. ten.

VISHNU, col. 2, l. 4, for rent r. feent.

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 manufac- tures of the United States, previously to the peace of 1815 which reduced their number and value, were estimated at the following yearly amounts:

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<th>Span. Dollars</th>
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<td>Visc.</td>
<td>Manufactures of</td>
</tr>
<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>Spermaceti candles and oil</td>
<td>500,000</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>13,000,000</td>
</tr>
<tr>
<td>Spirituous and malt liquors</td>
<td>14,000,000</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 mofl, refined sugar, chocolate, gunpowder, basts 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 manufac- ture of gunpowder nearly supplies the home market, which is also the cafe with regard to coarse earthen-ware, window-glass, glafs bottles, and decanters. About a million of bothels of flat are manufactured annually; and felt-petre is largely manufactured in Virginia, Kentucky, Massachusetts, East and West Tenneffee. Sugar from the maple-tree is produced in Ohio, Kentucky, Vermont, and East Tenneffee, to the amount of nearly 10 millions of pounds annually. West Tenneffee and Vermont afford abundance of good copperas: 25 millions of gallons of ardent spirits are annually distilled and confumed in the United States: 400 water and horfe mills, working 120,000 spindles, are employed in spinning cotton. The fulling-mills amount to 2000, and the number of looms exceeds 400,000, and the number of yards of cloth, manufactured from wool, cotton, and flax, is about 100 millions. They have 300 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, dilliries, maple-fugar, flour, and wool. In Massachusetts, the principal manufac- tures 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,
playing-cards, shoes, silk and thread lace, wire, fluff, oil, chocolate and powder mills, iron-works, and flitting-mills, and mills for sawing timber, grinding grain, and fulling cloth, distilleries, and glafs. In Rhode island, are manufactured cotton, linen, and tow cloth, iron, rum, spirits, paper, wool and cotton cards, spermacy, sugar, machines for cutting screws, and furnaces for casting hollow ware. In Connecticut, are manufactured silk, wool, card-teeth (bent and cut by a machine to the number of 80,000 in an hour,) buttons, linen, cotton, glafs, fluff, powder, iron, paper, oil, and very superior fire-arms. In New York, are manufactured wheel-carriages of all kinds, the common manufactories, refined sugar, potters'ware, umbrellas, musical instru- ments, glafs, iron, and steam-boats. In New Jersey, are numerous tanneries, leather manufactories, iron-works, powder-mills, cotton, paper, copper-mines, lead-mines, stones, and slate quarries. In Pennsylvania, there are valuable collieries on the Lehigh river, distilleries, rope-walks, sugar-houses, hair-powder manufactories, iron foundries, shot manufactories, steam-engines, mill machinery, type-foundries, improvements in printing, and carpet manufactuary. In Delaware, there are cotton and hoeting cloth and powder manufactories, fulling, fluff, cutting, paper, grain and saw mills. In Maryland, are iron-works, collieries, grill-mills, glass- works, flax, 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 out 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 Iullicid flones of various hues, coarse cor- nelian, variegated marble, nitrous stone and fand, red and yellow ochres, potters' clay, fullers' earth, and a number of dye-juifs, chalk, crude alum, sulphur, nitrogen, and vitriol. In Georgia, the manufactures are indigo, silk, and fago. In Louisiana, are manufactured cotton, wool, cordage, flax, and hair-powder.

But the most extraordinary, and perhaps the most impor- tant manufacture in the United States, is that of steam- boats; 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 on the great rivers of the United States, which is included.

<table>
<thead>
<tr>
<th>Years</th>
<th>Receipts</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1799</td>
<td>$44,889</td>
<td>$1,758</td>
</tr>
<tr>
<td>1798</td>
<td>$3,954</td>
<td>$3,954</td>
</tr>
<tr>
<td>1801</td>
<td>$17,777,709</td>
<td>$17,414,990</td>
</tr>
<tr>
<td>1808</td>
<td>$17,068,661</td>
<td>$6,503,181</td>
</tr>
<tr>
<td>1809</td>
<td>$17,778,127</td>
<td>$7,414,972</td>
</tr>
<tr>
<td>1817</td>
<td>$16,750,000</td>
<td>$8,850,000</td>
</tr>
<tr>
<td>1819</td>
<td>$22,500,000</td>
<td>$22,880,000</td>
</tr>
<tr>
<td>1820</td>
<td>$22,500,000</td>
<td>$22,910,000</td>
</tr>
</tbody>
</table>

The net amount of revenue received in 1815 was $50,926,100, being from customs $37,065,865; internal duties, $5,093,225; direct tax, $5,723,152; public lands $1,287,073; post office, &c. $2,757,282. The report of the Secretary of the Treasury for the year 1816 states, that on the 12th of Feb, 1816, the whole of the public debt, funded and floating, was $124,909,621; but on the 1st of Jan, 1817, it was $13,188,420. The Secretary, in his Report of the 3rd of December 1817, estimates the expenditure of the year 1816 at $21,946,531, and leaves a balance in the treasury of $85,796,648 on Jan. 1st, 1818.

The American capital, consisting of personal property $5,200,000,000, and of real property $5,000,000,000, amounts to $7,200,000,000; the income, $520,000,000; expenditure, $450,000,000; national debt, $500,000,000.

The salaries of the principal officers of the federal government, are as follows:

<table>
<thead>
<tr>
<th>Office</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>President, per annum</td>
<td>25,000 = $5250/</td>
</tr>
<tr>
<td>Vice-president, ditto</td>
<td>5000 = $1125/</td>
</tr>
<tr>
<td>Secretary of State, ditto</td>
<td>5000</td>
</tr>
<tr>
<td>Treasurer, ditto</td>
<td>4500</td>
</tr>
<tr>
<td>War, ditto</td>
<td>4500</td>
</tr>
<tr>
<td>Navy, ditto</td>
<td>4500</td>
</tr>
<tr>
<td>Ministers plenipotentiary, ditto</td>
<td>$9000 = $182.10/</td>
</tr>
<tr>
<td>Members of Congress, per day</td>
<td>8</td>
</tr>
</tbody>
</table>

For
For further particulars we refer to general Hamilton's "Report on the Subject of Manufactures;" also his "Reports on Public Credit," and "On a National Bank;" Tench Coxe's "View of the United States;" Gallatin's "Sketches of the Finances of the United States;" "Treasury Reports from 1790 to 1817;" and Pitkin's "Statistics of the United States;" and Bliedt's "America and her Resources," Lond. 1818.

Col. 12, Population in 1817, stated by Bliedt 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>504,592</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>302,733</td>
</tr>
<tr>
<td>Vermont</td>
<td>296,450</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>88,321</td>
</tr>
<tr>
<td>Connecticut</td>
<td>349,968</td>
</tr>
<tr>
<td>New York</td>
<td>1,486,739</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1,345,822</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>986,494</td>
</tr>
<tr>
<td>Delaware</td>
<td>108,334</td>
</tr>
<tr>
<td>Maryland</td>
<td>502,710</td>
</tr>
<tr>
<td>Virginia</td>
<td>1,347,496</td>
</tr>
<tr>
<td>Ohio</td>
<td>394,752</td>
</tr>
<tr>
<td>Kentucky</td>
<td>683,752</td>
</tr>
<tr>
<td>Tennessee</td>
<td>480,624</td>
</tr>
<tr>
<td>North Carolina</td>
<td>701,224</td>
</tr>
<tr>
<td>South Carolina</td>
<td>564,785</td>
</tr>
<tr>
<td>Georgia</td>
<td>408,597</td>
</tr>
<tr>
<td>Louisiana</td>
<td>108,923</td>
</tr>
<tr>
<td>Indiana</td>
<td>866,744</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>378,902</td>
</tr>
<tr>
<td>Missippi Territory</td>
<td>104,530</td>
</tr>
<tr>
<td>Illinois Territory</td>
<td>39,000</td>
</tr>
<tr>
<td>Michigan Territory</td>
<td>97,43</td>
</tr>
<tr>
<td>North-west Territory</td>
<td>61,879</td>
</tr>
<tr>
<td>Missouri Territory</td>
<td>68,794</td>
</tr>
</tbody>
</table>

Bliedt 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 30 per cent. in ten years; Tennessee, 95; Ohio, 180; Louisiana, 150; Indiana, 800; Mississippi territory, 169; Illinois territory, 700; Missouri territory, 600; Michigan territory, 600; while of all the Atlantic states, the greatest increase is only 44 per cent.; the population growth of New York, and the rest of that of Virginia, only 20 per cent.; so that in a few years the rates 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, Massachusetts, 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 possessed 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 precipitance 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 "Essay on Animal Electricity," published in 1793, concludes, that the galvanic influence is not referable to electricity, becouse, 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 endeavours to shew, fays Dr. Bollock, the ingenious historian of galvanism, that electricity and galvanism are not, in all cases, conducted by the same 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, fays 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 the 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 susceptible electrometer, 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 the same be made to communicate, a contraction is produced. He also confirmed the fact, previously noticed by Fowler, but by independent experiments, that fluids 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. Trans. 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 extirpation 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 containing 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 the necessity of referring to Dr. Bollock's very valuable "Account of the History and present state of galvanism," 8vo, London, 1819.

At this stage, add—It is natural to conclude, that galvanic electricity would be applicable to medical purposes. Accordingly we find, that about the year 1834, it was extensively
U R F

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. Bottock, *ubi supra* of its success in different nervous disorders, in paralytic affections, in deafness, in some kinds of blindfolds, 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 sank into disuse. Of late it has again been brought into notice by Dr. Philip of Worcester, who has made trial of it, with beneficial effect, in spasmodic asthma. Bottock's Hill.

UPPER, in Geography, a township of Scioto county, in Ohio, having 496 inhabitants.

URFE', Honore' D', count of Chateauneuf, and marquis of Vilremy, in *Biography*, was the fifth son of James D'Urfe, a noble family of Forez, originating from Swabia, and born in 1567 at Marseille, in which city he was educated, and also in the Jesuits' college at Tournon. Although he was first destined 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 *Alfred*, 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 Chateau-Morant, 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 too trifling for instruction and too tedious for amusement. It was often republished, but the best edition is said to be that of Paris in 1753, in 10 vols. 12mo. by the abbé Souchai. D'Urfe died at Villafranche in 1625. His brother Anne was also a writer, and published some poems.


VRIHASPATI, l. 8 from bottom, for SUTTEE r. SUTTEE.

W.

W A R

WALLINGFORD, in Vermont, &c.; l. 5, r. 1125.

WALPOLE, l. 2, r. 1894.

WALTON, in Derbyshire. This township is in the parish of Chesterfield; and in 1811 it contained 133 houses, and 720 persons; viz. 375 males, and 345 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-Thames. In 1811, the town contained 104 houses, and 606 persons; viz. 315 males, and 291 females.

WANDSWORTH. In 1811, the parish contained 903 houses, and 5644 persons; viz. 2728 males, and 2916 females.

WARLEY. In 1811, this township contained 764 houses, and 3958 persons; viz. 1941 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.

WARTERBURG, a town of Chittenden county, in Vermont, having 864 persons.

W A T

WASHINGTON, l. 14 from bottom, add—including 315 slaves.

WASHINGTON, a township of Pennsylvania, in the county of Fayette, having 2160 inhabitants.

WASH-WHEELS, in Bleaching. See BLEACHING.

WATCH, in Horology. Col. 11, l. 4 from bottom, for 2 CR I r. 2, 6, 1, R; l. 11 from bottom, and col. 12, l. 9, dele while the quarters are struck, and sublimate words to this effect—While the crémaillère 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, 4, is behind the teeth of the rack G; and the contrivance here described is merely to take 3, 4 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-Exchange by Berrellas, col. 2, l. 7 from the bottom, for hours-wheel, 0, r. hours-wheel, 0—Musical-Watch, col. 1, l. 28, for balance-wheel, r. balance-wheel L.

Vol. XXXVIII.

WATER, p. 21, col. 2, add—Llanartha, at a village in the vale of Towy, seven miles above Carmarthen; a strong chalybeate, in one gallon of which the gaseous contents...
WEB

contents are, carbonic acid 16\(\frac{1}{2}\) cubic inches, atmospheric air \(\frac{4}{5}\) ditto, and solid contents,

- Carbonate of lime - - \(\frac{6}{4}\)
- Carbonate of iron - - \(\frac{4}{4}\)
- Muriate of soda - - \(\frac{4}{6}\)
- Sulphate of lime - - \(\frac{4}{5}\)


WATER-Organ. See HYDRAULIC.
WATER, Pages and Glosses tuned by. See Amonica, Lasus, and Hypasus.
WATER Whimsy. See WHIMSEY.
WATSON, Thomas, in Biography, was born in 1590, and was editor of the second collection of Italian madrigals that appeared in England under the following title: "The First Part of Italian Madrigals Englished, not to the Sense of the original Dittie, but after the Affection of the Noate." This collection, as we are told in the title-page, includes "Two excellent Madrigalls of Master William Byrd's, composed after the Italian Vaine, at the Request of the said Thomas Watton." The poet is as much disliked for double rhymes to suit the original Italian and music of these madrigals, as his predecessor, N. Yonge, in a former publication. That madrigal, indeed, which Byrd set, first in four parts, and then in six, seems original English, and is the bell of the collection.

This sweet and merry month of May, While Nature wantons in her prime, And birds do sing, and bees do play, For pleasure of the joyful time;
I choose, the first for holy daie, And greet Eliza with a ryne; O beauteous Queen of second Troy, Take well in worth a single toy.

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 Effex, then at the summit of favour with queen Elizabeth; and addresses Luca Marenzio, 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 glee's, and one of the most successful candidates for prizes at the catch-club during the most brilliant period of its institution in 1702. See CATCH, and CATCH-CLUB.

WEBB, Daniel, esq. author of an elegant and ingenious tract, intitled "Observations on the Correspondence between Poetry and Music," 1759, 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 conceived difficulties to bring forth, and out of the reach of common language to express. He seems to concur with Rousseau, 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 affluence of poetry, can be pointed to a determined affection or passion. It can tooth affliction, it can supplicate, it can animate and rouse 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 similitudes.

The speculations of Mr. Webb are not always free from obscurity, though his language (when not deformed by his fondness for "lab") is accurate and elegant. He says, that "music cannot give pain, like poetry and painting," but extreme harsh discords 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 show 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 influence 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 complication 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 Roullier 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 belles 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 solo player, and composer, and matter for the German flute. He was a good musician, and played so well on the flute, that we remember Handel, at a rehearsal of an oratorio in Covent Garden theatre, defiring him to take 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 seemed 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 Mllecco, and an enchanting finger, were there, and the fuge, sometimes to her uncle's accompaniment on the harpichord only, and sometimes with more instruments, in so exquisite a manner, that we could not conceive it possible for any vocal performance 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 Briuhl, one of the four sons of the great Saxon minifier, an admirable dilettante, and fine performer on several instruments; and the violoncello by Weigel, the subject of the present article. All the performers
formers in this concert, finding the company attentive, and in a disposition 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 setting all around in a blaze; so that the contention between the performers and listeners on this occasion was only who should please, and who applaud the most.

WEISS, SYLVIUS LEOPOLD, a famous performer on the lute, born in Silicia, 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 expences 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 Weiss; as John Adolphus Faustinus, son of Sylvis Leopold, a lutenist likewise; C. Weiss, a performer on the German flute, who visited London in 1783, an ingenious and curious man, who had improved his instrument, and had many curious 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 situation, of which he seemed conscientiously determined to fulfill 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 common 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. Purcell'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 praises 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 harmonical combination seem very much limited. His anthems had the advantage of being sung in the Chapel royal by a celebrated finger, Mr. Richard Elford; but now, let who will execute them, they must appear feeble and old-fashioned, unless the embellishments of George I.'s time are changed for those in present use. The truth is, that the fund of original conception or fancy, which alone can render old music valuable to the curious, long after the flyle 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 minuet air to "Turn thee, O Lord, and deliver my Soul," which has so much of a secular song and roundale in it, that it is remembered with pleasure by the musical part of a congregation, who are more likely to bear it in mind than more serious parts of the service.

The productions of Weldon appear skimmy after those of Crofts; and Dr. Green's after Handell's; yet Green compared with Weldon is a giant; that is, a Handel.

There is a vice of which composers of small ressources 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 rifilghe. This certainly originates in the want of ideas, and yet it may be avoided by attention, though the fleet would not fill so fast. Weldon has indulged himself in these repetitions, he has been in favor of his anthems; but in the ritornel to "Have Mercy upon me, O God," he has iterated the same poor passage a note lower seven times successively!

His song for two voices, "As I faw fair Clara walk alone," was in great favour some years ago; and his air in the Judgment of Paris, "Let Ambition fire thy Mind," is a melody so natural and pleasing, that, like an evergreen 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 Desire."

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 1940 inhabitants.

WELSH MUSIC. If incredulity could be vanquished with respect to the account which Giralddus Cambrensis gives of the state of music in Wales during the 12th century, (see GURALDES' CAMEBRESI) it would be by the 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, such is the known 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 Penllyn's Book." The name of William Penllyn is recorded among the successful candidates on the harp, at the eisteddfod, or feccion of the bards and minstrels, appointed in the ninth year of queen Elizabeth, at Caernows in North Wales, where he was elected one of the "chief bards and teachers of instramental song." The title given to these pieces is "Musica neu Beroraiath;" and a note in English informs us, that the manuscript contains "the music of the Britons, as fettled by a concres, or meeting of masters of music, by order of Grygyfied ap Cynan, prince of Wales, about the year 1100, with some of the most ancient pieces of the Britons, suppos'd 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
but without lines, except a single line to separate the treble from the base.

In the notation, double \textit{ff} seems the lowest note; then the first seven letters of the alphabet are written thus, \textit{g}, \textit{a}, \textit{b}, \textit{c}, \textit{d}, \textit{e}, \textit{f}; and the next septenary thus, with a dash over each letter, \textit{g}, \textit{a}, \textit{b}, \textit{c}, \textit{d}, \textit{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, \textit{g}. 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.

\section*{No. XI.}

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\section*{No. XVII.}

\begin{figure}
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WELSH MUSIC.

After twenty-four lessons, or measures, as they are called, of this kind, there follow twelve variations on a ground base.

This counterpoint, however artless it may seem, is too modern for such remote antiquity as is given to it. The falso 5th, from B to E, 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 verification 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 isle, 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 fongs 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.
WELWIN, or Welwyn. In 1811, the parish contained 192 houses, and 1130 persons; viz. 567 males, and 563 females.

WEMYSS. In 1811, the parish contained 565 houses, and 3561 persons; viz. 1657 males, and 2004 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 \textit{Biography}, an eminent performer on the German flute, in the service of the elector palatine at Mannheim in 1772.

Francis and Charles, brothers, performers on the violin, and Mademoiselle Wendling, a finger, of the same family, were all musical professors of great merit in the same service at the same period.

WENLOCK, LITTLE. In 1811, the parish contained 78 houses, and 941 inhabitants.

WENTWORTH. In 1811, this township contained 226 houses, and 1086 persons; viz. 542 males, and 544 females.

WEREMOUTH, Monk's. In 1811, this parish, comprising five townships, viz. Felwell, Hylton, Monk-Weremouth, Monk-Weremouth Shore, and Southwick, contained 832 houses, and 5044 persons; viz. 2837 males, and 2267 females. The township of Monk-Weremouth contained 210 houses, and 1091 persons; viz. 457 males, and 634 females; and that of Monk-Weremouth Shore contained 458 houses, and 4264 persons; viz. 1819 males, and 2445 females.

WESTBURY, in the county of Salop. In 1811, the township contained 112 houses, and 665 persons; viz. 348 males, and 317 females; and the parish, comprehending the chapelry of Minsterley, and the three townships of Wherwell, Welley, and Uckleton, contained 417 houses, and 2195 persons; viz. 1124 males, and 1071 females.

WESTLEY. Add—in Washington county, containing 9217 inhabitants.

WESTHaven, a town of Rutland county, in Vermont, having 679 inhabitants.

WESTMINSTER ABBEY. Its happy concert for music at the commemoration of Handel in 1784, appeared to be such as not only to overtop all the predictions of ignorance and sarcasm, but the conjectures of theory and experience. By some it was predicted that an orchestra so numerous could never be in time; but even tuning to so noble an organ was for once grand, and productive of pleasing fusions. By some it was thought that, from their number and distance, they would never play in time; which, however, they did most accurately, and without the measure being beat 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 found 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 stringed-instruments performed this task à double cordes, and these strings being all open, their force was more than equal to that of two fopra-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 construction of Westminster Abbey for cherishing and preserving 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 Mifs Abrams, whose voice, though sweet, of perfect intonation, and good quality, was not regarded as theatrical, but such as the Italians denominate \textit{bella voce da camera}, yet in the solo air, which the singer 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, envied of the powerful tone of Fischer's hautbois, which could even rival that of his own violin with all its force and sweetness, used to say that Fischer had an \textit{impedence 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 \textit{single instrument filled} the stupendous temple of our holy religion, in the performance of this concerto.


WESTPHAL, in \textit{Biography}, an eminent music merchant of Hamburg, one of the greatest publishers in Germany during the middle of the last century.

WHERWELL, in \textit{Geography}. In 1811, Wherwell with Wellover parish, in the hundred of Wherwell, contained 113 houses, and 543 persons; viz. 277 males, and 266 females.

WHIFF. Add—See \textit{Pleuronectes Pantastus}.

WHITE, John, in \textit{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 hon. John White.
WOOD

WITTINGSTABLE, in Geography. In 1811, the parish contained 235 houses, and 1249 persons; viz. 616 males, and 633 females.

WILLIAMSBOROUGH, a township of Burlington county, in New Jersey, having 619 inhabitants.

WILTSHIRE. In 1811, this county contained 37,478 houses, and 193,828 persons; viz. 91,560 males (including the local militia 1662), and 102,268 females: 22,657 families being employed in agriculture, and 14,857 in trade, manufactures, or handicraft.

WIMBLEDON. In 1811, the parish contained 293 houses, and 1914 persons; viz. 891 males, and 1023 females.

WINDHAM, a town of Maine, in the county of Cumberland, containing 1613 inhabitants.

WINTERTON, in Lincolnshire. In 1811, the parish contained 179 houses, and 821 persons; viz. 379 males, and 442 females.

WINTERTON, 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 article.

WITHERITE, vol. 2, p. 9, add—The known repositories of this sublimate 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 spar. The miners call this sublimate "yellow spar;" not that it is this 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 spar." This latter from the looseness of its texture, being in large masses quite opaque. The colour of the witherite is white, with the slightest possible, if any, tinge of yellow; its fracture is hard, frirated, approaching to thirty 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 sublimate. 100 parts of this wisterite yields,

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Trans. of Geol. Soc. vol. vi. pt. 2.

WITTENA-GEMOTE, I. 14 from the bottom, r. conconatones.

WODANUM, in Chemistry, the name of a metal recently discovered by Lamпадус. This metal was obtained from a species of pyrites, named by Breihaupt Wodan-bits, or wodian pyrites, formed at Topichau, in Hungary, and which had hitherto been considered as an ore of cobalt. The specific gravity of this mineral is 5.192. Its lustre is metallic. Its colour dark tin-white, passing into grey or brown. Hitherto it has only occurred massy, and in that state it is full of cavities. Its fracture is uneven. It is brittle and easily frangible, and in hardens furpaffes fluor spar, 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 hardness of fluor spar, 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 oxide.

The solution of this metal in acids is colourless; or at least 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 saturated 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. Phosphate of potash throws down a pearl-grey precipitate, &c.

Nitric acid dissolves with facility both the metal and its oxide, and the solution yields colourless needle-form crystals, which readily dissolve in water.

Such at present is all we know of this metal, and the ore containing it. The name wodanium has been given from the old Saxon divinity, Woden.

WOOFORD, in Geography, a village in a parish of the same name, in the hundred of Beccon, and county of Ely. In 1811, the parish was returned as containing 310 houses, and 2056 inhabitants; viz. 1051 males, and 1005 females. It is situated on Epping Forest, in the vicinity of Walthamford, Wannelford, Layton, &c. which contain a considerable number of well-built houses, admirably adapted for the number-residence of the citizens of London.

WOODVILLE, in Biography. Add—Dr. Woodville, always anxious for the promotion of science, and no less disposed to serve the friends whom he esteemed, favoured the editor with several botanical articles for the Cyclopædia.

WOOLCOTT, in Geography, a township 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. Timney, 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 bel impresarios of his prints, particularly those of "Niobe" and "Phaethon," "Cebadon and Amelia," "Cymx and Alycone," "The Fifhery," "Vandyke's Portrait of Rubens," "The Death of General Wolfe," and "The Battle of the Boyne," whenever they occur in collections, are very 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 25, 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 leaf 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 unflinching temper never boasted) are an honour to his country. An elegant monument was erected to his memory in the cloisters of Westminster-abbey. Chalmers's Gen. Biog. Diet.

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 Sandhurft, as a preparatory school; but that plan, being found attended with disadvantages, was abandoned. The institutions at Woolwich and Sandhurft 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 Sandhurft is suplementary, and designed for the instruction of such as are destined to 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 Sandhurft pay a certain sum annually, bearing an assigned proportion to the rank of their parents, and being only free, as we conceive, in cafes where the cadets are orphans, or their fathers subalterns.

WOORARA. See Ticunaë, 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 575 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 ξάνθος, 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 Digyna. Nat. Ord. Umbellatae.


1. X. pilosa. Hairy Xanthosia. Rudge as above, t. 22. f. 1.—Native of Port Jackson, New South Wales. Stem shrubby, branched, hairy. Leaves alternate, stalked, oblong, obtuse, finnated; hairy beneath. Flowers axillary, solitary, on short stalks. Bracteae two, awl-shaped, brizly, at the base of each flower-stalk. Involucrum of two obvate ribbed leaves, half way up the stalk. This plant certainly belongs to the order of Umbellatae, however different in inflorescence.

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

ZOL

ZINJAN, in Geography, a town of Perse, in the province of Irak, distant 21 miles, and bearing about N.W. by W. of Sultanees. 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 Kizilozian, 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, August 5th, 1730. His father, who was a practitioner in the law, much excelled 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 proficiency 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 estimation. 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 distinctions of nature, by restraining the intellectual capacities to a blind veneration for authorities, and preposterously misleading the judgment so as to take the means of instruction for its end. Possessing a native vigour of mind, which distinguished 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 deference to syllables and summaries of theology, drawn up in technical and scholastic phræatology, 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, without examination, by the successive tutors from generation to generation, &c." In the other sciences, as well as in theology, he expres'd his dissatisfaction with the means of instruction that were then adopted and invariably practised 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 history 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 philosophers, 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. "O, my beloved Zollikoffer!" says Zimmermann (on Solitude), "what delightful experiences I am constantly feeling of the truth of these lessons you delivered at Leipfic; those truly useful doctrines, which, disregarding 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, pows his anxieties into the bosom of friendship, surrenders his feelings to the charms of consolation, until his heart is dilated with new hopes and his inquietudes are so far suspended as to enable him to fulfill their return with fortitude, 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 him." — "Men, in short, of every call 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 finishted 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 Monflein in the Grisons, and afterwards to Ifenburg. 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 Leipfic. In this connection he availed himself of the opportunity which his moderate labours afforded him, of giving that perfection to his discourses which was the object of his wishes. Accordingly, the universal approbation which he received on the part of his numerous congregation 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 univercity eagerly prefled 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 Zollikofer's genius will continue to operate not only throughout his native country, but likewise over many provinces of Germany, by means of these his discourses, who are thus prepared for dif-feminating 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 deferred repute wherever the German language is understood, by all persons to whom religion and virtue are objects of ferior concern; to which the number of editions through which they have passed, and which are continually published, bear ample testimony, as well as to the taste and judgment of the times with regard to compositions of this nature. A German writer says, that "Zollikofer 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 division 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 controversial; and it must be allowed that whatever were his sentiments on disputed topics, they are adapted to in-form the understandings, to impress the heart, and to regulate the temper and conduct. Some have suspected that he belonged to the modern German school of theologians. Professor Eichhorn pronounces his eloquence in the following strain: "Zollikofer, 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 Christianiuty with philosophical accuracy; exhibited them in a concise and improvement of the forms, and to the proper felectiion 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 1783 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 160 vol. 180 of Zollikofer's Sermons, and of his Devotional Exercises in 1 vol. 8vo.

Having said so much concerning the professional char-aacter and performances of Zollikofer, 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 wishing to shine, his only aim was to be useful; be-cause in the exercise of that stern virtue which he taught he

found his supreme delight. The poor and delitute, espe-
cially those of his congregation, beheld in him a father and a friend; though his bounty was by no 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 deficient of know-
ledge, 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 fought no other covering; and never did he commend or approve from compla-intance any thing that was contrary to the conviction of his own mind, or that he knew could not be approved upon the strictest rules of morality. His gravity was attractive and engaging, charity itself was in its imitae, his conversa-tion entertaining, often animated, his equal cheerfulness amiable and inoffensive, and his raillery, in which he very rarely indulged, the mildest possible. To a very considerable compafs of literary attainments and great brilliancy of im-
agination, were added in the character of Zollikofer, the most unassuming rectitude, the most amiable disposition, and the most profusely giving heart. 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, as of necessity it could not be other-
wise. That happy mixture of seriuonsness 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 polemised not the faculty of thinking for themselves, or of fully comprehending every truth; his unwaried zeal to con-
tribute to the rigorous exercise of virtue, in his demands however never disregarding the rights of humanity con-
cerning what they could or could not do in thee or the other circumstances; his impartial estimation of mankind, ju-
ly 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 charaeter of Zollikofer, and then pronounce, whether real undifembled veneration, the general esteem of all ranks and classes of persons must not as infalibly have attended his wisdom and virtue as the shadow follows the fulcintate. 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 Zollikofer.

He was twice married, and in both connexions he was truly happy, though both proved children. 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 fort-
night, he was induced to remain in his situation. At length within a few weeks before his death he was obliged to de-
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 CYCLOPÆDIA;
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.

<table>
<thead>
<tr>
<th>Plate</th>
<th>Vol. XXXIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Fig. 1.</td>
<td>Common Barn</td>
</tr>
<tr>
<td>2.</td>
<td>Double Barn</td>
</tr>
<tr>
<td>3.</td>
<td>Improved Barn</td>
</tr>
<tr>
<td>4.</td>
<td>Open Barn</td>
</tr>
<tr>
<td>5.</td>
<td>Dutch moveable Barn</td>
</tr>
<tr>
<td>II. Fig. 1.</td>
<td>Barn and Threshing Machine, Front Elevation</td>
</tr>
<tr>
<td>2.</td>
<td>Ground Plan</td>
</tr>
<tr>
<td>3.</td>
<td>End Elevation</td>
</tr>
<tr>
<td>4.</td>
<td>On a larger Scale, Front Elevation</td>
</tr>
<tr>
<td>5.</td>
<td>Ground Plan</td>
</tr>
<tr>
<td>6.</td>
<td>End Elevation</td>
</tr>
<tr>
<td>7.</td>
<td>With moveable Floor and Racks for feeding Cattle</td>
</tr>
<tr>
<td>III. Fig. 1.</td>
<td>Blasting Stones, Instrument for</td>
</tr>
<tr>
<td>2. Cart, Cline</td>
<td></td>
</tr>
<tr>
<td>3. Coup</td>
<td></td>
</tr>
<tr>
<td>4. Corn</td>
<td></td>
</tr>
<tr>
<td>5. Drag</td>
<td></td>
</tr>
<tr>
<td>6. Single Horse</td>
<td></td>
</tr>
<tr>
<td>7. Quarry</td>
<td></td>
</tr>
<tr>
<td>IV. Fig. 1.</td>
<td>Calf Pen, Ground Plan</td>
</tr>
<tr>
<td>2. Section</td>
<td></td>
</tr>
<tr>
<td>3, 4.</td>
<td>Cattle Shed, Single</td>
</tr>
<tr>
<td>5, 6.</td>
<td>Double</td>
</tr>
<tr>
<td>7.</td>
<td>Curd cutter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plate</th>
<th>Vol. XXXIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Fig. 1.</td>
<td>Cattle Shed, Elevation</td>
</tr>
<tr>
<td>2.</td>
<td>Latch holder</td>
</tr>
<tr>
<td>3.</td>
<td>Cattle Shed, Stall Divisions</td>
</tr>
<tr>
<td>4.</td>
<td>Stalls, Ground Plan</td>
</tr>
<tr>
<td>5.</td>
<td>Elevation of the rear</td>
</tr>
<tr>
<td>6.</td>
<td>Section</td>
</tr>
<tr>
<td>7.</td>
<td>Stone Troughs. (Insert A at the upper end, and B at the lower end of the dotted line.)</td>
</tr>
<tr>
<td>8.</td>
<td>Stall, Section</td>
</tr>
<tr>
<td>VI. Fig. 1.</td>
<td>Cottage, Farm, Double, Elevation</td>
</tr>
<tr>
<td>2.</td>
<td>Ground Plan</td>
</tr>
<tr>
<td>3.</td>
<td>Circular, Elevation</td>
</tr>
<tr>
<td>4.</td>
<td>Upper Floor</td>
</tr>
<tr>
<td>5.</td>
<td>Ground Plan</td>
</tr>
<tr>
<td>6.</td>
<td>Circular Elevation</td>
</tr>
<tr>
<td>7.</td>
<td>Upper Floor</td>
</tr>
<tr>
<td>8.</td>
<td>Ground Plan</td>
</tr>
<tr>
<td>9.</td>
<td>Small</td>
</tr>
<tr>
<td>10.</td>
<td>Ditto, two Rooms</td>
</tr>
<tr>
<td>11.</td>
<td>Ditto, three Rooms</td>
</tr>
<tr>
<td>12.</td>
<td>Double, Elevation</td>
</tr>
<tr>
<td>13.</td>
<td>Ditto, Ground Plan</td>
</tr>
<tr>
<td>14.</td>
<td>Ditto, by Wyatt</td>
</tr>
<tr>
<td>VII. Fig. 1.</td>
<td>Ornamental Cottage, Elevation</td>
</tr>
<tr>
<td>2.</td>
<td>Ground Plan</td>
</tr>
</tbody>
</table>

Plate VI. is referred to as Plate VIII.)
**AGRICULTURE.**

**Plate.**

VII. Fig. 3. Ornamental Cottage, Upper Floor
4. Ditto, another kind, Elevation
5. Ditto, another kind, Elevation
6. Upper Floor
7. Ditto, another kind, Elevation
8. Ground Plan
9. Upper Floor

VII. Fig. 1, 2. Chaff-cutter, Salmon's, by Rowntree
3. Ditto, by McDougal

VIII. Fig. 1. Cheefe-pres, common
2. Improved
3. Churn, by Hartland
4. Improved, with vertical motion
5. by Rowntree
6. Beaters to
7. Upright, improved by Rowntree

(This Plate is wrongly numbered.)

IX. Fig. 1. 2. Cottage Fire-place
3. 4. Staircase
5. Bed Room
6. 7. Couch graf, Drag, by Amos
8. Coulter
9. Bake by Do. Side View
10. Plan

X. Fig. 1. Cultivator
2. Corn, used in Effex
3. Bean, by Rogers
4. Western's double
5. Improved

X. Fig. 1. Embarkment, common form
2. Improved form
3. Easily sloping
4. Upright rocky
5. Improved
6. Walled
7-9. Improved
10. With Brufh-wood
11. With projecting Point

XI. Fig. 1. Embarkment against the Sea
2-5. Rivers
6-9. Dikes
10, 11. Scale of the Mould

XI. Fig. 1. Cyder Mill
2. Hand
3. Pref, large
4. Windlafs
5. Small

XII. Fig. 1. Dairy Houfe, Plan
2. Window End
3. Ground Plan
4. Latticed Window
5. Inside View
6. 7. at Woburn Park

XIII. Fig. 1, 2. Dairy at Woburn

(Plate 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.)

**AGRICULTURE.**

**Plate.**

XIV. Corn and mixed Farm Buildings.

1. Farm Houfe, Elevation
2. Ditto, Houfe, Ground Plan
3. Outbuildings
4. Mixed Farm Houfe, Elevation
5. Houfe, Ground Plan
6. Outbuildings

XV. Fig. 1. Farm Houfe, small, Elevation
2. Ground Floor
3. Chamber Floor
4. Larger, Elevation
5. Ground Floor
6. Ditto

XVI. Fig. 1. Farm Yard, Plan of Square Farm Yard, at Broom Fields
2. Ditto, at Elkmount

XVII. Plans of Angular and Circular Farm Yards.

1. Farm Yard, Angular
2. Circular

XVIII. Fig. 1—16. Fences
XIX. Fig. 1—12. Ditto
XX. Fig. 1—12. Ditto
XXI. Fig. 1—12. Ditto, Chain Fences, &c.
XXII. Fig. 1—12. Ditto, Wall Fences, &c.

(This Plate is wrongly numbered.)

XXIII. Fig. 1. Flax Brake
2. Teeth
3. 4. Foot Brake, Elevation
5. Ground Plan
6. 7. Heckle
8. Ripping Comb
9. 10. Stock, End View
11. Scutter

XXIV. Fig. 1. Granary, Section
2. Front Elevation
3. 4. Spouts
(Fig. 4 is marked on the Plate "Fig. 5. Plan.")
5. Hoppers

XXV. Fig. 1—3. Drill Machine, Salmon's

XXVI. Fig. 1—3. Machine, Charles's, for levelling Land
4. For lifting Stones
5. For raising Water
6. Sergeant's, for raising Water
7. Ditto, Section of the Bucket

(This Plate is marked "Plate Machines, No. 2.")

XXVII. Grazing, and Harrows

1. Harrow, common
2. Improved
3. Double-jointed
4. Ditto, with top bar
5. Iron
6. Grasfs
7. Grasfs Sod-cutting Plough
8. Cribs

XXVIII. Mole catching.

XXIX. (XXVIII.) Fig. 1. Detached Mole-hill
2. Two Mole-hills
3. Three ditto
4. Six ditto
5. Imperfect hills
6. Dry ditto
7. Fresh ditto
8. Wooden trap
9. Bottom of ditto
AGRICULTURE.

XXXVIII. Fig. 10. Fall of Wooden Trap
11. Mole Pot
12. Mole Trap

XXXIX. Fig. 1. Mole Plough, by Scott
2. Mole Plough, by Lambert
3. Machine for drawing

XXX. Fig. 1. Swing Ploughs, Rotherham
2. Small's Chain Plough
3. Lord Somerville's
4. Suffolk Iron Plough
5. Duckett's Skim Couler
6. Lord Somerville's Double Furrow

XXXI. Fig. 1. Wheel Ploughs, Beverstone Plough
2. Hampshire Iron Plough
3. Norfolk Plough
4. Kentish Turnwind Plough
5. Single Horse Plough

XXXII. Paring Ploughs and Tools.
Fig. 1. Cheshire Paring Plough, Furrow side
View
2. Ditto, Land side View
3. Break Plough
4. Common Paring Plough
5. Paring Shovel
6. Mattock
7. Twobill for Paring
8. Paring Adze
9. Sock

XXXIII. Fig. 1—17. Pits: Implements for Pits or
Rammed Earth Buildings

XXXIV. Fig. 1—32. Gates, Hangings and Fastenings

XXXV. Fig. 1. Grases, Sweet-footed Vernal
2. Meadow Foxtail
3. Smooth-stalked Meadow
1a. Rough-stalked Meadow
2a. Meadow Feceu
3a. Creted Dog-tail
1b. Sheep Feceu
2b. Hard Feceu
3b. Flat Meadow
1e. Marsh Meadow
2e. Knot Gras
3e. Common Ray
1d. Red Clover
2d. Saintfoin
3d. Lucern
1c. Trefoil
2c. Rough Cocksfoot.
3c. Dutch Clover

XXXVI. Fig. 1. Kiln, Count Rumford's Lime Kiln
2. Rawfon's
3. For General Use
4. Pepper's Malt Kiln, Ground Plan
5. Ditto, Section
6. Plan of the Floor
7. Section of the Chimney

XXXVII. Fig. 1. Berne Machine, No. 1—3.
3. Fan Machine
4. Halter Calf, Spring Staple for Haltering
5. Hay Sweep
6. Lactometer
7. Lime-stone Pounding Machine
8. Ox Shoeing Machine

ALGEBRA.

Plate XXXVIII. Quarrries, Pits, Mines, &c. draining
them.
Fig. 1. Section of Drains
2. View of the Side of a Hill, with Wat-
er Course, &c.
3. Quarrries, Surface View
4. 5. Section
6. 7. Quendon Water Barrow

Plate XXXIX. Potatoe Harrow, Set Scoops, &c.
Fig. 1. Construction of Ponds
2. 3. Potatoe Harrow
4. Scoop, Dublin
5. 6. Machine for discharging Overplus
Water of Ponds
7. Fixed Pig or Swine Cafe
8. Moveable Ditto

XL. Fig. 1. Piggery at Woburn, Ground Plan
2. End Elevation
3. Side Elevation
4. Feeder

ALGEBRA.

Palpable Arithmetic and Writing.
I. Fig. 1. Digits or Figures
2—8. Arithmetical Tables, &c. &c.
II. Fig. 7—9. Neper's Bones. See Miscellany,
Plate I.

ANALYSIS.

Asymptote
(The reference under this article to Analysis,
fig. 1. should be Plate I. fig. 2.)

I. Fig. 1. Cifoid.
2—9. Conchoid
10—20. Construction
(The figure numbered 20 is not the proper one. The
figure referred to is inserted in Geometry,
Plate IX. fig. 2. Construction.)

II. Fig. 21, 22. Cotesian Theorem
23. Crown
24. Curve, Cauilic
25. Dicauilic
26. Characteristic, Triangle of a
Fig. 18. Element
3. 4. Cylinder. (These figures are referred
to as in Geometry, Plate IV.)

III. Fig. 1—13. Curvature
IV. Fig. 1—16. Curve
(This Plate is numbered VI. and referred to as
Plate VI. under the article Curve.)

V. Fig. 1—8. Cycloid
(Fig. 1—8. have also been engraved by mistake on
a separate Plate, under the head Cycloid.)
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. Fig. 1—4. Fluxion
5. Analytic Function
(This is a wrong figure inserted by mistake. The
proper figure is in Geometry, Plate IX.
fig. 3. Hyperbolic Logarithms.)
6—8. Analytic Function

4 R 2
ANATOMY.

Plate VIII. Fig. 1—10. Analytic Geometry

(Plate is numbered Plate VII.)

IX. Fig. 1—4. No. 1. Gyration
4. No. 2—8. Harmonic Curve

IX. & X. (IX.) Fig. 1—17. Isoperimetry

(The the figures are referred to as Geometry, Plate IX.)

X. Fig. 1. Heliocid
2. Inflection

XI. Fig. 1. Lemnicate
2. Logarithmic, Atmospheric
3. Curve
4. Logitical Curve
5. Spiral
6. Magic Square of Squares
7. Circle of Circles

XII. Fig. 1—23. Locus

XIII. Fig. 1. Variation. See NAVIGATION, Plates I. & II. fig. 8. Plate II.
2. Ditto. fig. 9. Ditto.)

XIII. Fig. 1, 2. Maxima and Minima
3. Parabolic Cuneus
4. Analytic Parallelogram
5. Progreffion
6. Quadratic Equation
7—9. Quadratrix

(For Ratio, referred to fig. 9, see fig. 21.)
10—20. Quadrature
21. Ratio. (Refered to as fig. 9.)

(For Rectification, referred to Plate XIII. fig. 10—14, see Plate XIV. fig. 1—5.)

XIV. Fig. 1—5. Rectification

(Refered to as Plate XIII. fig. 10—14. The reference under Solidity, to fig. 1—4, of this Plate, should be to fig. 7—10.)
6. Sections following
7—10. Solidity

(Refered to as fig. 1—4.)
11. Sub-tangent
12—15. Superficies

(These figures are referred to as fig. 6—9 respectively.)
16—22. Tangent

(See Geometry, Plate IX. fig. 14—19, where these figures are inferred.)

For Analytic Parallelogram, referred to as on Analysis, Plate XVII. see Plate XIII. fig. 4.

ANATOMY.

I. Organs of Sense

EYE. Plate I. Fig. 1—5.

(Plate I. * fig. 1—5. The same in Outline)

EYE. Plate II. Fig. 1—11.

(Plate II. * fig. 1—11. The same in Outline)

EYE. Plate III. Fig. 1—15.

(Plate III. * fig. 1—15. The same in Outline)

EYE. Plate IV. Fig. 1—5.

(Plate IV. * fig. 1—5. The same in Outline)

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.)

ARCHITECTURE.

Plate V. EAR. Plate I. Fig. 1—13.

(Plate I. * fig. 1—13. The same in Outline)

V. EAR. Plate II. Fig. 1—13.

(Plate II. * fig. 1—13. The same in Outline)

VII. EAR. Plate III.

VIII. Myology.

XVI. Osteology, Skeleton

(XVII. Osteology, Skeleton

(XVIII. Cranium, Plate I.

XX. Plate II.

XXI. Vifera, Plate I. Fig. 1, 2.

XXII. (Front) Plate II. Fig. 1, 2.

XXIII. (Back) Plate III. Fig. 1, 2.

(Plate also Vifera, Plate II.)

XXIV. Vifera, Plate IV. Fig. 1—4.

ANATOMY, COMPARATIVE.

I. & II. Fig. 1—3. Anatomy of Birds

III. Fig. 1, 2. Skeleton

(Plate of the Horfe

IV. Stomach

Inteines

The other Plates referred to in the several articles on Comparative Anatomy, comprized in the former part of the Cyclopædia, including the articles Feathers, Fishes, Hair, Horns, Incubation, Mammalia, &c. are unavoidably omitted. Dr. Maccartney, 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 consequence of his removal from London, and of the indispensible occupations attending the laborious duties of his present professorhip 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 least difficulty in coming to this determination, in consequence of no reference to Plates having been made in any of the articles on Comparative Anatomy, since Dr. Maccartney’s removal to Ireland deprived the editor of his affinities in this department.

ARCHITECTURE.

I. Fig. 1. Attic Bafe, Temple of Jupiter Olympia 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 XXXVII.

II. Titus. (See Plate XXV.)
<table>
<thead>
<tr>
<th>PLATE</th>
<th>ARCHITECTURE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.</td>
<td>Roman Basilica, from Vitruvius</td>
</tr>
<tr>
<td></td>
<td>Plan and Elevation</td>
</tr>
<tr>
<td>II.—V.</td>
<td>Amphitheatre</td>
</tr>
<tr>
<td>(These Plates comprise Eight Plans and Sections from the Amphitheatres of Verona and the Coliseum, which are referred to in the article Amphitheatre as Architecture, Plates II. to IX. respectively.)</td>
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<tr>
<td>III.</td>
<td>Basilica at Paestum</td>
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<tr>
<td>(This edifice being of doubtful authority, the Plate has been omitted. It is represented in Wilkins’s Antiquities of Magna Graecia, where it is called a “Pseudo-dipteral Temple.”)</td>
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<tr>
<td>IV.—V.</td>
<td>Basilica of St. Peter’s, See Plate XXXV.</td>
</tr>
<tr>
<td>VI.</td>
<td>Arch Fig. 1—7.</td>
</tr>
<tr>
<td>VII.</td>
<td>Dome Fig. 1—7.</td>
</tr>
<tr>
<td>(This is marked Dome, Plate I.)</td>
<td></td>
</tr>
<tr>
<td>VIII.</td>
<td>Chimney and Dome.</td>
</tr>
<tr>
<td>Dome, Fig. 1. No. 1, 2. Fig. 2. No. 1, 2. Fig. 3. No. 1—4.</td>
<td></td>
</tr>
<tr>
<td>(VIII.A)</td>
<td>Fig. 1. No. 1—4. Fig. 2. Fig. 3. No. 1, 2. Fig. 4. No. 1, 2. Fig. 5. No. 1, 2.</td>
</tr>
<tr>
<td>IX.</td>
<td>Arch of Adrian at Athens</td>
</tr>
<tr>
<td>(Plate XLI. Chimney, is joined with this.)</td>
<td></td>
</tr>
<tr>
<td>X.</td>
<td>Arch of Constantine</td>
</tr>
<tr>
<td>1.</td>
<td>Titus</td>
</tr>
<tr>
<td>2.</td>
<td>Septimius Severus at Rome</td>
</tr>
<tr>
<td>3.</td>
<td>Section</td>
</tr>
<tr>
<td>XI.</td>
<td>Basilica</td>
</tr>
<tr>
<td>XII.</td>
<td>Circus of Caracalla</td>
</tr>
<tr>
<td>(XI. and XII. are on the same Plate.)</td>
<td></td>
</tr>
<tr>
<td>XIII.</td>
<td>Doric Order from the Parthenon</td>
</tr>
<tr>
<td>XIV.</td>
<td>Tuscan Order from the Church in Covent Garden</td>
</tr>
<tr>
<td>XV.</td>
<td>Doric Order, Temple at Delos</td>
</tr>
<tr>
<td>1.</td>
<td>of Philip at Delos</td>
</tr>
<tr>
<td>2.</td>
<td>of Ægina</td>
</tr>
<tr>
<td>3.</td>
<td>of Jupiter at Sestius</td>
</tr>
<tr>
<td>4.</td>
<td>at Sestius</td>
</tr>
<tr>
<td>5.</td>
<td>according to Sir W. Chambers</td>
</tr>
<tr>
<td>XVI.</td>
<td>Pseudo-dipteral Temple at Paestum</td>
</tr>
<tr>
<td>1.</td>
<td>Temple of Thefeus at Athens</td>
</tr>
<tr>
<td>2.</td>
<td>Temple of Concord at Agrigentum</td>
</tr>
<tr>
<td>3.</td>
<td>Temple of Jupiter Pallemium in Ægina</td>
</tr>
<tr>
<td>4.</td>
<td>Temple of Minerva at Athens</td>
</tr>
<tr>
<td>XVII.</td>
<td>Theatre of Marcellus at Rome</td>
</tr>
<tr>
<td>1.</td>
<td>HexaPyly Temple at Paestum</td>
</tr>
<tr>
<td>2.</td>
<td>Temple of Jupiter Nemæus, between Argos and Corinth</td>
</tr>
<tr>
<td>3.</td>
<td>Temple of Juno Lucina at Agrigentum</td>
</tr>
<tr>
<td>4.</td>
<td>The Agora at Athens</td>
</tr>
<tr>
<td>XVIII.</td>
<td>Fig. 1—14. Doric Order</td>
</tr>
<tr>
<td>XIX.</td>
<td>Temple of Pandrosus, at Athens</td>
</tr>
<tr>
<td>XX.</td>
<td>Interior of a Hindoo Temple, at Deo, in Bahar</td>
</tr>
<tr>
<td>XXI.</td>
<td>Mouldings, &amp;c. Grecian and Roman</td>
</tr>
<tr>
<td>XXII.</td>
<td>Joinery. Fig. 1—7. No. 1. Fig. 7. No. 2—5. Fig. 8. No. 5—5.</td>
</tr>
<tr>
<td>XXIII.</td>
<td>Doors. Fig. 1—11</td>
</tr>
<tr>
<td>XXIV.</td>
<td>Doors. Fig. 1—5. No. 1—2.</td>
</tr>
<tr>
<td>XXV.</td>
<td>Painting from the Baths of Titus</td>
</tr>
<tr>
<td>(Referred to as Plate II.)</td>
<td></td>
</tr>
<tr>
<td>XXVI.</td>
<td>Egyptian Capitals. Fig. 1—8</td>
</tr>
<tr>
<td>XXVII.</td>
<td>Corinthian and Composite Capitals</td>
</tr>
<tr>
<td>XXVIII.</td>
<td>Ionic Order, from the Temple of Minerva Polias, at Priene</td>
</tr>
<tr>
<td>XXIX.</td>
<td>Corinthian Order, from the Temple of Jupiter Statior, in Rome</td>
</tr>
<tr>
<td>XXX.</td>
<td>Plan and Elevation of a Portico at Latopolis</td>
</tr>
<tr>
<td>XXXI.</td>
<td>Eastern Portico of the Parthenon on the Acropolis of Athens</td>
</tr>
<tr>
<td>(Marked Architecture, Plate A.)</td>
<td></td>
</tr>
<tr>
<td>XXXII.</td>
<td>Bridges. Fig. 1—2</td>
</tr>
<tr>
<td>XXXIII.</td>
<td>Bridges. Fig. 1—6</td>
</tr>
<tr>
<td>XXXIV.</td>
<td>Wooden Bridge, at Walton in Surry</td>
</tr>
<tr>
<td>XXXV.</td>
<td>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</td>
</tr>
<tr>
<td>(The two Plans here exhibited together in one view are referred to as Architecture, Plates IV. &amp; V. in the article, Basilica. But, instead of giving the two Plans separately, it was deemed preferable, upon the whole, to give Costaguti’s own incorporated Plans of the two Edifices.)</td>
<td></td>
</tr>
<tr>
<td>XXXVI.</td>
<td>Baths of Caracalla. Plan</td>
</tr>
<tr>
<td>(Referred to as Architecture, Plate I.)</td>
<td></td>
</tr>
<tr>
<td>XXXVII.</td>
<td>Ditto. Section</td>
</tr>
<tr>
<td>(Referred to as Architecture, Plate III. XXXVI. and XXXVII. are on the same Plate.)</td>
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</tbody>
</table>
ARCHITECTURE.

PLATE XXXVIII. Bridge. Fig. 1—6.

XXXIX. Bridge, Oblique Arch. Fig. 1—10.

XL. West Door of the Cathedral of Carrara.

(The figures on the capital, on the right of the door, are represented on a larger scale in Basso Relievo, Plate IV. fig. 1.)

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. Carpentry, Roofs. Fig. 1—6.

XLIV. Carpentry, Roofs. Fig. 1—10.

XLV. Carpentry. Fig. 1, No. 1—4. Fig. 2, 3.

XLVI. Carpentry. Fig. 1, No. 1, 2. Fig. 2, No. 1—6.

XLVII. Carpentry. Fig. 1—3. Fig. 2, 3.

XLVIII. to LVII. (There are no Plates of these Numbers. Plate XLVIII. was, by mistake, numbered LVII and the following numbers were continued accordingly.)

LVIII. Roofs. Fig. 1, 2. Fig. 3, No. 1, 2. Fig. 4, 5. No. 1—4.

LIX. Roofs. Fig. 1. No. 1—3. Fig. 2. Fig. 3, No. 1, 2.

LXI. Carpentry, Fig. 1—8. Fig. 9. No. 1—6.

LXI. Carpentry, Fig. 1, No. 1, 2. Fig. 2, 3. Fig. 4, No. 1, 2. Fig. 5, No. 1, 2. Fig. 6, No. 1, 2. Fig. 7, No. 1—2. Fig. 8, No. 1—2. Fig. 9, No. 1, 2. Fig. 10, No. 1, 2.

LXII. Carpentry, Fig. 1, 2. No. 1. Fig. 3, 6. Fig. 7, No. 1, 2. Fig. 8, No. 1, 2.

LXIII. Carpentry, Fig. 1—3. Fig. 4, No. 1—4. Fig. 5, 8. Fig. 9, No. 1, 2. Fig. 10, No. 1, 2. Fig. 11.

LXIV. Carpentry, Fig. 1, 2. No. 1, 7. Fig. 3, No. 1. Fig. 4, No. 1, 2.

LXV. Bridges. Fig. 1—4.

LXVI. Centres. Fig. 1—3.

LXVII. Fig. 1—3.

LXVIII. Fig. 1—3.

LXIX. Geometrical Principles of Carpentry. Fig. 1—5. Fig. 4, No. 1, 2. Fig. 5, 6.

LXX. Ditto. Fig. 1, 2. Fig. 3. No. 1, 3. Fig. 4, No. 1, 2. Fig. 5.

LXXI. Ditto. Fig. 1, No. 1, 2. Fig. 2, No. 1, 2. Fig. 3, No. 1, 2. Fig. 4, No. 1, 2. Fig. 5, 8.

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.

LXXIV. Ditto. Fig. 1. No. 1—6. Fig. 2. No. 1, 2. Fig. 3.

LXXV. Ditto. Fig. 1, No. 1—6. Fig. 2. No. 1, 2. Fig. 3.

LXXVI. Ditto. Fig. 1, No. 1—6. Fig. 2. No. 1—6.

LXXVII. Ditto. Fig. 1, No. 1—6. Fig. 2. No. 1—6.

LXXVIII. Ditto. Fig. 1, No. 1—6. Fig. 2. No. 1—6.

ASTRONOMY.

PLATE

ARMS.

I. Ancient Bronzes
A. In the Collection of P. Knight, Eqq.
B. C. In the British Museum
D. In the Collection of P. Knight, Eqq.

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
9, 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 Beauchamp, Earl of Warwick

V. Fig. 1. Henry VII's Armour
2. Croupiere or Buttock Armour
3. Robert Dudley, Earl of Leicester, in Tilting Armour
4. Half-sitting Habit of Prince Henry

(AIV. and V. are on the same Plate.)

ARTILLERY.

I. and II. Fig. 1. Aries, or Battering Ram
2—4. Catapulta, 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


(This Plate is numbered Plate II.)

IV. Fig. 23—36. Comet

V. Fig. 37. Commutation 38—42. Crepusculum 43. Culmination 43. Day 44. 45. Declination 46. Demi Crofs

VI. Fig. 47—52. Degree 53. Degree 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.

(Infert Q above p on the right-hand Globe, at the end of the line C Q, and Infert S on the middle of the line p.)

X. Fig. 71—73. Earth.

(Fig. 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 d read b, at the bottom of the line B C)

74. Ferguson’s Ecliptic.

(Infert C on the bras arch below c)

75. Eclipse.

(For c read e, and for c read C)

76. Eclipse

(Infert b at the end of the line A c)

77. Eclipse

(Infert A at the upper end of the line L t, and d e 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. Hindu 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

PLATE

XII. Fig. 102. Elevation 103. Elliptic 104. Elongation 105. Epicycle 106. Equal Altitude 107—109. Elevation

(The letter A is assuming at the top of the line TBC. In the theorem (twice) for “the small circle ACB;” read “AGB.”)

109.* Equator

XII. Fig. 100. Eclipses.

(The reference to N V, fig. 100, should be to N V, fig. 102.)

102. Poles of the Ecliptic, Equator, and Orbs of Venus

103* Obliquity of the Ecliptic

(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.)

116. Geocentric

XIV. Fig. 117. Globe, method of exhibiting Stars, XV. J. Circles, &c. upon

118, 119. 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


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 q.)


(Figures 16, 17, 18, are omitted in this Plate, and form Plate XIX. fig. 1, 2, 3, respectively.)

XIX. Fig. 1. Particular Exsors

(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
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
Map of the Canals, Navigations, and Railways of Great Britain (Given in the Atlas, Vol. VI. of the Plates)

CANDLE MAKING.

Fig. 1. Apparatus for Dipping
2. Wick Broach
3. Machine for cutting Cotton
4. Tallow Ciftern for Mould Candles
5. Mould Frame
6. Mould
7—12. Candle Sticks

CANNON.

I. Fig. 1. Whole-length Cannon
2. Calcable
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.

I. Fig. 1. Canteen
2, 3. Cross-cutting Saw
4, 5. Tenanning or Rebating Saws
6. Bung Stave
7. Boring Machine
8. Center Bit
9. Slider
II. Fig. 10. Frame
11. Screw Hoop
12. Trufa 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 Casting
3. Trowel
4. Ramming Tool
5. Lifting Screw
6. Sand Casting between Flasks

CHEMISTRY.

PLATE

I. Fig. 7—10. Method of Casting Cog Wheels
11—13. Moulds, &c. for Loam Casting

CASTRAMETATION. See Camp.

CHEMISTRY.

I. Fig. 1, 2. Cupalo Furnace
I. Fig. 1—5. Still
II. Fig. 1. Blalt Furnace (For figs. 1. read fig. 6.)
6—9. Iron Smelting Furnace
III. Fig. 10. Alcohol
10*—13. Alembic
14. Alcohol
IV. Fig 15—26. Furnaces for the Reduction of Antimony
V. Fig. 27, 28. Wolse’s Apparatus
VI. Ditto
VII. Fig. 1—4. Ditto
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 Blaft Furnace,” should be to Plate X. fig. 4.)
X. Fig. 1—10. Blaft Furnace
XI. Fig. 1—3. Blow-pipe (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. Blaft Furnace Works, Plan and Section
XI. XII. Blaft Furnace Works
Fig. 1. Section of the Building
2. Dam Stone
3. Dam Plate
4. Tymp Plate
5. Water Regulator
XIV. Blaft Furnace Works
XIV. Gasometer and Blow-pipe
Fig. 1. Hydraulic Bellows
2. Air Holder
3. Bell
4. Gas Holder
5. Glass Blower’s Lamp
6. Shoe Lamp
7. Double Blow-pipe

(Figs. 5, 6, 7, are referred to as Plate X. fig. 1, 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
9. 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. Mattrafs
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

XVII. Fig. 9. Apparatus for the Absorption of Gases
13, 14. Simplified Gasometer
15. Pepys’s Gasometer

XVIII. XIX. (No Plates of these Numbers)
XX. Fig. 1—3. Apparatus for the Distillation of Pyrogloigneous 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 paffing to Cumulo Strati before Thunder

II. No. 1, 2. Cirro Stratus
3. Cirrus paffing to Cirro Cumulus
4. Cirro Stratus, Cumulus, and Cumulo Stratus, grouped

COMPOSITION.
I. Fig. 1. The “Battle of the Standard,” by Lionardo da Vinci

COTTON MANUFACTURE.

Plate

I. Fig. 3. The “Creation of Man,” the “Transgression at the Tree of Knowledge,” and “the Expulsion from Paradise,” by Frescoes of Michelangelo in the Sistine Chapel
4. “ Groups of the Laft Judgment,” by the fame Matter in the fame Chapel

II. 2. “The Cartoon of Pifa,” (or, according to Vafari, its chief Groups,) by Michelangelo
5. “Paul preaching at Athens,” from the Cartoon of Raffaie at Hampton Court

CHIARO-SCURO.

1. The simple Principles of Chiaro-Scuro illustrated
2. The Conduct of Correggio in the Distribution of his Maffles 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. Ambigental
2, 3. Asymptote
4—10. Cone
(Referred to truncated cone, fig. 8. should be to fig. 9.)
12. No. 2. (See fig. 3.)
20. Abscisse (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. 1.)

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
(Referred to Double Spreader)

The number has been omitted on this plate.

II. Roving Frame
Horizontal Plan of the Machine called
4 S 2
ELECTRICITY.

Fig. 2. Hawkbee's Electrical Machine

IV. 53, 54. Inflammable Air-Pistol

55. Volta's Inflammable Air-Lamp

VII. Fig. 2. (XIV.) Electrophorus

VIII. 3. Abbé Nollet's Machine

4. Dr. Watson's Ditto

5. Mr. Wilson's Ditto

IX. 6—9. Electrical Machines

11. Common Machine

12. Nairne's Ditto

18. Van Marum's Ditto

(Referred to as on Plate XI.)
FLAGS.

XII. Fig. 22. Cuthberton's Electrical Machine

(See above, under Anatomy, Comparative.)

XIII. (The Plate so entitled and numbered is Agriculture, Plate XIX.)

XIV. Fig. 1.—7. Salmon's Weighing Machine

(Plate XII.)

Fig. 1—3. Cutting Engine, by Hindley

II. Fig. 1—5. Ditto

IV. Cutting Engine, by Rehe

IV. Fig. 1, 2. Electrometers

XV. Medical Electricity. Machine for electrifying the Teeth

(Referred to as Plate I. fig. 3.)

ENGRAVINGS, EARLY BRITISH.

Fig. 1. From the front of King Alfred's Jewel From the back of King Alfred's Jewel

II. Impression from the engraved Seal of Anfelm, the Primate

III. Engraved Brass on the Tomb of William de Fulbourn, in Fulbourn Church, Cambridgeshire

ENGINE.

I. Fig. 1—5. Ditto

II. Fig. 6—12. Rope Engine, by Holtzapffell and Deyerden

III. Cutting Engine, by Rehe

V. Fig. 1, 2. Electrometers

VI. Fig. 1—6. Cutting Engine, by Rehe, for sharpening Cutters

VII. Ramfden's dividing Engine, Perspective View

VIII. Fig. 2—4. Ramfden's dividing Engine

IX. Fig. 5—14. Ditto

X. Engine for cutting the Screw of Ramfden's Circular dividing Engine

XI. Engine for cutting the Screw of Ramfden's straight Line dividing Engine

XII. Fig. 1—3. Ramfden's Engine for dividing straight Lines

FORTIFICATIONS AND TACTICS.

I. Concave Fore-shoe, or S. Bell's Shoe

II. Raceing Hind-shoe

III. Fore-shoe

IV. Seatd Fore-shoes

V. Froll-shoe

VI. Shoe to prevent cutting

VII. Hind-shoe

VIII. Fore-shoe with a Joint in the Toe

(Fort this is the only Plate of Farriery.)

FEATHERS.

FENCES.

I. Battery

II. Field Fortification

(V. Fig. 1—6. Construction

VII. Fig. 7—14. Ditto

VIII. Fig. 15. Belidor's Method

(These figures have been omitted, as unnecessary in a Work of this nature.)

1—2. Battery

3. Battery en Barbe, or Barbet

4—10. Fort

(V. Fig. 1, 2. Irregular Fortification

3. Profile of a Fortification

4. Fortified Place

(See above, under Anatomy, Comparative.)

ENGRAVINGS, EARLY BRITISH.

Fig. 1. From the front of King Alfred's Jewel

II. Impression from the engraved Seal of Anfelm, the Primate

III. Engraved Brass on the Tomb of William de Fulbourn, in Fulbourn Church, Cambridgeshire

(See Heraldry, Plate VII.)
GEOGRAPHY.

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

VI. VII. VIII. 9. Mantelet
10—15. Mine

(VII.) Fig. 38. Battery (See Plate II.)
2. 3. Parallel of Arms (See Plate V.* fig. 5.)
4. Ravelin
5. Redoubt
6—8. Tenaille
9. Tenalloon

(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. Mushet's Ditto
5. Knight's Portable Ditto
6—11. Dr. Black's Ditto

III. Fig. 1, 2. Furnaces used by Mr. Mushet 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, Akim'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 Suceession 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. Convervatory and Green-Houfe.

Fig. 1—4. Green-Houfe
5. 6. Convervatory

III. Fig. 1, 2. Improved Houfhoufe
3. Loudon's Houfhoufe for Pines
4. 5. Nurcery Houfe for Ditto

GEOMETRY.

Plate

II. Fig. 9. Meridian Pole (See NAVIGATION, Plate I. fig. 1.)
10—14. Tide
(See NAVIGATION fig. 4—8.)

GEOLOGY.

I.—IV. (The Plates of Geography are with the Natural History Plates in the fifth Volume.)

II. Gun-Flints
(See Miscellany, Plate II.)

GEOMETRY.

Acute Angle
(Refered 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 Distance, Method of measuring
14. Analysis (See GEOMETRY, Plate IX. fig. 1.)

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.)
(Refered to as Plate II. fig. 35, &c.
Fig. 38, Bafi, should be referred to fig. 46*, on the same Plate.)
39. Bafi of a Cylinder
(See Geography, Plate IX. fig. 7.)
40—44* Bevel
45—48. Chord
49* Arch
48* Bafi
49* 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. (Refered to as Plate III.)

Fig. 1. Cyclograph
(See Geography, 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
(Refered to as on Plate IV.)
79. Diameter, No. 1, 2, 3.
80. Dirigent
81. Diviibility
82. Division
GEOMETRY.

VI. Fig. 83. Decagon
(For Dodecagon, see Hexagon, Plate VIII.
fig. 97.)
84. Diophantine
85. 86. Diffance

VII. Fig. 87. Extreme and Mean Proportion
88—95. Frustum

VIII. Fig. 96. Gnomon
97. Hexagon
98. 99. Honeycomb
100. Hypothenuse
101. Inclination of Planes
102. Indivisibles
103. 104. Internal Angle
105. Ifoceles Triangle

IX. \[\text{Ifoceles Rectangular Properties} \]
Obtusangular
See Menfuration X.

X. \[\text{Ifoceles Triangle} \]

XI. \[\text{Ifoceles Triangle} \]

XII. \[\text{Ifoceles Triangle} \]

XIII. \[\text{Ifoceles Triangle} \]

XIV. \[\text{Ifoceles Triangle} \]

X. \[\text{Ifoceles Triangle} \]

XI. \[\text{Ifoceles Triangle} \]

XII. \[\text{Ifoceles Triangle} \]

XIII. \[\text{Ifoceles Triangle} \]

XIV. \[\text{Ifoceles Triangle} \]

XV. \[\text{Ifoceles Triangle} \]
HOROLOGY.

Plate

GLAZING CLOTH.
(See Miscellany, Plate II.)

GUNNERY.
Fig. 1. Gun Pointing
2. Nock's improved Breech
3. Gunnery. Theorem for determining the Velocity of a Ball
4. Petard
5. Quadrant
6. Bomb
7. Caliber Compasses

HAIR.
(See above, Anatomy, Comparative)

HERALDRY.
I.
Partition Lines
Efcutcheons
Roundels
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.
Crows, 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 Distinctions
Distinctions of Houses
Bar
(See Plate III.)
Barry, &c.
(See Plate III.)
Hatchments
(See Plate XII.)

HORNS.
(See above, Anatomy, Comparative)

HOROLOGY.

I. Fig. 1—3. Antient Clepsydræ
II. Fig. 1—6. Modern Clepsydræ
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

IX. Fig. 1—3. Thirty-hour Clock, with Alarum, and Count Wheel Striking Work
X. Fig. 1—3. Chronometer
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. Brocksbank'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
Compensation 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 Brocksbank
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. Maffey's Striking-part
2. 3. Prior's Striking-part
XXVII. Fig. 1—9. Troughton's Pendulum
XXVIII. Fig. 1—7. Compensation Curbs
XXIX. Fig. 1—11. Compensation Balances
XXX. Compensation Curbs and Balances
Fig. 1. Mr. Cumming's
2. Scott's
3—5. Hardy's Balance
6. Berthoud's
7, 8. Hardy's Isochronal Compensation
XXXI. Fig. 1, 2. Dial Work of a Clock, shewing the Moon’s Age, Phases, &c.
XXXII. Fig. 1, 2. New Dial Work of a Small Spring Clock, shewing the Phenomena of the Moon
XXXIII. Fig. 1—3. Dial Work
XXXI. Efcapements
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. Graham's Dead Beat
5. Graham's Ditto
6. Grignon's Ditto
7. Bennett's Ditto
8. Thouüt's Efcapement
XXXIII. Efcapements
Fig. 1. Berthoud's
2. Smeaton's
HOROLOGY.

Plate

XXXIII. Fig. 3. De Bethune’s Escapement
4. Amant’s
5. Harrison’s
6. Cummings’s
7. Mudge’s
8. Peter le Roy’s

XXXIV. French Escapements for Chronometers
Fig. 1-3. Peter le Roy’s improved
4. Berthoud’s detached
5. improved, No. 60
6. without a Spring
7. with a Spring and Detent in No. 9
8. Iochromal

XXXV. Escapements
Fig. 1, 2. Mudge’s
3. Marlett’s
4. Robins’s
5. Duplex
6. Escapement à Virgule
7. Tompion’s
8. free, for a Pendulum

XXXVI. Escapements, &c.
Fig. 1. Berthoud’s Escapement
2. Nicholson’s
3, 4. Goodrich’s
5. Maffey’s
6, 7. Theory of the Fufec

XXXVII. Fig. 1-3. Fufec Engine acting by an inclined Plane
4-8. Fufec Engine, with a Screw and Lever

XXXVIII. Fufec Engines and Fufec Frame
Fig. 1. Common Fufec Engine
2. Old Fufec Engine
3. Fufec Frame

XXXIX. Fig. 1-3. Compensating Pendulums
4. Graham’s Mercurial
5. Regnault’s
6, 7. Deparcieux’s

HORSE.

Plate

XXXIX. Fig. 8. J. le Roy’s Compensating Pendulum
XL. Compensating Pendulums
Fig. 1. Ellicot’s
2. Troughton’s Rhomboidal
3. Berthoud’s
4. Troughton’s Mercurial
5. Dr. Fordeyce’s
6. Ward’s
7. Reid’s
8. Doughty’s
9. Ritchie’s
10. Nichollon’s

XL. Remontoir Escapements
Fig. 1-4. Haley’s
5. 6. Breguet’s
7. Hardy’s

XLII. Remontoir Escapements
Fig. 1, 2. de Lafon’s
3. Maffey’s
4-6. Mendham’s
7, 8. Prior’s

XLIII. Fig. 1-3. Recordon’s Renovator
4-9. Watch, with Musie

XLIV. Fig. 1-8. Common Watch
9-14. Alarum Watch
15-18. Rolling Watch

XLV. Fig. 1, 2. Repeating Watch
3. Wheel Work
4, 6. Spring, &c.

XLVI. Fig. 1-8. Repeating and Alarum Watches

XLVII. Repeating Watches
Fig. 1-5. Elliot’s
6. Infallible Repeater, by Berrollas
7. Calliper
8. Detached Parts

(See Miscellany, Plate XX, fig. 7.)

PLATES. VOL. III.

HYDRAULICS—NAVAL ARCHITECTURE.

Plate

HYDRAULICS.

I. Fig. 1-4. Contracted Vein, &c.
5. Counterpressure
6-17. Discharge of Fluids

II. Fig. 18. Dr. Halley’s Diving Bell
19. Section of Trevithick’s Ditto
20. Spalding’s Ditto
21-27. Klingert’s Diving Machine

III. Dredging Machine used to deepen the Channel of the Thames
Fig. 1. Elevation
2. Plan

III.* Fig. 3. Eddy
4. Fire Engine

VOL. XXXIX.

Plate

III.* Fig. 5-11. Mr. Newham’s Fire Engine
IV. Fig. 1-6. Rowntree’s Fire Engine
V. Fig. 1-9. Fluids
VI. Fig. 1-6. Fluids
7-13. Fountain

VII. Fig. 1-8. Fountains

VII.* Fig. 1, 2. Floating
3, 4. Hydromancy
(Referred to as fig. 4, 5.)
5. Hero’s Crown
6. Tantalus’s Cup

(Tantalus’s Cup is referred to this Plate, but inserted Plate XIV, fig. 10.)

IX. & X. Hydrometer
Fig. 1. Common
2, 3. Clark’s
4. T
INCUBATION.

Plate
IX. & X. Fig. 4. Defaguliers's Hydrometer
5. De Luc's
6. Nicholofon's
(X.) Fig. 7, 8. Hydrostatic Balance
9. Defaguliers's
10. Martin's
11. Hydrostatic Bellows
12—14. Ditto, by Ferguson
(IX. and X. form one Plate, which should have been numbered Plate IX. & X.)
15. No. 1—3. Hydrostatic Instrument
(See Plate XI. fig. 14, No. 1—3.)
Fig. 15, 16. Hydrostatical Paradox
(These figures are referred to as on Plate XI. There is no Plate of that number)

XII. & XIII. Fig. 1—7. Hygrometer
8. Anderson's
9. 10. Dr. Hooke's
11. Dr. Hales's
12, 13. Ferguson's
(Referred to as Plate X. fig. 15.)
(XIII.) Fig. 1—4. Smeaton's Hygrometer
(XII. & XIII. fig. 1—4. are on one Plate)

XIII. Hygrometer
Fig. 5, 6. De Luc's
7. Sauflure's
8, 9. De Luc's Whale Bone
10. Hungarian Machine
(Referred to as fig. 1.)
11. Forster's Out Beard Hygrometer
12. Kater's Hygrometer

XIV. Fig. 1. Jet d'Eau
2. Moiture
3. Persian Wheel
4. Pump, Common Sucking
5. Forcing
6. Lifting
7. Ctefebe's
8. Chain
9. Parts of Ditto
10. Tantalus's Cup
(XIV. XV. Fig. 9, 10. Rope Machine
11—13. Archimedes' Screw
14, 15. Water Screw
(XV.) Fig. 1—5. Siphon
6. Papin's, or Wirtemberg
7. Springs
8—10. Syringe
11—14. Waves

Pumps
Fig. 1—8. Captain Jekyll's Improved Ship Pump
9. Martin's Pump

HYDROSTATICS.

I. Fig. 1—17. Capillary Tubes, &c.

INCUBATION.
(See above, ANATOMY, COMPARATIVE.)

LAMPS.

IRON MANUFACTURE.

Plate
I. Iron Forge
Fig. 1. Plan
2. Elevation
II. Fig. 1. Section of the Foundery. Front View
2. Another Section. Side View
3. Enlarged View of the Tuyere Iron
4. Tuyere Iron with the Citerm
5. Tongs for taking the Balls from the Furnace
6. Iron Fork
7. Iron Ladle
8. Face of the Stamping Iron
9. Face of a Hammer for drawing out Bars
10. Blowing Furnace. Section
11. Elevation

III. IV. (Lettered Furnace, Plate III. IV.)
Fig. 1. Reverberatory Furnace for melting large Quantities of Metal. Section
2. Section of a Cupola
(IV.) 3—5. (These are the Figures referred to under the article Furnace, "Aikin's Improvement of Lewis's Furnace," as Furnace, Plate IV. fig. 3—5)
7. End Elevation of the Reverberatory Furnace

IV. Smeaton's Forge Hammer Machinery for Kihnhurtt Forge
Fig. 1. Elevation in Front
2. Elevation Sideways
(The reference to Plate IV. under ROLLING MILL, should be to Plate VI.)

V. Rollers for making Bar Iron
Fig. 1. End Elevation, Rollers for Square Bars
2. Side Elevation. Ditto
3. Plan. Rollers for flat Bars
4. Side Elevation. Ditto
5. Plate Rollers. End Elevation
6. Ditto. Side Elevation

VI. Rolling and Slitting Mill at Meffrs. Walkers' Iron Works, Rotherham
Fig. 1. Plan
2, 3. Elevations
(This is referred to as Plate IV. under the article, ROLLING MILL. The number is omitted on the Plate)

VII. Steel Converting Furnace
Fig. 1, 2. Sections
3. Plan
4—7. Mould for making Crucibles, &c.
(This Plate is not numbered)

VIII. Mill for tilting Steel, by Smeaton
Fig. 1. Plan
2. Elevation

LAMPS.

I. Fig. 1—3. Argand's
4. Lamp Cotton
5. 6. Kier's Lamp
7. Rolling Lamp
II. Fig. 1—4. King's Hydro-Pneumatic Lamp
MECHANICS.

Plate

II. Fig. 5, 6. Barton's Lamp
    7, 8. Porter's Automaton Lamp

LATHE.

Fig. 1—10. Mr. H. Maudslay’s Lathe

LIGHT.

Fig. 1—19. Luminous Animals
(See Plates, Vol. V. Natural History)

LIGHT-HOUSE.

Fig. 1—8. Light-House on the Eddystone Rock

MAGNETISM.

I. Fig. 1—12. Compas
II. Fig. 13—16. Ditto
III. Fig. 17—22. Variation Compas
IV. Fig. 22—29. Dipping
(For fig. 27, see Plate V.)
30. Dipping Needle, by Lorimer
(Referred to as fig. 3.)
V. Dipping Needle, by Nairne, on Mr. Mitchell’s Plan
VI. VII. Fig. 1—12. Magnet
(VII.) Fig. 1. Ditto
(VI. & VII. fig. 1 are on one Plate)
VII. Fig. 2—16. Magnet

MAMMALIA.

(See above, Anatomy, Comparative; also, Plates, Vol. V. Natural History)

MASONRY.

I. Fig. 1. Reticulated
2. Incertain
3. Hodomum
4. Pseudofodomum
5. Roman Emplection
6. Greek Emplection
II. Arches
1. No. 1. Plano Cylindroidic Arch
   No. 2. Plano Cylindric Arch
2. No. 1. Cylindro-Cylindric Arch
   No. 2. Cylindro-Cylindroidic

MAST, Plate of.
(See Ships, Plate VIII.)

MECHANICS.

I. Fig. 1, 2. Acceleration
3. Angular Motion
(See Plate II. fig. 1.)
3, 4. Angle of Elevation
5—7. Axis in Peritrochio

Plate

II. Fig. 8—11. Balance
12. Bent Lever Balance
13. Affay Balance
14. Ballast
(On this figure, the dotted line perpendicular to the
line 1—3, should have the letter n at the upper end
and c at the bottom; and g should be on the dot-
line opposite to G)
II. Fig. 1. Angular Motion
2—4. Boring Water Pipes
(Referred to as fig. 67—69.)
5. Crab for Launching Ships
(Referred to as Plate XVIII. fig. 1.)
6. 7. Double Cylinder
(Referred to as Plate XXII. fig. 1, 2.)
8. 9. Jack for raising Timber
(Referred to as Plate XXX. fig. 1, 2.)
10. Smoke Jack
(Referred to as Plate XXX. fig. 3.)
11—15. Lever
(Referred to as Plate XXX. fig. 4—6.)
14—17. Projectiles
(Referred to as Plate XXXVI. fig. 7—
10.)
III. Fig. 15. Capital, Common Moveable
16. Double
17. used at the London Docks
18. Main, or double
19. Jeer, or little
20. Mr. Plunket's
21. Call-iron Lifter for
IV. Fig. 21. Center of Friction
22—29. Center of Gravity
V. Fig. 30—40. Ditto
VI. Fig. 41—51. Ditto
VII. Fig. 52—54. Center of Gyration
55. Center of Motion
56—60. Center of Oscillation
Chain (See Plate XII.)
VIII. Fig. 61—66. Center of Oscillation
67—69. Percussion
90. Position
74—75. Presseuse
76—80. Rotation
X. Fig. 81—84. Central and Centrifugal Forces
85—92. Centripetal Forces
XI. 93. Centrifugal Machine
94—99. Centrobaryc Method
XII. Fig. 1—9. Chains
10, 11. Clay Mill
XIII. Fig. 1. Fore Wheels of a Crane-necked Carriage
2. Jacob’s Conivrance for the Fore-wheels of a Carriage
XIV. Fig. 1, 2. Coal Measuring
XIV.* Fig. 1—15. Water Cocks
XV. Fig. 1, 2. Composition of Motion
(See Plate XVI. fig. 1, 2.)
XV. Fig. 1—24. Collission
(The reference to fig. 22, under theorem VI. of this
article, should be to fig. 24. The reference to
fig. 23, should be to fig. 22. In fig. 23, for
E. read Z. The reference to fig. 24, should be to
fig. 23.)
XV. Fig. 1—7. Comb-making
6—8. Coupling Box
472
MECHANICS.

Plate

XVI. Fig. 1, 2. Composition of Motion
(Referred to as on Plate XV.)
7. Double Cone
10, 11. Prony's Condenser of Forces

XVII. Fig. 1—4. Cork Screws
5. Corking Machine

XVIII. Fig. 1. Crab
(See Plate II. fig. 5.)
2, 3. Cranes, by Fergusson

XIX. Fig. 1—3. Mr. Smeaton's Design for a Crane,
for the Wool Quay, Custom House, London

XX. Cranes
Fig. 1, 2. White's Crane
3. 4. Brathwaite's
5. Dixon's

XXI. Fig. 1—5. Cranes, various

XXII. Fig. 1, 2. Cylinder, Rolling
(See Double Cylinder, Plate II. fig. 6, 7.)

XXII. & XXXIII. } Fig. 3. Direction of Motion
4—6. Line of Direction

(XXXIII.) Fig. 1—4. Hill's Machine for drawing Ships' Bolts

XXXIII. Fig. 1—7. Mr. Dixon's Machine for Boring Cylinders, at the Falcon Iron Foundery
(For Mill referred to Plate XXXIII. see Plate XXXIII.)

XXXIV. Fig. 1—9. Drills
10. 11. Drilling Machine
(This Plate is not numbered)

XXV. Fig. 1—7. Dynamics

XXVI. Dynamometers for measuring the Force of Draught
Fig. 1. Mr. McDougale's
2. Salmon's
3. . . . Contrivance for determining the Force required to work a Mill
Expanding Riggers
Fig. 5—7. Mr. Flint's
8—12. Mr. Farcy's

XXVII. Fig. 1—9. Fly Press

XXVII. Fig. 1—4. Mr. Salmon's Portable Threshing Mill

XXVIII. Fig. 1—20. Force

XXIX. Friction and Fulling Mill
Fig. 1—3. Friction
4—6. Fulling Mill

XXX. Fig. 1, 2. Jack for raising Timber
(See Plate II. fig. 8, 9.)
3. Smoke Jack
(See Plate II. fig. 10.)
4—6. Lever
(See Plate II. fig. 11—13.)

XXX. & XXXVI. } Fig. 1—5. Wedge
6, 7. Weight
8—13. Wheel
(Fig. 1—13. are referred to respectively as on Plate XL.)

(XXXVI.) Fig. 11—13. Pulley
14. Refraction
15. Solid of the leaf Refraction
16, 17. Mechanical Powers
(Referred to as Plate XXXII. fig. 18, 19.)

MILITARY MANŒUVRES.

Plate

XXXI. Fig. 1—5. Logwood Mill
XXXII. Fig. 1—17. Mechanical Powers
XXXIII. (See for figs. 18, 19. Plate XXX. and XXXVI. fig. 16, 17.)
Fig. 1, 2. Common Breath Mill
3. Dr. Barker's Mill
4. Portable or Hand Mill

XXXIV. Fig. 1—8. Flour Mill designed by Smeaton
XXXIV. Fig. 1—10. Motion
11. Perpetual Motion
12—15. Percussion
16—21. Inclined Plane
(Referred to as Plate XXXV. fig. 1—6.)

XXXV. Fig. 1—6. Colour Mill
XXXV. Fig. 1—9. Pile-driving Machine
(For Inclined Plane, fig. 1—6. see Plate XXXIV. fig. 16—21.)

XXXVI. Fig. 7—10. Projectiles
(See Plate II. fig. 14—17.)
11—13. Pulley
14. Refraction
15. Refraction, Solid of the leaf
(For these figures, 11—15. see Plate XXX. and XXXVI.)

XXXVII. Fig. 1—10. Rotation

XXXVIII. Screws
Fig. 1—3. Principles of the Screw illustrated
4. Endless Screw
5. Machine to shew the Power of the Screw
6—10. Spring
11. Steelyard (Referred to as fig. 6.)

XXXIX. Fig. 1—13. Strength of Materials

XL. Fig. 1—6. Machines for casting and drawing Lead Pipes

XL. Fig. 1—5. Wedge
6, 7. Weight
8—13. Wheel
(These three subjects are given on the Plate which is numbered XXX. & XXXVI. The figures correspond with the reference to Plate XL.)

MICROSCOPIC OBJECTS.
(See Plates, Vol. V. Natural History, Animals.)

MIDWIFERY.
(The Plates intended for the illustration of this article have been, for obvious reasons, purposely withhold.)

MILITARY MANŒUVRES.

I. First Manoeuvre
Second Ditto
Third Ditto
Fourth Ditto

II. Fifth Manoeuvre
Sixth Ditto
Seventh Ditto
Eighth Ditto
Ninth Ditto
MISCELLANY.

Plate
III. Tenth Maneuvre
Eleventh Ditto
Twelfth Ditto
Thirteenth Ditto
IV. Fourteenth Maneuvre
Fifteenth Ditto
Sixteenth Ditto
V. Seventeenth Ditto
Eighteenth Ditto
Nineteenth Ditto
VI. Inspection, or Review

MILL WORK.
I. Fig. 1—8.
II. Fig. 9—17.
III. Fig. 18, 19. No. 1, 2. Fig. 20—27.

MINERALOGY.
I. Fig. 1—10. Mining—Bafalt (See Plates, Vol. V. Natural History)
II. (See Geology, Plate II.)

MISCELLANY.
I. Fig. 1, 2. Altitude. Sea Gage
3. Altar of Incense
4. Burnt Offering
5. Ark of the Covenant
6. Nepher’s Bones
7. Ancient Arithmetical Characters
8. Ching
9. King
II. Button Making
Glazing Cloth
Tools for cutting Flints, fig. 1—7.
(Referred to as Geology, Plate II.)
Smart’s Chimney Cleaning Machine, Fig. 1—6
Crystallography, Fig. 21—23.
III. Fig. 1—4. Coinage
Copying
1, 2. Rolling Presfs
3. Screw Presfs

III.* Fig. 1, 2. Hawkins’s Patent Polygraph.

IV. Designs for Weaving
Fig. 7. Similar Spots
8. Difflimilar Ditto
9. Dornock
10. Dity
11. Damalik
(These figures are referred to as fig. 1—5.)

V. Fig. 1—8. Diagonal Motion
(These figures are erroneously referred to as fig. 12—17. The reader will easily adjust the references in the letter-prefs to the figures on the Plate)

VI. Fig. 18—20. Diagonal Motion, Dividing and Cutting Engine

VII. Fig. 1—6. Diagonal Motion
(The figures on this Plate are referred to as fig. 21—26.)

Plate
VIII. Fig. 1, 2. Diaper Loom
3, 4. Discharging Presfs
3. Draw Loom
8. Diaper
(For this figure see Plate XII, fig. 8.)
Dornock
(See Plate XII, fig. 6.)
IX. & X. Fig. 1—4. Dramatic Machinery
X. Fig. 1. Ditto
XI. Fig. 2. Ditto
(XI.) Fig. 1—6. No. 1, 2. Ditto
7, 8. No. 1, 2. Ditto

XII. Draught and Cording of Looms
1. Five-leaf Tweed
2. Broken Tweed
3. Eight-leaf Tweed
4. Broken Tweed
5. Striped Dimity
6. Dornock
7. Fancy Dimity
8. Diaper
9. Similar Spot
10. Different Spot

XII. Fig. 1—8. Mr. Marshal’s Secret Efcutcheon for a Key-hole
(These figures are referred to as fig. 2—9.)
9. Self-acting Extinguishers
10. Hawkins’s Ditto

XII. Fig. 1, 2. Drapery
(See Plate XX. fig. 8, 9.)
1. Painter’s Easel
12. Mr. Marler’s Fire Escape, simplified by Forliler
13. Mr. Marler’s Original Suspension
1—3. Indigo Mills

XIII. Fig. 1—7. File Cutting, Tools for
8—10. Filters
11. Filtration
(See Plate XXV. fig. 3.)

XIV. Fire Place, by Dr. Franklin
Fig. 2. No. 1. Bottom Plate
2. Back Plate
3. Side Plate
3. Ledges
4. Air Box
5. Front Plate
6. No. 6. Top Plate
7. Shutter
8. Register
7. Fire Place and Chimney

XIV. Fire Place and Chimney
Fig. 1—6. Hawkins’s Claviole, or Finger-keyed Viol

XV. Flood Gates
Fig. 2. Smeaton’s Flood Gate, Elevation
5. 6. Ditto, Plan
7. Farey’s Self-acting Flood Gate
8—11. Bramah’s Hydrostatic Sluice

XV. Fig. 1—5. Apparatus for retaining those Drowning to Life
Fig. 1. Foundry of Bells
2, 3. Letters or Types
4. Fountain Pen

XVI. Fig. 1. Hooke’s Sea Gage, or Bucket
2. Hales’s Aqueo-Mercurial Gage
3. Marquetry
(See another View in Miscellany, Plate XXIII. fig. 3.)
MONOGRAMS.

Plate

XVI. Fig. 4. Ellicott's Pyrometer
(This is referred to at in Miscellany, XXIII. fig. 4.)
5. 6. Smeaton's Pyrometer
(Referred to at Miscellany, XXIII. fig. 5, 6.)
7. 8. Fergufon's Pyrometer
(Referred to at Miscellany, XXIII. fig. 7, 8.)
9. De Luce's Pyrometer
(Referred to at Miscellany, XXIII. fig. 9.)
10. Rain Gage
(Referred to at Miscellany, XXIV. fig. 2.)
11. Rain Gage of the Royal Society
(Referred to at Miscellany, XXIV. fig. 3.)

XVII. Gas Lights
Fig. 1—3. Mr. Clegg's Apparatus
4. Dr. Stanecliffe's Ditto
5. Mr. B. Cooke's Ditto

XVIII. Fig. 1—18. Gem Engraving
XIX. Fig. 1. Glanders
2, 3. Dr. Wollaston's Goniometer
XX. Fig. 1. Thorley's Bee-Hive
2—4. White's Ditto
5. Icehousé
6. Supple's Mortar Mill
7. Horle
8, 9. Drapery
(Referred to at Miscellany, Plate XII. fig. 1, 2.)
XXI. Fig. 1—4. Bramah's Patent Lock
5—8. Rowntree's Ditto
(For Bramah's Lock, see the preceding Plate. No Plate numbered XXII.)
XXII. Fig. 1, 2. Marble Mill
3. Marquetry
(See another View of this Machine, Miscellany, XVI. fig. 3.)
XXIII. Fig. 5, 6. Pentagraph
& XXIV. (XXIII.)
7, 8. Perch of a Coach
9. Parabolic Frustum
10, 11. Conoid
12. Pediment
(See Plate Basilic, Architecture, Plate XI. & XII.)
XXIV. Fig. 1—5. Perpective Machines
6. Pot-albe
7. Potassium
8. Water Spout
XXV. (Referred to at Plate XXIV.)
Fig. 1. AEolus's Harp
2. Cowth
Fig. 3. Filtration
(Referred to at Miscellany, Plate XIII. fig. 11.)
4. Marine Trumpet
4. Supple's Mortar Mill
(See Miscellany, Plate XX. fig. 6.)
5. 6. Hearing Trumpet
7, 8. Speaking Trumpet
9. Voice
10. Tide Dial
(Referred to as Dialling, Plate IV. fig. 36.)

MONOGRAMS OF FRENCH ENGRAVERS.

Wendel Reich

MONOGRAMS OF GERMAN ENGRAVERS.

I. Martin Schoen
Bartholomew Schoen
Sandrart
Hans Schaufflen Senior
Junior
Martin Zagel
Albert Glockentont
Albert Altdorfer
Albert Durer
Hans Holbein
Sigismund Holbein
Lucas Cranach
Lucas Kruger
Hans Sebald Beham
Burgkmair, Balding and Brefang
Bartholomew Beham
Gregory Penz
Henry Aldegger
Hans Brofamer
Auguflin Hirhfgogel
Jacob Binek
Henry Lautenfack
Hans Sebald Lautenfack
Theodore de Brie
Christopher Stimmer
David or Daniel Hopfer
Jerome Hopfer
Tobias Stimmer
Melchior Lorich
Virgil Solis
Christopher Maurer
Christopher Jammitzer
Joist or Jodocus Amman
Matthew Greuter
J. F. Greuter
Dominic Cuftos
Theodore Cruger
Matthias Cruger
Wolfgang Kilian
Lucas Kilian
Bartholomew Kilian
Matthew Merian
Christopher Jegher
Weneclaus Hollar
### MONOGRAMS OF THE ENGRAVERS OF THE LOW-COUNTRIES.

**I.**
- John Collaert
- Jerome Bos or Bofche
- Jacob Bosius
- Henry Goltzius
- Peter Coeck
- Walter Van Afferen
- Lucas Jacobs
- Adrian Collaert
- Cornelius Metenfis
- Cornelius Bos
- Martin Hemikerck
- Peter Breughel
- Cristin de Palle
- Dietrich Van Staren
- Henry Van Cleef
- Willem de Palle
- Dirk Volkart Coornaert
- Francis Babylone
- Cristin Vanden Broeck
- Jerom Cock
- Martin Van Cleef
- Magdalen de Palle
- Simon Palle
- Christopber Van Sichem
- Hanfer John Bol
- Cornelius Van Sichem
- John Sadeler
- Philip Galle
- Cornelius Cort
- Nicholas de Bruyn
- Affuerus Londerfeil
- Jerom Wierix
- Abraham de Bruyn
- Zachary Dolendo
- Paul Morelfe
- Karl Van Sichem
- James Matham
- James de Chein the elder
- John or Hana Saenredam
- Bartholomew Dolendo
- William Saenredam
- Henry Hondius
- Abraham Bloemart
- Joit Hondius
- Lucas Vorlhefer
- William Hondius
- David Teniers
- Cornelius Blecker
- Michael Natalis
- Sheltius a Bolswert
- Efais Vandevelde
- Albert Flamen
- Adam a Bolswert
- Peter Molya

### MONOGRAMS OF ITALIAN ENGRAVERS.

**I.**
- J. Ant. de Breffe
- Andrea Mantegna
- Nicolas da Modena
- Agofino of Venice
- Dominico Beccafumi
- Jerome Mocetto
- Leo Daris or Lion Davia
- Marc Antonio
- Marc of Ravena
- Julio Bonafone
- Dominic Barbieri
- Nicholas Beatrice of Lorraine
- Lucas Penni
- Jean Baptifi Gihi
- George Ghifi of Mantua
- Adam Ghifi

**II.**
- Boldrini
- Martin Rota
- Antonio Fantuzzi
- J. J. Caraglio
- Antonio Salamanca
- Gafpar ab Aibus
- J. Baptiffa Cavaleria
- Mario Kartaro
- Jaques Palma
- J. Baptifi Paghi
- Francechini
- Cherubino Alberti
- Andrea Andreani
- Jean Louis Valefio
- Annibal Caracci
- Antonio Tempefia
- Odoard Fialleti
- Louis Civoli
- Francisco Villamena
- Guido Reni
MUSICAL INSTRUMENTS.

I. Ancient Musical Instruments

Fig. 1. Timbrel or Tambour de Basque

2. Cithariftria, or female Minstrel

3. Double Lituus

4. Pan playing on the Syrinx

5. A Bacchanal playing on two Flutes of the fame Pitch, *tibia pares*

6, 7. Antique Theatrical Mafques

8. A genuine ancient metallic Lituus

II. Ancient Musical Instruments and Mafks

Fig. 1. A Greek Bariton or Harp

2. Mask of the Hercules urens of Euri-pides

3. Mask of Thais from Terence’s Enunx

4. A Figure from the Herculeanum Paintings

5, 6. Lyres from Sir W. Hamilton’s Vafe.

III. Ancient Musical Instruments

Fig. 1—3. Group of Musicians performing an Epithalamium, from a Piece of Ancient Sculpture in the Ghigi Palace at Rome

4. The *Tuba*, or Trumpet of the Jubilee

5. Cupid playing on a double Flute, or *tibia pares*

6—10. From Egyptian paintings in the Tombs of the kings of Thebes

IV. Ancient Musical Instruments

Fig. 1, 2. The Teftudo, or Lyre of Amphion, front and profile

3. Lyre of Terphíchore, in the Picture of that Muse, dug out of Herculeanum

4. Flätery from the Picture of Erato, dug out of Herculeanum

5. Trigonon, or Triangular Harp

6. Abýssinian Téftudo

7. Étruscan Lyre with seven Strings

8. Lyre in an ancient Picture dug out of Herculeanum, on which Chiron is teaching young Achilles to play

9. An Egyptian Syrtrim

10. An ancient Lyre richly ornamented

V. Indian Musical Instruments

Fig. 1. From an original Indian Painting

2. The Béen, an Indian Musical Instrument

VI. Pandean Minstrels in performance at Vauxhall

VII. Welsh Harps

Single Harp
MUSICAL INSTRUMENTS.

Plate

VII. Ancient Triple Harp
Modern Triple Harp
(For Guitar, referred to this Plate, see Plates IX. XIII. & XV.)

VIII. Fig. 1—5. Origin of the Bow
IX. Russian Musical Instruments
Goudok. Rebec with three strings
Geldaika
Double Flutes of the Ancients
Rok, or Hunting Horn of Siberia
Rojoik
Balalaika, Guitar with two strings

X. Harps
Fig. 1, 2. Harp of Brian Boromh
3. Silver Prize Harp
4. Bell Harp

XI. Fig. 1. English Common Flute
2. German Flute
3. Improved Ditto, with additional keys
4, 5. Hautboys
6. B Fife
7. C Fife
8. English Flageolet
9. Gong
10. Tabour
11. Pipe

XII. Fig. 1, 2. Hunting Horns
3. Serpent
4. French Horn
5. Bugle
6. Sackbut or Trombone

XIII. Fig. 1. Arch Lute
2. Mandoline
3. Mandola

XIV. Fig. 1. Violin
2. Bow
3. Sordine or Mute
4. Violoncello
5. Violino Piccola, or Kit
6. Viol de Gamba of the 16th Century

NAVAL ARCHITECTURE.

Plate

XV. Fig. 1. Viol d’Amour
2. Mandore
3. Spanish Guitar
4. Lute
Chimene Musical Instruments
Ching
King
(See Miscellany, Plate I. fig. 8, 9.)

NAVAL ARCHITECTURE.

I. Draught of a Ship of 74 Guns
Sheer Plan
Half-breadth Plan
Body Plan
Perpendicular View of the Stern

II. Disposition of the Frame of a Ship of 74 Guns

III. Frame

IV. Profile of a Ship of 74 Guns, inboard work

V. Plans of a Ship of 74 Guns
Plan of the Gun Deck
Orlop
(Numbered Plate VI.)

VI. Plans of the Quarter Deck, Forecastle, and Upper Deck of a Ship of 74 Guns

VII. Fig. 1—12. A Ship of 74 Guns, laying off A
VIII. Fig. 1—12. A Ship of 76 Guns, laying off B
IX. Fig. 1—12. A Ship of 74 Guns, laying off C
X. Fig. 1—8. A Ship of 74 Guns, laying off D
XI. Frigate of 48 Guns

XII. An East Indianman

XIII. Royal Sovereign Yacht

XIV. Fig. 1—3. Scale of Tons
4—8. Whole Moulding
3—6. Hill’s Machine for drawing Ships’ Bolts
(See also Mechanics, Plate XXII. XXIII.)

PLATES. VOL. IV.

NAVIGATION—WRITING BY CIPHER.

Plate

I & II. Fig. 2, 3. Meridional Parts
(Referred to as Plate II. fig. 8, 9.)
4—8. Tide
(Referred to as Geography, Plate I. fig. 10—14.)
7. Forefaff
(See Astronomical Instruments, Plate I. fig. 3.)

II. Fig. 1—3. Hadley’s Quadrant, theory of
4. Sinical Quadrant
5, 6. Rhumb Line
7. Variation
8, 9. Ditto
(Referre to as Analysis, Plate XIII. fig. 1—2.)
8, 9, Meridional Parts
(See Plate I. fig. 2, 3.)
4 U

Vol. XXXIX.
OPTICS.

Plate

II. (II.) Fig. 10. Nocturnal
(See Astronomical Instruments, Plate I., fig. 6.)

II. & IV. Fig. 1—4. Rudder
5—18. Plain Sailing
II. Fig. 19. Plain Sailing
20—23. Parallel Sailing
24. 25. Mercator's Sailing
26—34. Great Circle Sailing

III. Fig. 1, 2. Traverse Sailing
3—6. Current Sailing
1—3. Naval Tactics
(Referred to as Naval Tactics, Plate I., fig. 1—3.)
1—5. Trigonometry
(Referred to as Trigonometry, Plate III. fig. 1—5.)

NOTATION.
Plate of Arithmetical Characters
(See Miscellany, Plate I., fig. 7.)

OIL MILL.
Smeaton's Oil Mill
1. Plan
2. Elevation

OPTICS.
I. Fig. 1. Aberration
2—4. Angle
5. Burroughs's Machine, Perspective View
(Referred to as Plate II., fig. 4, 5.)
13. Altitude
(See Plate IV., fig. 11.)

II. Fig. 1—3. Parker's Burning Lens
4, 5. Burroughs's Machine
(See Plate I., fig. 5.)

III. Fig. 1—7. Camera Obscura
IV. Fig. 1, 2. Catoptric Gatula
2—4. Dioptrics
5, 6. Dispersion of Light
8. Focus
(Referred to as Plate V., fig. 2.)
9. Looking Glasses
(Referred to as Plate IX., fig. 10.)
10—13. Shadow
14—16. Visible
17. Vision

(V.) Fig. 1. Virtual Focus
2. Eye
2. Focus
(See Plate IV., fig. 8.)
3—7. Grinding Machine

(VI.) Fig. 5—11. Lens
VI. Fig. 1. Heliolata
2. Bed of Hones
3. Horopter
4. Refraction
(This figure is not numbered)

VII. Fig. 1—12. Lens

Plate

VIII. Fig. 1—12. Lenses
IX. Fig. 1—9. Light
10. Looking Glasses
(See Plate IV., fig. 9.)

X. Fig. 1—3. Magic Lantern
4. Apparent Magnitude
5—11. Micrometer

XI. Micrometer
Fig. 1. Dr. Malkedney's
2—4. Troughton's
5. Herschel's Lamp Micrometer
6. Ditto, the arm enlarged
7, 8. Ditto, the lamp open with the weight W
9. Ditto, the lamp shut
(Fig. 7, 8, 9, are not numbered on the Plate)
10. Microscope
(The same as Plate XII., fig. 1.)

XII. Fig. 1—12. Microscope, Single

XIII. Microscopes
Fig. 1. Marshall's
2. Culpepper's
3, 4. Reflecting Microscope
5. Dr. Smith's Ditto
6—8. Solar Microscope
(For Mirror, see Plate XV.)

XIV. Compound Microscope
1—4. Adams's
5—11. B. Martin's

XV. Fig. 1. Incidence, Inclination
2—18. Mirror
19. Motic Volantes
20. 26. Centering Object Glasses
21. Opera Glasses
22. Optical Inequality
23. 24. Parhelion
(Referred to as Plate XVII., fig. 8, 9.)

XVI. Fig. 1—8. Improved Solar Microscope
(This is referred to under the article Microscope as Optics, Plate XV.)
(For Opera Glasses, see Plate XV., fig. 21.)

XVII. Fig. 1—8. Optometer, &c.
9. Optic Place
10. Pencil of Rays
(The reference to fig. 11, under Plate, in Optics, should be to fig. 9.)
11, 12. Polyhedron
(Referred to as fig. 12, 13)
12. Polemofcope
13. Polyoptrum
(Referred to as fig. 14.)
14. Reflection
15. Reflexibility
(For Parhelion, see Plate XV., fig. 23, 24.)

XVIII. Rainbow, Refraction
Fig. 1—9. Rainbow
10—24. Refraction of Light

XIX. Fig. 1—15. Refrangibility of Light
XX. Fig. 1—4. Shadow
(See Optics, Plate IV., fig. 10—13.)
5—7. Visible
(See Plate IV., fig. 14—16.)
8. Vision, theory of
(See Plate IV., fig. 17.)
PNEUMATICS.

PLATE

III. Fig. 2. By Mr. Joseph Priestley

IV. Fig. 1—6. Equation Mechanism of a Planet’s Orbit by the Rev. W. Pearson

V. First Portion of the Orrery for Equated Motions

VI. Fig. 1—3. Janvier’s Orrery

VII. Fig. 1—4. Section of the Improved Orrery for Mean Motions

VIII. Perspective View of the Improved Orrery for Mean Motions, by the Rev. W. Pearson

IX. Dials graduated for showing different Planetary Phenomena

Fig. 1. Dial for the Equation of the Sun’s Centre

2. Ditto, Sun’s Declination

3. Ditto, Reduction of the Ecliptic to the Equator

4. Ditto, Moon’s Mean Equation of the Centre

5. Ditto, Moon’s Mean Heliocentric Latitude

6. Ditto, Moon’s Horizontal Parallax only

7. Ditto, Moon’s Mean Horizontal Diameter and Parallax

8. Ditto, Equation of the Mean High Tides

X. Fig. 1—5. Planetarium of the Royal Institution, by Mr. Pearson

XI. New Planetarium for Equated Motions by Dr. Pearson

Fig. 1. Elevation

2. Plan of the Movement for the Arm of Saturn

XII. Fig. 1. Roemer’s Satellite

2—4. Pearson’s Ditto

5. Janiers Jovibae

XIII. Fig. 1—3. Pearson’s Large Machine for Jupiter’s Satellites

PLANING MACHINE.

I. Fig. 1—6. Mr. Bramah’s Machine

II. Fig. 8—13. Ditto

PLATED MANUFACTURE.

I. Fig. 1, 2. Die Stamp

3. Bit Swage for Mountings

4. Common Swage

5—7. Parts of the Machine

8—10. Grooved Rollers for Beads, &c.

11. Embossing Punches

12. Furnace

PNEUMATICS.

PLATE

I. Fig. 1—12. Aerostation

II. Fig. 5—8. Ditto

III. Fig. 14—23. Air Gun

IV. & V. (Numbered Plate VI.) Fig. 24, 25. Air Pump, and Experiments on Air

(V.) Fig. 26—32. Experiments on Air
PNEUMATICS.

Plate
VI. Fig. 45. Smeaton's Air Pump
46. 47. Nairne's Ditto
VII. Fig. 48—55. Air Pump, and Experiments on Air
VIII. Fig. 56, 57, & 68. Ditto
IX. No. 2. Fig. 58—62. Ditto

63—66 Cuthbertson's Air Pump
69. Anemometer
70, 71. Arzaxometer
72. Atmosphere
73. Barometer
(Referred to as Plate IX. fig. 73.)

IX. Bacchus
Fig. 73. Bacchus
(See the preceding Plate, fig. 73.)

74, 75. Auzent's Experiment
96. Common Barometer
17. Des Cartes'
86. Huygens's
79. Dr. Hooke's
80. Horizontal
81. Diagonal
82. Wheel
83. Pendulum
84. Chamber
85. Vernier

X. Fig. 86, 87. Marine Barometer
88. Caufell's
89, 90. Rowning's
XI. Barometer
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

XII. Fig. 100—106. Jones's Portable Barometer
XIII. Fig. 107—117. Bellows

XIV. Fig. 1—2. Condensers

3. Condensing Engine
4. Pear Gage
5—7. Gage of a Condenser
6. 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. Bouguer's Ditto
13. Leflie's Thermometer
(Referred to as Plate XVI. fig. 17.)
14. Kewley's Thermometer
(Referred to as Plate XVI. fig. 18.)

XVI. Thermometer
Fig. 1. Drehel's Air Thermometer
2. Bent Thermometer
3. Bernoulli'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. Leflie's Ditto
(See Plate XV. fig. 13.)
18. Kewley's Thermometer
(See Plate XV. fig. 14.)

XVII. Fig. 1—7. Ventilator

PORTER BREWERY.

Fig. 1—5. Section of the Building and Machinery

POTTERY.

Vertical Section of a Furnace
Horizontal Section

PRESS.

Fig. 1—7. Bramah's Hydrostatic Press

PRESSURE.

Water Pressure Engine
(See Engine, Plate I.)

PRINTING.

I. Fig. 1—6. Stanhope or Iron Press
II. Fig. 1—6. Bramah's Bank-Note Printing Machine
III. Fig. 1. Bacon and Donkin's Printing Machine
IV. Fig. 1. Perspective View of a common Printing Press
2. Composing Stick

PROJECTION.

I. Fig. 1—13.
II. Fig. 1—7. Fig. 8. No. 1, 2. Fig. 9, 10.
(The reference to fig. 13. should be to fig. 10.)
III. Fig. 1. No. 1—6. Fig. 2. No. 1—6.
IV. Fig. 1. No. 1—3. Fig. 2. Fig. 3. No. 1, 2.
Fig. 4. No. 1—3. Fig. 5—11.
V. Fig. 1—4. Fig. 5. No. 1—3. Fig. 6—9.
VI. Fig. 1—5. Fig. 6. No. 1, 2. Fig. 7. No. 1, 2.
Fig. 1—12.

VII. Fig. 1. No. 1, 2. Fig. 2—9.

XIX. Fig. 1—14.
X. Fig. 1. No. 1, 2. Fig. 2. Fig. 3. No. 1, 2.
Fig. 4. No. 1, 2. Fig. 5—13.
Fig. 14. No. 1, 2.
(These figures are at the bottom of the Plate, and are numbered fig. 1. No. 1, and fig. 1. No. 2.)

PROPORTIONAL COMPASSES.

I. Fig. 1—10.
(The reference to fig. 10. at the end of the Scale of Tangents, should be to fig. 11.)
11—14. Fig. 15. No. 1, 2. Fig. 16, 17. No. 1.
(The last figure wants the letter Z in the centre, at the intersection of the lines A E and C G)
17. No. 2.
(This figure wants the letter X at the bottom)
SHIPS.

PYROTECHNY.

Fig. 1—17. Fireworks.
(The reference under Rocket to fig. 18 should be to fig. 17.)

RIGGING.

I. Fig. 1—49. (See Ships, Plate II.)
II. Fig. 1—23. (See Ships, Plate III.)
III. Fig. 1, 2. (See Ships, Plate IV.)
IV. Fig. 1, 2. (See Ships, Plate V.)

SCENOGRAPHY.

I. Fig. 1—10.

SCULPTURE—Statues.

I. Cupid and Psyche, from an Antique Marble Group, in the Capitol
II. The Fame from different Views
I. Hercules of Dædalus
Cupid of Praxiteles
Minerva of Dipenus and Scyllis
Venus of Praxiteles
Jupiter Olympus
Minerva of the Acropolis, in Athens
II. Hercules Farnefe
Phocion
Dirce
III. Venus de Medicis
Apollo Belvidere
Laocoon
IV. Durga slaying Mahishasura; a Hindú Group
An Etruscan Patera, in the British Museum
A Colossal Statue, at Thebes
Persian Sculpture, at Persepolis
A Chinefe Statue
Persian Sculpture, at Persepolis

SHADOW.

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.

I. Fig. 1. Bolton’s Machine for drawing Bolts
2, 3. Phillips’s Tubes for driving Ditto
4. Ring Rope
5. Bits
5. Application of the Messenger
6. 7. Nippers

SILK MANUFACTURE.

Plate

II. Rigging, Plate I.
Fig. 1—15. Knotting
16—24. Hitches
25—32. Bends
33—42. Splices
43—49. Hawser

III. Rigging, Plate II.
Fig. 1—23. Blocks, Pendants, Braces, Stays, &c.

IV. Rigging, Plate III.
Fig. 1. Standing Rigging
2. Running Rigging

V. Rigging, Plate IV.

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
Corracore
Life Boat
Spring Block, Fig. 1, 2.
(Some of the preceding figures are referred to as on Boats, Plate II.)

VIII. Masts. The different Pieces which compose the Main Mast of a 74 Gun Ship

IX. Anchors and Buoys
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 Hawse
Flat Anchor in Use

Fig. 1, 2. Block, Spring
(See Ships, Plate VII.)

SHORT-HAND.

Letters
Words
Prepositions
Terminations
Miscellaneous Examples
Common Contractions
Vowels’ Places
Figures

SILK MANUFACTURE.

Fig. 1. Reeling
2. Winding
STONEHENGE.

Plate
Fig. 3,  Throwing
4, 5,  Doubling
6,  Warping

STEAM ENGINE.
I.  Fig. 1.  Savery's Steam Engine
2.  Papin's Ditto
3.  Blakey'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. Smeaton
(This is wrongly numbered Plate I.)
Mr. Watt's Engine
Fig. 1, 6.  Single Acting Engine for Pumping, at Chelsea Water Works
V.  Fig. 1, 2.  Hornblower's Engine
3—7.  Woolfie's Ditto
8.  Cartwright's Ditto
VI.  Boulton and Watt's Engine, on the original Construction
(This is wrongly numbered Plate III.)
VII.  Fig. 1—13.  Cylinders, Pilons, &c.
VIII.  Fig. 1.  Steam Boat, Elevation
2.  Ditto, Plan
3.  Maudslay's Steam Engine
4, 5.  Murray's Ditto
VII.  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.)

STEREOTOXY.
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
as originally
Elevations
Sections
SUGAR MILL.

Plate
Fig. 1.  Elevation
2.  Plan

SURGERY.
I.  Fig. 1—6.  Tourniquets, and Amputating Instruments
II.  Fig. 1.  Amputating Saw
2.  Large Amputating Knife
3.  Smaller Ditto
4.  Catling
5.  Metacarpal Saw
6.  Crooked Bifloury
7.  Probe-pointed Crooked Bifloury
8.  Straight Double-edged Scalpel
9.  Tenaculum
10.  Aneurism Needle
11.  Forceps for taking up the Mouths of Vessels
11.  Bone Nippers
III.  Fig. 1—5.  Needles for sewing up Wounds
4.  Spatula
5.  Lancet
6.  Eye Probe
7.  Cautief 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. Cline'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 Blizard's Ditto
8.  Frère Colme's Bifloury 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 Scull
3.  Tripod Elevator
4.  Petit's Elevator, improved by Louis
5.  Old Conical Saw
6.  Trepan
**SURGERY.**

**Plate VIII. No. 2.** Trepamming Instruments

Fig. 1. Spring Forceps for extracting the Circle of Bone and Fragments

2. 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. Raptorary

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

**Fig. 1—3.** Common Trusses

4. Dr. Hulme's Palm Truss

5. Mr. Whitford's Ditto

7. Mr. Salmon's Patent Ditto

8. Mr. Marrison's Ditto, for Exomphalos

9—11. Mr. Egeland's Ditto

**Instruments for the Extraction of Cataract.**

**Fig. 1.** Minute Steel Tenaculum, for extracting Bits of the Capfule

2. Cline's Instrument for dividing the Capfule

3. La Faye's Cyztome for Ditto

4. 5. Sciflars for enlarging the Wounds of the Cornea

6. Tube for injecting Quicksilver into the Lachrymal Sac

7—10. And's Syringe and Pipes

11. Ware's Stiles

12. Wathen's Tubes

13. Small Lancet for puncturing the Lachrymal Sac

14. Gibfson's Knife for Lithotomy

**Instruments for Couching, and the Extraction of the Cataract.**

**Fig. 1.** Broad Silver Hook for raising the Upper Eyelid

2. Pellier's Hook for the same purpose

3. A flender round Couching Needle

4. Spear-shaped two-edged Ditto

5. 6. Scarpa'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 Cataract

**Plate IX.**

**Fig. 1—2.** Protractor

2. Semi-circle (See Plate VII. Fig. 3.)

3—9. Chain, Measuring by

10. Convergency of Meridians

(Referred to as Plate II. Fig. 10.)

**Fig. 1, 2.** Level, Common Spirit

3. Huygen's Level

4. American Ditto

5. 6. Watering Ditto

7—11. Defagullers's

**II. & III.** Fig. 1—3. Circumferentor

10. Convergency of Meridians

(See Plate I. Fig. 10.)

**Fig. 1—6.** Crops

9. Dendrometer

(See Plate VI.)

**Fig. 1, 2.** Foot Level

2. 3. Gauging

4—6. Rod

5. Artificer's Level

6. Artillery Foot Level

7. Gunner's Level

8—12. Mercurial Ditto

13. Plumb Ditto

**V.** Fig. 1—3. Levels by Mr. Ramsden

4. Troughton's Level

**VI.** Levels (See Plate I.)

**VI.** Fig. 1—8. Plain Table

9, 10. Perambulator

11. Plotting

12. Scale

13. Quadrant for measuring Heights

14. Carpenter's Rule

**VI.** Fig. 7, 8. Dendrometers

(Referred to as 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. Coggehall's Ditto

6—9. Roget's Ditto

**VIII.** Fig. 1—5. Grand Theodolite, by Ramsden

**IX.** Fig. 1—9. Portable Theodolite, by Troughton

**X.** Map of an Estate, near East Sheen, surveyed by James Wadmore, jun.

**TELEGRAPH.**

**Fig. 1—13.** Vocabulary and Machinery

**TRIGONOMETRY.**

**Plate**

**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. Cofines
   13. Verified 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
   14—22. Trigonometry

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 Instrumens.

VEGETABLE ANATOMY.

I. Fig. 1—11. Bark
II. Fig. 1—20. Branches and Buds
(See Plates, Vol. V. NATURAL HISTORY.)

VOLTAISM.

I. Fig. 1—8. Battery, &c.
   (This is the only Plate of Voltaism.)

WATER WHEELS.

I. Overfhot and Underfhot
   Fig. 1. Mr. Smeaton's Breast Wheel
   2. Pentrough
   3, 4. Mr. Nouaille's Overfhot Wheel
   5, 6. Buchanan's improved Wheel and Pentrough
   6. Chain of Buckets
   7. Improved Breast Wheel
   8. Greasing Machine

II. Fig. 3. Breast Wheel with two Shuttles at Meffes, Strutt's Works
   4. Ditto improved, at the Royal Armoury Mills
   5. Burns's Overfhot Wheel
   9. Method of laying on Water

WATER WORKS.

I. Machines for raising Water
   (This Plate is not numbered.)
   Fig. 1. Momentum Pump
   2, 3. Mr. Boulton's Machine for raising Water
   4—6. Hydraulic Ram
   7. Mr. Whitehurst's Machine for raising Water
   8. Siphon Machine
   9. Machine for raising Water by the lateral Communication of a Stream
   10. Goodwin's Siphon Machine

WATER PRESSURE ENGINE.

Fig. 1—5. Smeaton's Water Pressure Engine

WEAVING.

I. Mr. Aulin'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 Head
3, 4. Elevations
5. Plan

WIRE-MILL.

Fig. 1—13. Machinery for Wire-Drawing

WOOLLEN MANUFACTURE.

I. Stubbins 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 Plate Painting)
   Anatomical Structure
   (See Plate Anatomy)
2* Varieties of Homo Sapiens, Rational Man, according to Climate
   a Americanus, American Man
   b Europæus, European
   γ Asiaticus, Asiatic, (of Palestine)
   (of China)
3 Africæ, 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. Jacca, Chefnut Otan, or Outang
   3. Simia Traglithes, (Gmel,) Satyrus indicus
      Tulippa. Chimpanzee
   4. Simia Lar, (Gmel,) Long-armed Ape
      Simia longimana, (Schreb.)
   5. Simia Inwius, Barbary Ape
   6. Simia Syloanus, Pigmy Ape

Vol. XXXIX.

Plate

1. Fig. 7. Simia Edipus, Red-tailed Ape
8. Simia Jacchus, Striated Ape

Genus Lemur.
2. Lettered Mammalia, Order Primates, Genus Lemur, Plate II.
   Fig. 1. Lemur Podis, Tarier Lemur
   2. Lemur ecaudatus, Tailles Lemur, or Maucauco
   3. Lemur murinus, Murine 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 Sapsina, Cordate Bat
   4. Vespertilio leporinus, Peruvian Bat
   5. Vespertilio Spectrum, Spectre Bat

Order Brattr.

Genus Bradypus.
4. Lettered Clas Mammalia, Order Brattr, Genus Bradypus
   Fig. 1. Bradypus tridactylus, Three-toed Sloth
   2. Bradypus didactylus, Two-toed Sloth
NATURAL HISTORY.

Plate

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 Ornithorhynchus.

Fig. 6. Ornithorhynchus 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 Short-tailed Manis
2. Manis tetradactyla, (Schreb.) Four-toed Manis, or Long-tailed Manis

Genus Dasypus.

3. Dasypus fuscidentus, Six-banded Armadillo
4. Dasypus nocomscindus, Nine-banded Armadillo
5. Dasypus duodecimcindus, (Schreb.) Twelve-banded Armadillo

Genus Rhinoceros.

Fig. 1. Rhinoceros unicornus, 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, Clafs Mammalia, Genus Trichechus
Fig. 1. Trichechus Rosmarinus, Arctic Walrus, or Morfe
2. Trichechus Manatus, Æ borealis, Whale-tailed Manatus

Genus Phoca.

Fig. 3. Phoca Ursina, Urnine Seal
4. Phoca groenlandica, Harp Seal
5. Phoca Vitulina, Sea Calf, or Common Seal
6. Phoca maculata, Kurile or Spotted Seal

Plate

Genus Canis.

9. Lettered Quadrupeds, Dogs, Plate II. of Order Ferae
Fig. 1. Canis familiaris, Shepherd's Dog?
2. Diugo, Australoisan, or New Holland Dog
3. Canis familiaris, var. Pomeranian Dog
4. Canis Æ pomeranus, Ditto
5. Canis var. Sibiricus, Siberian 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. brevifiliis, King Charles's Dog
2. Molosseus, Bull-dog
3. var. Ægyptius, Naked or Turkish Hound
4. fricator, Fug-dog
5. Spaniel
6. Shock
7. var. variatigratus, Small Dane
8. leoninus, Lion Dog
9. hybridus, Roquet

11. Lettered Quadrupeds, Plate V. Dogs, Genus XV. Canis
Fig. 1. var. Anglicos, Maftiff
2. Molosseus, Bull-dog
3. Great Danish, or Harlequin Dog
4. Dalmatian Dog

12. Lettered Quadrupeds, Dogs, Plate IV. of Order Ferae, Genus XV. Canis
Fig. 1. Old English, or Talbot Hound
2. Beagle
3. Harrier
4. Blood Hound

13. Lettered Quadrupeds, Dogs, Plate V. of Order Ferae, Genus XV. Canis
Fig. 1. Stag Hound
2. Fox Hound
3. Larger Terrier
4. Smooth Terrier
5. Rough Terrier

14. Lettered Quadrupeds, Order Ferae, Genus Canis
(No number on the Plate)
Fig. 1. Canis Lupus, Wolf
2. Canis Hyena, Striped Hyena
3. Canis Mefomela, 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, Lionefs, 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, Congouar
   2. Felis Lync. 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 Ferae, Genus Felis
   Fig. 1. Felis pardalis, Ocelot
   2. Felis Tigrina, Margay
   3. Felis Servalis, Serval
   4. Felis Catus, Wild Cat
   5. Felis b domesticus, Tame or domesticated
   6. Tortoiseshell Cat
   7. Felis g angorensis, Angora Cat
   8. Felis c ceruleus, Slate-coloured Cat, (Blue or Chartreux.)

Genus Viverra.

19. Lettered Quadrupeds, Order Ferae, Genus Viverra
   (No number on the Plate)
   Fig. 1. Viverra Zibetha, Zibet, or Indian Musk Weefel
   2. Viverra Fossa, Fofane
   3. Viverra Ichneumon, Ichneumon Weefel
   4. Viverra Nysa, Bushcat Weefel
   5. Viverra Civetta, Civet Weefel, or Civet-Cat, African Musk Weefel

Genus Ursus.

20. Lettered Quadrupeds, Order Ferae, Genus Ursus
    (No number on the Plate)
    Fig. 1. Ursus Lutris, Sea Otter, Greater Otter
    2. Ursus Luxa, Common Otter
    3. Ursus Foina, Martin
    4. Ursus Zibellina, Sable, or Fisher Weefel

Genus Hystrix.

21. Lettered Quadrupeds, Order Ferae, Genus Hystrix
    (No number on the Plate)
    Fig. 1. Hystrix Crivata, Common or crested Porcupine
    2. Hystrix Pheasitus, Brazilian Porcupine
    3. Hystrix Dorsata, Canadian Porcupine (white variety)

Genus Cavia.

22. Lettered Quadrupeds, Order Glires, Genus Cavia
    (No number on the Plate)
    Fig. 1. Cavia Sagu, Long-nosed Cavy
    5. Cavia Magellanica, Patagonian Cavy
    6. Cavia Paca, Spotted Cavy

Genus Castor.

23. Lettered Quadrupeds, Order Glires, Genus Castor
    (No number on the Plate)
    Fig. 1. Castor Ferox, Common Beaver

Genus Mus.

24. Lettered Quadrupeds, Order Glires, Genus Mus
    (No number on the Plate)
    Fig. 2. Mus Zibethicus, Musk Rat
    3. Mus Decumanus, Norway Rat
    4. Mus Musculus, Common Mouse
    5. Mus Cricetus, German Hamster Rat
    6. Mus Bursarius, Purse Rat or Canada Rat
    7. Mus Capenfis, Cape Mole-Rat

Genus Aecotomys.

25. Lettered Quadrupeds, Order Glires, Genus Aecotomys, &c.
    (No number on the Plate)
    Fig. 1. Aecotomys Citillus, (Schreb.) Variegated Marmot
    2. Aecotomys Emptera, Canadian Marmot

Genus Sciurus.

26. Lettered Quadrupeds, Order Glires, Genus Sciurus, &c.
    (No number on the Plate)
    Fig. 3. Sciurus Petaurista, Taquan, or Taguan flying Squirrel, Sailing Squirrel (Peru.)
    4. Sciurus Getulus, Barbary Squirrel
    5. Sciurus Vulgaris, Common Squirrel

4 X 2

NATURAL HISTORY.
3. Lettered Quadrupeds, Genus Antilope (No order or number on the Plate)

Fig. 1. Antilope Rupicapra, Chamois
2. Antilope Cervicapra, Antelope
3. Antilope pygmea, Royal Antelope, or Pigmy Antelope
4. Antilope Gymnus, Guinea Antelope
5. Antilope Gnou, Gnoo

32. Lettered Quadrupeds, Genus Capra (No order or number on the Plate)

Fig. 1. Capra Iber, Iber Goat
2. Capra Aegagrus, Mountain-cultivated Goat (Donov. Brit. Quadr.)
3. 4. Capra Aegagrus, Domesticated Goat (Donov. Brit. Quadr.)
5. Capra Aegagrus, (var. membrica) Syrian Goat
6. Capra Aegagrus, (var. angorenfs) Angora Goat

33. Lettered Quadrupeds, 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

35. Lettered Quadrupeds, Bos, Taurus (No order or number on the Plate)

Bos, Taurus, Ox
fig. 1. var. Scottith Wild Ox, the Bull
2. The Cow and Calf

36. Lettered Quadrupeds, Bos, Taurus (No order or number on the Plate)

Bos, Taurus, Common Ox
var. Long-horned or Lancashire Breed

Order Bovine.

Genus Equus.

37. Lettered Horses, Plate 1. (No order on the Plate)

Equus Caballus, Horse
fig. 1. var. Shetland Poney
2. var. English Cart Horse

38. Lettered Quadrupeds, Order VI, Belluæ, Genus 33, 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
NATURAL HISTORY.

Plate

Genus Hippopotamus.

40. Lettered Quadrupeds, Genus Hippopotamus (No number on the Plate)
Fig. 1. Hippopotamus amphibius, Hippopotamus

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 Babyrussa, Babyrussa
3. Sus Aethiopicus, Ethiopian Hog
4. 5. Sus Scrofa, (domesticus &c) Domesticated Hog

Order Cete.

Genus Monodon.

42. Lettered Mammalia, Order Cete, Genus Monodon, &c. (No number on the Plate)
Fig. 1. Monodon Monodon, 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. Mus. Vide Donov. Brit. Quadrupeds)

Genus Baleana.
Fig. 2. Balea Myticetus, Great Mythicetus, or Common Whale
3. Balea Balo, 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 Phocoena, Porpoise
4. Delphinus Delphis, Dolphin

ORNITHOLOGY.

Class II. Aves.

Order Accipitres.

Genus Vultur.

44. Lettered Division I. Land Birds, Plate II.
Fig. 1. Vultur Gryphus, Megallanic Condor, or Condor

Genus Falco.
2. Falco Chrysaetos, Golden Eagle
3. Falco Gentilis, Falcon Gentil
4. Falco Subbuteo, Hobby

Plate

Genus Strix.

44. 5. Strix Bubo, Great Horned Owl, or Eagle
6. Strix Flammea, Common Owl

Order Picæ.

Genus Psittacus.

45. Lettered Division I. Land Birds, Plate I. Order Picæ
Fig. 1. Psittacus Macao, Red and blue Maccaw
2. Psittacus Alexandri, Alexandrine Parrot
3. Psittacus Aethiopicus, var. Amazon Parrot
4. Psittacus garrulus, var. Ceram Lory
5. Psittacus Moluccensis, Great red-crested Cockatoo
6. Psittacus Bankshi, Bankian Cockatoo
7. Psittacus pullarius, Ethiopian Parrot

Genus Ramphastos.

46. Lettered Division I. Land Birds, Plate II. Picæ
Fig. 1. Ramphastos Piede, Brazilian Toucan
2. Ramphastos Aracari, Green Toucan, or Aracari

Genus Bucerós.
Fig. 3. Bucerós Rhinoceros, Rhinoceros Horn-bill

Genus Buphaga.

4. Buphaga Africana, African Beef-eater

Genus Crotophaga.

Fig. 5. Crotophaga Ani, (major) greater Ani Bird

Genus Glacopós.
Fig. 6. Glacopós 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 Caryocatactes, Nut-cracker
4. Corvus glandarius, Jay
5. Corvus citrinus, 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 Citrinus, Crested Oriole
2. Oriolus Balsamorhous, Baltimore Oriole
3. Oriolus Persicus, Black and Yellow Oriole
4. Neft of ditto

Genus Cuculús.

Fig. 5. Cuculus canorus, Common Cuckow
PLATE

48. Fig. 6. Cu-culus cupreus, Coppery Cuckow
    7. Cu-culus indicator, Honey-guide

GENUS GRACULA.

49. Lettered Division I. LAND BIRDS, Order II. Picse, Plate V.
    Fig. 1. Gracula Quiscalus, Purple Grakle
    2. Gracula calvus, Bald Grakle
    3. Gracula S. Laurus, Dial Grakle

GENUS PARADISEA.

Fig. 4. Paradisia Regia, King Bird of Paradise
5. Paradisia Apoda, Greater Bird of Paradise
6. Paradisia 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. Picse, Plate VI.
    Fig. 1. Trogon Curucui, Red-bellied Trogon

GENUS BUCCO.

Fig. 2. Bucco Lathami, Buff-faced Barbet
3. Bucco Cayennensis, Cayenne Barbet

GENUS YIXX.

Fig. 4. Yunx Torquilla, Wryneck

GENUS PICUS.

Fig. 5. Picus pileatus, Pileated Woodpecker
6. Picus Carolinus, var. Caroline Woodpecker

GENUS SITTA.

Fig. 7. Sitta Europae, European Nuthatch

GENUS ALCEDO.

51. Lettered Division I. LAND BIRDS, Order II. Picse, Plate VII.
    Fig. 1. Alcedo cristata, Crested King’s Fisher
    2. Alcedo venerata, Venerated King’s Fisher
    3. Alcedo Alecta, Belted King’s Fisher
    4. Alcedo striata, Sacred King’s Fisher

GENUS GALBULA.

Fig. 5. Galbula paradaidea, Lath. (Alcedo paradaidea, Gmel.) Long-tailed Jacamar, Paradise Jacamar

GENUS MEROPS.

52. Lettered Division I. LAND BIRDS, Order II. Picse
    Fig. 1. Merops carunculatus, Wattled Bee-eater
    2. Merops Novae Zelandiae, New Zealand Bee-eater

GENUS UPUPA.

Fig. 3. Upupa Pomerops, Cape Hoopoe

PLATE

52. Fig. 4. Upupa Epops, Common Hoopoe
5. Upupa Erythrorynchos, Red-billed Hoopoe

GENUS CERTHIA.

53. Lettered Division I. LAND BIRDS, Order Picse, Plate IX.
    Fig. 1. Certhia parvula, Great hooked-billed Creeper
    2. Certhia obscura, Hook-billed Green Creeper
    3. Certhia coccinea, Hook-billed Red Creeper
7. Certhia c. c. c., Blue Creeper

GENUS TROCHILUS.

Fig. 5. Trochilus perula, Topaz Humming Bird
6. Trochilus furcatus, Lesser-forked Humming Bird
7. Trochilus peniculus, Crested Humming Bird
8. Trochilus auratus, Tufted-necked Humming Bird
9. Trochilus minimus, Leaf Humming Bird

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, Chinefe Goose
4. Anas ganseri, Spur-winged Goose

55. Lettered Division II. WATER BIRDS, Order III. Anseres, Plate II.
    Fig. 1. Anas Erythropterus, Barnacle Goose
    2. Anas Canadenfis, Canada Goose
3. Anas Speclabilis, Grey-headed Duck
4. Anas M. M., Mallard
5. Anas Barbona, Mallard
6. Anas Galericulata, Mandarine Drake

GENUS MERGS.

57. Lettered Division II. WATER BIRDS, Order III. Anseres, Plate IV.
    Fig. 1. Mergus Merganser, Goofander
    2. Mergus Eschulatus, Crested Merganser
3. Mergus albellus, Smew, or Nun
(White Smew, Donov. Brit. Birds)
5. Mergus Bovtchus, Mallard
6. Mergus Galericulatus, Mandarine Drake

GENUS ALCA.

Fig. 4. Alca antiqua, Ancient Auk
5. Alca cirrata, Tufted Auk

GENUS APTENODYTA.

Fig. 6. Aptenodyta patagonica, Patagonian Penguin
### Natural History

#### Plate 57
- Fig. 7. *Aptenodyta papua*, Papuan Penguin
- Fig. 8. *Aptenodyta minor*, Little Penguin

**Genus Procellaria.**
58. Lettered Division II. Water Birds, Order III. Anfere, Plate VI. Obs. with six Birds.
1. *Procellaria capensis*, Pink-tailed Petrel
2. *Procellaria fuliginosa*, Sooty Petrel
3. *Procellaria peliaeica*, Stormy Petrel
4. *Procellaria gigantea*, Giantic Petrel

**Genus Diomedea.**
59. Lettered Division II. Water Birds, Order III. Anfere, Plate VI. Obs. This is the Plate VI. containing five Birds, both being lettered and numbered alike.
1. *Diomedea exulans*, Labrador Petrel
2. *Diomedea irrorata*, Laysan Albatross
3. *Diomedea exulans*, Sooty Albatross
4. *Diomedea exulans*, Frigate Albatross

**Genus Pelecanus.**
60. Lettered Division II. Water Birds, Order III. Anfere, Plate VII.
1. *Pelecanus erythrophthalmus*, Red-throated Pelican
2. *Pelecanus philippensis*, Masked Pelican
3. *Pelecanus conspicillatus*, Black-faced Stork
4. *Pelecanus occidentalis*, Dalmatian Pelican
5. *Pelecanus onocrotalus*, Eastern White Stork
6. *Pelecanus onocrotalus*, Western White Stork

**Genus Phalanx.**
61. Lettered Division II. Water Birds, Order Anteres, Plate IX.
1. *Phalanx minor*, Arctic Cormorant
2. *Phalanx fimbriata*, Ivory Gull
3. *Phalanx marinus*, Black-backed Gull

**Genus Sterna.**
62. Lettered Order Grallae, Plate I.
1. *Sterna hirundo*, Common Tern
2. *Sterna dougallii*, Sabine's Gull
3. *Sterna morinata*, Black Tern
4. *Sterna sandvicensis*, Short-tailed Tern
5. *Sterna fuscata*, Bar-tailed Godwit

**Genus Rynchops.**
63. Lettered Order Grallae, Plate I.
1. *Rynchops niger*, Black Skimmer
2. *Rynchops niger*, Black Skimmer

**Genus Phoenicopterus.**
64. Lettered Order Grallae, Plate II.
1. *Phoenicopterus ruber*, Red Flamingo
2. *Phoenicopterus roseus*, Roseate Spoonbill
3. *Phoenicopterus chilensis*, Chilean Flamingo

**Genus Platalea.**
65. Lettered Order Grallae, Plate III.
1. *Platalea ajaja*, Redshank
2. *Platalea minor*, Black-winged Stilt
3. *Platalea leucorodia*, Common Stilt

**Genus Pygna.**
66. Lettered Order Grallae, Plate IV.
1. *Pygna nigricans*, Black Stork
2. *Pygna oxystomus*, Black-crowned Night Heron
3. *Pygna leptorhyncha*, Black-crowned Night Heron

**Genus Scolopax.**
67. Lettered Order Grallae, Plate V.
1. *Scolopax rusticola*, Red Grouse
2. *Scolopax caerulescens*, Blue Grouse
3. *Scolopax rusticola*, Copper Grouse
4. *Scolopax alpinus*, Alpine Grouse
5. *Scolopax alpinus*, Pin-tailed Grouse
6. *Scolopax alpinus*, Upper Grouse
7. *Scolopax alpinus*, Lower Grouse

**Genus Tringa.**
68. Lettered Order Grallae, Plate V.
1. *Tringa ochropus*, White-winged Snipe
2. *Tringa nebularia*, Common Snipe
3. *Tringa glareola*, Ruff
4. *Tringa hippotis*, Grey Plover
5. *Tringa hypoleucos*, Black-tailed Godwit

**Genus Charadrius.**
69. Lettered Order Grallae, Plate V.
1. *Charadrius hiaticula*, Avocet
2. *Charadrius alexandrinus*, Grey Plover
3. *Charadrius hiaticula*, Grey 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 austrica*, Australian Pratincole

**Genus Fulica.**

Fig. 4. *Fulica Porphyria*, Purple Gallinule
5. *Fulica crijilata*, Crested Coot

**Genus Vaginalis.**

69. Lettered Order Grallae, Plate VIII.
Fig. 1. *Vaginalis albo*, White Sheath-bill

**Genus Parra.**

Fig. 2. *Parra Jacana*, Chefmut Jacana
3. *Parra smithi*, China Jacana

**Genus Rallus.**

Fig. 4. *Rallus crex*, Land Rail
5. *Rallus variagatus*, Variegated Rail

**Genus Psophia.**

Fig. 6. *Psophia crijilata*, 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 camelus*, Callowary, or Emu

**Genus Didus.**

71. Lettered Division II. Land Birds, Order 5. Gallinæ, Plate II.
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 crijilatus*, Crested Peacock
2. *Pavo crijilatus* (var. *varius*), Variegated or Pied Peacock
4. *Pavo bicalcaratus*, Iris peacock

### Plate

**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 crijilata*, Guan

**Genus Crax.**

Fig. 3. 4. *Crax Eledon*, 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. *domesticus*, domesticated varieties, Rumple's Cock
4. Ditto, Silky Cock

75. Lettered Division II. Land Birds, Order Gallinæ, Plate VI.
Fig. 11, 12. *Phasianus Gallus*, var. *domesticus*, varieties, Malay Cock—male 11. female 12.

76. Lettered Division III. Land Birds, Order Gallinæ, Plate VII.
Fig. 1. *Phasianus Calcinus*, Common Pheasant
2. *Phasianus piaius*, Gold Pheasant
3. *Phasianus Nycthemerus*, Silver Pheasant
4. *Phasianus Argus*, Argus Pheasant

**Genus Numidia.**

77. Lettered Division I. Land Birds, Order Gallinæ, Plate VIII.
Fig. 1. *Numidia meleagris*, Guinea Hen or Pintado
2. *Numidia crijilata*, Crested Pintado

**Genus Tetrao.**

Fig. 3. *Tetrao umbelius*, Ruffed or Ruff-necked Grouse
4. *Tetrao alboetus*, Pin-tailed Grouse
5. *Tetrao Camadensis*, Spotted Grouse
6. *Tetrao paradoxus*, Heteroclitus Grouse, or Paradoxical Grouse

78. Lettered Division II. Land Birds, Order Gallinæ, Plate IX.
Fig. 1. *Tetrao perdix*, Common Partridge
2. *Tetra ferrugineus*, Hackled Partridge
NATURAL HISTORY.

Plate

78. Fig. 3. *Tetrao gibraltaricus*, Gibraltar three-toed Quail
4. *Tetrao marylandicus*, Maryland Quail
5. *Tetrao viridis*, Green Quail—male
6. *Tetrao major*, Great Tinamou
7. *Tetrao variegatus*, Variegated Tinamou

ORDER PASSERES.

GENUS COLUMBA.

79. Lettered Division I. LAND BIRDS, Order Passeres, Plate II.

Fig. 1. *Columba chalcoptrix*, Bronze-winged Pigeon
2. *Columba erythrophora*, 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 STURMUS.

Fig. 2. *Sturnus militaris*, Military Starling
3. *Sturnus nudata*, 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*, Spectacle 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. *Amphibus carunculata*, Carunculated Chatterer
2. *Amphicus pectoralis*, Purple-breasted Chatterer
3. *Amphicus Pompadour*, Pompadour Chatterer
4. *Amphicus carnifex*, Red Chatterer

GENUS COILUS.

Fig. 5. *Colius capensis*, Cape Coly

GENUS Loxia.

83. Lettered Division I. LAND BIRDS, Order Passeres, Plate V.

Fig. 1. *Loxia lineata*, Lineated Grosbeak
2. *Loxia cucullata*, Cuffed Dominican Grosbeak
3. *Loxia philippina*, Philippine Grosbeak
4. The pendulous Nef of the Philippine Grosbeak
5. *Loxia Cardinalis*, Cardinal Grosbeak
7. *Loxia fiabilifera*, Fan-tailed Grosbeak

Vol. XXXIX.

Plate

GENUS EMBERIZA.

84. Lettered Division I. LAND BIRDS, Order Passeres, Plate VI.

Fig. 1. *Emberiza paradisiaca*, Whidaw Bird
2. *Emberiza ciris*, Painted Bunting
3. *Emberiza Regia*, Shaft-tailed Bunting
4. *Emberiza provincialis*, Multachoe Bunting
5. *Emberiza americanana*, Black-throated Bunting
6. *Emberiza bontiiana*, Ortolans Bunting

GENUS TANAGRA.

85. Lettered Division I. LAND BIRDS, Order 3. Passeres, Plate X.

Fig. 1. *Tanagra Tanae*, Paradise Tanager
2. *Tanagra capitalis*, Capital Tanager
3. *Tanagra Jacapa*, Red-breasted Tanager

GENUS FRINGILLA.

Fig. 4. *Fringilla ignita*, Fire Finch
5. *Fringilla flammea*, Crimson-crowned Finch
6. *Fringilla bengalus*, Blue-bellied Finch
7. *Fringilla Phylactes*, Parrot Finch

GENUS PHYTOTOMA.

Fig. 8. *Phytopoma rara* (Molina, Hijs. Nat. Chili) Chili Phytotoma

GENUS MUSCICAPA.

86. Lettered Division Passeres, Plate VIII.

Fig. 1. *Muscicapa bicolor*, Black and White Flycatcher
2. *Muscicapa barbata*, Whiskered Flycatcher
3. *Muscicapa tyrannus*, Forked-tailed Flycatcher
5. *Muscicapa fiabilifera*, Fan-tailed Flycatcher

GENUS MOTACILLA.

Fig. 6. *Motacilla cyanec*, Superb Wheat-ear
7. *Motacilla Madracapatena*, Pied Wagtail (Madras Pied Wagtail)

GENUS MOTACILLA.

87. Lettered Order Passeres, Plate IX.

Fig. 1. *Motacilla pileata*, Black-headed Warbler
2. *Motacilla spinicauda*, Thorn-tailed Warbler
3. *Motacilla Jaccus*, Blue-throated Warbler

GENUS PIPRA.

Fig. 4. *Pipra rupicola*, Rock Manakin
5. *Pipra fritillata*, Striped-headed Manakin
7. *Pipra punctata*, Speckled Manakin

GENUS PARUS.

88. Lettered Order Passeres, Plate XX.

Fig. 1. *Parus macrocephalus*, Great-headed Titmouse
2. *Parus crista*, Crested Titmouse
4 Y
NATURAL HISTORY.

Genus Hirundo.
88. Fig. 4. Hirundo eulelenta, Efulent Swallow
5. The efulent Nieft of this Swallow
6. Hirundo tabitica, Otaheite Swallow
7. Hirundo pelagia, Aculeated Swallow
3. Hirundo indica, Rufous-headed Swallow

Genus Caprimulgus.
80. Lettered Division Land Birds, Order Passeres, Plate LXXX.
   Fig. 4. Caprimulgus longipennis, Leona Goatfucker
5. Caprimulgus grandis, Great Goatfucker

Elementary Plates
To illustrate
The Classification of Birds.

Characters of the Feet in the different Orders and Genera.

Accipitres.
Feet formed for affhing the Mandibles in seizing and tearing the prey, being armed with strong talons.

89. Lettered Ornithology, Elementary Plate I.
The Feet in Falco (Falco Grytvasta; Golden Eagle); and Eagles, Falcons, Hawks
The Feet in Strix (Strix flammea, White Owl); Stridula, brachyotos, pafferina
(The Shrikes belong to this order)

P.I.C.E.
* 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
Paradigea (Bird of Paradise)
The same structure prevails in the feet of the genera Buphaga, Oriolus, Coracias, Upupa, Certhia, Trochilus, &c.

** 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 Myzophagus (Muiophuge)
This structure is well exemplified in Ptitacus (Parrot), and Cuculus (Cuckow), which are familiar examples; and occurs in the genera Scevrops, Ramphalos, Trogon, Crotophaga, Gallula, Yunx, and Bucico.

** Feet formed for Walking.

90. Lettered Elementary Plate IV.
The Foot of Alecto (King’s-fisher)
The other genera of Pica, 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)
Alca (Auk)
Aptenodyta (Penguin)
Pelecanus (Pelican), two species
Columbus (Grebe), three species
Larus (Gull)

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Sterna (Tern)

Grallae.
Feet formed for Wading.

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Pluteiopeus (Flamingo)
89. Lettered Ornithology, Elementary Plate I.
Feet in the genus Platea (Spoonbill) P. oaja

90. Lettered Ornithology, Elementary Plate IV.
Feet in the genus Ardea (Heron)

9. Lettered Ornithology, Elementary Plate I.
Feet in the genus Ardea cinerea (Grey Heron)

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Recrvirobrfrfa, (Avocet)

9. 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

9. Lettered Ornithology, Elementary Plate I.
Feet in the genus Charadrius (Plover, Long-legged P.)
Hematopus (Oyster Catcher)
Glaerola (Oystercatcher) P. auftriaca

91. Lettered Ornithology, Elementary Plate III.
Feet in the genus Fulica (Gallinule)
Viginalis (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*).

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**Lettered Ornithology, Elementary Plate IV.**

Feet in the genus *Pajarra* (*Jacana*), two species.

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**Gallinæ.**

*Form of the Feet.*

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**Lettered Ornithology, Elementary Plate II.**

In the genus *Oeis* (*Buffard*).

*Struthio* (*Ostrich*) *S. camelus*, Common or Black Ostrich.

*Struthio catus* (*Cassowary*).

*Pavo* (*Peacock*) Common P.

*Phasianus* (*Pheasant*) Common P.

*Menura* (*Menura*)

---

**Lettered Ornithology, Elementary Plate I.**

In the genus *Tetrao* (*Grouse*), *T. Urogallus*, Great Grouse.

*T. lagopus*, Ptarmigan.

*T. tetrix*, Black Game.

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**Passeres.**

*Structure of the Feet.*

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**Lettered Ornithology, Elementary Plate I.**

In the genus *Colius* (*Coly*).

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**Lettered Ornithology, Elementary Plate IV.**

In the genus *Alauda* (*Lark*), *A. arvensis*, Skylark.

*A. obsoleta*, Dusky Lark.

*Pipra* (*Manakin*)

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**Lettered Ornithology, Elementary Plate II.**

In the genus *Parus* (*Titmouse*).

---

**Lettered Ornithology, Elementary Plate IV.**

In the genus *Turdus* (*Thrush*).

*Motacilla* (*Warbler*)

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**Lettered Ornithology, Elementary Plate I.**

In the genus *M. Regulus* (*Gold-crested Wren*).

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**Class Amphibia.**

**Order I. Reptiles.**

**Genus Testudo.**

*Marine Turtles.*

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**Lettered Amphibia, Plate X.**

*Fig. 5. Telfudo mydas,* Eseulent Green Turtle.

*6. Telfudo imbriata,* Hawkbill Turtle.

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**Land Tortoises.**

*Fig. 1. Telfudo dentulata,* Denticulated Tortoise.

*2. Telfudo emerpea,* Green Speckled Tortoise.

*3. Telfudo guttata,* Spotted Tortoise.

*4. Telfudo picta,* Painted Tortoise.

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**Plate 94.**

**Genus Rana.**

**Fig. 1. Rana Pipa,** Surinam Toad—Female with her young swimming in cells on the back.

*2. Rana bicolor,* Two-coloured Frog.

*3. Rana paradoxa,* Paradoxical Frog, in the fifth-like former tad-pole state.


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**Genus Lacerta.**

**Fig. 1. Lacerta Salamandra,** Salamander.

*2. Lacerta Vittata,* Forked Lizard.

*3. Lacerta Chameleon,* Chameleon.

*4. Lacerta agilis,* Green Lizard.

*5. Lacerta lennificata,* Eight-lined Lizard.

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**Genus Draco.**

*Fig. 4. Draco volans,* Flying Dragon, (*Lacerta volans,* Flying lizard).

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**Genus Siren.**

**Fig. 1. Siren lacertina,** Eel-shaped Siren.

*2. Siren anguina,* Anguine Siren.

---

**Genus Crotaulus.**

**Lettered Amphibia, G. Crotaulus, Plate II.**

*Fig. 1. Crotaulus horridus,* Banded Rattle-snake.

*2. Crotaulus Durissus,* Striped Rattle-snake.

---

**Genus Boa.**

**Lettered Amphibia, G. Boa, Plate V.**

*Fig. 1. Boa constrictor,* Great Boa Serpent.

*2. Boa Phrygia,* Embroidered Boa Serpent.


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**Genus Coluber.**

**Lettered Amphibia, G. Coluber, Plate IV.**

*Fig. 1. Coluber nasicornis,* Horn-nosed Viper.

*2. Coluber crepitus,* Ceraflies Viper.

*3. Coluber naja,* Nagoo or Spectacle Viper.

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**Genus Anguis.**

**Lettered Amphibia, G. Anguis, Plate III.**

*Fig. 1. Anguis Corallinna,* Coral Slow Worm.

*2. Anguis alter,* Black Banded Slow Worm.

*3. Anguis Jamaicensis,* Jamaica Slow Worm.

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**Genus Amphiibina.**

**Lettered Amphibia, G. Amphiibina, Plate VII.**

*Fig. 1. Amphiibina alba,* White Amphiibina.

*2. Amphiibina fuliginosa,* Fuliginous Amphiibina.
NATURAL HISTORY.

Plate

Genus Cæcilia.

102. Fig. 3. Cæcilia tentacula, Eel-shaped Cæcilia

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 Muraena.

104. Lettered Apodes, Plate I.
Fig. 1. Muraena anguilla, Eel Muraena, 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 Gymnothorax.

Fig. 5. Gymnothorax muraena, Eel Gymnothorax 6. Gymnothorax catenatus, Chain Gymnothorax

Genus Stomateus.

105. Lettered Apodes, Plate II.
Fig. 1. Stomateus cinereus, Ash-coloured Stomateus 2. Stomateus niger, Black Stomateus

Genus Stylephorus.

Fig. 3. Stylephorus chordatus, Chordated Stylephorus

Genus Trichiurus.

Fig. 4. Trichiurus argentus, Silvery Trichiurus

Genus Sternoptyx.

Fig. 5. Sternoptyx diaphana, Diaphanous Sternoptyx

Genus Xiphius.

Fig. 6. Xiphius gladius, Sword-fish

Genus Anarhichas.

Fig. 7. Anarhichas lupus, Ravenous Wolf-fish

Order Jugulares.

Genus Trachinus.

106. Lettered Order Jugulares, Plate I.
Fig. 1. Trachinus major, Great Weaver 2. Trachinus draco, Small Weaver

Genus Uranoscopus.

Fig. 3. Uranoscopus sabers, Rough Stargazer

Genus Callionymus.

Fig. 4. Callionymus dracunculus, 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 Tau, Taw Cod-fish

Genus Blennius.

Fig. 5. Blennius 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 Tanis, Ribband-fish

Genus Echinus.

Fig. 2. Echinus Remora, Mediterranean Sucking-fish

Genus Coryphena.

Fig. 4. Coryphena hippurus, Common Coryphene 5. Coryphena pentadactyla, Five-spotted Coryphene

Genus Gobius.

Fig. 3. Gobius minutus, Spotted Goby

Genus Cottus.

Fig. 6. Cottus grunniens, Grunting Bull-head 7. Cottus cataphractus, Mailed Bull-head

Genus Scorpena.

109. Lettered Ichthyology, Order Thoracici, Plate II.
Fig. 1. Scorpena Scrofa, Hog Sea-Scorpion 2. Scorpena horrida, Horrid Sea-Scorpion 3. Scorpena antennata, Antennated Sea-Scorpion

Genus Zeus.

Fig. 4. Zeus gallus, American Zeus 5. Zeus ciliaris, Filamentous Zeus 6. Zeus insidiosus, Infidious Zeus
NATURAL HISTORY.

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 Chaetodon.

110. Lettered Ichthyology, Order Thoracici, Plate III.
   Fig. 5. Chaetodon bicolor, Two-coloured Chaetodon
   6. Chaetodon fasciatus, Banded Chaetodon

111. Lettered Ichthyology, Order Thoracici, Plate IV.
   Fig. 2. Chaetodon imperator, Imperial Chaetodon
   3. Chaetodon marginatus, Bordered Chaetodon
   4. Chaetodon arcuatus, Bowed Chaetodon
   5. Chaetodon rostratus, Snouted Chaetodon
   6. Chaetodon Tirra, Tirra Chaetodon

Genus Sparus.

112. Lettered Ichthyology, Order Thoracici, Plate VII.
   Fig. 1. Sparus falcatus, Falcated Gilthead
   2. Sparus Surinamensis, Surinam Gilthead
   3. Sparus fasciatus, Banded Gilthead
   4. Sparus caryophyllus, Golden-tailed Gilthead
   5. Sparus annularis, Annulated Gilthead
   6. Sparus mana, Cackarel

Genus Scarus.

113. Lettered Ichthyology, Order Thoracici, Plate VIII.
   Fig. 7. Scarus viridis, Green Scarus

114. Lettered Ichthyology, Order Thoracici, Plate X.
   & XI.
   1. Scarus cristatus, Large-scaled Scarus

Genus Labrus.

113. Lettered Ichthyology, Order Thoracici, Plate VIII.
   Fig. 1. Labrus micropogon, Large-scaled Wraase
   2. Labrus trichopterus, Hair-finned Wraase
   3. Labrus maleterus, Soft-finned Wraase
   4. Labrus maculatus, Spotted Wraase
   5. Labrus punctatus, Dotted Wraase
   6. Labrus melagaster, Black-bellied Wraase

Genus Sciaena.

114. Lettered Ichthyology, Order Thoracici, Plate X.
   & XI.
   Fig. 2. Sciaena diacantha, Two-spined Umber, or
   Sciaena
   3. Sciaena chirrofa, Cirrofa Sciaena
   4. Sciaena punctata, Dotted Sciaena
   5. Sciaena plumiera, Plumier's Sciaena

115. Lettered Ichthyology, Order Thoracici, Plate IX.
   Fig. 1. Perca flavescens, Brazilian Perch
   2. Perca fasciatus, Rock Perch
   3. Perca punctata, Dotted Perch
   4. Perca guttata, Gutted Perch
   5. Perca maculata, Spotted Perch
   6. Perca bimaculata, Bimaculated Perch

Genus Trachychthys.

116. Lettered Ichthyology, Order Thoracici, Plate XI.
   Fig. 4. Trachychthys australis, Australian Trachychthys

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 saliens, Salient Mackarel
   4. Scomber ruber, Red Mackarel

118. Lettered Ichthyology, Order Thoracici, Plate XIII.
   Fig. 5. Scomber Renieri, Rotterian Mackarel
   6. Scomber aculeatus, Aculeated Mackarel

Genus Mullus.

119. Lettered Ichthyology, Order Thoracici, Plate V.
   Fig. 4. Cobitis fusilis, Great Loche

Genus Trigla.

117. Lettered Ichthyology, Order Thoracici, Plate XII.
   Fig. 5. Lonchiusus barbatus, Bearded Lonchiusus

Genus Corbina.

118. Lettered Ichthyology, Order Thoracici, Plate XIII.
   Fig. 1. Mullus surmuletus, Surmullet

Genus Lonchiusus.

119. Lettered Ichthyology, Order Thoracici, Plate V.
   Fig. 4. Cobitis fusilis, Great Loche

Genus Anableps.

118. Lettered Ichthyology, Order Thoracici, Plate XIII.
   Fig. 5. Anableps tetraphthalmus, Four-eyed Anableps

Genus Silurus.

119. Lettered Ichthyology, Order Thoracici, Plate V.
   Fig. 1. Silurus clarus, Long-bearded Silurus
NATURAL HISTORY.

Plate

Genus Platystachus.
119. Fig. 6. Platystachus anguillaris, Eel-shaped Platystachus.

Genus Loricaria.
Fig. 2. Loricaria coelalis, Ribbed Loricaria
3. Loricaria flavus, Yellow Loricaria

Genus Salmo.
120. Lettered Ichthyology, Order Abdominales, Plate III.
Fig. 1. Salmo bicmicatus, Bicmaculated Salmon
2. Salmo fisciatus, Banded Salmon
3. Salmo tumbl, Barred Salmon
4. Salmo Odor, Odoe Salmon
5. Salmo Gasteropeleus, Yellow-finned Salmon
6. Salmo Friderici, Frederician Salmon
7. Salmo rhomboeus, Rhombic Salmon

Genus Fistularia.
121. Lettered Ichthyology, Order Abdominales, Plate II.
Fig. 1. Fistularia ciminans, Chinese Tobacco-pipe Fish
2. Fistularia tabaccaria, Spotted Tobacco-pipe Fish

Genus Esox.
Fig. 3. Esox oblvs, Bony Gar Fish, or Sea Pike
4. Esox Belons, Sea Pike, or Gar Fish
5. Esox beifteps, Brasilian Pike, or Gar Fish

Genus Elops.
Fig. 6. Elop Saurus, Saury Elops

Genus Argentina.
Fig. 7. Argentina Sphyrena, 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 Exocet us.
Fig. 4. Exocetus coelans, Mediterraneane Flying Fish
5. Exocetus exilis, Swallow Flying Fish
6. Exocetus Mfogafier, Atlantic Flying Fish

Genus Polyneus.
123. Lettered Ichthyology, Order Abdominales, Plate IV.
Fig. 1. Polyneus paradisicus, Paradise Polyneus
2. Polyneus decadactylus, Ten-fingered Polyneus

Plate

Genus Clupea.
123. Fig. 3. Clupea Driffii, Thrilla Herring
4. Clupea nafus, Naftal Herring

Genus Cyprinus.
Fig. 5. Cyprinus culturus, Razor Carp
6. Cyprinus catus, Golden Carp, var.
7. Cyprinus phoxinus, Minnow

Order Branchiostegi.

Genus Ostracion.
124. Lettered Ichthyology, Order Branchiostegi, Genus Ostracion, Plate V.
Fig. 1. Ostracion surprisus, Eared Trunk Fish
2. Ostracion trigeter, Triangular Trunk Fish
3. Ostracion nafus, Snouted Trunk Fish
4. Ostracion bicmicatus, Bicmaculated Trunk Fish
5. Ostracion quadriconris, Four-horned Trunk Fish
6. Ostracion cornutus, Horned Trunk Fish

Genus Tetronod.
125. Lettered Ichthyology, Order Branchiostegi, Plate VI.
Fig. 1. Tetronod hifidus, Hifid Tetrodon
2. Tetronod occicus, Ocellated Tetrodon
3. Tetronod lineatus, Lincated Tetrodon
4. Tetronod caudadus, Hare Tetrodon

Genus Diodon.
Fig. 5. Diodon Hyfrix, Porcupine Diodon
6. Diodon orbicularis, Round Diodon

Genus Syngnathus.
126. Lettered Ichthyology, Order Branchiostegi, Plate VI.
Fig. 1. Syngnathus foliatus, Foliated Pipe Fish
2. Syngnathus acus, Great Pipe Fish
3. & 5. Syngnathus Hippocampus, Sea-Horse Pipe Fish

Genus Pegasus.
Fig. 4. & 4. Pegafus Draconis, Dragon Pegasus
5. & 5. Pegafus natans, Swimming Pegasus

Genus Centricus.
Fig. 6. Centricus scutatus, Mailed Centricus

Genus Balistes.
127. Lettered Ichthyology, Order Branchiostegi, Plate III.
Fig. 1. Balistes vetula, Old Wife
2. Balistes maculatus, Spotted Old Wife
3. Balistes acalus, Aculeated Old Wife
4. Balistes monocrates, One-horned Old Wife

Genus Cyclopterus.
128. Lettered Ichthyology, Order Branchiostegi, Plate IV.
Fig. 1. Cyclopterus Lumpus, Common Lump-fucker
NATURAL HISTORY.

Plate 128. Fig. 2. Cyclopterus ocellatus, Ocellated Lump-fucker
1. Cyclopterus lineatus, Lineated Lump-fucker

Genus Lophius.
Fig. 4. Lophius marmoratus, Marbled Angler
5. Lophius Hitrio, Harlequin Angler
6. Lophius rostratus, Beaked Angler
7. Lophius pisces, Painted Angler

Order Chondropterygii.
Genus Acipenser.

129. Lettered Ichthyology, Order Chondropterygii, Plate I.
Fig. 3. Acipenser Sturia, Common Sturgeon
4. Acipenser Ruthenus, Sterlet

Genus Chimaera.
Fig. 2. Chimaera monstrosa, Sea-monster
5. Chimaera eulophylica, Southern Sea-monster

Genus Pristis.
Fig. 1. Pristis antiquorum, Common Saw-fish

Genus Squalus.

130. Lettered Ichthyology, Order Chondropterygii, Plate II.
Fig. 1. Squalus glauca, Blue Shark
2. Squalus Catulus, Leifer spotted Shark
3. Squalus Squatina, Angel Shark
4. Squalus Zygana, Hammer-headed Shark
5. Squalus Zebra, Zebra Shark

Genus Spatularia.
Fig. 6. Spatularia reticulata, Reticulated Spatularia

Genus Raja.

131. Lettered Ichthyology, Order Chondropterygii, Plate VI.
Fig. 1. Raja diabolus, Demon Ray
2, 3. Raja clavata, Thorn-back
4. Raja undulata, Undulated Ray
5. Raja torpedo, Electric Ray
6. Raja rhinobatos, Long-nosed Ray

Genus Gastrobranchus.

132. Lettered Ichthyology, Order Chondropterygii, Plates III, IV, V.
Fig. 1. Gastrobranchus coccyx, Hag-fish
2. Gastrobranchus Dombeyi, Dombeyan Hag-fish

Genus Petromyzon.
Fig. 3. Petromyzon marinus, Marine Lamprey
4. Petromyzon fluvatilis, River Lamprey
5. Ditte, the young, shewing the under surface

Plate 133. Lettered Entomology, Order Coleoptera, Plate I.
Fig. 1. Scarabeus Hercules
2. Scarabeus Choironus
3. Scarabeus Tityrus
4. Scarabeus Molossus
5. 6. Scarabeus Carnifex, male and female
7. Scarabeus Facers

Genus Goliathus.

134. Lettered Entomology, Genus Goliathus, Plate I.
Fig. 1. Goliathus Cacicus
2. Goliathus Magnus

Genus Lucanus.

135. Lettered Entomology, Order Coleoptera, Plate IV.
Fig. 1. Lucanus cervus
2. Lucanus inermis

Genus Dermestes.
Fig. 3. Dermestes viginti-guttatus
4. Dermestes sex-dentatus
5. Dermestes Brachyphtherus
6. Dermestes Pedicularius
7. Dermestes Pistipes

Genus Bostrichus.

136. Lettered Entomology, Order Coleoptera, Plate V.
Fig. 12. Bostrichus pubescens
1. Bostrichus Polygraphus
2. Bostrichus Typographus
3. Bostrichus Pinifera

Genus Melyris.

137. Lettered Entomology, Order Coleoptera, Plate XII.
Fig. 13. Melyris Viridis

Genus Ptinus.

138. Lettered Entomology, Order Coleoptera, Plate V.
Fig. 4. Ptinus Scutus
5. Ptinus Imperialis
6. Ptinus Sex-punctatus
7. Ptinus Telfelatus
8. Ptinus Pediniornis

Genus Hister.
Fig. 9. Hister unicolar
10. Hister planus

Genus Gyrisus.

139. Lettered Entomology, Order Coleoptera, Plate XII.
Fig. 1. Gyrisus Naiator

Genus Byrrhus.
### Genus Anthrenus.

137. Fig. 2. *Anthrenus Scrophulariae*

### Genus Silpha.

Fig. 6. *Silpha Germanica*
- 7. *Silpha rufipes*
- 8. *Silpha thoracica*
- 9. *Silpha humator*
- 10. *Silpha obscura*
- 11. *Silpha quadrimaculata*
- 12. *Silpha finuata*

### Genus Opatrum.

138. Lettered Entomology, Order Coleoptera, Plate IX.

Fig. 1. *Opatrum fabulosum*

### Genus Tritoma.

Fig. 2. *Tritoma rufipes*
- 3. *Tritoma filosa*

### Genus Tetratoma.

Fig. 4. *Tetratoma cinnamomeum*
- 5. *Tetramona fungorum*
- 6. *Tetratoma ancora*

### Genus Cassida.

Fig. 7. *Cassida griffa*
- 8. *Cassida lateralis*
- 9. *Cassida cruentata*
- 10. *Cassida maculata*

### Genus Coccinella.

139. Lettered Entomology, Order Coleoptera, Plate XIII.

Fig. 1. *Coccinella 16-guttata*
- 2. *Coccinella oblongo-guttata*
- 3. *Coccinella 12-punctata*
- 4. *Coccinella frontalis*
- 5. *Coccinella 12-punctata*
- 6. *Coccinella 22-punctata*
- 7. *Coccinella septem-notata*
- 8. *Coccinella 4-punctata*
- 9. *Coccinella punctata*
- 10. *Coccinella analis*
- 11. *Coccinella parvula*
- 12. *Coccinella 6-punctata*

### Genus Chrysomela.

140. Lettered Entomology, Order Coleoptera, Genus Chrysomela, Plate XIII.

Fig. 1. *Chrysomela gigantea*
- 2. *Chrysomela furinamensks*
- 3. *Chrysomela 20-punctata*
- 4. *Chrysomela cyanicornis*

### Genus Cryptoccephalus.

141. Lettered Entomology, Order Coleoptera, Plate VIII.

Fig. 1. *Cryptoccephalus cordiger*
- 2. *Cryptoccephalus variabilis*
- 3. *Cryptoccephalus difinguentus*
- 4. *Cryptoccephalus lobatus*
- 5. *Cryptoccephalus obscurus*

### Genus Cistela.

137. Lettered Entomology, Order Coleoptera, Plate XII.

Fig. 3. *Cistela pallida*
- 4. *Cistela letea*
- 5. *Cistela lepturaides*

### Genus Crioceris.

141. Lettered Entomology, Order Coleoptera, Plate VIII.

Fig. 6. *Crioceris campytris*
- 7. *Crioceris punSatus*

### Genus Hispa.

Fig. 8. *Hispa mutica*

### Genus Bruchus.

Fig. 9. *Bruchus lipuncatus*

### Genus Pausus.

142. Lettered Entomology, Order Coleoptera, Plate XI.

Fig. 10. *Pausus denicornis (Donov. Ind. Inf.)*
- 11. *Pausus thoracicus (Donov. Ind. Inf.)*
- 12. *Pausus Fichteli (Donov. Ind. Inf.)*
- 13. *Pausus pelliticornis (Donov. Ind. Inf.)*

### Genus Curculio.

142. Lettered Entomology, Order Coleoptera, Plate XI.

Fig. 1. *Curculio bimaculatus*
- 2. *Curculio palmarum*
- 3. *Curculio elegans*
- 4. *Curculio annulatus*
- 5. *Curculio imperialis*
- 6. *Curculio eremitus*
- 7. *Curculio hemipterus*
- 8. *Curculio brachypterus (nigro spinofus)*
- 9. *Curculio affinitatis*
- 10. *Curculio Fimbriatus*
- 11. *Curculio regalis (Donov. Ind. Inf.)*
- 12. *Curculio bilineatus*
- 13. *Curculio vixida*
- 14. *Curculio bachus*
- 15. *Curculio betula*
<table>
<thead>
<tr>
<th>Plate</th>
<th>143. Lettered Entomology, Order Coleoptera, Plate II.</th>
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<tbody>
<tr>
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<td><strong>Genus Prionus.</strong></td>
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<td>Prionus</td>
<td>1. Prionus longimanus</td>
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<td>2. Prionus undentatus</td>
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<td>Fig. 3.</td>
<td>Cerambyx imperialis</td>
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<td>Lania</td>
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<td>Fig. 4.</td>
<td>Lamia quadrimaculata</td>
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<td>Clytus</td>
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<td>Saperda</td>
<td>1. Saperda collaris</td>
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<td>7. Saperda nigro-virens</td>
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<td>Fig. 7.</td>
<td>Rhagium bifasciatum</td>
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<td>Cicindela.</td>
<td>1. Cicindela campestris</td>
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<td>11. Cicindela flavipes</td>
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<td>Dytiscus</td>
<td>1. Dytiscus pisces</td>
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<td>Carabus.</td>
<td>1. Carabus sexmaculatus</td>
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<td>2. Carabus fycophanta</td>
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<td>3. Carabus punctatus</td>
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<td>4. Carabus auroniteni</td>
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* 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-
Vol. XXXIX. take the very ample elucidation of the subject, which they were afterwards induced to adopt. The selec-
tion of the subjects had been also left at the discretion of the artist;
<table>
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<tr>
<th>Plate</th>
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<tr>
<td><strong>ORDER HEMIPTERA.</strong></td>
<td><strong>GENUS NOTONECTA.</strong></td>
</tr>
<tr>
<td>150. Lettered Entomology, Order Hemiptera, Plate I.</td>
<td>152. Fig. 11. Notonectia glauca</td>
</tr>
<tr>
<td>Fig. 1. <em>Blatta orientalis</em></td>
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<tr>
<td><strong>GENUS MANTIS.</strong></td>
<td><strong>GENUS NEPA.</strong></td>
</tr>
<tr>
<td>Fig. 2. <em>Mantis bispinosa</em></td>
<td>153. Lettered Entomology, Order Hemiptera, Plate IV.</td>
</tr>
<tr>
<td>3. <em>Mantis precaria</em></td>
<td>Fig. 1. <em>Nepa grandis</em></td>
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<td>4. <em>Mantis gongylodes</em></td>
<td><strong>GENUS CIMEX.</strong></td>
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<td>5. <em>Mantis femoraria</em></td>
<td>Fig. 2. <em>Cimex lectularius</em></td>
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<td><strong>GENUS GRYLUS.</strong></td>
<td>3. <em>Cimex aurantius</em></td>
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<td>151. Lettered Entomology, Order Hemiptera, Plate II.</td>
<td><strong>GENUS APHIS.</strong></td>
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<tr>
<td>Fig. 1. <em>Grillus Dux</em></td>
<td>Fig. 4. <em>Aphis persica</em></td>
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<tr>
<td>2. <em>Grillus nujatus</em></td>
<td>5. <em>Aphis falcis</em></td>
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<td>4. <em>Grillus fulvata</em></td>
<td><strong>GENUS CHERMES.</strong></td>
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<td>5. <em>Grillus Gryillo-talpa</em></td>
<td>Fig. 7. <em>Chermes aenti</em></td>
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<tr>
<td>6. Larva of <em>Grillus</em></td>
<td>8. <em>Chermes buvi</em></td>
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<tr>
<td>7. <em>Pupa of Grillus merullofus</em></td>
<td><strong>GENUS COCCUS.</strong></td>
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<td><strong>GENUS FULGORA.</strong></td>
<td>Fig. 9. <em>Coccus Fol. Quercus</em></td>
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<td>152. Lettered Entomology, Order Hemiptera, Plate III.</td>
<td>10. <em>Coccus persica</em></td>
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<tr>
<td>Fig. 1. <em>Fulgora Lanternaria</em>, in a resting position</td>
<td>11. <em>Coccus hejperidium</em></td>
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<tr>
<td>2. with expanded wings</td>
<td>12. <em>Coccus calaphraxis</em></td>
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<tr>
<td>3. <em>Fulgora candelaria</em></td>
<td><strong>GENUS THRIPS.</strong></td>
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<td>4. <em>Cicada Tidicien</em>, (Tettigonia, Fabr.)</td>
<td>Fig. 13. <em>Thrips phylaptus</em></td>
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<td>5. <em>Cicada hematodes</em></td>
<td>14. <em>Thrips juniperina</em></td>
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<td>6. <em>Cicada fritida</em></td>
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<td>7. <em>Cicada phalenoides</em></td>
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<td>8. <em>Cicada fumigulenta</em></td>
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<td>9. <em>Cicada taurus</em></td>
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<tr>
<td>10. <em>Cicada spino</em>a*</td>
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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 paffed 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 reserved, being incorporated in the princely cabinet of Alexander Mc-Levy, Esq., a cabinet to which true science is never refus'd 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 represented in this Plate of Mr. Edwards; and of those few some are certainly doubtful. *Hipsa* is doubtful (a true *Hipsa* has been since given in Plate 141. fig. 8.). *Bruchus* is erroneous, and appears to be, with the exception of the antennae, *Attelabus Coryli*; (a true *Bruchus* is infected 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 antennae: nevertheless this may be a *Clerus*, and allied to *Apiarius*. (See Plate 148. fig. 9.) *Lampyrus* is indifferent; *Cantharis* unintelligible. With these, and some few other exceptions, the Plate should be preferred, as it contains other insects of interest, the repetition of whose figures has been purposely avoided in selecting the materials for the rest of the Plates of Coleoptera.

We believe *Curculio*, No. 1. to be *Curculio bispinofos;* No. 2. to be *Curculio Imperialis*, the Brazilian or Diamond Beetle; No. 4. *Curculio vitatta*, of Jamaica; *Cerambyx*, No. 3. *C. Mofchatus;* No. 4. *Cerambyx marginatus;* *Nectyalis*, No. 2., *N. cerulea;* *Lampyrus*, fig. 1., *L. vulgaris*, male (having wings); No. 2. the female (being apterous, or without wings); Elater, No. 1., *E. ocellatus;* Weft Indies; No. 2. is uncertain; but is, no doubt, an Elater, placed on its back, to shew 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.
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<thead>
<tr>
<th>Plate</th>
<th>157. Lettered Entomology, Order Lepidoptera, Plate II.</th>
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<tbody>
<tr>
<td></td>
<td>Fig. 2. <em>Phaena Quercifolia</em> (<em>Bombyx</em>), with wings reversed</td>
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<td></td>
<td>3. <em>Phaena potatoria</em> (<em>Bombyx</em>)</td>
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<td></td>
<td>4. <em>Phaena vesperiola</em> (<em>Bombyx</em>)</td>
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<td>5. <em>Phaena inuila</em> (<em>Bombyx</em>)</td>
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<td></td>
<td>6. <em>Phaena Helo</em> (<em>Bombyx</em>), with wings deflected</td>
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<th>Plate</th>
<th>158. Lettered Entomology, Order Neuroptera, Plate I.</th>
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<tr>
<td></td>
<td>Fig. 1. <em>Libellula indica</em></td>
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<td></td>
<td>2. <em>Libellula grandis</em> (Æstina genus, Fabr.)</td>
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<td></td>
<td>3. <em>Libellula clavata</em> (Æstina, Fabr.)</td>
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<td></td>
<td>5. <em>Libellula virgo</em> (Agrion, Fabr.)</td>
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<th>Plate</th>
<th>159. Lettered Entomology, Order Neuroptera, Plate II.</th>
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<tr>
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<td>Fig. 1. <em>Hemerobius chrysops</em></td>
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<th>Plate</th>
<th>160. Lettered Entomology, Order Hymenoptera Plate XI.</th>
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<tr>
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<td>Fig. 1. <em>Cynips quercus folii</em></td>
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</table>

**Order Neuroptera.**

**Genus Phraganea.**

**Genus Hemerobius.**

**Genus Panorpa.**

**Genus Raphidia.**

**Order Hymenoptera.**

**Genus Cynips.**

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<tr>
<th>Plate</th>
<th>161. Lettered Entomology, Order Lepidoptera, Plate IV.</th>
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<tbody>
<tr>
<td></td>
<td>Fig. 3. <em>Panorpa communis</em></td>
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<td></td>
<td>6. <em>Panorpa coa</em></td>
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**Genus Sphinx.**

155. Lettered Entomology, Order Lepidoptera, Plate VII.

**Genus Ephemerina.**

**Genus Phaena.**

155. Lettered Entomology, Order Lepidoptera, Plate I.

**Genus Althea.**

156. Lettered Entomology, Order Lepidoptera, Plate I.

**Genus Mythrae.**

156. Lettered Entomology, Order Lepidoptera, Plate II.

**Genus Myrmeleon.**

156. Lettered Entomology, Order Lepidoptera, Plate II.

**Genus Myrmecocystis.**

157. Lettered Entomology, Order Lepidoptera, Plate II.

**Genus Sirex.**

157. Lettered Entomology, Order Lepidoptera, Plate II.

**Genus Tenthredo.**

158. Lettered Entomology, Order Neuroptera, Plate I.

**Genus Entomobrya.**

158. Lettered Entomology, Order Neuroptera, Plate I.

**Genus Ephemera.**

158. Lettered Entomology, Order Neuroptera, Plate I.

**Genus Ephemerina.**

158. Lettered Entomology, Order Neuroptera, Plate I.

**Genus Phalaena.**

159. Lettered Entomology, Order Neuroptera, Plate II.

**Genus Phalaena.**

159. Lettered Entomology, Order Neuroptera, Plate II.

**Genus Phyllis.**

160. Lettered Entomology, Order Lepidoptera Plate XI.

**Genus Pteron.**

160. Lettered Entomology, Order Hymenoptera Plate XI.

**Genus Tenthredo.**

160. Lettered Entomology, Order Hymenoptera Plate XI.

**Genus Sirex.**

160. Lettered Entomology, Order Hymenoptera Plate XI.
NATURAL HISTORY.

Genus Sphex.
160. Fig. 7. Sphex lobata

Genus Ichneumon.
160. Lettered Entomology, Order Hymenoptera, Plate III.
Fig. 1. Sphex fulvus, (Ammophila, Kirby)

Genus Scolia.
161. Lettered Entomology, Order Hymenoptera, Plate III.
Fig. 2. Scolia flavifrons

Genus Thynnus.
Fig. 3. Thynnus emarginatus

Genus Leucopsis.
Fig. 4. Leucopis dorfegra

Genus Tiphia.
Fig. 5. Tiphia nuda
6. Tiphia villosa

Genus Chalcis.
Fig. 7. Chalcis fisas

Genus Chrysis.
Fig. 8. Chrysis splendida
9. Chrysis amethystina
10. Chrysis faeculata
11. Chrysis ignita

Genus Vespa.
162. Lettered Entomology, Order Hymenoptera, Plate X III.
Fig. 1. Vespa cinerea
2. Vespa bivittata
3. Vespa arcuata
4. Vespa faeculata

Genus Apis.
Fig. 5. Apis fersivae
6. Apis violacea
7. Apis ajians

Genus Formica.
Fig. 8. Formica gigas
9. Formica bengalensis
10. Formica bibamata

Genus Mutilla.
Fig. 11. Mutilla Americana, (female)
12. Mutilla bengalensis
13. Mutilla rubra

Order Diptera.
Genus Oestrus.
163. Lettered Entomology, Order Diptera, Plate II.
Fig. 1, 2. Oestrus equi
3. Oestrus bivittatus
4. Oestrus ovatus

Genus Tipula.
Fig. 5. Tipula rivosa
6. Tipula bivittata
7. Tipula variegata
8. Tipula crocata
9. Tipula punicea
10. Tipula atrata
11. Tipula plumosa
12. Tipula peckinopis

Genus Diopsis.
Fig. 13. Diopsis ichneumoneus

Genus Musca.
164. Lettered Entomology, Order Diptera, Plate IV.
Fig. 1. Musca groffi, hair of the antennae naked
2. Musca bittentata
3. Musca bivittata
4. Musca cupraria
5. Musca vibranis
6. Musca frisia
7. Musca fuscifacies
8. Musca onepordinus
9. Musca falcata
10. Musca faeculata
11. Musca Chameleon, (Stratiomys Chameleon, Fabr.)
12. Musca morio
13. Musca clavicornis, (Ceria clavicornis, Fabr.)
14. Musca fclolepaca, (Rhyagio fclolepaca, Fabr.)
15. Musca triangularia
16. Musca analis, (Bibio analis, Fabr.)
17. Musca tenax, (Syrphus tenax, Fabr.)
18. Musca pendula, (Syrphus, Fabr.)
19. Musca florea, (Syrphus, Fabr.)
20. Musca lurida
21. Musca vesicsformis
22. Musca nodila
23. Musca bilineata
24. Musca uliginosa, (Nemotelus uliginosus, Fabr.)

Genus Tabanus.
165. Lettered Entomology, Diptera, Plate IV.
Fig. 1. Tabanus bovinus
2. Tabanus tropicus
3. Tabanus bromius
4. Tabanus plebians
5. Tabanus ruflicus
6. Tabanus cecutiens

Genus Culex.
Fig. 7, 7* Culex pipiens, natural size and magnified
NATURAL HISTORY.

Plate

Genus Empis.
165. Fig. 8. Empis forcipata
9. Empis borealis

Genus Stomoxys.
Fig. 10. Stomoxys rufa rata
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 petiolaris

Genus Asilus.
Fig. 4. Asilus tenuotes
5. Asilus gibbosus
6. Asilus crabroniformis

Genus Bombylius.
Fig. 7. Bombylius major
8. Bombylius medius

Genus Hippobosca.
Fig. 9. Hippobosca equina
10. Hippobosca ovina
11. Hippobosca avicularia
12. Hippobosca hirundinis

Aptera.

Genus Termes.
167. Lettered Plate V. Aptera
Termes bellicosus, Great African White Ant
Fig. 1. Labourers
2. Soldiers
3. King
4. 4. Males, which are furnished with wings
5. 5. Pregnant Females, or Queens (All the above are represented of their natural size)
6. Termes bellicosus, their Nests in the distance

Genus Lepisma.
Fig. 7. Lepisma Polyphaga
8. Lepisma punctata
9. Lepisma obscura
10. Lepisma lineatus

Genus Podura.
Fig. 11. Podura Villosa, Upper and Under Surface

Order Aptera.

Genus Pediculatus.
168. Lettered Entomology, Order Aptera, Plate IV.
Fig. 1. Pediculus humanus, Human Louse
2. Pediculus Alsii, Ass's Louse
3. Pediculus cyni, Swan's Louse
4. Pediculus cervi, Crow's Louse
5. Pediculus pica, Magpie's Louse
6. Pediculus gravis, Crane's Louse
7. Pediculus Columbae, Pigeon's Louse
8. Pediculus plebeialis, Plover's Louse
9. Pediculus apis, Bee's Louse

Genus Pulex.
Fig. 10. 10.* Pulex irritans, Common Flea, natural size, and magnified

Genus Acarus.
Fig. 11. Acarus redvilus, Tick

Genus Trombidium.
Fig. 12. Trombidium aquaticum
13. Trombidium albifrons

Genus Hydrachna.
Fig. 14. Hydrachna geographicus
15. Hydrachna albifrons

Genus Nymphion.
169. Lettered Entomology, Order Aptera, Plate I.
Fig. 1. Phalangium Graftipes, Linn. (Nymphion. Fabr.)

Genus Pycnogonum.
Fig. 2. Phalangium balanarum, Linn. (Pycnogonum. Fabr.)
Fig. 3. Phalangium birsutum, Linn. (Pycnogonum, Fabr.)

Genus Phalangium.
Fig. 4. 4. Phalangium Cancroides, (Tarantula, Linn. Trans.) natural size, and magnified
5. Phalangium cornutum, (Scorpio cimicoides, Fabr.)

Genus Tarantula.
Fig. 6. 6. Tarantula renifera, male and female
7. Tarantula caudata

Genus Aranea.
170. Lettered Entomology, Order Aptera, Plate II.
Fig. 1. Aranea extensa
2. Aranea globosa
3. Aranea bimaculata
5. Aranea fuscata
6. Aranea angulata
7. Aranea Tarantula
8. Aranea avicularia
9. Aranea maculata

The Position of the Eyes in different Tribes of Spiders.

NATURAL HISTORY.

Genus Scorpio.

171. Lettered Entomology, Order Aptera, Plate III.

Fig. 1, 2. Scorpioafe, Great Scorpion. Upper Surface, No. 1. Under Surface, No. 2.

Genus Cancer.

172. Lettered Crustacea, Order Cancer, Plate I.

Fig. 1. Cancer apercula

1. Cancer fuscicollaris

2. Cancer Facchino (Dorippae Facchino)

3. Cancer Dormio (Dorippae artificiosa)

Genus Cancer.

173. Lettered Crustacea, Order Cancer, Plate II.

Fig. 5. Cancer membranaceus (Portunus membranaceus)

6. Cancer forcipes (Portunus forcipes)

7. Cancer mammillaris (Orithyia mammillaris)

8. Cancer lunaris (Matuta lunaris)

Genus Pagurus.

174. Lettered Crustacea, Genus Cancer, Plate III, IV, V.

Fig. 1. Cancer depressus

2. Cancer peronatus

Genus Pagurus.

175. Lettered Crustacea, Genus Cancer, Plate VII. Entomology.

Fig. 3. Cancer frigatus (Pagurus frigatus)

5. Cancer dubius (Pagurus dubius)

Genus Squilla.

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.

Fig. 4. Cancer variegatus (Astacus variegatus)

Genus Squilla.

Fig. 2. Cancer digitatus (Squilla digitatus)

Genus Cancer.

177. Lettered Entomology, Order Aptera, Plate X.

Fig. 1. Monoculus quadriramus

2, 2. Monoculus polyphemus, Upper Surface and Under Surface

Genus Monoculus.

Genus Scorpius.

178. Lettered Vermes, Order Intestina, Plate I, II, III.

Fig. 1. Acantho variculatis

Genus Echinorynchus.

Fig. 2. Echinorynchus lucii

Head magnified *

2. Echinorynchus candidus

Head magnified *

3. Echinorynchus coryphæus

4. Echinorynchus linculatus

Head magnified *

5. Echinorynchus attenuatus, natural size, and magnified

6. Echinorynchus attenuatus, natural size, adhering to the skin of a fish

7. Echinorynchus alba

8. Echinorynchus brunnæa

Genus Lingulata.

9. Lingulata abrupta, Upper and Under Surface

Genus Fasciola.

Fig. 2. Fasciola binodis, the minute Figures which accompany the larger ones denote the natural size

3. Fasciola Ægææfius, Ditto
Plate 178. Fig. 4. Faschiola Scorpion, the minute Figures which accompany the larger ones denote the natural size.
5. Faschiola heteroptera, Ditto
6. Faschiola brama, Ditto

Genus Tenia.

179. Lettered Vermes, Order Intestina, Plate V.
Fig. 1. Tenia 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.
4. Two joints retaining the external skin, and shewing the alternate disposition of the ocula along the edges of the joints as they usually appear.
5. Two joints shewing their lateral disposition when they occur on both the margins of each joint, which sometimes happens.
6. A portion of the joints of the natural size divested of the outer skin, and divesting more fully the alternate lateral ocula, together with the alimentary canals, as they communicate from one joint to the other.
7. The middle systen of vessels illustrated in another portion of four joints.
8. Another portion deprived of the outer coating, and displaying all the canals in their relative situation. Vide Carlile in Linn. Transf. vol. 2.
10. A portion of several joints exhibiting the ocula, which are disposed in a single series down the center of the joints.
11. Another portion divested of the outer coating, and displaying the stelliform vessels down the center within, and also the lateral alimentary canals. Found in the intestines of mankind.
12. Tenia canina, head, and a portion of the body, consisting of the five first joints. Found in the dog.

Genus Gordius.

180. Lettered Vermes, Genus Gordius, Plate IV.
Fig. 1. Gordius aquaticus

Genus Lumbicus.

Fig. 2, 3. Lumbicus 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 peduncel-like tail with the body extended horizontally; No. 3. the same contracting into an arched

Plate 180. Fig. 5. 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 described 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.

Fig. 7. Siphunculus nudus

Order Mollusca.

Genus Limax.

Fig. 8. Limax ater
9. Limax maximus

Genus Onchidium.

Fig. 1. Onchidium typho

Genus Laplilus.

Fig. 2. Laplilus depilans

Genus Doris.

Fig. 3. Doris argo
4. Doris radiata
5. Doris papillofa

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 squamata

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 cluster shown 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 probosidea, highly magnified, natural size three-fourths of an inch.

Genus Actinia.

183. Lettered Vermes, Genus Actinia, Plate II.
Fig. 1. Actinia dianthus
2. Actinia circus

Genus Holothuria.

184. Lettered Zoology, Clasa Vermes, Plate I. of Mol-lusca.
Fig. 1. Holothuria elegans
2. Holothuria pentactes
NATURAL HISTORY.

PLATE

184. Fig. 3, 4. Holothuria fusus
5. Holothuria penicillus
6, 7, 8. Holothuria quaumata. No. 1. upper surface; No. 2. lower surface, in a quiescent state; No. 3. with the tentacula expanded
9, 10. Holothuria inhaerens, No. 1. with tentacula expanded; No. 2. tentacula retracted

GENUS Sepia.

185. Lettered Vermes, Order Mollusca, Plate VI.

Fig. 1. Sepia octopus
2, 3. Sepia medusa. No. 1. upper surface; No. 2. under surface

GENUS Medusa.

186. Lettered Vermes, Order Mollusca, Plate IV.

Fig. 1, 2. Medusa palma, No. 1. upper surface, No. 1. under surface
3. Medusa campanula

GENUS Asterias.

187. Lettered Conchology, Vermes, Mollusca, Plate III. of Asterias.

Fig. 1. Asterias Caput medusa
2. Asterias pellinata
3. Asterias sphæralata
4. Asterias ophiura, a upper surface, b under surface

ORDER Testacea.

GENUS Chiton.

188. Lettered Conchology, Genus Chiton, Plate IX.

Fig. 1, 2. Chiton arundo
Chiton aculeatus, No. 1. upper surface, No. 2. inside
3. Chiton squamosus
4. Chiton olivaceus, No. 1. outside, No. 2. inside, small

GENUS Lepas.

189. Lettered Conchology, Genus Lepas, Plate XIII.

Fig. 1. Lepas anatifera
2. Lepas anserifera

GENUS Pholas.

190. Lettered Conchology, Genus Pholas, Plate VIII.

Fig. 1, 2, 3. Pholas dactylus, No. 1. side view; No. 2. the two lateral valves united at the hinge; No. 3. inside of one of the lateral valves
4. Pholas coarata
5, 6, 7. Pholas friaria, No. 1. the lowest figure, exhibits a side view of this shell, as composed of several valves; No. 2., the uppermost figure, shews the teflaceous 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 Mya.

193. Lettered Conchology, Genus Mya, Plate XI. B.

Fig. 1. Mya truncata

GENUS Solen.

191. Lettered Conchology, Genus Solen, Plate (no number).

Fig. 1. Solen grandis, the lowest figure in the plate
2, 3. Solen radiatus, No. 1. outside, No. 2. inside, smaller shell
4. Solen frigilatus
5. Solen vagina, No. 1. outside, No. 2. of a younger shell, shewing the teeth of the hinge
6. Solen ensis

GENUS Tellina.

192. Lettered Conchology, Genus Tellina, Plate V.

Fig. 1, 1. Tellina radiata, No. 1. outside, No. 2. inside (Donov. Brit. Shells)
2, 2. Tellina lyalidus, No. 1. outside, No. 2. inside (Donov. Brit. Shells)
3, 3. Tellina fabula, one valve of this Shell is marked externally with very fine oblique subfusiform frills, the other smooth or deflective of frills (Donov. Brit. Shells)
4. Tellina bimaculata, inside and outside (Donov. Brit. Shells)

GENUS Cardium.

Fig. 5. Cardium aculeatum
6. Cardium levigatum
7. Cardium edule
8. Cardium medium

GENUS Mactra.

193. Lettered Conchology, Genus Mys, &c. Plate XI. B.

Fig. 2. Mactra radiata

GENUS Donax.

Fig. 3. Donax trunculus

GENUS Venus.

Fig. 4. Venus islandica, No. 1. outside, No. 2. inside

GENUS Chama.

Fig. 5. Chama Cap

GENUS Spondylus.

194. Lettered Conchology, Genus Spondylus, Plate XVII.

Fig. 1, 2, 3. Spondylus gardropus. Upper figure on the left hand the usual size; upper figure on the right side shews the inside of both valves; the lower figure a superb specimen, in point of magnitude, and perfection of the elongated spines. Cabinet of Alexander Melvill, Esq.
NATURAL HISTORY.

Vol. XXXIX.

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 fimbria*, No. 1. the outside, lower figure. No. 2. inside, the upper figure
5, 6. *Arca nodulosa*, No. 1. outside, lower figure. No. 2. inside
7. *Arca nebula*

GENUS OSTREA.

Pecten, or Scallops.

196. Lettered Conchology, Genus Ostrea, Plate XII.
Fig. 1. *Ostrea Jacobea*
2. *Ostrea subfusca*
3. *Ostrea nodosa*
4. *Ostrea lineata*
5. *Ostrea obfusca*
6. *Ostrea varia*, various sizes

GENUS MYTILUS.

193. Lettered Conchology, Genus Mya, &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 mirificata*, shewing the byfis or beard
3. *Pinna rubra*, ditto
4. *Pinna fragilis*

UNIVALVES.

GENUS ARGONAUTA.

198. Lettered Conchology, Order Univalve, Plate IV.
Fig. 1. *Argonauta argo*, Paper-fisilr Shell
2. *Argonauta vitrea*, called the Glaffy Nautilus, a shell of unusual rarity

GENUS NAUTILUS.

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, shewing the chambers and the fiphunculus

GENUS CONUS.

199. Lettered Conchology, Genus Bulla, &c. Plate XI. A.
Fig. 1. *Conus Ammiralis*, var. Banded Cedo nulli cone
2. *Conus Ammiralis*, var. Curapao Cedo nulli cone
3. *Conus Ammiralis*, var. Southern Cedo nulli cone
4. *Conus Ammiralis*, var. Senna Cedo nulli cone
5. *Conus Ammiralis*, var. Marbled Cedo nulli cone

* All these varieties are esteemed valuable: some few bear an excessive price; that known by the name of Lyonet's Shell was reputed to be worth one hundred pounds silver, or as it has been otherwise flated a much higher sum. The figure in the upper part of the plate represents the most uncommon kind of Cedo Nulli

GENUS CYPREA.

200. Lettered Conchology, Genus Cyprea, Plate XIV.
Fig. 1. 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 fuscata*
7. *Cyprea maculata*
8. *Cyprea aspera*
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 lignaria*, No. 1. the outside. No. 2., the lower figure, shews the mouth

GENUS VOLUTA.

201. Lettered Conchology, Genus Voluta, Plate I.
Fig. 1. *Voluta tornata*,
2. *Voluta porphyria*
3. *Voluta oliva*
4. *Voluta pallida*
5, 5. *Voluta papula*, No. 1. the back, No. 2. shews the mouth
6. *Voluta epistrophi*
7. *Voluta Athropica*
8. *Voluta indica*

GENUS BUCCINUM.

202. Lettered Conchology, Order Voluta, &c. Plate II.
Fig. 1. *Buccinum harpa*
2. *Buccinum palpum*
3. *Buccinum maculatum*
4. *Buccinum frigillatum*

GENUS STROMBUS.

Fig. 5. *Strombus chiagra*
6. *Strombus fusca*
7. *Strombus lenticulatus*
8. *Strombus uccus*

GENUS MUREX.

203. Lettered Conchology, Order Univalve, Plate III.
Fig. 1. *Murex haustellum*
2. *Murex longicuda*
3. *Murex maculatus*
4. *Murex tulipa*

GENUS TROCHUS.

Fig. 5. *Trochus niloticus*
6, 6. *Trochus perspectivus*. No. 1, right-hand figure, shews the convex surface; No. 2. left-hand, the concave surface or under side
7. *Trochus pilatus*
8. *Trochus torpius*

5 A
NATURAL HISTORY.

Genus Turbo.

199. Lettered Conchology, Genus Bulla, &c. Plate XI. A.

Fig. 7, 7. Turbo tricnecatus, (Donov. Brit. Shells) smallest figure shews the natural size
8, 8. Turbo nuciforin, (Donov. Brit. Shells) ditto

Genus Helix.

Fig. 9, 9. Helix brittany

Genus Nerita.

Fig. 10, 10, 10. Nerita carena, the figure on the left hand exhibiting the carinated umbilicus

Genus Haliotis.

204. Lettered Conchology, Genus Haliotis, Plate VI.

Fig. 1, 1. Haliotis Affinum. 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 spadicea, outside and inside
5. Haliotis levigata

Genus Patella.

* Shell valve within.

205. Lettered Conchology, Genus Patella, Plate (blank)

Fig. 1, 1. Patella equesris. 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 fornicata. 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 striata. No. 1, the lower figure, shews the striated outer surface; No. 2, the upper figure, the concave hollow beneath, with the inner lip or valve

* * Shell at the Apex perforated.

4, 4. Patella fissura
5. Patella fissurella
6. Patella greca
7. Patella raaiata
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 vulgaris, var.
4. Patella florugra
5. Patella sagittata
6. Patella virgata
7. Patella anatina

Genus Dentalium.

207. Lettered Conchology, Genus Dentalium, Plate (blank)

Fig. 1. Dentalium elephantiurn

Genus Serpula.

Fig. 2. Serpula trigena, various examples adhering to a Pecten, (Ustrea)
3. Serpula trigena, ditto, adhering to the valve of a Mytilus
4. Serpula verrucularis, intermixed with S. triqueta
5. Serpula filiformis
6. Serpula reticulata
7. Serpula papillata
8. Serpula tortuosa
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 shown at the bottom of the Plate

Genus Sabella.

Fig. 3. Sabella elegans
4. Sabella alveolata

ELEMENTARY PLATES OF CONCHOLY.

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, Muræs
7. the Belly, as in Nerita
8. the Whorl, as in Turbo
9, 9, 9. the Spire, as in Turbo, Muræs
10, 10. the Sutures of the Spire or Whorl, as in Muræs, Turbo
Plate

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 Involuted 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, (cornea)
27, 27. the Dilk, as in Venus, Tellina
29, 29. the Posterior Slope, as in Mactra, Tellina, Venus
30. the Lunule, as in Venus, Tellina, (a. & b.)
31, 31. the Cartilage, or Hinge, as in Tellina, Venus
32, 32. the Ears, as in Peiten, (Ostreæ, Limn.)
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 Infide of a Bivalve Shell, as in Mytilus, (rugofus)
36. the Hinge, Suture, and Procefs. Denticulated future, as in Arca. Spoon-shaped procefs, as in Myia, (Pretensius, Donov. Brit. Shells)

Plate

213. Fig. 37. The part denominated the Cicatrix, Imprefion of the Spaces to which the animal-inhabitant of the Shell adheres
38, 38. the Byfius, or Beard, as in Mytilus

Multivalves.
Fig. 39, 39. The part denominated the Base of a Multivalve Shell, as in Lepas
40, 40. the Ligament, as in Lepas, (anatifera)
41, 41. the Operculum, as in Lepas, (Balanus vulgaris)

* * Vide article Conchology, which these Elementary Plates are intended to illustrate.

Order 4. Zoophytes.

Genus Tubipora.

214. Lettered Zoophytes, Genus Tubipora, Plate I.
Fig. 1. Tubipora mufica

Genus Madrepura.
* Consisting of one Star.

215. Lettered Zoophytes, Plate II.
Fig. 1. Madrepura labyrintha
2. Madrepura phrygia
3. Madrepura gyroja
4. Madrepura arvolata

*** With numerous united Stars.

216. Lettered Zoophytes, Genus Isis, Plate I.
Fig. 1. Isis Hippuris
2. Isis coccinea

Genus Antipathes.

217. Lettered Zoophytes, Genus Gorgonia, Plate II.
Fig. 1. Gorgonia lepidifera
2. Gorgonia ceratophyta
3. Gorgonia americana
4. Gorgonia eserfa
5 A 2

Genus Isis.

Genus Antipathes.

Fig. 3. Antipathes subpinnta
4. Antipathes Myriophylla

Genus Gorgonia.

Fig. 1. Gorgonia lepidifera
2. Gorgonia ceratophyta
3. Gorgonia americana
4. Gorgonia eserfa

5 A 2
NATURAL HISTORY.

Plate 218. Lettered Zoophytes, Genus Gorgonia, Plate I.
1. *Gorgonia nobilis*, Red Coral, or Noble Coral. Plate I.
2. Part of the branch of Gorgonia Nobilis magnified, and exhibiting the animals.
3. *Gorgonia umbraeolum*.
4. Portion of a branch magnified.
5. *Gorgonia reticulata*.
6. Portion of a branch magnified.

Genus Alcyonium.
Plate 219. Lettered Zoophytes, Genus Alcyonium, Plate III.
1. *Alcyonium gorgonoides*.

Genus Spongia.

Plate 220. Lettered Vermes, Order Zoophytes, Genus Flustra, Plate VIII.
1. *Flustra foliacea*.
2. *Flustra bombaycina*.
3. A portion of a branch magnified to shew the cells.
4. *Flustra carboidea*.
5. Magnified to shew the cells.

Genus Flustra.

Plate 221. Lettered Vermes, Order Zoophytes, Genus Tubularia, Plate I.
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.

Plate 222. Lettered Zoophytes, Genus Corallina, Plate VI. and VII.
1. *Corallina officinalis*.
2. One of the branches magnified.
3. *Corallina feucreata*.
4. A branch magnified.
5. *Corallina incarnata*.
7. *Corallina corniculata*.
8. A branch magnified.

Genus Sertularia.

Plate 223. Lettered Vermes, Order Zoophytes, Genus Sertularia, Plate VIII.
1. *Sertularia frutescens*.
2. A branch magnified.

Genus Gorgonia.
Plate 224. Lettered Vermes, Order Zoophytes, Genus Hydra, Plate V.
4. 5. 6. Clusters of the different species, as they live at the roots of aquatic plants immersed in water.

Genus Hydra.

Plate 225. Lettered Animalcules, Class Vermes, Plate I.
8. *Brachionus tripus*.
9. *Brachionus uncinatus*.
10. *Brachionus quadridentatus*.

Genus Brachionus.

Plate 226. Lettered Vermes Infusoria, Plate II.
1. *Vorticella polyxena*, in various figures.
2. *Vorticella polyxena*, a cluster magnified.
3. *Vorticella analectica*, the group shewing the manner in which they aggregate in clusters; and also figures of the single-headed, double-headed, and quadruple-headed, separate.
5. *Vorticella opercularia*, a group shewing the belliform animal expanded.
6. *Vorticella umbellaria*.
7. *Vorticella digitalis*.
8. *Vorticella nebulifera*.

Genus Vorticella.

Plate 227. Lettered Vermes Cercaria, Plate III.
1. *Cercaria Lomn*, in the entirely expanded position it assumes when moving, and two others.
NATURAL HISTORY.

PLATE 226. Fig. 10. Cercaria lupus
Fig. 11. Cercaria podura

GENUS KOLODA.

Fig. 12. Kolođa pyrum

GENUS PARAMECIIUM.

Fig. 13. Paramecium ossiferum
14. Paramecium chrysophila
15. Paramecium marginatum

GENUS VIBRIO.

Fig. 16. Vibrio, anguillula
17. Vibrio glutinis, the smaller figures denote the natural size
18, 19. Vibrio anser, in two positions
19. Vibrio olor
20. Vibrio lanula
21. Vibrio pasifera, variously connected

GENUS LEUCOPHRA.

Fig. 22. Leucophra cornuta

GENUS ENCHELIS.

Fig. 23. Enchelis puntilfera
24, 25. Enchelis rétigrada, two figures
25. Enchelis trunca
26. Enchelis caudata

GENUS VOLVOX.

Fig. 27. Volvox globator

Obj. All the Vermes infusoria are microscopic objects

Addenda to the Zoology.

PLATE 227. Fig. 14. a.a.a. The three masses of luminous substance, which are applied to the three last rings of the abdomen
b.b.b. The arrangement of the cellular or interstitial substance on the other abdominal rings, which give the pale color to the whole belly of the insect
15. Diffusion of the common Glow-Worm, exposing the faces of luminous matter in situ, on the last ring of the belly. a. The face on one side
16. One of the faces of the Glow-Worm taken out and very highly magnified. a. The external part of the face, composed of an interweaving of a spiral fibre. b. The luminous substance seen at one end
17. Elater noctilucus, 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 noctilucus, 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

Obj. The preceding objects were those appointed by Dr. Macartney for the explanation of his article on 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, confessedly, 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 likewise to convey a more accurate idea of the Nereis genus, than the figure copied from Vianelli will afford. The species we have introduced, is the Nereis cartula of some authors, aqua marina; and is, beyond any doubt, a genuine Nereis of the Linnaean System.

The figure by Vianelli, is contained in a small tract written in the Italian language, entitled "Nuove scoperte intorno la lu
ci notturne dell' acqua marina" and which, besides being more evidently depicted from a very mutilated object, is entirely different from that included in the third volume of Amalhitates Academice, which Linnaeus himself gave very shortly afterwards as the same animal; and even this latter, like that of Vianelli, if we mistake not, must have been delineated likewise from
NATURAL HISTORY.

Illustration of the Twenty-four Linnaean Clases, according to the Number of the Stamens.

228. Lettered Botany, Plate II.

Fig. 1. Clas 1. Monandria, one flamen, as in Salicornia, Callitrichis, &c.
2. Didynamia, two flaments, as in Veronica, &c.
3. Triandria, three flaments, as in Hordeum, Agrostis, &c.
4. Tetraandria, four flaments, as in Ilex, &c.
5. Pentandria, five flaments, as in Borago, Primula, &c.
6. Hexandria, six flaments, as in Allium, Erigeron anisii, &c.
7. Heptandria, seven flaments. Trientalis, Dianthus, Resedula, Petrosaurus, Pancropa, and Jonesia are of this class.
8. Octandria, eight flaments, as in Epilobium, Oenothera, &c.
9. Enneandria, nine flaments, as in Butomus.
10. Decandria, ten flaments, as in Sedum.
11. Dodecandria, twelve flaments, as in Sempervivum; above twelve, and less than twenty flaments, as in some other genera
12. Icosandria, twenty or more flaments, as in Matthiola, Pyrus, and some other fruit-bearing plants, including Fragaria, Ribes, &c.

Plate 228. Fig. 14. Clas 14. Didynamia, flaments two long, two shorter, as in Lamiun, or dead-nettle, &c.
15. Tetradynamia, flaments four long and two shorter, as in Chenopodium, or chenopodiaceous plants, &c.
16. Monadelphia, flaments united by their filaments into a kind of tube, as in Malva.
17. Diadelphia, flaments united into two distinct parcels or sets, as in Pijum, Lathyrus, Eruca, &c.
18. Polyadelphia, flaments united into more than two distinct parcels or sets, as in Hypericum (St. John's wort).
19. Syngenia, anthers united into a cylinder, flowers compound, as in Leontodon (dandelion), &c.
20. Gynandria, flaments united with or growing out of the petals, as in Orchis (bee-flower).
21. Monoeia, flaments and pistils in separate flowers on the same plant, as in Zinnia, Belladonna, &c.
22. Dioecia, male and female flowers on different plants, as in Salix, the willow.
23. Polygamy, male or female flowers, or both, with hermaphroditic flowers on the same or on different plants, as in Valantia, Brabeium, Parietaria, &c.
24. Cryptogamia, fructification concealed, or not distinctly ascertained.

Illustration of the Linnaean Orders of Botany, as established upon the Number of the Pods.

230. Lettered Botany, Orders, Plate IV.

Fig. 1. Monogynia, one style or pistil (with five flaments), as in a mallow extensive number of plants, among which are Heliotropium, Anchusa, Borago, &c.
2. Digynia, two styles (with ten flaments), as in Chrysophyllum, Metella, Sedanthus.
3. Trigynia, three styles (with ten flaments), as in Silene, Stellaria, &c.
4. Tetragynia, four styles, with four flaments, as in Rupia, Potamogeton, Sagina, &c.; with five flaments, as Parmassia, &c.; with six flaments, as in Petunia.
5. Pentagynia, five styles (with ten flaments), as in Oxalis, Suriana, Lycopus, &c.
6. Hexagynia, six styles, as in Butomus.
7. Heptagynia, seven styles (with seven flaments), as in Sepsis.
8. Octagynia, eight styles (with eight flaments), as in Neurada and Phytolaccæ.
9. Dodecagynia, twelve styles (with twelve flaments), as in Sempervivum.
10. Polygynia, many styles, as in the 2d, 3d, and 4th order of Clas Syngenia.
11. Gymnoferma, naked seeds, as in Ajuga, Tricium, Satureja, &c.

Plate 229. Fig. 14. Clas 14. Didynamia, flaments two long, two shorter, as in Lamiun, or dead-nettle, &c.
NATURAL HISTORY.

Plate 250. Fig. 12. Angiofermis, feeds inclosed in a pericarpium or seed-vessel, as in many genera, *Anterribinum, Cybaria, &c.*

231. Lettered Botany, Orders, Plate V.

Fig. 13. Silicula, pericarpium a silicula, as in Thalospi (Shepherd's pursle), *Dryob.* &c.

14. SiliquoJa, pericarpium a silicula, as in Raphanus, *Sinapis, Brafica, &c.*

15. Polygamy Aequalis, flowers compound, all the florets hermaphrodite, as in Leontodon, *Hieracium,* &c.

16. Polygamy Superflua, florets of the disk hermaphrodite, those of the radius female, as in *Bells* (garden daily), *Tusslago, Senecio,* &c.

17. Polygamy Necessaria, flowers or florets of the disk male, those of the radius female, as in *Calendula, Chrysogonum.*

18. Polygamy Frugifera, florets of the disk hermaphrodite, those of the radius neuter, as in *Centauris, Sclerocarpus, Radbeckia.*

19. Polygamy Segregata, many partial cups contained in the common calyx, which separate and surround the floccula, as in *Echinops, Gundelia, Spharanthus,* &c.

20. Trinseia, have the polygamy or parts of fructification on three different plants, as in *Ficus, and allo Ceratonia.*

21. Felices, fructification doriforous (on the back of the leaf), as in *Alphitium, Adiantum, Trichomanes,* &c.

22. Mufci, anthers without filaments; female flowers distinct and without pistillum: seeds a naked corculum without cotyledon or tunic. With or without a calyptra or veil, as in *Brynum, Hypnum, Buxbaumia,* &c.

Obs. To the order Mufci, Gmelin and other botanists add the following (Hepatica), comprehending *Marchantia,* as the last genus of Mufci after Jungermania. Linnaeus had left it with Algae.

23. Hepatica, herbage frondoso in general, the fructification originating from what is at the same time both stem and leaf, as in *Marchantia, Jungermania,* &c.

24. Alga, root, stem, and leaf, in one, as *Ficus, Ulva, Lichen,* &c.

25. Fungi, mushrooms, as in *Agaricus, Boletus,* &c.

CLASS CRYPTOGRAMIA.

Addenda to the Mufci, in Illustration of the Fringes of Mufci.

* Furnished with single Fringes.

232. Lettered Botany, Plate Fringes of Mosses.

Fig. 1. Tetraphis. Fringe of four teeth, as in *Minium pelliculoid.* These are erect, acute, firm, polished, and permanent.

2. Olotopharum. Fringe of eight teeth, as in *Brynum albidum.* Capule without an apophysis.

3. Splachnum. Fringe of 16 teeth, dilated at the base, approaching each other in pairs.

PLATE

232. Fig. 4. Encalypta. Fringe of 16 linear upright teeth. Veil ample and bell-shaped.


7. Conoformum. Fringe of 16 tapering teeth, approaching each other in pairs, and all cohering at the points, as in *Brynum teragonum, Dickson, Grimmia conoformis, Smith Engl. Botany.*

8. Dicranum. Fringe of 16 flat, somewhat inflexed teeth, cloven half-way down.

9. Trichogonium. Fringe of 32 linear straight teeth, approaching each other in pairs, sometimes joined at the base in pairs.


11. Syntrella. 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 Orthotrichum and one of the Buxbaumia perhaps excepted.

Fig. 12. Orthotrichum. Capule terminal. Outer fringe of 16 teeth; inner of 8 or 16 linear ones, sometimes altogether deficient. Veil furrowed.

Obs. The fringe is sometimes variable. *Orthotrichum pulmonum* has but eight teeth in the outer fringe.


Obs. In *Buxbaumia foliosa* 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-
NATURAL HISTORY.

Plate lar membrane, affixed to the teeth of the outer. Veil mostly double; the outer hairy

Vide article Fringe of Moses, by Sir J. E. Smith.

CLASS CRYPTOAGAMIA.

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)

235. Lettered Botany, Fungi, Plate I.

Fig. 2. Genus Boletus

3. Hydnium

4. Clavaeria

5. Phallus

6. Glabratus

7. Helvella

8. Peziza

234. Lettered Botany, Fungi, Plate II.

Fig. 2. Genus Cystopus

235. Lettered Botany, Fungi, Plate I.

Fig. 3. Genus Bacteria (digitata and bombardica)

4. Tuberc

5. Rhizomerophora (phosphora) 233. Lettered Botany, Fungi, Plate I.

Fig. 10. Genus Mucor

* The preceding are Linnaean genera in the Gmelinian Systema Naturae, including the Fungi genera of the 12th edit. Linm., with others selected by Gmelin from Perfoon, Willdenow, Tode, and other writers on this tribe of Cryptogamia. To thee the contributor of the article Fungi for this Cyclopaedia has added the following genera:

234. Lettered Botany, Fungi, Plate II.

Auricularia (reflexa)

Nidularia (canadensis)

Trichia (denudata and nudis)

Uredo (segetum), known in agriculture by the name of rust

Aecidium (anemones)

BOTANICAL ARRANGEMENT OF TOURNEFORT.

* Section, Herbaceous Plants and Under-woods.

† Petalled.

A. † Flowers Simple, Monopetalous, Regular.

235. Lettered Tournefort’s Syll. Botany, Plate I.

No. 1. Clas 1. Bell-shaped, as in Belladonna, Campanula, and Convulvulus. Letter a

Plate denotes the flower, b the fruit, c the seeds, in the divisions of the different plants intended to illustrate these classes

235 & 236. Lettered Tournefort’s Syll. Botany, Plate II.

No. 2. Clas 2. Funnel-shaped, as in Borago (officinalis) Solanum dulcamara, &c.: a the flower, b the fruit, c the seeds

†† Simple, Monopetalous, Irregular.

236. No. 3. Clas 3. Pericope, as in Arum a the flower, b the fruit, c the seeds

236. No. 4. Clas 4. Lobate, 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. Clas 5. Cruciform, as in Raphanus (Raphanis)

Thiopsis (BurSA PoItaria) Cbldiodium and Potamogeton a the flower, b the fruit, c the seeds

237. No. 6. Clas 6. Rosaceous, as in Rosa, Nymphaea, Hypericum a the flower, b the fruit, c the seeds

238. Lettered Tournefort’s Syll. Botany, Plate IV.

No. 7. Clas 7. Umbellate, as in Phellandrium, Fenniculum

8. 8. Caryophyllaceous, as in Caryophyllus a the flower, b the fruit, c the seeds

9. 9. Liliaceous, 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. Clas 10. Papilionaceous, as in Pisum, Ervon, &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. Clas 12. Floraclous, as in Echinops a the flower, b the fruit, c the seeds

13. 13. Semi-Symphalous, as in Leontodon

240. Lettered Tournefort’s Syll. Botany, Plate VI.

No. 14. Clas 14. Radiate, as in Helianthus, After a the flower, b the fruit, c the seeds

† Apetalous (without petals).

15. 15. Apetalous Staminiferous, as in Avena a the apetalous flower, stamen-bearing calyx, or staminiferous organ, b the fruit, c the seeds
Plates

241. Lettered Tournefort's Syst. Botany, Plate VII.

17. *Apetalous,* without apparent fruit, as in *Fungi, Mycet,* &c.

+ Section Trees and Shrubs.
† *Apetalous* (without petals).
Irregular.

No. 18. Clafs 18. *Apetalous*

242. Lettered Tournefort's Syst. Botany, Plate VIII.

† Petalled.
Irregular.

No. 20. Clafs 20. *Monopetalous,* as in *Hedysarum*
Regulur.

243. Lettered Tournefort's Syst. Botany, Plate IX.

22. *Papilionaceus,* as in *Pium, Colutta,* &c.

Offs. The importance of the System of Tournefort, the outline of whose classification is here laid down, will be best understood by those who are aware of the attachment of the French botanists, even of the latter times, to the method of this early author: a botanist, whose labours preceded those of Linnaeus by nearly half a century.—It has been truly observed, that Tournefort is to the French in the science of botany, the foundation-stone upon which all their systems are established. This predilection in favour of their own systems, to the exclusion of that the Swedish naturalist founded upon the sexual organs of plants, may yet have its revolution; but that in the present time is more than can be well expected. As the botanical department of this Cyclopaedia has been almost from the commencement allotted to one of the most able professors in the science, it is very far from the intention of the writer of the present article to enter into the comparative merits of the prevailing systems 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 dissimilar from that of Tournefort, and as improved by Jussieu and Gartner. We only wish to offer some apology for the greater number of plates devoted to the system of the celebrated Corollifer M. Tournefort than to the sexual system of Linnaeus; the latter being a naturalist whom from adoption we may almost deem our own, and we must confes with all his imperfections our most favourite author.

The great talents of one of our ablest and most experienced botanists at this period, we are well aware have been directed to the advancement of a "natural method*;" perhaps even we might be almost justified in terming him one of the great supporters of this method, not in this country alone but throughout Europe: while the labours of Jussieu, Jaume St. Hilairre, and others, have gone far towards the formation of a method constructed upon the natural affinities of plants, and on their fruits and seeds especially; characters which, with the corolla, calyx, and other organs of the flower considered generally, it will be perceived had formed the basis of that system which was laid down by Tournefort.

After what we have advanced upon this interesting subject, it might have been thought advisable to appropriate other plates to the elucidation of what is underfoot by a natural method; but that, alas! would be impossible. Much remains undone, and it is only by a very long and arduous course of research and investigation that any system of material extent founded on that method is to be expected. "Hitherto," says M. de Candolle, one of his most popular promoters, "we have arrived only at the basis of this system, and not at the result: it exists rather in the conversations of botanists than in their books, and remains yet among the number of those opinions which Bacon calls floating." *Vide De Candolle de Taxonomie.*

Under these circumstances, the plates appropriated to the illustration of Tournefort’s arrangement of Botany will not be thought devoid of interest, and may be indeed considered of material use to the early botanist as well as general reader, in unison with those intended for the illustration of the classes and orders of Botany as laid down and established by the great Linnaeus.

VEGETABLE ANATOMY.

244. Lettered Vegetable Anatomy, Plate I.
Fig. 1—8. Dissections of the cortex or bark of various plants, of the natural size and magnified, designd to shew the structure of the layers of which they are composed, &c.

245. Lettered Vegetable Anatomy, Plate II.

Dissections explanatory of the disposition of the layers which appear internally in the stems or branches: fig. 1, 2, 3, horizontal sections; fig. 4, 5, perpendicular sections; fig. 6, 7, 8, shew the longitudinal disposition of the vessels upon stripping off the outer bark or cortex.

Fig. 9—13. Various appearances and dissections of the buds of plants. Fig. 14—17, of the flower, &c.

19. A bulbous root, shewing the exterior imbrications.
18. A horizontal section of a bulbous root, shew.

* Robert Brown, Esq., 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 system founded on a natural classification.
NATURAL HISTORY.

Plate 245. Fig. 20. Perpendicular section of a bulbous root

MINERALOGY.

246. Inscribed Natural History, Plate I.

View of Mount Etna, from Spallanzan's Work.

This is a general view of Mount Etna, the adjacent country and the sea; and is intended to show 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 Etna, is the mountain Mont Pelieri or Montpeleri.

Various other interesting spots are marked in the plate, for which consult the article Etna, Mount.

246. Inscribed Natural History, Plate II.

A View of the Crater of Mount Etna.

A A A One edge of the lava of 1797, which issued 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 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 Etna for further explanation.

247. Inscribed Natural History, Plate V.

View of Mount Vesuvius, as seen from the Bay of Naples. From an original sketch made in the year 1797, by R. Dupper, Esq.

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.

MINERALOGY, Plate II.

Basalt. 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 basaltic columns, and illustrates the hypothesis of the Huttonian system, according to which the basaltic matter has been originally of volcanic origin, and while in a state of fusible 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 basalt reaches the river.

GEOLGY.

250. Geology, Plate I.

Fig. 1. The upper figure in this Plate exhibits the dip, dyke, fault, fissure, trap, 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, felsite, trap, chink-flate and granite, valley of Long Sleddale, Wearmoreland.

6. Undulate strata: shewing the wavy structure of the beds of slate, called fillet, in Devonshire.

253. Geology, Plate IV.

Fig. 1. Metallic veins exemplified, with a "rider," &c., and also the interfection (or "cutting-off") of metallic veins.

2. Columnar and amorphous basalt, intersested by basaltic dykes.

3. Lime-flate broken and inclosed in basalt, seen in a basaltic rock on the coast of Antrim, Whinflete dykes, or basaltic 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 Ichthyolite, or Ichthyological Remains.

Mineralized remains, or impressions of fishes, on black shilte stone, found at liebein, in Germany.

255. Fossils, Extraneous, Plate I.

Fig. 1. Mineralized remains of an encrinus, Encrinus liliiformis, or "stone lily," in relievo, on a flab of Stone.

2. Tranverse section of the lily-head.

3. The lily-head half broken through tranversely.

4. Bottom of the lily-head, shewing the pedestal on which it is connected to the main stem of the encrinus.

CRYSTALLOGRAPHY.

256. Lettered Crystallography, Plate I.

Fig. 1—7. Various forms of the crystals of adamantine spar.


262. Lettered Crystalization, Plate VII.

Fig. 27. The Octahedron, regularly formed.

NATURAL HISTORY.

Plate 257. Crystallography, Plate II.
Fig. 17-21. Mechanical division of an hexahedral crystal of calcareous spar, and extraction of the primitive crystal, or nucleus

Ob. Lettered fig. 17-21. Plate II. Crystallography. Described in article Crystal, Vol. 1. Part II. but erroneously referred to as fig. 1-5; Plate I.

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

Plate 258. Crystallography, Plate III.
Fig. 31. The cubic nucleus of this variety is shown in the regular octahedron formed on a cube

32. The formation of the crystal by decrements

33. Decrement of the dog's-tooth spar, (the metastatic crystal of Haüy,) represented complete in Plate 257, fig. 22.

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 Haüy, squaico

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, shows the same face of the rhomb as is represented in fig. 34, but symmetrically divided, and the figure shows the gradual division of the rhomb, by mechanical separation down to letter d.

Plate 259. Crystallography, Plate IV.
Fig. 36. Decrement on the angles of a crystal, shown in the regular octahedron formed on a cube

Plate 259. Crystallography, Plate IV.
Fig. 37. The arrangement of the integrant molecules on one of the triangular faces of the octahedron

Plate 258. 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 oligite 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. 47; the decrements at fig. 46, 47.

Intermediate Decrements.

Plate 259. Crystallography, Plate III.
Fig. 39. A parallelepiped 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 subtractions of double molecules

51. The cubic nucleus, marking the decrements parallel to the lines k, m, &c. by subtrac-
tion of double molecules, in such a manner as that three ranges be taken away in the breadth, and one in height; so that the decrements will be both intermediate and mixed

52. A polyhedral crystal of thirty faces, produced by the effusion of decrementation, 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 solid of twelve faces, disposed fix and fix towards each summit, as in one variety of calcareous sparr, or double-pointed dog's-tooth spar

Compound secondary Forms of Crystals.

Fig. 54. A secondary crystal, an icosehedron bounded by eight equilateral triangles, and twelve ifosecles triangles. Occurs in iron pyrites

55. A calcareous sparr (Analogique of Hauy), 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 fix-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 Hauy

60. An oblique prism with rhomboidal bases, situated that the faces A D, a d, and C D, e 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

Intersect 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 prefixed will be as shown at fig. 61.

62. Another example of grouping, in which crystals are inserted into each other, is extremely common. This combination is illustrated by a cube, and MNr, an equilateral triangular facet, produced by a decrement of one range round the angle A

63. A second cube modified in the same manner, and affixed to the other by its correspondent facet, will afford the double crystal represented

Plate 259.

Plate To illustrate the Notation of Crystals.

Fig. 64. Represents an oblique parallelepiped, the faces of which have angles of different measures

65. The effect of decrement shewn

66. An oblique parallelepiped

67. Primitive molecules

68. Biprimary flespar of Hauy

69. Primitive form of a rectangular prism, which has oblique-angled parallelograms for its bases, one of which is longer

70. The oblique prism, with rhomboidal bases

71. The rectangular prism, with rectangular bases

72. The rectangular prism, with rhomboidal bases

73. The rectangular prism, with square bases

74. The cube

75. The most common variety of chryroberyl, or cympahne, the nucleus of which is a regular parallelepiped, as represented at

76. The prism

261. Crystallography, Plate VI.

Fig. 77—84, &c. Several figures inferred to illustrate the manner in which the symbols employed in the definition of the various modifications of crystals, by Hauy, and other crystallographers are expressed

80. Octohedron, with ecalene triangles

81. Octohedron, another variety

82. The regular octohedron

83, 84. The primitive octohedron, composed of eight ifosecles triangles similar, four and four each

85. The tetrahedron when become a primitive form

86. The regular fix-sided prism

87. The same, in which three solid angles, taken alternately, are replaced by faces, while the intermediate angles remain untouched

88. Rhomboidal dodecahedron, in which each solid angle is composed of three planes, and may be affimilated to a summit of the obtuse rhomboid

89. Primitive form of the tourmaline

90. One variety of the tourmaline

Supplemental Plate, lettered Crystallography, Plate VII.

262. Crystallization. See Mineralogy, Appendix.

Fig. 1. Cube

2. Rhomb

3.—5. 29. Varieties of the Prism

6. Pyramid

7. 8. Table

9. Icosehedron

10. Pentagonal Dodecahedron

11. Lens

12. Rhomboidal Dodecahedron

13. Tetrahedron

14. Double fix-sided Pyramid
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 integral Molecules are,

Fig. 13. The Tetrahedron
29. Trihedron
1. Cube

Instruments employed in the Study of Crystallography and Mineralogy.

261. Fig. 91. Nicholson's instrument for determining the weight or specific gravity of solid bodies
92. B. An instrument for determining the electricity of minerals
92. 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 Crystallization, Supplemental Vol.)

Appendix to Geology, Mineralogy, Mining, &c.

263. Plate Mineralogy, Mining.

Fig. 1—10. Mining—construction of the shaft or passage leading to mines, mode of deflecting, manner of closing or stopping the same, &c.

253. Represented on Plate IV. Geology.

Fig. 6. Plan of a Coal Mine, and mode of ventilating

250. Mining Lamps, Plate I. Geology.

Fig. 5, 6. Sir Humphrey Davy's Wire Gauze

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 inferred 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 compiling the present classification.

QUADRUPEDS.

46. For Ramphastos Aracani, read R. Aracari
G. Crotophagi, r. G. Crotophaga
52. Merops Novæ Zelandiae, r. Novæ Selandiae
26. Taguan Squirrel, r. Taquan S.
29. Molpymæns, r. Mos pygmeus
31. Antelope Grimmia, r. Ant. Grimmia

BIRDS.

54. Aran Olot, r. A. Olor
56. Aran Creca, r. A. Creca
57. Manderine Drake, r. Mandarin Dr.
58. Genus Apenotydes, r. G. Apenotyda
59. Gen. Diomedia, r. Diomedæ
D. Chiororynchos, r. Chlororhynchos

PLATE

Safety Lamp, as made by Mr. Newman, Little Street, Leicester Square (See Wire Gauze)

250. Fig. 23. Dr. Clanny's Safety Lamps
4. 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 Linnean 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.*]
NATURAL HISTORY.

Plate 61. For Gen. Laurus, read Gen. Larus
62. G. Phoenicopterus, r. Phoenicopterus
63. Charad. africarius, r. C. africarius
68. Pulke porphyrio, r. F. porphyrio
71. Genus Dodo (Latin name), r. G. Didus
72. Meleagris gallipavo, r. M. Gallopavo
73. Tetrao ferrugineus, r. T. ferrugineus
79. Columba Cristo, r. C. Cristo
87. Charad. africarius, r. A. Pompadora
88. R. headed Swallow, r. Rufous-headed Swallow
Acculeated Swallow, r. Aculeated Swallow

Reptiles.
101. For Anguis Coraline, read A. Corallinus
A. Jamaicens, r. A. Jamaicens
102. Amphibana fulginosa, r. A. fulginosa
103. Snowted Langay, r. Snouted L.

Fishes.
105. For Genus Stromateus, read Gen. Stromateus
Sternoptyx diaphana, r. Sternoptyx diaphana
Genus Anarhicas, r. Gen. Anarhicas
112. Sparus Surinamensis, r. S. Surinamensis
Sparus falcatus, r. S. falcatus
116. G. Scomber Mackarel, r. G. S. Mackarel
117. Ditto r. Ditto
119. Platystichus angularis, r. Platystichus angularis
120. Salmo bimaculatus, r. S. bimaculatus
S. Gaferopelecus, r. S. Gaferopelecus
121. Filitaria tabaccaria, r. F. tabaccaria
122. Genus Atherine (Latin name), r. G. Atherina
123. Clupea Trilla, r. C. Thrilla
C. Phoxinus Minnew, r. C. P. Minnow

Plate
124. For Headlines for Order Branchyosteii, read Order Branchiopterygi
126. Pegusus draco, r. P. draco
129. Headlines for Order Chondropterygi, r. O. Chondropterygi

Insects.
136. For Bostrichus pubicens, read B. pubicens
Ptinus scotias, r. P. scotius
P. affilatus, r. P. affilatus
P. faccinicornis, r. P. faccinicornis
137. Anthrenus schrophulariae, r. A. schrophulariae
138. Caffida graffa, r. C. graffa
141. Paufus fichteli, r. P. Fichteli
160. S. gigas, r. Sirex gigas
S. juveneus, r. S. juveneus
S. lobata, r. Sphex lobata
163. No. 13. Tipula ichneumonea, r. Diopis ichneumonea
164. Rhagis scolopaceae, r. Rhagio scolopaceae
168. Headlines G. Trombidium, r. G. Trombidium
12 F. aquaticum, r. 12 Trombidium aquaticum
13 F. abfargens, r. 13 Trombidium abfargens

Worms.
178. For Headlines for Vermes, Order Intestata, read Order Intestina

Shells.
192. For Tellina fabulata, read Tellina fabula
Tellina bimaculata, r. T. bimaculata
202. Headlines for Conchology, Order Volutae, r. Conchology
Genus Buccinum — Genus Strombus
226. Paramecium, r. Paramecium
Rolipoda pyrum, r. Kolpoda pyrum
ANCIENT AND MODERN ATLAS.

PLATES. VOL. VI.

ANCIENT AND MODERN ATLAS.

Plate
I. Ancient Geography—Imperium Car. Mag. ad finem seculi post Christ. VIII.
A few copies, only, of this Map were published with the parts of the Encyclopaedia. The proprietors 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, subjoined in its stead as the first of the Ancient Atlas.

GEOGRAPHIA ANTIQUA.

Tabula
I. Orbis Veteribus Cognitus
II. Populi, Urbis, &c. in Græcia, Thræia, et Asia, quarum meminit Homerus
III. Britannia Romana, cum Hibernia et insulis adjacentibus
IV. Peloponnesus, quæ ante Apia, Pelaçia, et Argos, ante eam Romæa ditionis fuit, &c.
V. Hellas, in Græcia Propria, Thessalia et Epîrus, ante eam Romæan ditionis fuerunt
VI. Macedonîa et Thracia, antequam Romæan ditionis fuerunt
VII. Asia Peninsularis, cum Insulis adjacentibus
VIII. Ægyptus, provincia Romana Imperialis
IX. Lybia, vel Africae, ora borealis
X. Italia Regio Alpina, quæ vulgo dicitur Gallia Cisalpina
XI. Italia Media, vel Italæ propria pars borealis, ante divisionem ab Augusto factam
XII. Italia Ulterior, cujus pars Australis Magna Græcia, ob Græcorum colonias, dicta, ante divisionem ab Augusto factam
XIII. Sicilia, provincia Romanorum, cum Insulis adjacentibus
XIV. Italia in regiones undecim ab Augusto descripta, cum Insulis Corfica et Sardinia

INDEX
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.

Agriculture.

Feeding Houses for Cattle, iv. 3—6. v. 1—8.
Fences, xvii.—xxii.
Flax, Implements for dreffing, &c. xxiii.
Gates, hangings and fastenings, xxxiv. 1—36.
Granary, xxxiv. 1—5.
Grafs Farm-Buildings. See Farm.
Harrow, xxvii. 6.
Sod Cutting Plough, xxvii. 7.
Graffes, xxx.
Grazing. See Grafs.
Harrow, xxvii. 1—6.
Potatoe, xxxix. 2, 3.
Halfer caft, Spring Staple for haltering, xxxvii. 4.
Hay Crib, xxvii. 8.
Sweep, xxxviii. 5.
Kentish turn-writr Plough, xxxi. 4.
Kiln, xxxvi. 1.
Coppinger's, for Malt, xxxvi. 8.
Pepper's, for ditto, xxxvi. 4—7.
Mr. Rawfon's, xxxvi. 2.
Count Rumford's, for Lime, xxxvi. 1.
for general ufe, xxxvi. 5.
Laftometer, xxxvii. 6.
Levellng Land, Mr. Charles's Machine for, xxvi. 1, 2.
Lime Kiln, xxxvi. 1.
Stone Pounding Machine, xxxvii. 7.
Malt Kiln, xxxvi. 4—8.
Mines, draining, xxxviii.
Mole catching, xxviii. xxix.
Ploughs, xxix. 1—3.
Norfolk Plough, xxxi. 3.
Ox-hoeing Machine, xxxvii. 8.
Paring Ploughs and Tools, xxxii. 1—9.
Pepper's, Mr., Malt Kiln, xxxvi. 4—7.
Pig or Swine Cafe, xxxxi. 7, 8.
Piggery at Woburn, xi.
Pile, or rammed earth buildings, implements for, xxxviii.
1—17.
Pits, draining, xxxviii.
Plough for Grafs Sod cutting, xxvii. 7.
Ploughs, Mole, xxix. 1, 2.
Paring, xxxi. 1—4.
Swing, xxx. 1—6.
Wheel, xxx. 1—5.
Ponds, Construction of, xxxix. 1.
Machine for taking off the Surplus Water, xxxix. 6.
Potatoe Harrow, xxxix. 2, 3.
Scoops, xxxix. 4, 5.

Vol. XXXIX.
INDEX OF THE PLATES.

AGRICULTURE.
Quarries, Draining, xxxviii. 1—5.
Quendon Barrow, for carrying water, xxxviii. 6, 7.
Rawson's, Mr., Kilm, xxxvi. 2.
Rogers's, Mr., Bean Cultivator, x. 3.
Rotherham Plough, xxx. 1.
Rumford's, Count, Lime Kilm, xxxvi. 1.
Slark's Potato Set Scoop, xxxix. 5.
Small's Chain Plough, xxx. 2.
Somerville's, Lord, Plough, xxx. 3.
Double Furrow ditto, xxx. 6.
Stone Lifting Machine, xxxvi. 4.
Stones, Implements for Blasting, iii. 1.
Suffolk Iron Plough, xxx. 4.
Threshing Machines. See Barns.
Water, Machine for raising, xxxvi. 5.
by Sargeant, xxxvi. 6.
Western's, Mr. C., Double Cultivator, x. 4.

ALGEBRA.
Arithmetic, Palpable
Writing, Ditto.
Neper's Bones, MISCELLANY, i. 6.

ANALYSIS.
Circle of Circles, Magic, xi. 7.
Cissoid, i. 1.
Conchoid, i. 2—7.
Construction, i. 8—20. GEOMETRY, ix. 2.
Cotesian Theorem, ii. 21, 22.
Crown, ii. 23.
Cuneus, Parabolic, xiii. 5.
Curv, ii. 18. 24—26, iv. 1—16.
Harmonic, ix. 4. No. 2—8.
Logistic, xi. 4.
Caucal, ii. 24.
Diacaual, ii. 25.
Curvature, iii. 1—13.
Cycloid, v. 1—8. See also Plate CYCLOID.
Cylinder, ii. 3. 4.
Epicycloid, v. 9—11.
Evolute, vi. 1—10.
Fluxion, vii. 1—2.
Function, Analytic, vii. 5—8. GEOMETRY, ix. 3.
Geometry, Analytic, viii. 1—10.
Gyration, ix. 1—4. No. 1.
Harmonic Curve, ix. 4. No. 2—3.
Helicoid, x. 1.
Infeclion, x. 2—7.
Istopereytry, ix. 1—17.
Lemniscate, xi. 1.
Logarithmic, Atmospheric, xi. 2.
Curve, xi. 3.
Logistic Curve, xi. 4.
Spiral, xi. 5.
Magic Circle of Circles, xi. 7.
Square of Squares, xi. 6.
Locus, xii. 1—23.
Maxima and Minima, xiii. 1, 2.
Parabolic Cuneus, xiii. 3.
Parallelogram, Analytic, xiii. 4.
Progression, xiii. 5.
Quadratic Equation, xiii. 6.

ANALYSIS.
Quadratrix, xiii. 7—9.
Quadrature, xiii. 10—20.
Ratio, xiii. 21.
Rectification, xiv. 1—5.
Sections, following, xiv. 6.
Solidity, xiv. 7—10.
Square of Squares, Magic, xi. 6.
Subtangent, xiv. 11.
Supteriories, xiv. 12—15.
Tangent, xiv. 16—21.
Tangent, Geometry, ix. 14—19.
Variation, NAVIGATION, i. ii. 8, 9.

ANATOMY.
Cranium, xix. xx.
Ear, Anatomy of, v.—vii.
Eye, Anatomy of, i.—iv.
Myology, viii.—xvi.
Myology, xvii.—xiv.
Skeleton, xvii. xviii.
Vicera, xxi.—xxiv.

ANATOMY, COMPARATIVE.
Birds, i.—iii.
Horse, i.—iv.

ARCHITECTURE.
Abacus, xxi.
Amphitheatre, ii.—v.
Annulet, xxi.
Arch, vi. 1—7.
Oblique, xxxix.
of Adrian, ix. 1.
Conilantine, x. 1.
Severus, ix. 2.
Titus, x. 2, 3.
Altaral, xxi.
Attic Bafe, i. 1, 2.
Bafe, Attic, i. 1, 2.
Doric, i. 3.
Ionic, i. 4.
Basilic, xi.
Basilica, Roman, from Vitruvius, ii.
of St. Peter's, ancient and modern, xxv.
Baths of Caracalla, xxxvi. xxxvii.
Titus, painting from, xxxv.
Bead, xxi.
Bridge, Wooden, at Walton, xxxiv.
Bridges, xxxix.—xxxv. xxxvii. xxxvii.
Cantilever, xxi.
Capital, Doric, i. 5, 6.
Egyptian, xxvi.
Ionic, i. 7.
Capitals, Corinthian and Composite, xxvii.
Caracalla, Baths of, xxxvi. xxxvii.
Circus of, xxi.
Carpentry, xxi.—xxvii. xxxvii.—xxxvii.
Geometrical principles of, xxxvii—xxxvii.
Carrara, well door of the Cathedral of, xi.
Cavetto, xxi.
Centres, lxv.—lxvii.
INDEX OF THE PLATES.

ARCHITECTURE.

Chumney, viii. & xli.
Circus of Caracalla, xii.
Composite Capitals, xxvii.
Corinthian Doric, xxvii.
Order from the Temple of Jupiter Stator, in Rome, xxix.
Corona, xxi.
Cyma, xxi.
Cymatium, xxi.
Doors, xxiii. xxiv.
Doric Base, i. 3.
Capital, i. 5. 6.
Order, xviii. a.
from the Agora, at Athens, xviii. 5.
Parthenon, xiii.
a Temple at Selinus, xv. 5.
a Temple at Delos, xv. i.
Ægina, xv. 3.
the Temple of Philip, at Delos, xv. 2.
Jupiter, at Selinus, xv. 4.
according to Sir W. Chambers, xvi.
from the Temple of Jupiter Pannellenus, in
Ægina, xvii. 4.
from the Temple of Concord, at Agrigentum, xvii. 3.
from the Temple of Minerva, at Athens, xvii. 5.
from the Temple of Theseus, at Athens, xvii. 2.
from a Pseudo-dipteral Temple, at Peræum, xvii. 1.
from the Temple of Marcellus, at Rome, xviii. 1.
from an Hexastyle Temple, at Peræum, xvii. 2.
from the Temple of Jupiter Nemæus, near
Argos, xviii. 3.
from the Temple of Juno Lucina, at Agrigentum, xviii. 4.

Echinus, xxi.
Egyptian Capitals, xxvi.
Falcia, xxi.
Fillet, xxi.
Hindoo Temple in Bahar, xx.
Hollow, xxi.
Joinery, xxiii.—xxiv.
Ionic Base, i. 4.
Capital, i. 7.
Order, from the Temple of Minerva Polias, at
Priene, xxviii.
Latopolis, Portico at, xxx.
Liftel, xxi.
Modillion, xxi.
Mouldings, xxi.
Ogee, xxi.
Pandrofus, Temple of, at Athens, xix.
Pannel, xxi.
Portico at Latopolis, xxx.
Eastern of the Parthenon, at Athens, xxxi.
Roofs, xli.—xlvi. liii. lxxii.
Scotia, xxi.
Soffit, xxi.
Talon, xxi.
Titus, Baths of, xxxv.

ARCHITECTURE.

Torus, xxi.
Trochiæ, xxi.
Tuscan Order from the Church in Covent-Garden, xiv.

ARMOUR.

Bronzes, Ancient, i.—iii.
Carthaginian Armour, iii. 11—14. 16. 18. 19.
Croupière, or Buttolph Armour, v. 2.
Danish Armour, iv. 3—4.
Egyptian Armour, ii. 1—2.
Greek Armour, ii. 3—10. 14. 18.
Henry the Eighth’s Armour, v. 1.
Norman Armour, iv. 5.
Plate Armour of Sir Thomas Beauchamp, iv. 6.
Roman Armour, iii. 12. 15. 20.
Saxon Armour, iv. i. 2.
Sword, Bras, in the British Museum, iii. 11—19.
Tilting Armour of Robert Dudley, Earl of Leicester, v. 5.
Half Habit of Prince Henry, v. 4.

ARTILLERY.

Aries, or Battering Ram, i.
Catapulta, ii.
Carriages, i.—v.

ASTRONOMY.

Aberration, i. 1. 2.
Altitude, i. 5. 6.
Parallælax of, i. 8.
Refraction of, i. 7.
Anomaly, i. 9—10.
Arc, i. 11.
Area, i. 12.
Argument, i. 13.
Armillary Sphere, iii. 14.
Ascending Nodes, xxii. 4.
Ascension, iii. 15—17.
Axis, iii. 18. 19.
Azimuth, iii. 20. 21.
Chronology, iii. 22.
Comet, iv. 23.—36.
Comets, Parabolic Orbits of 72, xxxii.
Commumation, v. 37.
Configuration, xx. 4.
Copernican Sphere, xx. 7.
System, xx, 15.
Crepusculum, v. 38—42.
Culmination, i. 3, 4. v. 43.
Day, v. 43.
Declination, v. 44. 45.
Degree, vi.—viii.
Demarcus, v. 46.
Density, ix. 60.
Depression, ix. 61. 62.
Deviation, ix. 63.
Diameter, ix. 64—66.
Dichotomy, ix. 67.
Double Star, ix. 67.
Earth, ix. 68—70. x. 71.
Eclipfareon, Ferguson’s, x. 74.
Eclipse, x. 75—77. xi. 78—89. xii. i. 90—98.
Hindoo Computation, xii. 99.

5 C 2
INDEX OF THE PLATES.

ASTRONOMY.

Eclipse, Mr. Pond's Machine for, xii. 100.
Eclipsis, xii. 101-103.*
Egyptian Systen, xx. 16.
Elevation, xii. 102.
Elliptic, xii. 103.
Elongation, xii. 104.
Epicycle, xii. 105.
Equal Altitude, xii. 106.
Equation of the Center, xii. 107.*
Equator, xii. 109.*
Equinox, xii. 110.
Erection, xii. 109-109. (one figure)
Excentric, xii. 110-113.
Galaxy, xii. 114, 115.
Geocentric, xii. 116.
Globe, xiv. 117-121.
Ferguson's Celestial, xv. 122.
Planetary, xv. 123.
Gravitation, xv. 124-125.
Heat, xvi. 126.
Heliocentric Latitude, xvi. 129.
Hemisphere, xvi. 129.
Horizon, xvi. 129.
Horoscopical Quadrant, xix. 8.
Hour, xvi. 142.
Jupiter, xvi. 143-146.
Satellites of, xvi. 3.
Latitude, xvi. 147.
Heliocentric, xvi. 139.
Reduction, xvi. 148. xix. 10.
Longitude, xvi. 1.
Magnitudes, proportional, of the primary Planets, ii. 10.
of the Sun, as seen from ditto, ii. 11.
Mars, xvii. 2.
Meridian Line, xvii. 3, 4.
Moon, xvii. 5-15.
Moon's Parallax, xviii. 8-14.
Nodes, xviii. 2.
Orion, Constellation of, i.
Paracentric, xviii. 3.
Parallax, xviii. 4-7.
of Altitude, i. 8.
of the Moon, xviii. 8-14.
of Venus, xviii. 15.
Particular Exports, xix. 1.
Penumbra, xix. 2, 3.
Planet, xix. 3.*-6.
Precession of the Equinoxes, xix. 7.
Prothaphelian, xix. 7.*
Ptolemaic Armillary Sphere, xx. 6.
Pythagorean System, xx. 15.
Quadrant of Altitude, xiv. 120. xix. 9.
Quadrant, Horoscopical, xix. 8.
Reduction, Latitude, xvi. 148. xix. 10.
Refraction, xix. 11.
of Altitude, i. 7.
Retrogradation of Planets, xix. 12.
the Sun, xix. 13.
Saturn's Ring, xix. 14-16.
Solar System, ii.
Sphere, Armillary, iii. 14.

ASTRONOMY.

Sphere, Copernican, xx. 7.
Ptolemaic Armillary, xx. 6.
Systen, Copernican, xx. 15.
Egyptian, xii. 16.
Ptolemaic, xii. 14.
Pythagorean, xx. 15.
Solar, ii. & xxi. 1-4.
Tychonic, xx. 17.
Times of the Planets, xxi. 2.
Trigon, xxi. 5-7.
Tropics, xvi. 140.
Tychonic System, xx. 17.
Velocities of the Planets, xxi. 4.
Venus, xxi. 8-11.
Parallax of, xvi. 15.
Ursa, Major and Minor, Constellation ii.
Whirling Table, xxi. 13-22.
Year, xxi. 12.

ASTRONOMICAL INSTRUMENTS.

Astrolabe, i. 1.
Back Staff, i. 2.
Bird's Quadrant, Graduation of, xviii. 2.
Bifecution of an Arc, xxi. 5.
Borda's Circle, ii. 4-9.
Repeating Circle, without reflection, vi.
Brewster's, Dr., Patent Telescope, xxx. 4.
Cavendish's, Mr., method of graduating Circles, xviii. 4.
Quinquagesimae, xviii. 5.
Chauhne's, due de, method of graduating Circles, xviii. 3.
Circle, Borda's, ii. 4-9.
Repeating, without reflection, vi.
Graduated, with 2 and 3 verniers, iv. 1-4.
Mayer's, ii. 1-3.
Mendoza's, iv. 5.
Ramden's, v.
Troughton's English Reflecting, iii. 1, 2.
Mural, x.
Portable, ix.
Repeating, without reflection, vii.
Wollaston's, viii.
Clavius's method of graduating a Circle, xxi. 1, 2.
Cole's Quadrant, xxiii. 2.
Mr., Equal Altitude, xvii. 3.
Crofts Staff, i. 3.
Davis's Quadrant, i. 2.
Dial, Star, i. 6.
Dollond's Portable Equatorial, xi. 3.
Object Glass Micrometer, xii. 4.
Refractor Apparatus, xii. 4.
Dynameters, xxi.
Elton's Quadrant, i. 8.
Equal Altitude Instrument, Cotes's, xvii. 3.
Earl of Illy's, xvii. 4, 5.
Equatorial Instruments, portable, Dollond's, xi. 3.
Fayer's, xi. 4.
Nairne's, xii. 1.
Ramden's, xii. 2.
Made by ditto for Sir G. Shuckburgh, xv.
Short's, xi. 1.
Equatorial, Universal, by Troughton, xiv.
Equatorial Instrument, Troughton's, at Armagh, xvi.
INDEX OF THE PLATES.

ASTRONOMICAL INSTRUMENTS.

Equatorial Sector, Graham’s, xiii. 1.
Siffon’s, xvii. 1, 2.
Equatorial Stand of a Telescope, by Smeaton, xiii. 5.
Fayer’s Equatorial Instrument, xi. 4.
Fore Staff, i. 3.
Graduation of Circles, xvi—xxi.

Bird’s Method, xviii. 2.
Cayndish’s Method, xviii. 4.
Duc de Chaulnes’s Method, xviii. 3.
by Clavius, xxi. 1, 2.
Graham’s Method, xviii. 1.
by Macheroni, xxi. 3—5.
Troughton’s Method, xix. xx.

Graham’s Equatorial Sector, xiii. 1.

Quadrant, Graduation of, xviii. 1.
Mural Quadrant, xxiii. 4.
Zenith Sector, xxxii. 1.

Gunter’s Quadrant, xxiii. 3.
Hadley’s Oëtant, xxii. 1.
Herchel’s, Dr., 40-feet Reflecting Telescope, xxxi.
Ilay’s, Earl of, Equal Altitude Instrument, xvii. 4.
Macheroni’s Method of graduating a Circle, xxi. 3—5.
Mayer’s Circle, ii. 1—3.
Mendoza’s Circle, iv. 5.
Microscope, Objéct Glafs, Dollond’s, xii. 4.
Microscope, Compound, Theory of, xxiv. xxv.
Nairne’s Portable Equatorial, xii. 1.
Newton’s Quadrant, i. 7.
Nocturnal, i. 6.
Objéct Glafs Micrometer, Dollond’s, xii. 4.
Oëtant, Hadley’s, xxxii. 1.
Pearson’s, Rev. Dr., Rotative Roof for an Observatory, xxi. 5, 6.

Quadrant, i. 4.
Cole’s, xxii. 2.
Davis’s, i. 2.
Elton’s, i. 8.
Graham’s Mural, i. 4.
Gunter’s, i. 3.
Newton’s, i. 7.
Ramden’s, i. 5.
Troughton’s, i. 6.
Bird’s, Graduation of, xviii. 2.
Graham’s, Graduation of, xviii. 1.

Ramden’s Astronomical Circle, v.

Portable Equatorial, xi. 2.
Equatorial Instrument, made by, Sir Geo.
Shuckburgh, xv.

Quadrant, xxiii. 5.
Refraction Apparatus, xii. 2.
Zenith Sector, xxxii. 2.

Rotative Roof, Pearson’s, xxii. 5, 6.
Smeaton’s, xxii. 1—4.

Short’s Portable Equatorial, xi. 1.
Siffon’s Equatorial Sector, xvii. 1—2.
Smeaton’s Equatorial Stand of a Telescope, xiii. 5.

Micrometer, xiii. 3.
Mr., Rotative Roof for an Observatory, xxii. 1—4.
Support for a Telescope, xxx. 8.
Star Dial, i. 6.

Graduation of Circles, xvi—xxi.

Telecope, Theory of, with respect to Aberrations, &c.

ASTRONOMICAL INSTRUMENTS.

Telecope, Dr. Herchel’s 40-feet Reflecting, xxxi.
Telecope, Reflecting, Theory of, xxvii.
 chiefly Reflecting, xxx.
Refraeting, Theory of, xxiv. xxv.
Troughton’s English Reflecting Circle, iii. 1, 2.
Mural, x.
Portable Circle, ix.
Repeating Circle, without reflection, vii. 1, 2.
Method of graduating a Circle, xix. xx.
Universal Equatorial Instrument, xiv.
Equatorial Instrument at Armagh, xvi.

Quadrant, xxi. 6.
Transit Instruments, xxxii.
Wollaston’s Circle, viii.
Zenith Micrometer, Dollond’s, xxxii. 3—6.
Sector, Graham’s, xxxiii. 1.
Ramden’s, xxxii. 2.

BASSO RELIEVO.

Altars, Pagan, iv. No. 1—5.
Carrara, Basso Relievo on a Capital in the Cathedral of,
iv. 1.
Hercules and Apollo contending for the Tripod, ii. 1.
Hindu Basso Relievo, i. 2.
Minerva subduing Hercules, ii. 2.
Sphinx, Egyptian Hieroglyphical, i. 1.
Xanthippos, Tombstone of, iii.
Zetlius, Antiope and Amphiion, Basso Relievo of, iv. 2.

BLEACHING.

Boiling Pan, &c. iv. 1—7.
Bucking, i. 1—3.
Drying, iii. 1—4.
Oxi-muriatic acid, i. 4.
Washing and Clearing, ii. 1—7.

BLOCK MACHINERY.

Boring Machine, iv. 1—4.
Cooking Engine, iii. 4—9.
Cornering Saw, iv. 5—9.
Crown Saw, ii. 1—3.
Dead Eyes, machine for making, vii. 6, 7.
Lathe, Face Turning, iii. 3—7.
Rivetting Hammer, iii. 13.
Sawing Machine, i. 1—4.
Scoring Machine, vii. 1—5.
Shaping Engine, vi. 1—5.

BOATS. See SHIPS.

CAMP.

Camaretation, v.—xxii.
Circumvallation, lines of, iv.
Encampment of a Park of Artillery, iii.
Roman Confular Camp, according to Polybius, i.
Roman Camp for Three Legions, and according to the
Hyginian system, ii.

CANALS.

Aqueduct Bridge at Kelvin, ii. 19—21.
INDEX OF THE PLATES.

CANALS.
Aqueduct, Cast Iron, Fulton's, iii. 23, 24.
Mr. Telford's, on the Shrewsbury Canal, iii. 22.
Barrow, vii. 48.
Bridges, vii. 7.
Deep Cutting, i. 6.
Embanking, i. 4, 5.
Embankment, iv. 25.
Grafting Tool, vii. 10.
Level Cutting, i. 1—3.
Lining, i. 15.
Locks, v. 36—39.
Navigator's Tools, vii. 48—52.
Pile Planks, iv. 30.
Puddling, i. 14.
Rail Ways, Iron, iv. 31—35.
Refewors, i. 16—18.
Safety Gate, iv. 26.
Scoop, vii. 52.
Shovel, vii. 51.
Swing Bridge, vii. 43—47.
Weirs, iv. 27—29.

CANDLE MAKING.
Apparatus for dipping Candles, 1.
Mould Candles, 4.
Candlesticks, 7—12.
Mould, 6.
Frame, 5.
Wick Broach, 2.
Cutter, 3.

CANNON.
Boring Cannon, Machinery for, ii. iii.
Cannon, whole length, i. 1.
Cafecible, i. 2.
Howitzers, i. 7, 10.
Mortar, i. 4, 11.
Land, i. 8.
Sea, i. 5, 6, 9.
Stone, i. 12.
Muzzle, i. 3.

CANTEENS.
Boring Machine, i. 7.
Bung Stave, i. 6.
Canteen, i. 1.
Center Bit, i. 8.
Cross Cutting Saw, i. 2, 3.
Punching the Hoops, ii. 18.
Rounding the ends of the Hoops, ii. 19.
Screw Hoop, ii. 11.
Shears, ii. 16, 17.
Slider, i. 9.
Tenenting or Rebating Saw, i. 4, 5.
Truís Hoop, ii. 12.
Turning the Chime, ii. 14.
Head, ii. 15.

CASTING.
Apparatus for Casting, 1.
Cog Wheel, method of casting, 7—10.
Lifting Screw, 5.
Loom Casting, moulds for, 11—13.

CASTING.
Open Sand Casting, 1, 2.
Ramming Tool, 4.
Sand Casting between flasks, 6.
Trowel, 3.

CHEMISTRY.
See also Furnace and Iron Manufacture.
Acid Holder, xvi. 3.
Adopter, xvi. 7.
Air Vault, xv. 1, 2.
Holder, xiv. 2.
Alcohol, iii. 10.
Alembic, iii. 10.—13.
Aludel, iii. 14.
Analysis of Organic Substances, Berzelium's Apparatus for, xxi. 4.
Antimony, iv. 15—26.
Furnaces for the reduction of, iv. 15—26.
Bell, xiv. 3.
Bended Tube, xvi. 6.
Berzelium's Apparatus for the Analysis of Organic Substances, xxi. 4.
Blast Furnace, i. vii.—x.
Works, xi. xiv.
Blowpipe, xi. 1—7.
double, xiv. 7.
Characters, Ancient Chemical, xi.
Crucible, xvi. 29, 30.
Stands, xvi. 31, 32.
Cupola Furnace, i. 1, 2.
Cupel, xvi. 33.
Dam Plate, xiii. 3.
Stone, xiii. 2.
Diffillation, vii. 1—4.
Evaporating Vessel, xvi. 23.
Eudiometer, Hope's, xxi. 1.
Pepys's improvement of Volta's, xxi. 2.
Volta's, xvi. 22.
Tubes, xvi. 18.
Furnace, Cupola, i. 1, 2.
for the reduction of Antimony, iv. 15—26.
Iron Smelting, ii. 6—9.
Blast, vii.—x.
Works, xi.—xiv.
Gas Bottle, xvi. 27.
Holder, xiv. 4.
Gaffes, Apparatus for the Absorption of, xvii. 9.
Gafometer, xiv. 1—4.
Simplified, xvii. 13, 14.
Pepys's, xvii. 15.
Glass Blower's Lamp, xiv. 5, 6.
Jar, xvi. 20.
Hamilton's Apparatus, xvi. 11.
Hope's Eudiometer, xxi. 1.
Hydraulic Bellows, xvi. 1.
Iron Retort, xvi. 35.
Iron Smelting Furnace, ii. 6—9.
Laboratory, xvi. 17.
Luflac and Thenard's Apparatus, xxi. 3.
Mattrafs, xvi. 24.
Mercurial Trough, xvi. 19.
Muffel, xvi. 28.
Nooth's Apparatus, xvi. 10, 12.
Pepys's Improvement of Volta's Eudiometer, xi. 5.
Pneumatic Trough, xvi. 16.
INDEX OF THE PLATES.

CHEMISTRY.
Proof Glasses, xvi. 25.
Pyroligneous Acid, Apparatus for the Distillation of, xx.
Receiver, xvi. 4, 5, 8.
Retort, xvi. 2.
Separatory Funnels, xvi. 34.
Shoe Lamp, xiv. 6.
Still, i. 1—5.
Supporter, xvi. 17.
Iron ring, xvi. 21.
Tymp Plate, xiii, xiv. 4.
Volta’s Eudiometer, xvi. 22.
Water Regulator of a Blast Furnace, xiii, xiv. 2.
Wollafton’s Scale of Chemical Equivalents, xxi. 5, 6.
Woulfe’s Apparatus, v. vi.

CLOUDS.
Cirro Cumulus, i. 4.
Cirro Stratus, i. 2, ii. 1, 2, 4.
Cirrus, i. 1, 3.
Cirro Cumulus, ii. 3.
Cumulo Stratus, i. 6, ii. 4.
Cumulus, v. vi.
Nimbus, i. 5.

CONICS.
Ambigental, i. 1.
Abciffe, i. 2.
Asymptote, i. 2, 3.
Geometry, ix. 4.
Axis.
Cone, i. 4-10.
Conic Sections, ii.—vii.
Harmonic Division of a Line, ii. 1.
Hyperbola, x. xi.
Parabola, xii.

COTTON MANUFACTURE.
Batilo Printing Machine, ii. 1—5.
Calico Printing, i. 1—6.
Carding, iv. 1—4.
Deviling, iii. 1—5.
Drawing Frame, i. 1—4.
Doubling Machine, xiii. 1, 2.
Mule Spinning, xi. 1—5.
Reeling, xii. 1, 2.
Roving Can Frame, vi.
Frame, (double Speeder) vii. viii.
Spinning Frame, Thrust, x. 1—3.
Water, ix. 1—6.
Strutt’s, Miers, Cotton Mills at Belper, xiv.
Twisting Machine, xiii. 3—4.
Winding drawing Cotton into Balls, Machine for, xii.

CUTLERY.
Grinding Mill, Troughs of, i.
Pressing Vice, 3.
Spring Drill, 3.
Tongs for pressing Knife-handles.

CYCLOID.
Fig. 1—8.

See also Analysis, v. 1—8.

DIALLING.
Declinator, i. 1—3.
Dial, Cylindrical, iii. 27, 28.
East, ii. 16.
Equinoctial, i. 4.
Universal, i. 5.
Horizontal, i. 8—12.
Inclined, ii. 23.
Moon, iv. 25, 26.
Polar, ii. 17.
Portable, iii. 29, 30.
South, ii. 15.
Vertical Declining, ii. 21, 22.
North, i. 14.
South, i. 13.
Universal, i. 6.
on a Cross, iii. 31—33.
Mechanical, ii. 24.
on three Planes, ii. 19.
Primary, ii. 20.
Ring, iv. 34—37.
Tide, Miscellaneous, xxi. 10.
Dialling Cylinder, iv. 38—41.
Lines, iv. 42.
Dial constructed by a Globe, iv. 36, 37.
Scales, Dialling, iv. 42.

DOCKS.
East India.
Liverpool.
London.
West-India.

DRAWING.
Claud Lorraine, Engraving from an original Drawing by, x.
Hatching’s specimens of, i.—iii. 3—6.
Head, proportions of, i.—iii. 1, 2, 4, 5.
Landscape, viii.—x.
Outlines of the Human Face, i.—iii. 1, 2, 4—5.
Poullin, G., Engravings from original Drawings by, vii. ix.
Shadows, i.—iii. 3, 6.
Tinted Drawing, x.
Washed Ditto, x.

DRAWING INSTRUMENTS.
Camera Lucida, by Wellafton, i. 6.
Compasses, i. 1—3.
Beam, i. 3.
Compound proportional, i. 8, 9.
Elliptic, Plate Turning, fig. 20.
Hair, i. 6.
Pocket, i. 7.
Triangular, i. 1, 2.
method of adapting a quick and
flow motion to, i. 10, 11.
Delineator, Mifs Edgeworth’s, i. Delineators, 2, 3.
Peacock’s, i. 1.
Elliptograph, by Farcy, ii. 3.
Optigraph, Ramden’s, improved by Jones, i. Delineators, 4.
Oval, Instrument for Drawing, ii. 1, 2.
Protractor, reflecting, by Sir H. Douglas, i. 7.
INDEX OF THE PLATES.

ELECTRICITY.

Battery, Prieiely’s, i.
   Tyler's, i.
   Construction of the side connecting
   Frame, xv. 7.

Brush, xv. 6.

Condensers, ii. 4—9.

Configurations, vi.

Difchargers, iii. 10—20.

Doubler, Cavallo’s, iii. 21—25.

Electricity, Medical, x. 13, 14. xv. 1.

Electrometer, xii, xiii.

Electrophorus, xii, xiv. (xiv.) 1, 2.


Flyers, Electrical, vii. 51.

Inflammable Air Lamp, Volta’s, vii. 55.
   Piolti, vii. 53, 54.

Machine, Electrical
   Beccaria’s, ix. 10.
   Common, ix. 11.
   Cuthbertson’s, i. x. xi. (Numbered x.)
   Hawkbee’s, vii. 1, 2.
   Nairne’s, ix. 12.
   Nollet’s, vii. 3.
   Van Marum’s, ix. 18.
   Dr. Watson’s, vii. 4.
   Wilton’s, vii. 5.

Machines, various, viii.

Thunder-houfe, xv. 2, 3.

Tooth, Apparatus for electrifying, xv. 1.

Torpedo, xv. 4, 5.

ENGINE.

Cutter, Engine for sharpening, by Rehe, vi. 1—6.

Cutting Engine, by Hindley, ii. i—5. iii. 1—5.
   Rehe, iv.

Dividing Engine, by Ramfden, vii—xi.
   for straight Lines, xii.

Screw of Ramfden’s circular dividing Engine, for cutting, x.

Screw of Ramfden’s straight Line dividing Engine, for cutting, xi.

Weighing Engine, by Salmon, i. (Numbered Plate II.)

ENGRAVINGS—Early Britifh.

Alfred’s Jewel, Engraving from
   Anfelm’s Seal, Engraving from
   Fulbourn, William de, Engraved Brass on the Tomb of

FARRIERY.

Horfe Shoes, various

FORTIFICATION.

Angle at the Center, i. & C
   Baflion, i. 1, v. o, p. v. A, B
   Battery, ii. 1, 2, v. No. 3, v. M.
   en Barbe, ii. 3
   Belidor’s first Method, vii. 15.
   Bonnet, v. m
   Breathwork. (See Battery.)

Bridges, v. s. v. Q
   Cavalier, i. 2, 3.
   Construction, v.—vii.

Coutv-way, v. b
   Countercarpent, v. c
   Counterguard, v. n
   Crown-Work, v. i vi. 2.
   Curtain, i. 1. v. q
   Echellon, iii. 1—4.
   Enfilade, iii. 5.
   Expence Magazine. (The figures are omitted)
   Field Fortification, iii. 6—14.
   Flank of an Army. (The figures are omitted)
   Fort, iv. 4—10. v. No. 4.
   Fortified Place, v. 4.
   Gabion, v. 8.
   Gallery, v. 7.
   Gorge, i. 1.
   Half Moon, v. k
   Horn Work, v. f vi. 1.
   Irregular Fortification, v. 1.
   Line, vi. 3—5.
   Lines of Circ umvallation, v. 2. v. D
   Lunette, vi. 6—8.
   Mantelet, vi. 9.
   Mine, v. 6. vi. 10—15.
   Moat, v. h v. P
   Parallel of Arms, v. E. F. G
   Places of Arms, v. g v. I, O
   Polygon, i. 1.
   Profile of a Fortification, v. 3.
   Rampart, v. r
   Ravelin, v. i. v. C vii. 4.
   Redoubts, Square, v. K vii. 5.
   Regular Fortification besieged, v. 5.
   Sap, v. No. 5.
   Tenaille, v. d, e vii. 6—8.
   Tenailion, vii. 9.
   Traverle, v. L

FURNACE.

(See also Chemistry and Iron Manufacture.)

Air Furnace, i. 1—3.
   Common, ii. 2.

Black’s, Dr., Furnace, ii. 1.
   Portable Ditto, ii. 6—11.

Bone’s, Mr., Enamelling Furnace, v. 10, 11.


Knights, Mr., Furnace, ii. 3.
   Portable Ditto, ii. 5.

Muleh’s, Mr., Furnace, ii. 4.
   used by, for Experiments on Iron and Steel,
   iii. 1—3.

Tobacco-pipe maker’s Furnace, iii. 4, 5.

GARDENING.

Bark Beds and Pits, i. 1—4.

Convervary and Green Houfe, ii. 1—6.

Hothous, iii. 1—3.
   Loudon’s for Pines, iii. 3—5.
INDEX OF THE PLATES.

GEOGRAPHY.

Distance, i. 1.
Horizon, i, 2, 3.
Map, i. 4—8.
Meridian, Navigation, i. & ii. 1.
Pole, Ditto, i. & ii. 1.
 Tide, Ditto, i. & ii. 4—8.

GEOMETRY.

(See also Analysis.)

Alternate Angles, i. 1.
Altitude, i. 2—13.
and Distance, i. 14.
Analysis, ix. 1.
Angle, ii. 1—26.
of Contact, ix. 9.
Antiparallel, ii. 27.
Application, ii. 28—34.
Arch, iii. 42—44, 44. * 45. *
Asymptote, ix. 4.
Axis of the Ellipse and Hyperbola, ix. 6.
Base, iii. 46. *
of a Cylinder, ix. 7.
Bevel, iii. 33—39.
Cardioide, iii. 48. *
Catenaria, iii. 49. *
Chord, iii. 45—48.
Circle, iv. v.
Complement of a Parallelogram, ix. 8.
Construction, ix. 2.
Contact, Angle of, ix. 9.
Cube, ix. 10. xii.
Cyclograph, ix. 11.
Decagon, vi. 74. 83.
Diagonal, vi. 75—77.
Diameter, vi. 78, 79.
Diophrante, vi. 84.
Dirigent, vi. 80.
Distance, vi. 85, 86.
Divisibility, vi. 81.
Division, vi. 82.
Dodecagon. See Hexagon.
Dodecahedron, xii.
Extreme and mean Proportion, vii. 87.
Frustum, vii. 88—95.
Function, Analytic, ix. 3.
Gnomon, vii. 96.
Hexagon, vii. 97.
Honeycomb, viii. 98, 99.
Hyperbolic Logarithms, ix. 3.
Hypotheneufe, viii. 100.
Icoahedron, xii.
Inclination of Planes, viii. 101.
Indivisibles, viii. 102.
Internal Angle, viii. 103, 104.
Isoceles Triangle, viii. 105.
Line, x. 1, 2.
Lunes, x. 2, 5.
Multiplication, x. 6, 7.
Octagon, x. 8.
Octahedron, xii.
Parallel, x. 10.
Ruler, x. 11, 12.
Parallelepiped, x. 13.
Parallelogram, x. 14, 15.

GEOMETRY.

Polecoides, x. 16. (On Plate x. xi.)
Pentagon, x. 17, 18. (On Plate x. xi.)
Perpendicular, xi. 4, 5.
Polygon, xi. 6.
Polygonometry, xi. 7—11.
Porism, xi. 12, 13.
Prism, xi. 15.
Proportional, xi. 16, 17.
Pyramid, ix. 12, 13.
Quality, xii. 1.
Reciprocal Figures, xii. 2.
Reetangle, xii. 3—4.
Reduction, xii. 5—8.
Regular Body, xii. 9.
Rhomboides, xii. 10.
Rhombus, xii. 11.
Ring, xii. 12.
Scale, xiii. 1—3.
Secant, xiii. 4.
Sector, xii. 12. xiii. 5—12.
Segment, xiii. 13.
Similar Curves, xiii. 13.
Solid Angle, xiv. 1.
Solidity, xiv. 2.
Sphere, xiv. 3.
Spheroid, xiv. 4.
Spiral, xiv. 5—9.
Square, xiv. 10, 11.
Staff, xiv. 12, 13.
Stereographic Projection, xiv. 14—16.
Sub-contrary, xiv. 1.
Sub-normal, xiv. 2.
Tangent, ix. 14—19. xiv. 3.
Tetrahedron, xiv. 4.
Triangle, Equilateral, xiv. 5.
Icoheles, xiv. 13.
Menuration of, xiv. 10.
Obtufangular, xiv. 8.
Properties of, xiv. 11, 12.
Rectangular, xiv. 7.
Scalene, xiv. 6.
Triangles, Similar, xiv. 9.
Vertex, xiv. 18.
Ungula, xiv. 19.
Volute, Goldman’s, xiv. 20, 21.

GUNNERY. (See also CANNON.)

Bomb, 6.
Caliber Compass, 7.
Nock’s Improved Breech, 2.
Petard, 4.
Pointing of a Gun, 1.
Quadrant, 5.

HERALDRY.

Abatements, i.—vi.
Achievements borne at the interment of the Earl of Chatham, xi.
Achievements, Funeral, xii.
Badge of Baronets of England and Ireland, xiv.
Nova Scotia, xiv.

5 D
<table>
<thead>
<tr>
<th>HERALDRY</th>
<th>HERALDRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badge borne by the Duke of York, as Bishop of Osnaburgh, xiv.</td>
<td>Coronets,</td>
</tr>
<tr>
<td>Badge of a Civil Knight Grand Cross of the Order of the Bath, ix.</td>
<td>Duke of Spain x. B.</td>
</tr>
<tr>
<td>Badge of a Knight Commander of the Order of the Bath, viii.</td>
<td>Crown, x. of England</td>
</tr>
<tr>
<td>Badge of a Civil Commander of the Royal Hanoverian Guelphic Order, ix.</td>
<td>Scotland</td>
</tr>
<tr>
<td>Badge of a Civil Knight of the Royal Hanoverian Guelphic Order, ix.</td>
<td>Hanover</td>
</tr>
<tr>
<td>Badge of a Civil Knight Grand Cross of the Royal Hanoverian Guelphic Order, ix.</td>
<td>Hungary</td>
</tr>
<tr>
<td>Badge of a Military Knight Grand Cross of the Royal Hanoverian Guelphic Order, viii.</td>
<td>Austria</td>
</tr>
<tr>
<td>Badge of a Military Commander of the Royal Hanoverian Guelphic Order, viii.</td>
<td>Bohemia</td>
</tr>
<tr>
<td>Badge of a Military Knight of the Royal Hanoverian Guelphic Order, viii.</td>
<td>Russia</td>
</tr>
<tr>
<td>Badge of the Order of the Garter, viii.</td>
<td>France</td>
</tr>
<tr>
<td>Cap, ancient Baron's, xiii.</td>
<td>Charlemagne</td>
</tr>
<tr>
<td>of Maintenance, xiii.</td>
<td>Cardinal's Hat, x. B.</td>
</tr>
<tr>
<td>Lord Mayor's, x. B.</td>
<td>Celestial Heraldic Crown, xiii.</td>
</tr>
<tr>
<td>Chaplet, xiii.</td>
<td>Civic Wreath, xiii.</td>
</tr>
<tr>
<td>Collar of a Military Knight Grand Cross of the Royal Hanoverian Guelphic Order, viii.</td>
<td>Collar of a Military Knight of the Royal Hanoverian Guelphic Order, viii.</td>
</tr>
<tr>
<td>the Thistle, viii.</td>
<td>the Thistle, viii.</td>
</tr>
<tr>
<td>Coronets, x.</td>
<td>Coronets, x.</td>
</tr>
<tr>
<td>Nephew of the King</td>
<td>Crown x. B. Prussia</td>
</tr>
<tr>
<td>Niece of the King</td>
<td>Spain</td>
</tr>
<tr>
<td>Prince of Wales</td>
<td>Sweden</td>
</tr>
<tr>
<td>Younger Sons of the King</td>
<td>Sicily</td>
</tr>
<tr>
<td>Daughters of the King</td>
<td>Portugal</td>
</tr>
<tr>
<td>Grand-Daughters of the King</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Prince Leopold of Saxe Cobourg</td>
<td>Denmark</td>
</tr>
<tr>
<td>Duke</td>
<td>Wurttemburg</td>
</tr>
<tr>
<td>Marquess</td>
<td>Bavaria</td>
</tr>
<tr>
<td>Earl</td>
<td>Grand Signior</td>
</tr>
<tr>
<td>Viscount</td>
<td>Persia</td>
</tr>
<tr>
<td>Baron</td>
<td>Papal (tiara)</td>
</tr>
<tr>
<td>Count of Hanover</td>
<td>Saxony</td>
</tr>
<tr>
<td>Baron of Hanover</td>
<td>Sardinia</td>
</tr>
<tr>
<td>Baron of Austria</td>
<td>Hayti</td>
</tr>
<tr>
<td>Count of the Empire</td>
<td>Grand Duke of Hanover</td>
</tr>
<tr>
<td>Prince of the Empire</td>
<td>Imperial, of Napoleon Bonaparte</td>
</tr>
<tr>
<td>Dauphin of France</td>
<td>Italy</td>
</tr>
<tr>
<td>French Prince of the Blood</td>
<td>Doge of Venice</td>
</tr>
<tr>
<td>Duke of France</td>
<td>Grand Duke of Tuscany</td>
</tr>
<tr>
<td>Marquis of France</td>
<td>Distinctions, Royal, xiv.</td>
</tr>
<tr>
<td>Comte of France, x. B.</td>
<td>of Honfes, xiv.</td>
</tr>
<tr>
<td>Eastern Heraldic Crown, xiii.</td>
<td>Ducal Heraldic Coronet, xiii.</td>
</tr>
<tr>
<td>Escutcheons, i.</td>
<td>Flags, Standards, &amp;c. vii.</td>
</tr>
<tr>
<td>Diaper</td>
<td>Admiralty</td>
</tr>
<tr>
<td>Gutté</td>
<td>Blue Ensign</td>
</tr>
<tr>
<td>Impaled</td>
<td>Board of Ordnance</td>
</tr>
<tr>
<td>Mafoned</td>
<td>Camp Colours</td>
</tr>
<tr>
<td>Points</td>
<td>Custom House</td>
</tr>
<tr>
<td>Quartered</td>
<td>East India Company</td>
</tr>
<tr>
<td>Semé</td>
<td>Guidon of the Royal Horseguards, Blue</td>
</tr>
<tr>
<td>Flags, Standards, &amp;c. vii.</td>
<td>Navy Office</td>
</tr>
<tr>
<td>Admiralty</td>
<td>Red Ensign</td>
</tr>
<tr>
<td>Blue Ensign</td>
<td>Regimental Colour</td>
</tr>
<tr>
<td>Board of Ordnance</td>
<td>Royal Standard</td>
</tr>
<tr>
<td>Camp Colours</td>
<td>Standard of the Royal Horseguards, Blue</td>
</tr>
<tr>
<td>Custom House</td>
<td>Trinity Houfe</td>
</tr>
<tr>
<td>East India Company</td>
<td>Victualling Office</td>
</tr>
</tbody>
</table>
INDEX OF THE PLATES.

HERALDRY.

Flags, Standards, &c. vii.
Union, or King’s Colour
Union Jack
White Ensign

Furs, i.
Ermine
Ermines
Erminois
Pean
Potent, Counter Potent
Vair, Counter Vair

Hat, Cardinal, x. B.

Helmets, Heraldic, xiii.
Baron and Knight
Étiquette

Laureate

Nobility

Crest, &c. of the Britifh Sovereign, xiii.

King of Arms, Heraldic Crown of, xiii.

Laureate, xiii.

Lord Mayor’s Cap, x. B.

Metals and Colours, i.
Argent
Azure
Gules
Or
Purpure
Sable
Vert

Mitre, x.
Archbishop
Bishop

Mural Crown, xiii.

Naval Crown, xiii.

Oblifional, xiii.

Olive, xiii.

Orders of Knighthood, viii. ix.

Palafite, xiii.

Partition Lines, i.

Roundles, i.

Bezant

Fountain

Golpe

Guze

Hurt

Orange

Pellet

Plate

Pomme

Tortueaux

Star of a Civil Knight Grand Cross of the Order of the Bath, ix.

Star of a Knight Commander of the Order of the Bath, ix.

Star of a Military Knight Grand Cross of the Order of the Bath, viii.

Star of the Order of the Garter, viii.

Star of a Civil Commander of the Royal Hanoverian Guelphic Order, ix.

Star of a Civil Knight Grand Cross of the Royal Hanoverian Guelphic Order, ix.

Star of a Military Commander of the Royal Hanoverian Guelphic Order, ix.

Star of a Military Knight Grand Cross of the Royal Hanoverian Guelphic Order, viii.

Star of the Order of St. Patrick, viii.

HOROLOGY.

Star of the Order of the Thistle, viii.

Trigonal, xiii.

Vallance, xiii.

Wreath, xiii.

Amant’s Escapement, xxxiii. 4.
Anchor Escapement, xxxiii. 3.
Arnold’s Chronometer, xiv.
Atwood’s Theory of the Balance, xxxi. 1—5.
Balance, Theory of, xxxi.

Balances, Compensation, xix. xxx.
Bennet’s Escapement, xxii. 7.
Berrillou’s Infallible Repeater, xlix. 6—8.
Berkhoudt’s Compensation Balance, xxx.
Compensating Pendulum, xl. 3.

Bichur’s Escapement, xxxiv. 4—8. xxxvi. 1.
Breguet’s Remontoir Escapement, xlii. 5, 6.
Brockbank’s Astronomical Clock, xxiii.

Chronometer, xv.

Chronometer, Arnold’s, xiv.
Brockbank’s, xv.
Earnihaw’s, xiv.

Calliper, x.

Clepsydra, Ancient, i.

Modern, ii.

Chime-work at St. Margaret’s Westminster, v. vi.

Chimes, vii.

Clock-movement, iii. iv.

Clock-work, xxv.

Striking part by Mafey, xxvi.

Prior, xxvii.

Clock, Astronomical, by Reid, xxii.

Brockbanks, xxiii.

Equation, by Enderlin, xxiv.

by Ferguson, xviii.

by Franklin, xviii.

Ancient, by De Wick, viii.

with Chimes, xvii.

Thirty Hour, with Alarum, &c. ix.

Portable Eight Day, xi.

Striking part of, xii.

Tools, xix.—xxi.

Compensating Pendulums, xxxix. xl.

Compensation Balances, xix. xxx.

Curbs, xxviii. xxx.

Crown Wheel, xxxi. 6.

Cumming’s Compensation Curb, xxx.

Escapement, xxxiii. 6.

Curbs, Compensation, xxviii. xxx.

De Lafon’s Remontoir Escapement, xlii. 1, 2.

Deycarlo’s Compensation Pendulum, xxxix. 6. 7.

De Wick, ancient clock by, viii.

Dial-work, xxxiii.

of a clock, showing the moon’s age, &c. xxxi.
new, of a small spring clock, showing the phenomena of the moon, xxxii.

Doughty’s Compensating Pendulum, xl. 8.

Earnihaw’s Chronometer, xiv.

Elliot’s Compensating Pendulum, xl. 1.

Elliot’s Repeating Watch, xlvii. 1—5.

Enderlin’s Equation Clock, xxxiv.

5 D 2
INDEX OF THE PLATES.

HOROLOGY.

Escapement, xxxi.—xxxvi.
Remontoir, xli.
Amant’s, xxxiii. 4.
Anchor, xxxii. 3.
Bennet’s dead beat, xxxii. 7.
Berthoud’s, xxxiii. 1.
for Chronometers, xxxiv. 4—8.
xxxvi. 1.
Bethune’s, xxxiii. 3.
Cumming’s, xxxiii. 6.
Duplex, xxxvi. 5.
Graham’s, xxxvi. 3.
Graham’s dead beat, xxxii. 4, 5.
Horizontal, xxxii. 2.
Grignon’s dead beat, xxxii. 6.
Harrifon’s, xxxiii. 5.
Hooke’s, xxxi. 8.
Huygens’ s, xxxi. 7.
Le Roy’s, xxxiii. 8.
Improved, xxxiv. 1—3.
Margett’s, xxxvi. 3.
Mafley’s, xxxvi. 5.
Mudge’s, xxxiii. 7.
for Chronometers, xxxvi. 1.
Nicholson’s, xxxvi. 2.
Robins’s, xxxvi. 4.
Smeaton’s, xxxiii. 2.
Sully’s, xxxii. 1.
Thiout’s, xxxii. 8.
Tompion’s, xxxv. 7.
à Virgule, xxxvi. 6.
free, for a pendulum, xxxv. 8.
Ferguson, Mr., Clock by, xviii. 2.
Fordyce’s Compensating Pendulum, xl. 5.
Franklin, Dr., Clock by, xviii. 1.
Fufee, Theory of, xxxvi. 6, 7.
Engine, xxxvii. 1—8. xxxviii. 1, 2.
Frame, xxxviii. 3.
Graham’s Escapement, xxxvi. 3, 4.
Graham’s Compensating Pendulum, xxxix. 4.
Escarpeated, dead beat, xxxii. 4, 5.
Horizontal, xxxii. 2.
Grignon’s Escapement, xxxiii. 6.
Haley’s Remontoir Escapement, xli. 1—4.
Hardy’s Remontoir Escapement, xl. 7.
Compensation Balance, xxx. 3—5.
EquiChronal Compensat ion, xxx. 7, 8—
Harrifon’s Escapement, xxxiii. 5.
Hooke’s Escapement, xxxi. 8.
Huygens’ s Escapement, xxxi. 7.
Le Roy’s Compensating Pendulum, xxxix. 8.
Escarpeated, xxxiii. 8. xxxvi. 1—3—
Margett’s Escapement, xxxv. 3.
Mafley’s Escapement, xxxvi. 5.
Remontoir Escapement, xlii. 3.
Striking part of Clock-work, xxxvi. 1.
Mendham’s Remontoir Escapement, xlii. 4—6.
Mudge’s Escapement, xxxiii. 7.
Time-keeper, xiii.
Nicholson’s Compensating Pendulum, xl. 10.
Escarpeated, xxxvi. 2.
Pendulum, Troughton’s, xxvii.
Pendulum, Compensating, xxxix. xl.
Prior’s Remontoir Escapement, xlii. 7, 8.

HOROLOGY.

Prior’s Striking part of Clock-work, xxvi. 2, 3.
Recordon’s Renovator, xliii. 1, 2.
Regnauld’s Compensating Pendulum, xl. 5.
Reid, Astronomical Clock by, xxii.
Reid’s Compensating Pendulum, xl. 7.
Remontoir Escapements, xlii. 3.
Ritchie’s Compensating Pendulum, xl. 9.
Robins’s Escapement, xxxv. 4.
Smeaton’s Escapement, xxxii. 2.
Sully’s Escapement, xxxii. 1.
Thiout’s Escapement, xxxii. 8.
Time Keeper, Mudge’s, xiii.
Tompion’s Escapement, xxxv. 7.
Troughton’s Pendulum, xxvii.
Compensating Pendulum, Mercurial, xl. 4.

HYDRAULICS.

Archimedes’ Screw, xiv. 11—13.
Contra ted Vein, i. 1—4.
Counterpreasure, i. 5.
Discharge of Fluids, i. 6—17.
Diving Bell, Dr. Halley’s, ii. 18.
Spalding’s, ii. 20.
Triewald’s, ii. 19.
Machine, Klingert’s, ii. 21—27.
Dredging Machine used on the Thames, iii. 1, 2.
Eddy, iii. 3.
Fire Engine, iii. 4.
Newham’s, iii. 5—11.
Rowntree’s, iv. 1—6.
Floating, viii. 1, 2.
Fluids, i. v. vi.
Difcharge of, i. 6—17.
Fountain, vii.
Hiero’s Crown, viii. 5.
Hydromancy, viii. 3, 4.
Hydrometer, ix. 1.
Clark’s, ix. 2, 3.
Defagulier’s, ix. 4.
De Luc’s, ix. 5.
Nicholson’s, ix. 6.
Hydrotstatic Balance, v. 7, 8.
Defagulier’s, x. 9.
Martin’s, x. 10.
Hydrotstatic Bellows, x. 11.
by Ferguson, x. 12—14.
Hydrotstatical Paradox, x. 15, 16.
Instrument, Bradford’s, xii. 14.
Hygrometer, xii. 33.
Ander son’s, xii. 8.
Ferguson’s, xii. 12.
Forster’s, xii. 11.
Hale’s, xii. 11.
Hooke’s, xii. 9, 10.
Kater’s, xii. 12.
De Luc’s, xiii. 5, 6, 7, 9.
INDEX OF THE PLATES.

<table>
<thead>
<tr>
<th>HYDRAULICS.</th>
<th>LIGHT-HOUSE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hygrometer, Saffure's, xiii. 7.</td>
<td>Eddystone, 1—8.</td>
</tr>
<tr>
<td>Smeaton's, xiii. 1—4.</td>
<td></td>
</tr>
<tr>
<td>Hungarian Machine, xiii. 10.</td>
<td></td>
</tr>
<tr>
<td>Jet d'Eau, xiv. 1.</td>
<td></td>
</tr>
<tr>
<td>Moiurte, xiv. 2.</td>
<td></td>
</tr>
<tr>
<td>Perian Wheel, xiv. 3.</td>
<td></td>
</tr>
<tr>
<td>Pump, Chain, xiv. 8, 9.</td>
<td></td>
</tr>
<tr>
<td>Ctefebe's, xiv. 7.</td>
<td></td>
</tr>
<tr>
<td>Forcing, xiv. 5.</td>
<td></td>
</tr>
<tr>
<td>Lifting, xiv. 6.</td>
<td></td>
</tr>
<tr>
<td>Rope, xiv. 9, 10.</td>
<td></td>
</tr>
<tr>
<td>Sucking, xiv. 4.</td>
<td></td>
</tr>
<tr>
<td>Captain Jekyll's improved, for Ships, xv. 1—8.</td>
<td></td>
</tr>
<tr>
<td>Martin's Ditto, xv. 9.</td>
<td></td>
</tr>
<tr>
<td>Sipho Wirtembergicus, xv. 6.</td>
<td></td>
</tr>
<tr>
<td>Siphon, xv. 1—5.</td>
<td></td>
</tr>
<tr>
<td>Papin's, xv. 6.</td>
<td></td>
</tr>
<tr>
<td>Springs, xv. 7.</td>
<td></td>
</tr>
<tr>
<td>Syringe, xv. 8—10.</td>
<td></td>
</tr>
<tr>
<td>Tantalus's Cup, xiv. 10.</td>
<td></td>
</tr>
<tr>
<td>Water Screw, xiv. 14, 15.</td>
<td></td>
</tr>
<tr>
<td>Wave, xv. 11—14.</td>
<td></td>
</tr>
</tbody>
</table>

HYDROSTATICS.

Capillary Tubes, &c. 1—17.

IRON MANUFACTURE.

(See also Chemistry & Furnace.)

Crucibles, Mould for making, vii. 4—7.

Finery, ii. 1, 2.

Forge, i. 1, 2.

Hammer, Smeaton's Machinery for, iv. 1, 2.

Fork, Iron, ii. 6.

Furnace, Balling, ii. 10, 11. iii. 1. 5—7.

Reverberatory, iii. & iv. 1.

Hammer for drawing out Bars, ii. 9.

Ladle, Iron, ii. 7.


Plate, v. 5, 6.

Rolling and Slitting Mill, vi. 1—3.

Stamping Iron, ii. 8.

Steel-converting Furnace, vii. 1—3.

Mill for Tilting, viii. 1, 2.

Tongs, ii. 5.

Tuyere Iron, ii. 4.

LAMPS.

Argand's, i. 1—3.

Barton's, ii. 5.

Kier's, i. 3—6.

King's Hydro-pneumatic, ii. 1—4.

Lamp Cotton, i. 4.

Porter's Automaton Lamp, ii. 6—8.

Rolling Lamp, i. 7.

LATHE.

By H. Maudslay, i—10.

LIGHT.

Luminous Animals. (See the Plates of Natural History.)

MAGNETISM.

Compas, i. 1—12. ii. 13—16.

Variation, iii. 17—22.

Dipping, iv. 22—29.

Needle, by Dr. Lorimer, iv. 30.

by Nairne, on Mr. M'tchel's plan, v.

MASONRY.

Arch, Cylindric, ii. 1. No. 2.

Cylindro-Cylindric, ii. 2.

Cylindrico, ii. 2. No. 2.

Plano Cylindrico, ii. 1.

Masonry, Greek, i. 6.

Incertain, i. 2.

Iododum, i. 3.

Pseudiododum, i. 4.

Reticulated, i. 1.

Roman Emplecton, i. 5.

MECHANICS.

Acceleration, i. 1, 2.

Angle of Elevation, i. 3, 4.

Angular Motion, ii. 1.

Axis in Parabolio, i. 5—7.

Balance, ii. 8—11.

Aflay, ii. 13.

Bent Lever, ii. 12.

Ballast, ii. 14.

Boring Cylinders, Dixon's Machine for, xxiii. 1, 2.

Water Pipes, ii. 2—4.

Crab, ii. 5.

Cylinder, Double, ii. 6, 7.

Jack, for raising Weights, ii. 8, 9.

Smoke, ii. 10.

Lever, ii. 11—13.

Projéctiles, ii. 14—17.

Capstan, iii. 15—21.

Center of Friction, iv. 21.

Gravity, iv. 22—29. v. 30—40. vi. 41—51.

Gyration, vii. 52—54.

Motion, vii. 55.

Ofcillation, vii. 56—60. viii. 61—66.

Percussion, viii. 67—69.

Position, ix. 70—73.

Pressurey, ix. 74—75.

Rotation, ix. 76—80.

Central Forces, x.

Centrifugal Forces, x.

Machine, xi. 93.

Centripetal Forces, x.

Centrobaryc Method, xi. 94—99.

Chains, xii. 1—9.

Clay Mill, xii. 10, 11.

Coach, xiii.

Coal Measuring, xiv.

Cocks, Water, xiv.

Collodion, xv. 1—24.

Colour Mill, xxxv. 1—6.

Comb Making, xv. 1—7.

Composition of Motion, xvi. 1, 2.

Condenfer of Forces, Prony's, xvi. 10, 11.

Cone, Double, xvi. 7.
INDEX OF THE PLATES.

MECHANICS.

Cork Screw, xvii. 1—4.
Corking Machine, xvii. 5.
Coupling Box, xv. 6—8.
Crane-necked Carriage, xiii. 1.
Crane, various, xxi.
by Braithwaite, xx. 3, 4.
Dixon, xx. 5.
Ferguson, xviii. 2, 3.
Smeaton, xix. 2, 3.
White, xx. 1, 2.
Cylinders, Dixon’s Machine for boring, xxiii. 1, 2.
Direction, Line of, xxii. 4—6.
of Motion, xxii. 3.
Bolts, Ships’, Hill’s Machine for drawing, xxiii. 1, 2.
Drilling Machines, xxiv. 10, 11.
Drills, xxiv. 1—9.
Dynamics, xxv. 1—7.
Dynamometer, McDougall’s, xxvi.* 1.
Salmon’s, xxvi.* 2.
Expanding Riggers, Mr. Farey’s, xxvi. 8—11.
Mr. A. Flint’s, xxvi. 5—7.
Flour Mill, Dr. Barker’s, xxxii. 3.
Common Breast Mill, xxxii. 1.
Portative or Hand Mill, xxxii. 4.
designed by Smeaton, xxxiv.

Fly Prefs, xxvii. 1—9.
Force, xxvii. 1—20.
Friction, xxvii. 1—3.
Filling Mill, xxiv. 4—6.
Jacobi’s Contrivance for the Fore-wheel of a Coach, xiii. 2.
Inclined Plane, xxxiv. 16—21.
Lead Pipes, Machine for calking and drawing, xl.
Logwood Mill, xxxi. 1—5.
Mechanical Powers, xxx. & xxxvi. 16, 17. xxxii. 1—17.
Motion, xxxiv. 1—11.
Diagonal, xxxiv. 2—5.
Perpetual, xxxiv. 11.
Percussion, xxxiv. 12—15.
Pile-driving Machine, xxxv. 1—7.
Engine, Valone’s, xxxv. 8, 9.
Piles, Bramah’s Machine for drawing, out of the Ground, xxxv. 10.
Pulley, xxx. & xxxvi. 11—13.
Refraction, xxx. & xxxvi. 14.
Rotation, xxxvii. 1—10.
Screw, xxxvii. 1—4.
Machine for trying, xxxviii. 5.
Solid of the least resistance, xxx. & xxxvi. 15.
Spring, xxxvii. 6—10.
Steelyard, xxxvii. 11.
Threshing Mill, Salmon’s portable, xxvii.
Wedge, xxx. 1—5.
Weight, xxx. 6, 7.
Wheel, xxx. 8—13.

MILITARY MANŒUVRES.

Manœuvre, first to the fourth, i.
fifth to the ninth, ii.
teeth to the thirteenth, iii.
fourteenth to the sixteenth, iv.
seventeenth to the nineteenth, r.
Inspection, or Review, vi.

MILL WORK.

Bevilled Wheels, i. 5, 6.
Cog Wheels, i. 1—3.
Conical Wheels, i. 7.
Shafts, &c. ii. iii.

MISCELLANY.

Æolus Harp, xxv. i.
Altar of Burnt-offering, i. 4.
Incense, i. 3.
Altitude of the Sea, i. 1, 2.
Arithmetical Characters, Ancient, i. 7.
Ark of the Covenant, i. 5.
Bee-hive, Thorley’s, xx. 1.
White’s, xx. 2—4.
Button-making, ii.

Chimney, by Dr. Franklin, xiv. 1—7.
Chimney cleaning Machines, Smart’s, ii. 1—6.
Ching, Musical Instrument, i. 8.
Claviole, Hawkins’s, xiv. 1—6.
Coinage, iii. 1—3.
Copying Machines, iii. 1—3.
Crown, xxv. 2.
Crydrallography, ii. 21, 23.
Duma’s, iv. 11.
Diagonal Motion, v.

Automaton, vii.
dividing and cutting Engine, vi. 18—20.
Diaper, xiii. 8.
Diaper Loom, viii. 1, 2.
Dimity, iv. 10. xii. 5, 7.
Discharging Prefs, vii. 3—4.
Diffimilar Spots, weaving, xii. 10.
Dornock, iv. 9. xii. 6.
Dramatic Machinery, ix. & x. x. & xi.
Drapery, xx. 8, 9.
Draught and Cording Looms, xii.
Draw Loom, viii. 3.
Drowned, Perfons apparently, Apparatus for restoring, xv. 1—5.
Easel, Painter’s, xii. 1.
Effcuteleon, secrect, for a key-hole, Marshall’s, xii. 1—8.
Extinguishers, self-acting, xii. 9.

File-cutting, xiii. 1—7.
Filters, xiii. 8—10.
Filtration, xxv. 3.
Fire Escape, Malere’s, simplified by Forster, xii. 12.
original Suspension, xii. 13.
Fire-places, by Dr. Franklin, xiv. 1—7.
Flood-gate, by Smeaton, xv. 5, 6.
sel-acting, by Farey, xv. 7.
Foundry of Bells, xv. 1.
Types, xv. 2, 3.
Fountain Pen, xv. 4.
Gage, Hale’s Aequo-mercural, xvi. 2.
Hooke’s Sea, xvi. 1.
Rain, xvi. 10.
of the Royal Society, xvi. 11.
Sea, i. 1, 2.
Gas Lights, Clegg’s Apparatus for, xvii. 1—3.
Cook’s Apparatus for, xvii. 5.
Dr. Stanchilfe’s Apparatus for, xvii. 4.

Gem Engraving, Apparatus for, xviii. 1—18.
### INDEX OF THE PLATES.

<table>
<thead>
<tr>
<th>MISCELLANY.</th>
<th>MONOGRAMS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glanders, Instruments for operating for, xix. 1.</td>
<td>Amman, J. ii.</td>
</tr>
<tr>
<td>Glazing Cloth, Machine for, ii.</td>
<td>Baldung, i.</td>
</tr>
<tr>
<td>Gun Flints, Tools for cutting, ii.</td>
<td>Beham, Bartholomew, i.</td>
</tr>
<tr>
<td>Horfe, xx. 7.</td>
<td>Beham, Hans Sebald, i.</td>
</tr>
<tr>
<td>Ice-houfe, xx. 5.</td>
<td>Bink, Jacob, ii.</td>
</tr>
<tr>
<td>Indigo Mills, xiii. 1–3.</td>
<td>Brefang, i.</td>
</tr>
<tr>
<td>King, Musical Instrument, i. 7.</td>
<td>Brie, Theodore de, ii.</td>
</tr>
<tr>
<td>Rowntree’s Patent, xxii. 5.</td>
<td>Burgkmair, i.</td>
</tr>
<tr>
<td>Marble Mill, xxxii. 1, 2.</td>
<td>Cranach, Lucas, i.</td>
</tr>
<tr>
<td>Marquetry, xvi. 3, xxiii. 3.</td>
<td>Crujer, Matt. ii.</td>
</tr>
<tr>
<td>Neper’s Bones, i. 8.</td>
<td>Durer, Albert, i.</td>
</tr>
<tr>
<td>Parabolic Conoid, xxxiii. 10, 11.</td>
<td>Glockenton, Albert, i.</td>
</tr>
<tr>
<td>Fruftum, xxiii. 9.</td>
<td>Greuter, J. F. ii.</td>
</tr>
<tr>
<td>Pentagraph, xxxiii. 5, 6.</td>
<td>Hirfchfogel, Augustin, i.</td>
</tr>
<tr>
<td>Perch of a Coach, xxxii. 7, 8.</td>
<td>Holbein, Hans, i.</td>
</tr>
<tr>
<td>Perspective Machines, xxiv. 1–5.</td>
<td>Sigifmond, i.</td>
</tr>
<tr>
<td>Polygraph, Hawkins’s Patent, iii. 1, 2.</td>
<td>Hollar, Wencellaus, iii.</td>
</tr>
<tr>
<td>Potafii, xxiv. 6.</td>
<td>Hopfer, D. ii.</td>
</tr>
<tr>
<td>Potafium, xxiv. 7.</td>
<td>Jerome, ii.</td>
</tr>
<tr>
<td>Pyrometer, Ellicott’s, xvi. 4.</td>
<td>Jamnitzer, Christophor, ii</td>
</tr>
<tr>
<td>Ferguson’s, xvi. 7, 8.</td>
<td>Jegher, Christophor, iii.</td>
</tr>
<tr>
<td>De Luc’s, xvi. 9.</td>
<td>Kilian, Wolfgang, ii.</td>
</tr>
<tr>
<td>Smefon’s, xvi. 5, 6.</td>
<td>Kraus, J. Ulrie, iii.</td>
</tr>
<tr>
<td>Similar Spots, weaving, iv. 7, xii. 9.</td>
<td>Kruger, Lucas, i.</td>
</tr>
<tr>
<td>Sluice, Bramah’s Hydrofaltic, xv. 8–11.</td>
<td>Lairefle, Geraud, iii.</td>
</tr>
<tr>
<td>Tide Dial, xxx. 10.</td>
<td>Lautenfack, Hans Seb. ii.</td>
</tr>
<tr>
<td>Trumpet, Marine, xxv. 4.</td>
<td>Henry, ii.</td>
</tr>
<tr>
<td>Hearing, xxv. 5, 6.</td>
<td>Loric, Melchior, ii.</td>
</tr>
<tr>
<td>Speaking, xxv, 7, 8.</td>
<td>Maurer, Christophor, ii.</td>
</tr>
<tr>
<td>Voice, xxv. 9.</td>
<td>Mercian, Math. iii.</td>
</tr>
<tr>
<td>Water Spout, xxv. 8.</td>
<td>Meyer, Andrea, iii.</td>
</tr>
<tr>
<td>Weaving, designs for, iv.</td>
<td>Direck, iii.</td>
</tr>
<tr>
<td></td>
<td>Rodolph, iii.</td>
</tr>
<tr>
<td></td>
<td>Oftade, Adrian Van, iii.</td>
</tr>
<tr>
<td></td>
<td>Penz, Gregory, i.</td>
</tr>
<tr>
<td></td>
<td>Sandrat, i.</td>
</tr>
<tr>
<td></td>
<td>Schoen, Bart. i.</td>
</tr>
<tr>
<td></td>
<td>Martin, i.</td>
</tr>
<tr>
<td></td>
<td>Schaufljen, H. Sen. i.</td>
</tr>
<tr>
<td></td>
<td>H. Jun. i.</td>
</tr>
<tr>
<td></td>
<td>Solis, Virgil, ii.</td>
</tr>
<tr>
<td></td>
<td>Stimper, Christophor, ii.</td>
</tr>
<tr>
<td></td>
<td>Tob. ii.</td>
</tr>
<tr>
<td></td>
<td>Thourneyfon, J. James, iii</td>
</tr>
<tr>
<td></td>
<td>Zagel, Martin, i.</td>
</tr>
</tbody>
</table>

### MONOGRAMS OF OLD ENGRAVERS.

<table>
<thead>
<tr>
<th>FRENCH ENGRAVERS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bariere, Dominique</td>
</tr>
<tr>
<td>Bernard, Solomon</td>
</tr>
<tr>
<td>Boivin, René</td>
</tr>
<tr>
<td>Breviette, Pierre</td>
</tr>
<tr>
<td>Cheveau, François</td>
</tr>
<tr>
<td>Couvay, Jean</td>
</tr>
<tr>
<td>Daret, Pierre</td>
</tr>
<tr>
<td>David, Jerome</td>
</tr>
<tr>
<td>Duvert, Jean</td>
</tr>
<tr>
<td>Garner, Antoine</td>
</tr>
<tr>
<td>Garnier, Noel</td>
</tr>
<tr>
<td>Gualtier, Leonard</td>
</tr>
<tr>
<td>Larmiflin, Nicolas de</td>
</tr>
<tr>
<td>Lafne, Michael</td>
</tr>
<tr>
<td>Lombart, Pierre</td>
</tr>
<tr>
<td>Perac, Stephan du</td>
</tr>
<tr>
<td>Perifin, Jacques</td>
</tr>
<tr>
<td>Ferrier, François</td>
</tr>
<tr>
<td>Reich, Wendel</td>
</tr>
<tr>
<td>Stella, Jacques</td>
</tr>
<tr>
<td>Vouillemont, Sebaflien</td>
</tr>
<tr>
<td>Woerriot, Pierre</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GERMAN ENGRAVERS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldegrever, Henry, i.</td>
</tr>
<tr>
<td>Altdorfer, Albert, i.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITALIAN ENGRAVERS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agosfino of Venice, i.</td>
</tr>
<tr>
<td>Alberti Cherubino, ii.</td>
</tr>
<tr>
<td>Algardi, Alexander, iii.</td>
</tr>
<tr>
<td>Andreae, Andrea, ii.</td>
</tr>
<tr>
<td>Antonio, Mare, i.</td>
</tr>
<tr>
<td>Baldili, Alexander, iii.</td>
</tr>
<tr>
<td>Barbire, Dominic, i.</td>
</tr>
<tr>
<td>Bateftra Antonio, iii.</td>
</tr>
<tr>
<td>Beatrice, Nicolas, of Lorraine, i.</td>
</tr>
<tr>
<td>Beccafumi, Dominico, i.</td>
</tr>
<tr>
<td>Bella, Stefano della, iii.</td>
</tr>
<tr>
<td>Boldrini, ii.</td>
</tr>
<tr>
<td>Bonafone, Julio, i.</td>
</tr>
</tbody>
</table>
## INDEX OF THE PLATES.

### MONOGRAMS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonavera, D. M.</td>
<td>iii.</td>
</tr>
<tr>
<td>Borgiani, Horace</td>
<td>iii.</td>
</tr>
<tr>
<td>Brefle, J. Ant.</td>
<td>i.</td>
</tr>
<tr>
<td>Callot, Jacques</td>
<td>iii.</td>
</tr>
<tr>
<td>Cantagalin, Remigio</td>
<td>iii.</td>
</tr>
<tr>
<td>Caracci, Annibal</td>
<td>ii.</td>
</tr>
<tr>
<td>Caraglio, J. J.</td>
<td>ii.</td>
</tr>
<tr>
<td>Calfiglione, Benedetto</td>
<td>iii.</td>
</tr>
<tr>
<td>Cavaleris, J. B.</td>
<td>ii.</td>
</tr>
<tr>
<td>Chamberlanus, Lucas</td>
<td>iii.</td>
</tr>
<tr>
<td>Civili, Louis</td>
<td>ii.</td>
</tr>
<tr>
<td>Daris, Leo</td>
<td>i.</td>
</tr>
<tr>
<td>Fantuzzi, Antonio</td>
<td>ii.</td>
</tr>
<tr>
<td>Fisselli, Odoard</td>
<td>ii.</td>
</tr>
<tr>
<td>Franceshini,</td>
<td>ii.</td>
</tr>
<tr>
<td>Galestrucci, G. B.</td>
<td>iii.</td>
</tr>
<tr>
<td>Galpar ab Avisbus</td>
<td>ii.</td>
</tr>
<tr>
<td>Ghis, Adam</td>
<td>i.</td>
</tr>
<tr>
<td>George of Mantua</td>
<td>i.</td>
</tr>
<tr>
<td>Jean Baptisti</td>
<td>i.</td>
</tr>
<tr>
<td>Kartaro, Maria</td>
<td>ii.</td>
</tr>
<tr>
<td>Lucini, A. F.</td>
<td>iii.</td>
</tr>
<tr>
<td>Mantegna, Andrea</td>
<td>i.</td>
</tr>
<tr>
<td>Metelli, Gioeffe Marie</td>
<td>iii.</td>
</tr>
<tr>
<td>Mocetto, Jerome</td>
<td>i.</td>
</tr>
<tr>
<td>Modena, Nicolas da</td>
<td>i.</td>
</tr>
<tr>
<td>Pagi, J. B.</td>
<td>ii.</td>
</tr>
<tr>
<td>Palma, Jaques</td>
<td>ii.</td>
</tr>
<tr>
<td>Penni, Lucas</td>
<td>i.</td>
</tr>
<tr>
<td>Ravenna, Marc of</td>
<td>i.</td>
</tr>
<tr>
<td>Remi, Guido</td>
<td>ii.</td>
</tr>
<tr>
<td>Ribera, Jop (l'Espraguelet),</td>
<td>iii.</td>
</tr>
<tr>
<td>Rosi, Salvator</td>
<td>iii.</td>
</tr>
<tr>
<td>Rota, Martin</td>
<td>ii.</td>
</tr>
<tr>
<td>Salamanca, Antonio</td>
<td>ii.</td>
</tr>
<tr>
<td>Sciaminofo, Raphael</td>
<td>iii.</td>
</tr>
<tr>
<td>Tempezza, Antonio</td>
<td>ii.</td>
</tr>
<tr>
<td>Tefta, Pietro</td>
<td>iii.</td>
</tr>
<tr>
<td>Valesio, J. L.</td>
<td>ii.</td>
</tr>
<tr>
<td>Venenti, Julio Cefario</td>
<td>iii.</td>
</tr>
<tr>
<td>Villamena, Francisco</td>
<td>ii.</td>
</tr>
<tr>
<td>Zanetti, A. M.</td>
<td>iii.</td>
</tr>
</tbody>
</table>

### ENGRAVERS OF THE LOW COUNTRIES.

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afser, Walter Van</td>
<td>i.</td>
</tr>
<tr>
<td>Audenaerde, Robert Van</td>
<td>iv.</td>
</tr>
<tr>
<td>Babylone, Francis</td>
<td>i.</td>
</tr>
<tr>
<td>Bargus, A. F.</td>
<td>iv.</td>
</tr>
<tr>
<td>Berghem, Nicholas</td>
<td>iii.</td>
</tr>
<tr>
<td>Bischop, John de</td>
<td>iv.</td>
</tr>
<tr>
<td>Blecker, Cornelius</td>
<td>iii.</td>
</tr>
<tr>
<td>Bleeck, Peter Van</td>
<td>iv.</td>
</tr>
<tr>
<td>Bloemart, Abraham</td>
<td>ii.</td>
</tr>
<tr>
<td>Bol, Hanfer John</td>
<td>ii.</td>
</tr>
<tr>
<td>Bolswert, Adam</td>
<td>iii.</td>
</tr>
<tr>
<td>Bolswert, Sheltius a</td>
<td>iii.</td>
</tr>
<tr>
<td>Bortch, Henry Vander</td>
<td>iii.</td>
</tr>
<tr>
<td>Peter Vander</td>
<td>iii.</td>
</tr>
<tr>
<td>Bos, Cornelius</td>
<td>i.</td>
</tr>
<tr>
<td>Jerome</td>
<td>i.</td>
</tr>
<tr>
<td>Bofius, Jacob</td>
<td>i.</td>
</tr>
<tr>
<td>Brembergh, Barthol</td>
<td>iv.</td>
</tr>
<tr>
<td>Breughel, Peter</td>
<td>i.</td>
</tr>
<tr>
<td>Broeck, Crispin Vander</td>
<td>i.</td>
</tr>
</tbody>
</table>

### MUSIC.

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acciaccature</td>
<td>xxv.</td>
</tr>
<tr>
<td>Arpeggio</td>
<td>i.</td>
</tr>
</tbody>
</table>
INDEX OF THE PLATES.

MUSIC.

Baßoon, Scale of, xxxii.
Chords used in Thorough Base, Synopsis of, xxx.
Canon in Ogni Modo, xlviij.
Counterpoint, vi.—xx.
Double, xvii.
Expression, Marks of, ii.*
Euclids Scctio Canonis, xlvi.
Fingerings on Keyed Instruments, xxvii.—xxx.
Graves and Marks of Expression, ii.*
Keys, arrangement of a Set of, on Keyed Instruments, i.
Modulation, xx.—xxiv.
Kirnberger's examples of, xxxiii.
RoufTear's xviii.
Sirius.
MUSICAL INSTRUMENTS.

(See also Miscellany.)

Æolian Harp, Miscellany, xxv. 1.
Barbiton, Greek, ii. 1.
Batalina, Guitar with two strings, ix.
Beau, an Indian Musical Instrument, v. 2.
Bow, Violin, xiv. 2.
Bow, Origin of the, viii. 1—5.
Bugle, xii. 5.
Ching, Chinese Instrument. Miscellany, i. 8.
Citharidrria, i. 2.
Crown. Miscellany, xxv. 2.
Fifes, xi. 6, 7.
Flagoelet, English, xi. 8.
Flute, Common English, xi. 1.
German, xi. 2.
Improved, xi. 3.
Flutes, Double, of the Ancients, ix.
Gelaia, ix.
Gong, xi. 9.
Gondoc Rebec, with three strings, ix.
Guitar, Spanish, xv. 3.
Harp, Æolian. Miscellany, xxv. 1.
Bell, x. 4.
of Brie Boromb, x. 1, 2.
Grecian, ii. 1.
Silver Prize, x. 3.
Single, vii.
Ancient Triple, vii.
Modern Triple, vii.
Welsh, vii.
Hautboy, xi. 4, 5.
Horn, Hunting, xii. 1, 2.
French, xii. 4.
Hunting, of Siberia, ix.
Indian Musical Instruments, v. 1, 2.
King, Chinese Instrument, Miscellany, i. 9.
Kit, xiv. 5.
Lutuus, Double, i. 3.
Ancient Metalline, i. 8.
Lute, xv. 4.
Arch, xiii. 1.
Lyre, Ancient, ii. 5, 6. iv. 8. 10.

MUSICAL INSTRUMENTS.

Lyre, Egyptian, iii. 6—10.
Etruscan, with 7 strings, iv. 7.
held by Terpsichore, iv. 3.
Mandola, xiii. 3.
Mandoline, xiii. 2.
Mandore, xv. 2.
Mask of Hercules, ii. 2.
Thais, ii. 3.
Masques, Antique Theatrical, i. 6, 7.
Musicians, Group of, performing an Epithalamium, iii.
1—3.
Pandean Minstrels, representation of, vi.
Psaltery, iv. 4.
Rojak, ix.
Rok, Hunting Horn of Siberia, ix.
Russian Musical Instrument, ix.
Sackbut, or Trombone, xii. 6.
Serpent, xii. 3.
Sordin, or Mute, for a Violin, xiv. 3.
Syrix, Pan playing upon, i. 4.
Sytrum, Egyptian, iv. 9.
Tabour and Pipe, xi. 10. 11.
Teftudo, Abydus, iv. 6.
or Lyre of Amphi, iv. 1, 2.
Tibes Pares, i. 5.
Cupid playing upon, iii. 5.
Timbrel, i. 1.
Trigonom, or Triangular Harp, iv. 5.
Trombone, xii. 6.
Tuba, or long Trumpet of the Jews, iii. 4.
Viol d'Amour, iv. 1.
Viol de Gamba, xiv. 6.
Violin, xiv. 1, 2.
Violoncello, xiv. 4.
Violino Piccola, xiv. 5.

NAVAL ARCHITECTURE.

Bolts, Hill's Machine for drawing, xiv.
Draught of a 74 Gun Ship, i.
East Indianman, xii.
Forecastle, Plan of, vi.
Frame of a 74 Gun Ship, ii. iii.
Frigate of 38 Guns, xi.
Gun Deck, Plan of, v.
Orlop, Plan of, v.
Plans of a 74 Gun Ship, v.—x.
Profile of a 74 Gun Ship, iv.
Quarter-deck, Plan of, vi.
Royal Sovereign Yacht, xiii.
Upper Deck, Plan of, vi.
Whole Moulding, xiv.

NAVIGATION.

Afrolobe, Astronomical Instruments, i. 1.
Backstaff, Astronomical Instruments, i. 2.
Forestaff, Astronomical Instruments, i. 3.
Meridian, i. 1.
Meridional Parts, i. (i. & ii.) 2, 3.
Nocturnal, Astronomical Instruments, i. 6.
Quadrant, Hadley's, ii. (i. & ii.) 1—3.
Sinical, ii. (i. & ii.) 4.
Rhumb Line, ii. (i. & ii.) 5, 6.
Rudder, ii. & iv. 1—4.

5 E
INDEX OF THE PLATES.

NAVIGATION.

Sailing, Great Circle, ii. 26—34.
Current, iii. 3—6.
Mercator's, ii. 24, 25.
Parallel, ii. 20—23.
Plain, ii. & iv. 5—18. ii. 19.
Traverse, iii. 1, 2.
Convoy, NAVAL TACTICS, iii. 1—3.
Tide, i. 4—8.
Trigonometry, (Plate iii.) iii. 1—5.
Variation, ii. (i. & ii.) 7—9.

OIL MILL.

Plan and Elevation, by Smeaton

NAVAL TACTICS.

(See Navigation, Plate iii.)

NOTATION.

Ancient Arithmetical Characters
(See Miscellany, i. 7.)

OPTICS.

Aberration, i. 1.
Altitude, iv. 11.
Angle, i. 2—4.
Burrough's Machine, i. 5.
Burning Lens, Parker's, ii. 1—3.
Camera Obscura, iii. 1—7.
Catoptric Cilium, iv. 1, 2.
Dioptrics, iv. 2—4.
Dispersion of Light, iv. 5—7.
Eyes, v. 2.
Focus, iv. 8.
Virtual, v. 1.
Heliostata, vi. 1.
Hones, Bed of, vi. 2.
Horopter, vi. 3.
Incidence, xv. 1.
Inclination, xv. 1.
Lens, vi. 5—11. vii. 1—12. viii 1—12.
Light, ix. 1—9.
Looking-glass, iv. 9.
Magic Lantern, x. 1—5.
Magnitude, Apparent, x. 4.
Micrometer, x. 5—11.
Herrich's Lamp, xi. 5, 6.
Mafiglyne's, xi. 1.
Troughton's, xi. 2—4.
Microscope, xii. 1—12.
Adams's Compound, xiv. 1—7.
Culpepper's, xiii. 2.
Marshall's, xiii. 1.
B. Martin's, xiv. 5—11.
Solar, xiii. 6—8.
Improved, xvi. 1—7.
Mirror, xv. 2—18.
Mufé Volantes, xv. 18.
Objet Glafs, centering, xv. 19, 20.
Opera Glafs, xv. 21.
Optical Inequality, xv. 22.
Optometer, xvii. 1—8.

OPTICS.

Parhelion, xv. 23, 24.
Pencil of Rays, xvii. 10.
Place, Optic, xvii. 9.
Polemroscope, xvii. 12.
Polyhedron, xvii. 11, 12.
Polyoptrum, xvii. 13.
Rainbow, xvii. 1—9.
Reflection, xvii. 14.
Reflexibility, xvii. 15.
Refraction, vi. 4.
of Light, xviii. 10—24.
Refraigibility of Light, xix. 1—13.
Shadow, iv. 10—13.
Visible, iv. 14—16.
Vilson, iv. 17.

ORGAN.

Church Organ, interior Profile of, ii.
Keys, Pipes, &c. i.
Organ, made by Flight and Robson, iii. iv.

PAINTING.

Apollo Belvidere, i.
Face, Human, diversities of, ii. iii.
African, iii.
American, iii.
Asiatic, iii.
European, iii.

PANORAMA.

Plates i. ii.

PAPER-MILL.

Plates i. ii.

PERSPECTIVE.

Anamorphosis, i. 1—8.
Distance of a Vanishing Line, i. 9.
Line, Horizontal, i. 11.
Perspective, Theory of, i—xii.
Point of a Vanishing Line, i. 10.

PISÉ BUILDINGS.

(See Agriculture, Plate XXXIII.)

PLANETARY MACHINES.

Cometarium, i.
Dial for the Equation of the Sun's Center, ix. 1.
Sun's Declination, ix. 2.
of mean High Tides, ix. 8.
for the Moon's Equation of the Center, ix. 4.
Heliocentric Latitude, ix. 5.
Horizontal Diameter and Parallax, ix. 7.
Parallax, ix. 6.
Reduction of the Ecliptic to the Equator, ix. 3.
Dials, graduated for Sweing Planetary Phenomena, ix.
Equation Mechanism of a Planet's Orbit, by Huygens, iii. 1.

PLANETARY MACHINES.

Cometarium, i.
Dial for the Equation of the Sun's Center, ix. 1.
Sun's Declination, ix. 2.
of mean High Tides, ix. 8.
for the Moon's Equation of the Center, ix. 4.
Heliocentric Latitude, ix. 5.
Horizontal Diameter and Parallax, ix. 7.
Parallax, ix. 6.
Reduction of the Ecliptic to the Equator, ix. 3.
Dials, graduated for Sweing Planetary Phenomena, ix.
Equation Mechanism of a Planet's Orbit, by Huygens, iii. 1.
### PLANETARY MACHINES.

- Equation Mechanism of a Planet’s Orbit, by Priestley, iii. 2.
- Jovialbe, by Janviers, xii. 5.
- Orrery for equated Motions, v.
- Planetarium, Common, x. 1.
- Satellite, by Pearson, xii. 2–4.

### PLATING MANUFACTURE.

- Bramah’s Planing Machine, i. ii.

### PNEUMATICS.

- Æolipile, i. 1.
- Ærolation, i. 2–4. 9–12. ii. 5–8.
- Air Gun, i. 14–23.
- Air Pump, Cuthbertson’s, viii. No. 2. 58–66.
- Anemometer, viii. No. 2. 69.
- Arzometer, viii. No. 2. 70, 71.
- Atmosphere, viii. No. 2. 72.
- Bacchus, viii. No. 2. 73.
- Barometer, ix. xii.
- Caffewell’s, x. 88.
- Chamber, ix. 84.
- Common, ix. 76.
- Des Cartes’, ix. 77.
- Diagonal, ix. 81.
- Hamilton’s, xi. 96, 97.
- Hooke’s, ix. 79.
- Horizontal, ix. 80.
- Huygens’s, ix. 78.
- Keith’s, xi. 91, 92.
- De Luc’s, xi. 94.
- Marine, x. 86, 87.
- Pendulum, ix. 83.
- Rowning’s, x. 89, 90.
- Wheel, ix. 82.
- Machine for enlarging the Scale of, xi. 91.

### PRESS.

- Bellows, xiii. 107–117.
- Condeners, xiv. 1, 2.
- Condening Engine, xiv. 3.
- Gage of a Condenier, xiv. 5–7.
- Pear, xiv. 4.
- Bouguer’s Wind, xv. 12.
- Lind’s ditto, xv. 9.
- Martin’s ditto, xv. 11.
- Freezing, xiv. 4–7.

### PNEUMATICS.

- Freezing Apparatus, xiv. 8.
- Pyrmont Water, Apparatus for making, xv. 1–7.
- Thermometer, Apparatus for adjusting the fixed Points of, xvi. 6–10.
- Amonton’s, xvi. 4.
- Bent, xvi. 2.
- Bernouilli’s, xvi. 3.
- Cavendish’s, xvi. 11–13.
- Drobbe’s, xvi. 1.
- Floretine, xvi. 5.
- Kewley’s, xv. 14.
- Leilie’s, xv. 13.
- Rutherford’s, xvi. 16.
- Six’s, xvi. 14, 15.

### PORTER BREWERY.

- Building and Machinery.

### POTTERY.

- Furnace, &c.

### PRESS.

- Bramah’s Hydrostatic Press

### PRINTING.

- Bacon and Donkin’s Printing Machine, iii.
- Bramah’s Bank-Note Printing Machine, ii.
- Common Printing Presses, iv. 1.
- Composing Stick, iv. 2.
- Stanhope, or Iron Press, i.

### PROJECTION.

- Plates i.–x.

### PROPORTIONAL COMPASSES.

### PYROTECHNY.

### RIGGING.

- (See Ships, Plates ii.–v.)

### SCENOGRAPHY.

### SCULPTURE.

- Apollo Belvidere, iii.
- Cupid of Praxiteles, i.
- Cupid and Psyche, Statue of, i. ii.
- Dirc, ii.
- Durga lying Mahishasura, iv.
- Hercules of Dédalus, i.
- Farnefe, ii.
- Jupiter Olympus, i.
- Laocoon, iii.
- Minerva of the Acropolis, i.
- Dipæmus and Scyllis, i.
- Patera, Etruscan, iv.

5 E 2
INDEX OF THE PLATES.

TRIGONOMETRY.

Cofines, i. 12.
Cotangents, i. 15.
Gunter’s Scale, i. 1.
Secant, i. 14, 16, 17.
Sector, i. 5—7.
Sines, i. 4, 10, 11, 18—22.
Spherical Angle, ii. 2.
    Triangle, ii. 3—8.
Spheres, ii. 9—12.
Tangent, i. 14, ii. 13.
Trigonometry, ii. 14—22.
(For the figures referred to as on TRIGONOMETRY, Plate III. see Navigation, Plate III.)

VERED SINES, i. 13.

TURING.

Lathe, &c.

VOLTAISM.

BATTERY, &c.

WATER PRESSURE ENGINE, by Smeaton.

WATER WHEELS.

Bread Wheel, Improved, i. 7.
    at the Royal Armory Mills, ii. 4.
    with two Shuttles, ii. 3.
Buchanan’s Wheel and Pentrogh, i. 4, 5.
Burns’s Overhot Wheel, ii. 5.
Chain of Buckets, i. 6.
Greasig Machine, i. 8.
Nouaille’s Overhot Wheel, i. 3, 4.
Smeaton’s Bread Wheel, i. 1.
    Pentrogh, i. 2.
    Water, Method of laying on, ii. 9.

WATER WORKS.

Boulton’s Machine for raising Water, i. 2, 3.
Chremnitz Fountain, i. 14.
Greave’s Bucket Machine, i. 13.
Hydraulic Ram, i. 4—6.
Machine for raising Water by the lateral communication of a Stream, i. 10.
    Smeaton’s, for raising Water at London Bridge ii. 1, 2.
    Momentum Pump, i. 1.

WATER WORKS.

Siphon Machine, i. 8.
    Goodwin’s, i. 10.
Spiral Pump, i. 11.
Water Bellows, i. 15.
Whitehurst’s Machine for raising Water, i. 7.
Zurich Machine, i. 11.

WEAVING.

Austin’s Engine Loom, i.
Duff’s Draw Boy, &c. ii.

WINDMILL.

Common Vertical Windmill, ii. 1.
Dutch Windmill, ii. 4.
Hooper’s Horizontal Windmill, i. 1, 2.
Polt Windmill, ii. 3.
Smock Mill, i. 5—5. ii. 2.

WINDING ENGINE.

Smeaton’s Design for a Water Gin for drawing Coals from Pits.

WIRE MILL.

Machinery for Wire-Drawing.

WOOLLEN MANUFACTURE.

Carding Engine, iv.
    Gig Mill, v.
Shearing Machine, iii.
Spinning Jenny, ii.
Stubbing Machine, i.

WORSTED MANUFACTURE.

Breaking Frame, i. 5.
    Combs, i. 1.
Cartwright’s Combing Machine, ii. 1—3.
Gilpin’s Combing Machine, i. 4.
Roving Frame, i. 6.
    Spinning Frame, i. 7.
    Stove, i. 3.

WRITING BY CIPHER.

Characters and Examples, i.—iii.

* *. As only a few of the Plates relating to Natural History are referred to in the articles of the Cyclopedia which they are intended to illustrate, it has been deemed unnecessary to incorporate the subjects of them in the Index. The systematic arrangement and minute analysis of them in the annexed Catalogue will, it is conceived, be found amply sufficient for every purpose of reference and consultatation.

THE END.
DIRECTIONS TO THE BINDER.

In making up the Plates of the Cyclopædia into volumes, the first business of the binder must be to arrange the Plates in their several classes, as Agriculture, Algebra, Analysis, &c., and in the order in which they are numbered. He must, however, observe, that some of the Plates are wrongly numbered: which those are, and to what place in the series they must be transferred, he will easily learn from the Catalogue. In some instances he will find two or three Plates numbered alike; and, in others, Plates on which the number has been omitted: in these cases again, he will readily ascertain, from an inspection of the Catalogue, where, and in what order, they are to be placed. In every case, the Catalogue must be his guide, and to this he must rigidly adhere in the arrangement and disposition of the whole of the engravings.

ERRATUM.

The following Plate has been accidentally omitted, both in the Catalogue and in the Index. The Binder is requested to place it immediately after the other Plate of Architecture numbered XV.

ARCHITECTURE, Plate XV.
Doric Order.

Fig. 1. From the temple of Corinth
2; 3; a Hypothehal Temple at Paestum
4; the Temple of Minerva at Sunium
5. at Syracuse