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MEDICAL AND ŒCONOMICAL

BOTANY.

THE HARTSON

JOHN LINDLEY, PH.D., F.R.S.,

PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON,
THE ROYAL INSTITUTION OF GREAT BRITAIN, AND TO THE SOCIETY OF APOTHECARIES.

WITH NUMEROUS ILLUSTRATIONS.

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PART III.

MEDICAL AND ŒCONOMICAL BOTANY.

Paucis utatur medicus remediis, iisque selectis.

Qui potest mederi simplicibus, dolosè et frustra quærit composita.

Medicus notitià plantae destitutus de viribus ejusdem nunquam juste judicavit.

Systemate, Qualitate, et Experieutiâ, eruitur omuis usus plautarum.

Alimenta à toxicis, uti medicamenta à venenis, non natura sed dosis distinguit.

LINNÆUS, Mat. Med. Canones.

MEDICAL AND ŒCONOMICAL BOTANY.

THE Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in

medicine, the arts, or in the many branches of domestic economy.

The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the "Vegetable Kingdom" of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shews us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects.

In the work above referred to, the Vegetable Kingdom is, in the first place, divided into Classes; these are subdivided into Sub-classes, which are themselves broken up into Alliances; beneath the Alliances are placed the Natural Orders, under which are disposed those final subdivisions termed Genera.

Therefore, genera are groups of species; orders are groups of genera; alliances are groups of orders; sub-classes, when they are employed, are groups of alliances, and classes are assemblages of sub-classes (if present), or of alliances, or, in some instances, of orders only. Thus we have—

1. CLASSES.

2. Sub-classes.

3. ALLIANCES.

4. Orders.

5. GENERA.

6. Species.

In the following pages the heading of each of these subdivisions is printed in the type just employed.

в 2

The plan of the work is similar to that so happily employed by Linnæus in his Materia Medica, a book invaluable in its day, although now forgotten, and better adapted to the objects of medical men than any thing which has since appeared. Each species, placed in its due position in the classification, has its vulgar or officinal name, as well as that which it bears in science, and, in a few words, the country whence it comes, the quality it has been said to possess, and the uses to which it has been found applicable. Very short phrases are also given, for the purpose of showing how the genera or species are to be distinguished from each other.

The whole plan of the work is, in fact, to point out distinctions: and the fewest possible words are employed with this view. In many instances the distinctions may not be absolute, but they are sufficient for ordinary purposes. Those who wish to become better acquainted with Botany will, of course, make the "Vegetable Kingdom" of the author the subject of ulterior study. For the convenience of those who may desire to do so, references are made to that work throughout all the following pages.

The authorities generally taken for the quality and uses of officinal plants, are the invaluable works of Pereira, Royle, and Christison. Where plants are not officinal, those other sources of information have been eonsulted, from which the more extended statements in the "Vegetable Kingdom" have been derived.

CLASSES.

The CLASSES of plants are seven, viz:-

- I. THALLOGENS; having no sexes, and no distinct separation of stem and leaves.
- II. ACROGENS; having no sexes, and distinct stems and leaves.
- III. RHIZOGENS; having sexes, and a mycelium.
- IV. ENDOGENS; having sexes, a root and stem, endogenous wood, and parallel-veined leaves.
 - V. DICTYOGENS; having sexes, a root and stem, exogenous roots, endogenous stems, and netted leaves.
- VI. GYMNOGENS; having sexes, a root and stem, exogenous wood, and naked seeds.
- VII. EXOGENS; having sexes, a root and stem, exogenous wood, and seeds in seed-vessels.

CLASS I. THALLOGENS (V. K., p. 5.)

Of this there are three Alliances; viz.,

ALGALS. Submersed; having no mycelium. FUNGALS. Aerial; having a mycelium.

LICHENALS. Aerial; having no mycelium.

The natural orders of these alliances need not occupy the attention of the student. Few of the numerous species are of importance, either in medicine or common life.

THE ALGAL ALLIANCE (V. K., p. 8.)

A few species are employed as food. Any medicinal properties which they have been found to possess appear to be owing to the presence of iodine, which the marine species contain in common with other oceanic productions.

PORPHYRA. Agardh.

Frond flat, very thin, more or less purple, leafy, not gelatinous. roundish, arranged in fours (usually) and filling all the frond.

1. P. laciniata Agardh.—(LAVER. SLOKE. SLOKAUN.) Fig. 4.

Fronds clustered, deeply cleft, with broad segments variously lobed and cut at the edges, bright purple.

Habitat. On rocks and stones in the sea. Annual.

Quality. Saline, nutritious.

Uses. Employed as food, salted; eaten with pepper, vinegar, and oil. Said to be useful in scrofulous affections and glandular tumours.

2. P. vulgaris Agardh.—(LAVER.)

Fronds undivided, broadly lanceolate, wavy, bright lively purple.

Habitat, Quality, and Uses, as the last.

ULVA. Linnæus.

Frond membranous, green, flat, sometimes inflated. Spores minute, lying in fours.

1. U. latissima Linn.—(Green Laver. Green Sloke. Oyster Green.) Marine. Frond broad, oblong, roundish, wavy, full green, completely covered by fructification.

Habitat. Rocks and stones in the sea. Qvality. Bitterish, salt, mucilaginous. Annual.

Uses. Employed as food, stewed and seasoned with lemon-juice. Ordered for scrofulous

LAMINARIA. Lamouroux.

Frond leathery, flat, without a midrib. Spores forming close spots, and imbedded in the thickened surface of some part of the frond.

1. L. digitata Lamouroux.—(Tangle, Sea Ware, Sea-girdles, Sea-

WAND. RED-WARE.)

Stem woody, cylindrical, gradually expanding into a leathery roundishoblong frond deeply eleft into many linear divisions.

Habitat. Rocks in the sea, in deep water.

Quality. Nutritious.

Isos. When young employed as food for both man and cattle.

ALARIA. Greville.

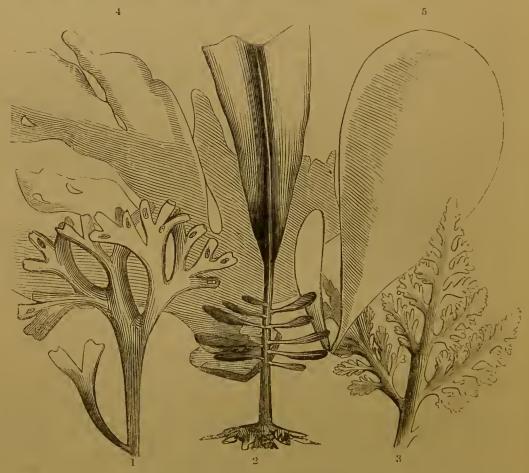
Frond membranous with a stout midrib; stem pinnated. Spores pear-shaped, vertically arranged in the thickened leaflets.

1. A. esculenta Greville. — (BADDERLOCKS, HENWARE, HONEYWARE, MURLINS.) Fig. 2.

Frond from 2 to 12 feet long, olive-green; stem 4 to 8 inches long, pinnated with several short flat narrow leaflets.

Habitat. Rocks in the sea, in deep water. Annual.

Quality. Nutritious. Uses. The midrib is eaten, when the frond is stripped off.



Stackhouse. Chondrus.

Frond eartilaginous, dilated upwards, flat, ribless, dichotomous, purplish or livid red. Tetraspores lying in round masses in the substance of the

1. C. crispus Lyngb.—(Carrageen Moss. Irish Moss. Pearl Moss.) Fig. 1. Frond thickish, cartilaginous, dichotomous, flat or eurled, segments linear wedge-shaped; masses of spores hemispherical, concave on one side.

Habitat. Rocky sea-shores of Europe. Nutritive, emollicut, demulcent.

Uses. Pulmonary complaints, chronic diarrhoa, dysentery, scrofula, rickets, enlarged mesenteric glands, irritation of bladder and kidneys.—Jellies, soups, &c.

Fig. I.—Chondrus crispus in fruit; 2. Alaria esculenta; 3. Laurencia pinuatifida: 4. Porphyra laciniata; 5. Iridæn edulis.

Fucus. Linnœus.

7

Frond leathery, dichotomous, flat, linear; usually furnished with large aircells. Spores arranged in tubercles buried in mucus and collected in heads, through pores in which they are discharged.

1. F. vesiculosus Linn.—(SEA WARE. SEAWRACK. KELP WARE. BLACK

TANG. SWINE TANG.) Fig. 6.

Frond quite entire, with a midrib; air-cells round, usually in pairs; heads of spores terminal, oblong, blunt, yellowish.

Habitat. Sea-shores. Perennial. Quality. Detergent, discutient, sub-nutritious.

Glandular affections and scrofulous tumours. A dentifrice. Makes good manure. Furnishes Kelp.

IRIDÆA. Bory.

Frond flat, cellular, expanded, between fleshy and cartilaginous, purplish-red. spores collected in gelatinous spheres buried in the substance of the frond.

1. I. edulis Bory.—(Dulse in the S.W. of Eng-

land.) Fig. 5.

Frond undivided, obovate or wedge-shaped, very succulent, dull purple, tapering into a short stalk.

Habitat. Rocks in the sea. Biennial. Quality. Nutritious.

Quality. Nutritious.

Uses. Employed as food by fishermen, either raw, or pinched between hot irons.—

LAURENCIA. Lamouroux.

Frond cylindrical or compressed, between cartilaginous and gelatinous, yellowish or purplish red. Tetraspores contained in ovate cystocarps, and lying imbedded in the branches.

1. L. pinnatifida Lamouroux.—(Pepper Dulse.) Fig. 3.

Frond dull purple or greyish, compressed, cartilaginous, twice or thrice pinnatifid, the divisions blunt, entire or lobed. Cystocarps near the end of the branches, the size of poppy seed.

Habitat. Rocks in the sea. Annual.

Quality. Pungent, nutritious.

Uses. A condiment, when other sca-weeds are eaten.

Rhodomenia. Greville.

Frond flat, membranous, pink or red, veinless, sessile, with a very short Tetraspores in the substance of the frond or collected in superficial spheres or coccidia.

Dellish. 1. R. palmata Greville.—(Dulse. Duillise, or Dillisk.

Water-leaf, among the Highlanders.—Grev.)

Frond purple, leathery, or somewhat membranous, broadly wedge-shaped,

Fig. 6.—Portion of the frond of Fucus vestculosus in fructification; v, one of the vestcles by which it

irregularly cut, with diehotomous segments entire at the edge or furnished with lateral leaflets; spores distributed in cloud-like spots over the whole frond.

Habitat. On rocks in the sea.

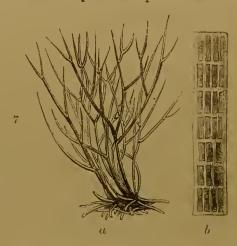
Quality. Nutritious. Smells of violets.

Uses. Employed as food by the poor of many northern nations. Sudorific.—Lightfoot.

8

PLOCARIA. Nees.

Frond cartilaginous, cellular as if jointed, eylindrical or compressed, branched, dull red. Tetraspores immersed in the substance of the surface, or collected in superficial spheres or coccidia.



1. P. Helminthochortos Nees.—Gracilaria, or Sphærococcus, or Gigartina Helminthochortos of others (Corsican Moss.*) Fig. 7.

Frond cartilaginous, filiform, tufted, entangled; the primary stem creeping; the branches setaceous, somewhat dichotomous, striated transversely at the separations of the tiers of red cells.

Habitat. On the coast of Corsica, and elsewhere in the Mediterranean.

Quality. Anthelmintic, nutritious, salinc, strong-scented.

Uses. In removing the Ascaris lumbricoides.

2. P. tenax Nees.—Sphærococcus or Gracilaria tenax of authors.

Frond somewhat gelatinous, slippery, filiform, diehotomous; branches spreading, the uppermost reflexed and acute; coccidia hemispherical, sessile, scattered.

Habitat. The Chinese seas,

Quality. Gelatinous, glutinous, nutritious.

Uses. Soups and jellies among the Chinese; also as size and gum.

Fig. 7.—Plocaria Helminthochortos; a natural size; b one of the branches much magnified.

^a As sold in the shops, this consists of various marine productions, especially of Laurencia obtusa, with a very little Plocaria intermixed.

THE FUNGAL ALLIANCE (V. K., p. 29.)

With the single exception of Ergot, these are excluded from the modern practice of medicine. Ergot itself is a mere disease of the ovary of grasses, caused by the attacks of a parasite of this alliance (see Oidium.) Fungals are, however, among the more useful friends of man as food, and among his most dangerous enemies as parasites, destroying the sources of his food. The following are the most common and important examples.

AGARICUS. Linnœus.

Pileus bearing on one side vertical, unequal plates or gills, forming a lamellate hymenium. Veil single.

1. A. campestris Linnæus. — (Common Mushroom.) Fig. 8.

Pileus fleshy, dry, whitish, silky or scaly, fragrant when broken, and not changing eolour; hymenium pink, free, becoming brown or blackish; stipe solid, white, having a ring.

Habitat. Pastures, dunghills.

Quality. Nutritious, fragrant.

Uses. As food, and as sauce (ketchup.)

2. A. oreades Bolton.—
(FAIRY-RING MUSHROOM. SCOTCH
BONNETS. CHAMPIGNON.) Fig. 9.

Pileus fleshy, tough, somewhat bossed, firstpale-brown, and becoming whiter with age; hymenium whitish, with distinct gills; stipe solid, with no ring, round, whitish, with a skin separating into longitudinal fibres.





Fig. 8. Agaricus campestris, with its mycelium, or spawn; 9. Agaricus oreades in different states of growth.

Habitat. Pastures and lawns, where it grows in irregular circles.

Quality. Nutritious, stimulant, rather fragrant.

Uses. Frequently strung on thread, dried in the shade, and pounded, as an addition to sauces.

AMANITA, Greville.

Pileus bearing on the under side vertical, unequal plates, forming an hymenium. Veil double; the outer covering the whole plant when young.

1. A. muscaria Greville. — (FLY AGARIC.) Fig. 11.

Pileus bright orange red, warted, striated at the edge; gills white; stipe bulbous.

Habitat. Woods, especially of Fir and Birch.

Quality. Narcotic, poisonous.

Uses. Produces intoxication and delirium. The infusion employed to kill flies.

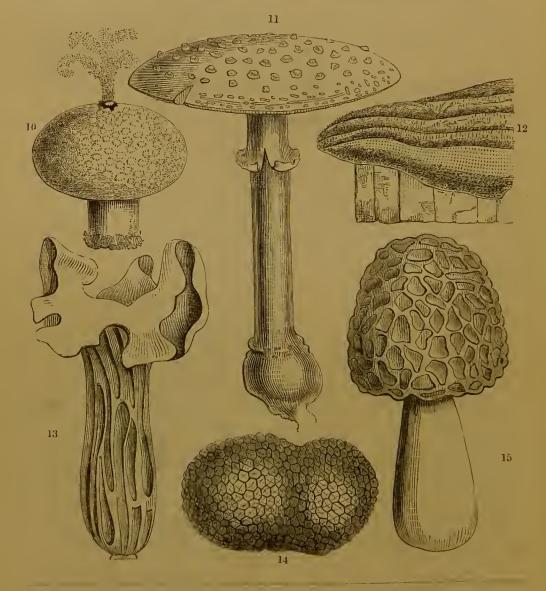


Fig. 10.—Lycoperdon genmatum; 11. Amanita muscaria; 12. a piece of Polyporus igniarius growing on wood; 13. Helvella crispa; 14. Tuber cibarium; 15. Morchella esculenta.

Polyporus. Micheli.

11

Pileus fleshy; completely blended with the hymenium, which is pierced with thin-sided, rather angular, tubular, vertical passages.

1. P. igniarius Fries.—(HARD AMADOU. TOUCHWOOD. SPUNK.) Fig. 12. Hard; pileus thick, obtuse, nearly even, ferruginous, at length cinereous: the edges and minute convex pores cinnamon.

Habitat. On old trees.

Quality. Styptic.

Uses. Beaten till soft, it staunches slight wounds. Sliced, it forms good razor-strops.

2. P. fomentarius Fries.—(Soft Amadou. German Tinder.)

Pileus somewhat triangular, smooth, brownish grey, soft within: the edge pale bluish white or yellowish, as well as the very minute pores, becoming ferruginous.

Habitat. On old trees.

Quality. Styptic, elastic.

Uses. Forms tinder; staunches slight wounds; forms small surgical pads.

3. P. officinalis Fries. Boletus Laricis Jacquin. — (Αγαρικον of Dioscorides.)

Pileus between corky and fleshy, warted, stalked, banded with yellow and brown; pores yellowish.

Habitat. On Larch trees in Southern Europe.
Quality. Smells like new flour. Taste bitter, nauseous.

Uses. A drastic purgative, now rarely employed.

MORCHELLA. Dillenius.

Pileus convex, with a ribbed, irregularly excavated hymenium.

1. M. esculenta Linnæus.—(Morell.) Fig. 15.

Pileus conical, ovate or globose, united to the stipe at the contracted base; ribs of the hymenium anastomosing into distinct cells.

Habitat. Woods, orchards, einder-walks. Quality. Nutritious.

Uses. A delicate article of food.

Helvella. Linnœus.

Pileus turned downwards, lobed, with an even hymenium.

1. H. crispa Scopoli.—(MITRE MUSHROOM.) Fig. 13.

Pilcus crisp and irregularly lobed, pale yellowish brown; stipe white, ribbed, fistular, irregularly excavated.

Habitat. Woods. Quality. Nutritious. Quality.

Uses. A delicate article of food.

Tuber. Micheli.

A fleshy, firm, roundish mass, filled with veins and minute cavities, in which stand the spore-cases.

1. T. cibarium Sibthorp.—(TRUFFLE.) Fig. 14.

Surface black, covered with angular warts.

Habitat. In the earth, beneath trees, especially Becches.

Quality. Nutritious, fragrant, stimulating.

Uses. A common ingredient in sauces and rich dishes.

Lycoperdon. Tournefort.

12

A globular, fleshy mass, eventually bursting and discharging a multitude of powdery spores.

1. L. gemmatum Batsch.—(COMMON PUFFBALL.) Fig. 10. Round, tapering to the base, covered with little rough warts.

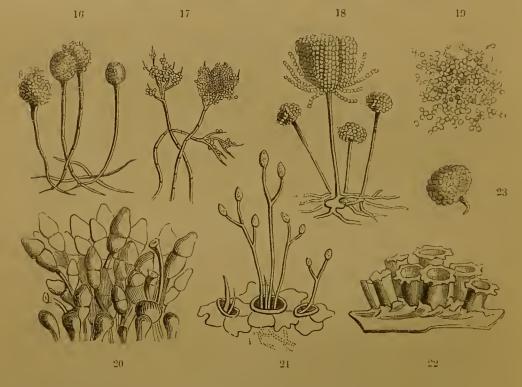
Habitat. Fields and meadows.

Acts mechanically as a styptic, by means of its brown spores. Quality.

2. L. giganteum Batsch. Bovista giganteum Nees.—(Giant Puffball.) Oblong or roundish, white, very large, smooth, with the skin cracking into angular spaces, pulpy at first, becoming dry.

Habitat. Fields and plantations.

Quality. Styptic.
Uses. When dry, staunches slight wounds. The smoke stupifies bees.



TUBURCINIA. Fries.*

Hollow granular oblong balls, collected in subcutaneous Microscopic. patches.
1. T. Scabies Berkeley.—(Ротато Scab.) Fig. 23.

Spots brown, oblong, becoming confluent; balls attached transversely to a short stipe.

Habitat. Beneath the skin of the tuber of the Potato.

Quality. Produces superficial cavities and pits, but is of no further injury.

Magnified figures of: Fig. 16. Mucor mucedo; 17. Aspergillus glaucus; 18. Penicillium glaucum; 19. Uredo Caries, as it appears when rubbed in water; 20. Puccinia Graminis; 21. Betrytis infestaus; 22. Æeldium Berberidis; 23. Tuburcinia Scabies.

 $[\]star$ A few species, neither medical nor economical, are here admitted for the sake of the student, because they produce marked effects upon the sources of our medicine or food.

Puccinia. Persoon.

Microscopic. Pear-shaped or oblong bodies, containing spores, having internal partitions, and furnished with a slender stalk, by which they are attached to an internal mycelium.

1. P. graminis Persoon.—(Corn Mildew.) Fig. 20.

Pitch brown or black, growing in irregular lines, which become occasionally confluent.

Habitat. Leaves and straw of Grasses.

Quality. Preys upon the juices of plants, especially of Corn, and prevents the grain from swelling.

Ecidium. Persoon.

Microscopic. Cellular membranous sacs, bursting at the side or apex, and discharging numerous spores.

1. Æc. cancellatum Persoon.

Forms spots, which are yellow at first, and then become red and prominent, in figure somewhat conical, splitting at the side in an irregular manner; spores brown.

Habitat. The leaves of Pear trees.

Quality. A destructive parasite, greatly injuring the trees which it attacks.

2. Æc. Berberidis Persoon.—(Berberry Blight,) Fig. 22.

Forms roundish bright red spots, in figure elongated, bursting irregularly at the end, and becoming cups; spores orange.

Habitat. Leaves of the common Berberry.

Quality. A troublesome parasite, erroneously supposed to blight Wheat.

3. Æc. Urticæ De Candolle.—(NETTLE BLIGHT.)

Spore-cases form oblong orange heaps on the under side of the leaves, each being nearly round, and finally gaping wide.

Habitat. Common on Nettles.Quality. Like other parasites, deprives the plant on which it grows of the organisable matter intended for its own nutrition,

ERYSIPHE. Hedwig.

Microscopic. A fleshy, somewhat gelatinous mass, opening at the collapsing apex, and standing in the centre of a free floccose superficial mycelium.

1. E. communis Schlechtendahl.

Mycelium dirty white, resembling cobweb, at length forming spots; rays simple, acute.

Habitat. On the living leaves of herbaceous plants.

Quality. A surface parasite, infesting various plants, especially the Pea, which it overruns and destroys.

2. E. bicornis Link. Fig. 24.

Mycelium-milk-white, densely entangled into a white skin; rays very short, forked, and warted at the point.

Habitat. Very common on Maple leaves, rendering them hoary.

Quality. As in the last.

Botrytis. Micheli.

Microseopic. Consisting of erect branched threads, at the ends of which grow clusters of spores (spore-cases.)

1. B. infestans Montagne.—(Potato Mill-Dew.) Fig. 21.

Tufts of threads, lax, creet, white, branching at the ends; spores lateral and terminal, solitary, oblong, with a granular nucleus.

Habitat. Leaves of the common Potato.

Quality. Attacks the leaves and stems, and aggravates the disease to which this plant has become subject.

2. B. Bassiana Montagne.—(SILKWORM-ROT. MUSCARDINE.) Fig. 25.

Threads erect, branched in a racemose manner, with clusters of spores at the end of the short lateral divisions.

Quality. Kills silkworms in great numbers.

OIDIUM. Link.

Microscopic. Threads white or brightly coloured, simple or irregularly branched, moniliform above, and breaking up into more or less elliptic spores.—Berkel. MSS.

1. O. abortifaciens Berkel. Ergotætia abortifaciens Quekett (Ergot.)

Threads white, irregularly branehcd; spores abundant, elliptie, containing two nuclei. — Berkeley.

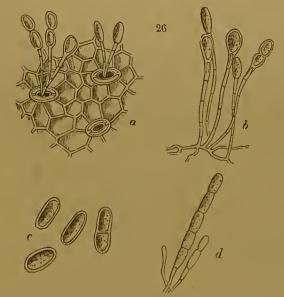
Habitat. Ovary of Grasses and Eleoeharis, eausing the disease ealled Ergot, destroying the ordinary growth, and compelling it to assume a horned appearance.

Quality. The ovary thus affected becomes hardened and deformed.

Uses. Ergot or spurred Rye is a dangerous nareotic poison, producing gaugrene. Used in medicine to increase the action of the uterus in difficult parturition.

2. O. Tuckeri Berkeley.—(VINE MILDEW.) Fig. 26.

Fertile threads clongated; spores large, elliptic or oblong, at length septate.—Berkeley.

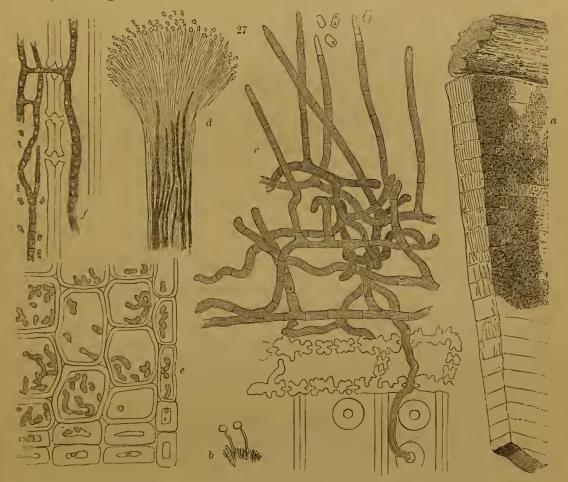


25

Habitat. Leaves and green parts of Vines.
Quality. A formidable parasite, destroying the functions of the skin of the parts it attacks.

GRAPHIUM. Corda.

Microseopie. Stem erect, fibrous, eapitate, pencilled, floeeose; flocci continuous, breaking off into eontinuous, homogeneous spores, which are glued together at first, but at last separate.



1. G. penicilloides Corda. Fig. 27.

Effused, black; stem even, black, opaque, brown in the middle, above pale dirty white; spores eylindrieal, white, hyaline.

Habitat. Dead Fir wood and Poplar wood. Uses. A destroyer of timber.

ASPERGILLUS. Micheli.

Mieroseopic. Cobweb-like strata, producing threads, at the ends of which grow spores arranged in rows, the rows themselves being collected in pencils or tufts.

1. A. glaucus Link.—(Blue Mouldiness.) Fig. 17.

Cobweb-like strata white; the fertile threads simple, capitate; spores loosely packed, becoming glaucous.

Habitat. Decaying substances everywhere. Cheese.

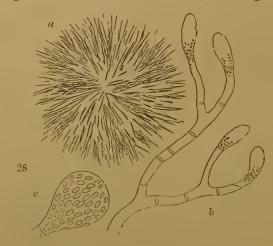
Quality. Assists in decomposition.

Fig. 27.—Various states of Graphium penicilloides; a, a piece of wood covered with it, of the natural size; b, a small portion, magnified 12 diameters; c, a portion very highly magnified, with a piece of the fir wood out of which it grows; d, top of a thread in fruit; c, view of wood of Pinus infected by it; f, a vertical section of the same.—Unger.

Lanosa. Unger.

16

Microscopic. Branched, transparent, jointed threads, the terminal joints of the small lateral branches of which at length acquire a reddish colour, and separate at the articulations, producing oblong spores.



1. L. nivalis Unger.—(Snow-mould.) Fig. 28.

White patches, a foot or more in diameter, themselves consisting of numerous entangled circular patches, finally becoming red, as if dusted with red powder.

Habitat. Beneath snow, on Grasses and cereal crops.

Quality. Commits great ravages among the plants which it attacks, sometimes destroying whole crops of corn. Especially injurious to Barley and Ryc.

MUCOR. Micheli.

Microscopic. Cobwebby masses, consisting of tubular septate threads bearing at the end a roundish membranous spore-case, which bursts when plunged in water.

1. M. Mucedo Linnæus.—(Common Mouldiness.) Fig. 16.

Cobweb-like; the fertile threads simple; spores and spore-cases blackish.

Habitat. Fruit, paste and preserves.

Quality. Destroys the quality of the substances it infests.

UREDO. Persoon.

Microscopic. Subcutancous patches or masses of simple powdery spores.

1. U. Caries De Candolle—U. fætida of some.—(Bunt. Smut-balls. Pepper-brand.) Fig. 19.

Spores black, rather large, spherical, fætid.

Habitat. Within the ovary of corn; 4,000,000 may be contained in a grain of Wheat. Quality. Destructive to corn, destroying all the interior.

2. U. segetum Persoon.—(SMUT. DUST-BRAND.)

Spores black, minute, spherical, scentless.

Habitat. Rachis and receptacle of Grasses, especially Oats and Barley.

Quality. Destructive to such corn, but less so than the last.

Fig. 28.—Magnified views of Lanosa nivalis; a, a patch of the plant; b, one of its threads; at c, inflated and filled with spores.

Penicillium. Link.

Microscopic. Cobweb-like or mothery flocculent masses, producing simple globose spores disposed in patches about the pencil-shaped ends of scrtate fertile threads.

1. P. glaucum Greville.—(The Vinegar Plant.)
Mycelium forming a close tough crust-like or leathery web; branches somewhat entangled and bifid; spores verdigris-green.

Habitat. On decaying bodies, and in fluids in a state of acetification.

Quality. Assists in the decomposition of decaying matter, and augments rapidly the acetous fermentation of saccharine fluids. A bit placed in sugar and water soon changes it to vinegar.

MYCODERMA. It is probable that the flocculent substance which forms in various infusions when they become "mothery," and which bears this name, is only the mycelium of Mucor, Penicillium, and other Fungals of a similar nature. The accompanying cuts, from a paper of Mr. Berkeley's from a paper of Mr. Berkeley's, illustrate this. Fig. 29 is a view of the mycelium of Mucor subtilissithe mycelium of Mucor subtlissimus as found in water, with one ball of the reproductive bodies formed when the mycelium reached the air; 30 is Penicillium candidum in the same state, the greater part of which had been formed in water; but a couple of branches reaching the air produced the true reaching the air produced the true fructification of this genus of







Their identity with some of the Mycoderms, figured by Dr. Pereira in the Pharmaceutical Journal, is sufficiently evident; as will be seen by a cut (fig. 31) of the "Vegetation in empyreumatic succinate of ammonia," borrowed from the Pharm. Journal, vol. vii. f. 8, p. 341.

THE LICHENAL ALLIANCE (V. K., p. 45.)

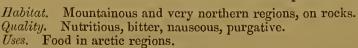
To a considerable amount of nutritious gelatinous matter is here added a variable quantity of bitterness, which renders the species tonic and stomachic. Some are among the most valuable dyeing plants; others supply food to animals, as the Cenomyce to reindeer.

GYROPHORA. Acharius.

Thallus leafy, horizontal, peltate. Shields round, sessile, adnate, covered with a black membrane, the surface marked with circles or plaits.

1. G. proboscidea Acharius.—(Tripe de Roche.*)
Fig. 35.

Thallus membranous, wrinkled, with elevated netting, smoky brown, lobed and notched at the edge; shields convex, plaited.



2. G. erosa Acharius.—(Tripe de Roche.)

32

Thallus membranous, wrinkled, almost black, irregularly lobed, perforated at the circumference, and notched; shields convex, variously plaited.

Habitat. Mountainous, and very northern regions, on rocks. Quality. Like the last.

CENOMYCE. Acharius.

Thallus shrubby, perpendicular, branched, usually covered with leafy scales. Shields sessile, round, convex, without a border, the sides reflexed.

1. C. rangiferina Acharius.—(Reindeer Moss.) Fig. 39.

Stalks of the shields erect, long, rough, cylindrical, greenish white, very much branched; the axils pierced; the branches scattered, entangled; shields roundish, brown, on small erect stalks.

Habitat. Moors, heaths, especially mountainous or northern. Quality. Nutritious.

Quality. Nutritious.

Uses. Constitutes important food for reindeer and other animals in high northern latitudes.

2. C. pyxidata Acharius.—(Cup Lichen. Cup Moss.) Fig. 33.

Thallus leafy, erect, the lobes crennlate, forming long, granulated, rough greyish green cups, on the edge of which stand the brown convex shields.

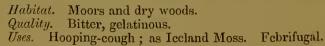


Fig. 32.—Magnified shields of Gyrophora; 33. Cenomyce pyxidata, a little larger than natural size.

^{*} By some mistake a figure of Peltidea aphthosa is given for this by Dr. Pereira.

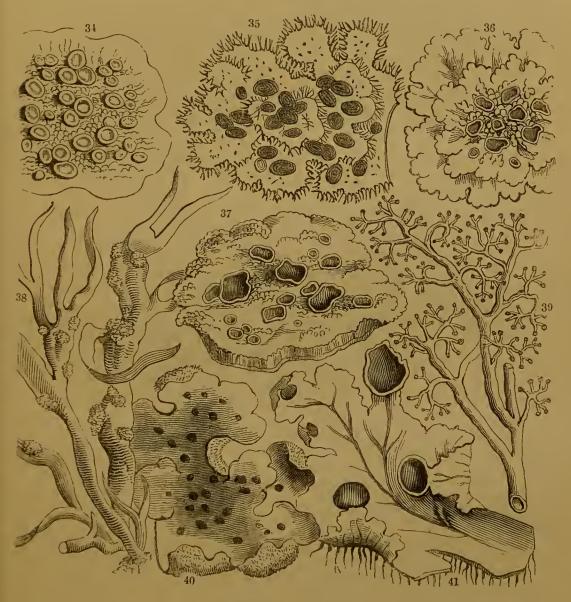
PARMELIA. Acharius.

Thallus leafy, horizontal, lobed, and cut. Shields orbicular, fixed by a central point, concave, bordered by the inflexed thallus.

1. P. parietina Acharius.—(Yellow Wall Lichen.) Fig. 36.
Thallus circular, bright orange yellow; lobes radiating, appressed, rounded, crenate, and crisp, granular in the centre; shields deep orange, concave, with an entire border.

Habitat. Trees and walls. Common.

Quality. Bitter. Yields a yellow colouring matter. Uses. In intermittent fevers.



LECANORA. Acharius.

Thallus crustaceous, flat, uniform. Shields orbicular, plano-concave, thick, sessile, bordered by a rim formed out of the crust.

Various Lichens, natural size. Fig. 34. Lecanora Parella; 35. Gyrophora proboscidea; 36. Parmelia parietina; 37. Lecanora tartarea; 38. Roccella fuciformis; 39. Genomyce rangiferina; 40. Peltidea aphthosa; 41. Peltidea canina.

1. L. Parella Acharius.—(Perelle. Crab's-eye Lichen.) Fig. 34. Crust dirty white, determinate, plaited and warty; shields seattered, thick, eoneave, whole eoloured.

Habitat. Rocks in mountainous countries.

Quality. Yields a purple dyc, equal to that of Archill.

2. L. tartarea Acharius.—(Cudbear.) Fig. 37.

Crust thick, granulated, and tartareous, greyish white; shields scattered, eonvex, at length flat, yellow brown inclining to flesh colour, with a thick inflexed border, becoming wavy.

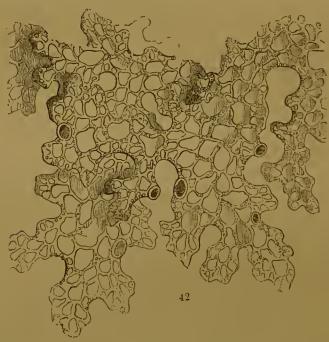
Habitat. Rocks, &c., in alpine countries. Quality. Yields a rich purple colour.

Uses. Employed in dyeing yarn. The source of Litmus, used as a test for acids, when it becomes red, and for alkalies, by which the blue colour is restored.

STICTA. Acharius.

Thallus leafy, leathery, lobed, with numerous little eavities. Shields on the under side, fixed by a central point, flat, surrounded by an elevated border, formed of the thallus.

1. S. pulmonaria Acharius.—(Lungwort. Oak-lungs.) Fig. 42.



Thallus spreading, olive green, pale brown when dry, pitted and netted, much lacerated, with broad rounded lobes; shields marginal, redbrown, with a thick border.

Habitat. Trunks of trees in mountainous countries.

Quality. Bitter. Furnishes a good brown dye. Nutritious.

Uses. Pulmonary affections, hæmorrhage; a light diet; as a substitute for hops.

Peltidea. Acharius.

Thallus leafy, horizontal, lobed, woolly beneath, bearing the shields on the

lobes. Shields roundish, attached to the upper side of the lobes, and having a border formed of the thallus.

1. P. canina Acharius.—(Dog Lichen. Ground Liverwort.) Fig. 41. Thallus thick, glaucous grey, greenish when moist, somewhat furrowed, with rounded lobes, beneath white, with branching voins and fibres; shields vertical, revolute, reddish brown, with a crenulate border.

Habitat. On the ground, among moss, &e. Uses. An imaginary remedy for hydrophobia.

2. P. aphthosa Acharius.—(Thrush Lichen.) Fig. 40.

Thallus light green, smooth, sprinkled with brown warts; lobes broad, rounded, the fertile once contracted; shields large, red-brown, with a jagged border.

Habitat. Moist alpine rocks.

Quality. Purgative, anthelmintic. The Swedes boil it in milk as a cure for aphthae.

CETRARIA. Acharius.

Thallus leafy, spreading or crect, lobed and lacerated, smooth on each side. Shields orbicular, attached obliquely to the edge of the thallus, planoconcave, bordered by the inflexed

thallus.

1. C. islandica Acharius.—(Iceland Moss.) Fig. 43.

Thallus ercct, tufted, olive-brown, paler on one side, lacerated, channelled, and bordered with tooth-like fringes; shields brown, with a raised border.

Habitat. On the ground, in northern regions. Quality. Mucilaginous, demulcent, tonie, bitter. Uses. A light diet for invalids, and a mild tonie.

Phthisis, chronic catarrh, dyspepsia, chronic diarrhœa, dysentery.—Pereira.



ROCCELLA. Acharius.

Thallus between leathery and cartilaginous, branched and cut, erect, terete. Shields orbicular, adnate, plano-convex, with a thickened elevated border.

1. R. tinctoria De Candolle.—(Orchill. Archill. Dyer's Moss.)
Thallus suffruticose, branched, terete, creet, greyish brown, bearing powdery warts; shields almost black and pruinose, with a scarcely raised border; juice deep yellow.

Habitat. Rocks near the sea, especially in southern places.

Quality. Dyes purple.

Uses. Formerly used for preparing Litmus paper. Dyes various articles of manufacture.

2. R. fuciformis De Candolle.—(FLAT ORCHILL.) Fig. 38.

Thallus flat, branched, nearly ercct, greyish white, with powdery warts; sap not yellow.

Habitat, Quality, &c., like the preceding, but, according to the Rev. Mr. Salway, very inferior as a dyc.

CLASS II. ACROGENS (V. K., p. 51.)

Here also occur three Alliances; viz.—

MUSCALS. Spore-cases immersed or calyptrate.

LYCOPODALS. Spore-cases axillary or radical. Spores of two sorts. FILICALS. Spore-cases marginal or dorsal. Spores of one sort.

Little of obvious importance to man occurs among the members of this alliance, which are objects of botanical interest rather than of medical or dietetical value. It is needless to detain the student with the natural orders, or with more than a very few instances of useful species.

THE MUSCAL ALLIANCE (V. K., p. 54.)

Equisetum. Linnœus.

(Order. Equisetaeeæ, or Horsetails; V. K., p. 61.)

Spore-cases growing beneath peltate scales collected in cones, splitting on one side, without operculum, and with an elater to every spore.

1. E. hyemale Linnæus. (Dutch Rush. Shave-grass.)

Stem naked, very rough, mostly branching at the base; sheaths pallid, white at top and bottom, with deciduous teeth; cone

terminal.

Habitat. In swampy places.

Quality. Rough with flinty points. (Said to be astringent, diuretic, emmenagogue.) The rhizomes nutritious.

Uses. Employed for polishing wood, ivory, and brass. Food in time of

2. E. fluviatile Linnæus. (Water Horsetail.) Fig. 44.

Stems of two kinds: barren, covered with numerous rough doubly angular branches: fertile ones unbranched, pallid, with large, loose, deeply-toothed sheaths.

Habitat. Watery places. Uses. The starch contained in the tubers of the rhizome nutritious; said by Haller to be the plant eaten by the Romans under the name of Equisetum.

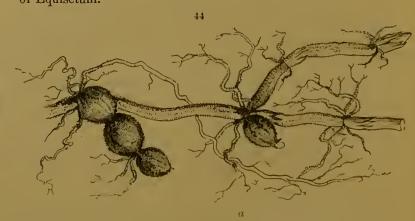


Fig. 44. Equisetum fluviatile; a, its rhizome, b, upper end of the flowering stem.

Linnœus. SPHAGNUM.

(Order. Bryaeeæ, or Urn-mosses; V. K., p. 64.)

Spore-case an urn closed by a deciduous lid, having a toothless brim, and capped by an irregularly torn calyptra.

1. S. obtusifolium Ehrhart. (Bog-moss.) Fig. 45. Spongy. Leaves whitish, ovate, obtuse, closely imbricated, tumid, with large spiral-coated perforated cells.

Habitat. Wet commons, bogs and moors.

Quality. Has the property of absorbing moisture readily,

and parting with it slowly. Slightly nutritive.

Uses. Employed by gardeners for eovering the roots of plants and preserving them moist; also for drainage. A wretched food in barbarous countries.

N.B.—This is the genus of Mosses spoken of in Lindley's "Introduction to Botany," vol. i. p. 52, fourth edition, as being remarkable for the spiral structure of the eells composing its leaves, and for the presence of large pores in their sides.





THE LYCOPODAL ALLIANCE (V. K., p. 68.)

Lycopodium. Linnœus.

(Order. Lycopodiaceæ, or Club-mosses; V. K., p. 69.)

Spore-cases 2-valved, solitary in the axils of leaves.

1. L. clavatum Linnæus. (Common Club-moss. moss.) Fig. 46.

Stem creeping; branches ascending, often entangled; leaves incurved with thread-like points; spikes two or three, cylindrical, stalked, with dilated membranous bracts.

Habitat. Damp hills, low mountains, and moors.

lity Spores inflammable, ealled Witch-meal and Vegetable Sulphur. "The minute eopious volatile seeds (spores) are used in Germany for artificial lightning on the stage, and are sold in the shops. When dispersed in the air, they take fire with a eandle, and suddenly explode."—Smith. Herbage emetic.

Uses. For rolling up pills; dusting infants; Plica polonica; a rude

and unsafe emetic; employed in seorbutic affections.

2. L. Selago Linnæus. (Fir-moss.)

Stems dwarf, erect, forked; leaves in eight rows, lanceolate, pointless, slightly spreading.

Habitat. Mountain heaths, and lowland sandy wet tracts.

Quality. Astringent, emetie, drastic, narcotic.

Uses. A powerful irritant; keeps blisters open; a counter-irritant; a rude purgative for very strong persons; forms a detergent lotion against vermin.

3. L. rubrum Chamisso-L. catharticum Hooker. (YATUM CONDENADO.) Fig. 47.

> Stem ascending, dichotomous; branches four-cornered; leaves closely imbricated, ovate, acuminate, stiff, keeled, ciliated, with the spore-cases in their axils.

Habitat. Equatorial America, on mountains.

Quality. Hypercathartic.

Uses. In elephantiasis, leprosy. A medicine of great activity.

THE FILICAL ALLIANCE; OR, FERNS. (V. K., p. 74.)

ADIANTUM. Linnœus.

Spore-cases in sori, hidden beneath rounded, reflexed, marginal, distinct, indusia with a vertical ring.

A. Capillus Veneris Linnæus. (MAIDENHAIR.) Fig. 48.



Leafdoubly compound; leaflets alternate, wedgeshaped on capillary stalks; indusia oblong.

Habitat. Moist rocks and old walls.

Quality. Rhizome slightly astringent, fragrant when dry; somewhat emetic.

With syrup and orange flowers, makes bad capil-

2. A. pedatum Linnæus. Fig. 49.

Leaves pedate: divisions pinnate; leaflets halved, oblong, lunate, cut at the upper edge.

Habitat. North America.

Quality. Sweet, slightly styptic, and fragrant.

Uses. With syrup and orange flowers, makes the best capillaire.

Aspidium. Swartz.

Spore-cases in roundish scattered dorsal sori, covered by

an orbicular or kidneyshaped indusium, with vertical ring.

1. A. Filixmas

Swartz — Nephrodi-

49

um Filix mas. (MALE FERN.) Fig. 50.

Fig. 47.—Piece of Lycopodium rubrum; 48. Leaflet of Adiantum Capillus Veneris, a little magnified; 49. Leaflet of Adiantum pedatum, a little magnified; 50. Pinna of Aspidium Filix mas.

Leaf doubly pinnate; leaflets obtuse, serrate, partly confluent; stalk ramentaceous; indusia near the midrib, kidney-shaped.

Habitat. Dry ditches and banks. Quality. Astringent, emetic.

Uses. Anthelmintic; against Bothriocephalus latus.—Pereira.

Pteris. Linnœus.

Spore-cases in marginal dorsal lines covered by the inflexed edge of the leaf, with a vertical ring.

1. P aquilina, Linnæus.—(Brake, Bracken.) Fig. 51.



Leaf 3 times pinnate, with lanceolate bluntish segments, of which the lowest are pinnatifid, and the upper gradually smaller; terminal lobes large, undivided.

Habitat. Heaths, parks, &c.

Quality. Astringent, anthelmintic, bitter.

Uses. The rhizome has been used as a substitute for hops; it furnishes a wretched bread.

OSMUNDA. Linnæus.

Spore-cases in branched masses, stalked, with a horizontal ring.

1. O. regalis Linnæus.—(OSMUND ROYAL.)

Leaflets oblong, nearly entire, dilated at the base; clusters of spore-cases panicled, terminal.

Habitat. Bogs and wet meadows. Quality. Tonic, styptic. Uses. Rachitis.

CLASS III. RHIZOGENS (V. K., p. 83.)

No species are of importance in this country.

CLASS IV. ENDOGENS (V. K., p. 105.)

The following are the chief Alliances:

GLUMALS. Flowers glumaceous.

ARALS. Flowers unisexual, naked, or scales or hairs; on a simple spadix.

PALMALS. Flowers unisexual, petaloid; on a branched spadix.

NARCISSALS. Flowers hermaphrodite. Ovary inferior. Perianth symmetrical.

AMOMALS. Flowers hermaphrodite. Ovary inferior. Perianth unsymmetrical. Stamens free.

ORCHIDALS. Flowers hermaphrodite. Ovary inferior. Perianth unsymmetrical. Stameus gynandrous.

JUNCALS. Flowers hermaphrodite. Ovary superior. Perianth glumaceous.

LILIALS. Flowers hermaphrodite. Ovary superior. Perianth coloured. Syncarpous.

ALISMALS. Flowers hermaphrodite. Ovary superior. Perianth coloured. Apocarpous.

THE GLUMAL ALLIANCE (V. K., p. 105.)

Natural Orders of Glumals.

Grasses (Graminaceæ.) Sheath of leaves slit. Embryo lateral, naked. Stoges (Cyperaceæ.) Sheath of leaves not slit. Embryo basal, inclosed.

Natural Order, Grasses; Graminaceæ (V. K., p. 106.)

Prevailing Quality. Sweet, nutritious; very rarely narcotic.

TRITICUM. Linnœus.

A spike. Spikelets many-flowered, parallel with the zig-zag rachis. Glumes 2, nearly equal. Paleæ 2, the lower awned or not.

1. T. repens Linnaus.—(Couch Grass. Quitch. Chien-dent Fr.)

Spike distichous; spikelets about 5-flowered; palcæ lanceolate, 5-nerved, acuminate, not ventricose; rachis usually scabrous; leaves rough, with lines of points on the upper side. A perennial, with a creeping rhizome.

Habitat. A common weed, in neglected ground.Quality. Rhizomes diaphoretic, aperient and refreshing.Uses. For diet drink, and as a substitute for Sarsaparilla.

2. T. astivum Linnaus.—(Wheat.) Fig. 52.

Spike 4-cornered; spikelets about 4-flowered; palez yentricose; ovate, truncate, mucronate or awned, compressed under the point, rounded at the back; grain free. An annual.

Habitat. Unknown.

Quality. Grain nutritious.

Uses. The flour forms wheaten bread. Bran, which is the pericarp, is emollieut and demulceut, and even purgative, owing the latter quality to its mechanical action.

SECALE. Linnœus.

A spike. Spikelets 2-flowered, with a longstalked rudiment of a third floret. Glumes subulate; otherwise like Triticum.

1. S. cereale Linnæus.—(Rye.) Fig. 53. Glumes shorter than the spikelet. Rachis tough.

Habitat. Commonly cultivated.

Quality. Grain nutritious.

Uses. The flour forms an inferior kind of bread. Ergot is the ovary, diseased by the attack of a parasitical fungus. See Oidium, p. 14.

LOLIUM. Linnæus.

A spike. Spikelets distichous, many-flowered, placed edgewise on the rachis. Glume solitary, or that next the rachis rudimentary.

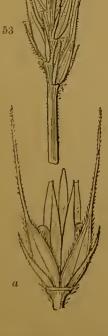
1. L. temulentum Linnæus.—(Darnel.)

Glume as long or longer than the spikelet, which contains from 5 to 7 florets; florets when in fruit elliptical, awned; awn straight, longer than the palea. An annual.

Habitat. Corn fields and by pathways.

Quality. Grains narcotic and acrid, producing fatal consequences when mixed with flour. Darnel meal has been used for sedative poultices.

N. B.—This is the only *authentic* instance of unwholesome qualities in the order of Grasses. The cases mentioued in the "Vegetable Kingdom" are all doubtful. As to Bromus eatharticus, figured under the name of Guilno by Feuillée, there can be no doubt that his statement is a blunder. The grass he has figured is not distinguishable from B. secalinus; the rhizome, in which he says that purgative qualities reside, evidently, both by the figure and description, does not belong to any grass whatever; it may possibly be that of some purgative Sisyringhium ever; it may possibly be that of some purgative Sisyrinchium.



54

Hordeum. Linneus.

A spike. Spikelets 1-flowered, placed in threes, the lateral spikelets generally abortive or male. Glumes 2, placed in front of the floret. Paleæ 2.

1. H. distichum Linnæus.—(Common Barley.) Fig. 54.

Lateral spikelets male, awnless; those in the middle hermaphrodite, awned, pressed close to the rachis; awns stiff, erect.

Habitat. Mesopotamia? Commonly cultivated.

Quality. The grain demulcent, emollient; the husk slightly acrid.

Uses. Barley-water in fevers, inflammation of the lungs; the grain forms malt; the flour forms a dark, strongtasted unpleasant bread. Pearl Barley is the grain deprived of its skin by rubbing, and is much employed for gruel, &c.



Fig. 54.—Ear of Hordeum distichum ; $a, {\bf a}$ tierce of spikelets ; 55. Panicle of Avena sativa.

AVENA. Linnœus.

A panicle. Glumes 2- or more-flowered, as long as the florets. Outer Palea with distinct lateral nervures, 2-pointed, with a dorsal, kneed and twisted awn. Ovary hairy at top.

1. A. sativa Linnæus.—(THE COMMON OAT.) Fig. 55.

Paniele spreading, equal-sided; glumes generally 2-flowered, longer than the florets, the uppermost 9-nerved; florets smooth, bifid, or 2-toothed at the point.

Habitat. Mesopotamia?
Quality. The grain nutritious.

Uses. Gruel, prepared from the skinned grains or groats, easily digested; employed as an emollient and demulcent in cases of poisoning by acrid substances; meal also as poultices.

SACCHABUM. Linneus.

A large branched panicle. Spikelets in pairs, buried in long silky hairs, 2-flowered; one sessile, the other stalked. Lower floret neuter with one palea; upper floret hermaphrodite with 2 pales. Glumes 2, membranous. Palece minute, transparent, awnless.

1. S. officinarum Linnæus.—(The Sugar Cane.) Panicle very loose; flowers triandrous; glumes indistinctly one-nerved, with very long hairs at the back.

Habitat. Tropical countries.
Quality. Sweet; demulcent; emollient.

Uses. Its sugar is universally employed where sweet substances are needed. An antidote to poisoning by metallic salts.

Andropogon. Linnœus.

Either a spike or panicle. Spikelets in pairs, or, if terminal, in threes; one perfect awned, the others withering, sterile, and awnless; perfect spikelet 2-flowered, the lower floret neuter with one palea; the upper floret hermaphrodite with 2 palex. Glumes 2,

1. A. Schenanthus Linnæus.—(Lemon Grass.) Fig. 56.

Perennial, erect; paniele rather seeund, linear, leafy; the spikelets having a common footstalk furnished with a spathe; florets all awnless; male with but one valve.

Habitat. Bengal, Arabia.

Leaves very fragrant; their taste aerid, aromatic, and bitter. Rhizome and flowers have similar qualities.

Uses. Roasted leaves stomachic and diaphoretic. Yields an aromatic stimulating essential oil (Grass oil), employed externally in rheumatic affections.



ANATHERUM. Palisot.

30

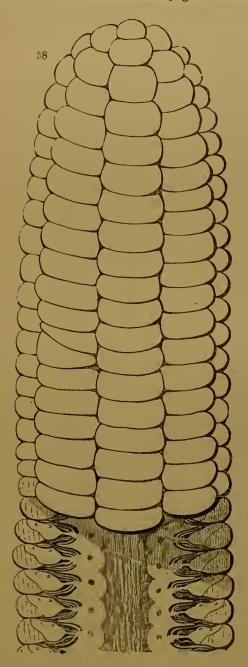
Like Andropogon, but the glumes are covered with asperities bearing hairs.

1. A. muricatum Palisot.—(Vetiver or Vetivert.) Fig. 57. Erect; leaves in 2 rows, long, narrow, stiff; panicle whorled, with simple spreading branches; both hermaphrodite and male florets awnless.

Habitat. East Indies.

Quality. Rhizome has a strong penetrating agreeable odour.

Uses. Like those of Andropogon Scheenanthus.



ZEA. Linnœus.

Inflorescence unisexual.

Male a terminal panicle;

spikelets 2-flowered, with
a pair of nearly equal
glumes. Fe-

male a lateral spike, enveloped in tough spathes; spikelets 2-flowered; the upper

floret Q, with 2 or 3 paleæ; the lower floret neuter, with only 2 paleæ. Glumes membranous, very broad. Grains roundish, compressed, naked, in perpendicular rows.

1. Z. Mays Linnaus.—(MAIZE. INDIAN CORN.) Fig. 58.

A coarse, upright, broad-leaved annual; paleæ shorter than the ripe grain.

Habitat. North of Mexico, or the southern districts of the Rocky Mountains, according to the botanists of the United States.

Quality. Grain very nutritious.

Uses. Employed largely as food; but is apt to cause diarrhoa.

ORYZA. Linnœus.

A panicle. Spikelets 1-flowered. Glumes 2, small, unequal, awnless. Paleæ 2, nearly equal, cartilaginous, ribbed, the lower with or without an awn. Stamens 6!

There are numerous varieties of this very common tropical grain, as there is in Europe of Wheat, Barley, Oats, &c. 1. O. sativa Linnaus.—(RICE.) Fig. 59.

Leaves linear, long, rough; panicle racemose, rather contracted; paleæ very hairy.

Habitat. Cultivated in all hot countries, in swampy places.

Quality. Grain nutritious.

Uses. Employed largely as food; but from the small proportion of protein compounds is much less nutritious than ordinary cereal grains.



SETARIA. Palisot.

A compound eylindrieal spike. Spikelets 2-flowered, surrounded by an involucre of bristles. Lower floret rudimentary, eonsisting of one palea resembling the glumes.

1. S. italica Palisot. S. germanica Pal.—(GERMAN MILLET. MOHA.)



Fig. 59.—Inflorescence of Oryza sativa; α , a spikelet magnified; b, the awned variety; c, an awned spikelet; 60. Spikelets of Setaria; 61. Setaria italica, natural size.

Ear decompound, lobed; involucre rough upwards, the teeth directed forwards; paleæ of the hermaphrodite floret smoothish.

Habitat. Cultivated in Southern Europe, and India.

Quality. Grain nutritious.

Uses. Employed as food in the South and Middle of Europe, and in India, where better grain may not be had. A useful agricultural plant in such countries, because of its power of resisting drought. S. germanica is a larger variety, with a longer involuere.

Natural Order, Scoges; Cyperacece. (V. K., p. 117.)

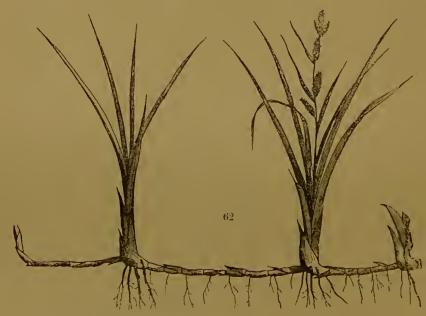
Prevailing Quality. Demulcent.

CAREX. Linnœus.

Flowers unisexual. Males with one glume. Females inclosed in a flask-shaped involucre.

1. C. arenaria Linnæus.—(German Sarsaparilla.) Fig. 62.

Spike decompound, oblong, or somewhat ovate; upper spikes male, lower female; stigmas 2; fruit ovate plano-couvex, 7-ribbed, with a rough wing from the middle upwards; stem rough at the angles near the summit; rhizome tough, creeping.



Habitat. In loose sand of the sea-coast.

Quality. Rhizome sweetish, with a disagreeable earthy after-taste, diaphoretic and demulcent.

Uses. A substitute for Sarsaparilla.

2. C. hirta Linnæus.

Covered with fine hairs; female spikes ovate or cylindrical, distant; males 2 or 3: sheaths of bracts nearly as long as the peduncles; fruit hairy, tumid, with a deeply-cloven beak.

Habitat. In wet meadows, woods, &c. Common. Quality and Uses as in the last.

CYPERUS. Linnœus.

Flowers hermaphrodite. Spikes composed of numerous distichous glumes, containing no bristles or scales.

1. C. longus Linnæus.

Inflorescence decompound, the longer branches umbellate; stalks of the umbels erect, of unequal length; stigmas 3; glumes ovate obtuse; rhizome ereeping.

Habitat. Ditches and damp meadows on the Continent.

Quality. Rhizome bitter, astringent, aromatic; smells slightly of violets.

Uses. Furnishes an aromatic distilled water, reckoned tonic and stomachic.

2. C. esculentus Linnæus.—(Souchet comesti-Ble; Amande de terre Fr.) Fig. 63.

Inflorescence decompound; spikes both stalked and sessile, clustered at the point of the

longer branches, linear, compressed; glumes obtuse; stigmas 3; rhizome long, creeping, bearing pendulous tubers.

Habitat. Cultivated in the South of Europe.

Quality. Nutritive, restorative, stimulant.

Uses. Eaten like nuts; regarded as an aphrodisiac; employed in the preparation of orgeat.







THE ARAL ALLIANCE (V. K., p. 123.)

Natural Orders of Arals.

Bulrushes (Typhacea.) Calyx = scales or hairs. Anthers on long filaments.

Arats (Araceæ.) Calyx O. Anthers sessile. Spathaceous.

Natural Order, Bulrushes; Typhaceæ (V. K., p. 126.)

Prevailing Character. Subastringent, nutritious.

TYPHA. Linnœus.

Spikes cylindrical, the uppermost male. Stamens 3, monadelphous, surrounded by bristles. Ovary stalked, bristly at the base.

1. T. latifolia Linnaus.—(Bulrush.)

Leaves linear, flat, longer than the flowering stem; male and female spikes contiguous.

Habitat. Streams and stagnant water all over Europe.

Quality. Rhizomes astringent and diuretic; abound in starch.

Uses. Sometimes used as food under the name of Cossack Asparagus; employed in dysentery.

Natural Order, Grads; Araceæ (V. K., p. 127.)

Prevailing Quality. Acridity.

ARUM. Linnœus.

Spathe convolute. Spadix naked at the point; male flowers above, female below, with intermediate cirrhi. Anthers sessile, opening by lateral slits. Ovary 1-celled, with 2-6 horizontal ovulcs.

1. A. maculatum Linnæus.—(Cuckoo-pint. Lords and Ladies.) Fig. 65.

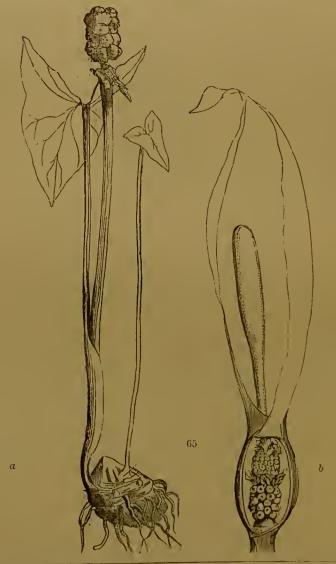


Fig. 65.—a, Arum maculatum in fruit, diminished; b, spathe of about the natural size, with the base of the spadix exposed.

ARADS.

Leaves hastate-sagittate; spadix straight, clavate, shorter than the spathe.

Habitat. Hedgerows and plantations all over Europe.

Quality. Acrid; nutritious.

ARALS.

Uses. Corms eatable, when the acridity is removed. Yields pure starch, known under the name of Portland Sago.

COLOCASIA. Ray.

Spathe erect, convolute. Spadix naked at the point; male flowers above, female below, with rudimentary organs both above and below the stamens. Anthers opening by pores, with a very broad connective. Ovaries 1-celled, with 6 erect ovules rising in pairs from near the base.

1. C. esculenta Schott. Caladium esculentum, Vent.

Stemless; leaves peltate, cordate; spadix shorter than the ovate-lanceolate spathe.

Habitat. Tropical America. Quality and Uses. As in the next.

2. C. antiquorum Schott. Arum Colocasia Linn.—(Cocco. Eddoes.) Stemless; leaves peltate, ovate, repand, half bifid at the base; spathe much longer than the spadix, cylindrical, erect.

Habitat. In all tropical countries; Egypt, Greece, &c.

Quality. Acrid.

Uses. When deprived of acridity by boiling and changing the water, the leaves are eaten as Spinach, and the corms are used for soup.

Amorphophallus. Blume.

Spathe with a spreading limb. Spadix protruded, naked, and fungoid at the end; male flowers above, female below, with no intermediate Anthers opening by 2 pores. Ovary 2-3-4-celled, with solitary erect ovules.

1. A. campanulatus Blume. Fig. 66.



Fig. 66.—Reduced figure of Amorphophallus campanulatus.

Head of the spadix warted; style distinct; spathe sessile; petioles very rough.

36

Habitat. Tropical parts of Asia.

Quality. Acrid, caustic; abounds in starch.

Uses. Employed as an external stimulant; also as an emmenagogue.

DIEFFENBACHIA. Schott.

Spathe convolute. Spadix covered all over with flowers; male above, female below. Anthers opening by pores. Ovaries 1-celled, with a single erect ovule, and surrounded at the base by 3 clavate processes.

1. D. seguina Schott. Arum seguinum Linnæus.—(Dumb Cane.)

An arborescent plant; stem cylindrical, with ringed scars; leaves oblongovate, with a stout rib; spathe green.

Habitat. West Indics.

Quality. Juice extremely acrid and venemous.

Uses. A dangerous poison; produces dumbness when chewed.

THE PALMAL ALLIANCE (V. K., p. 133.)

Natural Order, Palms; Palmacew (V. K., p. 133.)

Prevailing Quality. Nutritious, saccharine.

PHENIX. Linnœus.

Leaves pinnate. Flowers diecious.

Petals imbricated in the females. Ovaries 3. Fruit a fleshy one-seeded false drupe.

1. P. dactylifera Linnæus. (The DATE PALM.) Fig. 67.

Leaves glaucous; leaflets lanceolate acuminate, very much closed up, the uppermost shorter; fruit oblong, in large bunches.

Habitat. North of Africa.

Quality. Fruit highly nutritious and sweet.

Uses. Dried fruit, a common article of food.

Sagus. Rumphius.

Leaves pinnated. Flowers monecious. Spadix branched, without any common spathe, but with numerous partial ones. Fruit hard, shining; its surface divided into numerous rhomboidal spaces.

1. S. lævis Rumphius. Metroxylon Sagus Rottböll.—(True Sago Palm.)

Petioles and spathes unarmed.



Fig. 67.- Sketch of Phœnix dactylifera.

Habitat. Islands of the Indian Archipelago.

Quality. Trunk contains the fæcula called Sago.

Uses. Extremely nutritious, and easy of digestion.—Martius says that this furnishes most of the Sago sent to Europe; and thus confirms the statement of Roxburgh.



2. S. Rumphii Willdenow. — (PRICKLY SAGO PALM.) Fig. 68.

Petioles and spathes guarded by strong prickles.

Habitat. Islands of the Indian Archipelago.

Quality and Uses. As in Sagus lævis.—According to
Martius this sort of Sago is chiefly used in India,
and is rarely exported.

ARECA. Linnœus.

Leaves pinnated. Flowers monœcious. Petals imbricated in the females, valvate in the males.

Ovary 3-celled. Fruit a fibrous drupe.

Spathes 2, membranous or fibrous.

1. A. oleracea Linnæus. Orcodoxa oleracea Martius.—(The Cabbage Palm.) Fig. 69.

Stem very tall, even; leaflets linear, very taperpointed, bifid; spadix covered with dry ragged white deciduous downy scales.

Habitat. West Indies, especially Barbadoes. Quality. Sweet, nutritious. Uses. The terminal bud or "cabbage" eaten.



2. A. Catechu Linnæus.—(PINANG. BETEL NUT. ARECA NUT.) Fig. 70.



Unarmed; stem tall; leaflets broadly linear, plaited, acuminate, the upper confluent, wedge-shaped, præmorse; fruit ovate.

Habitat. All over the East Indies.

Quality. Fruit astringent; nareotie.

Uses. Nuts ehewed, with lime and the leaves of Chaviea (Piper) Betel; yield Catechu by boiling.

SAGUERUS. Rumphius.

Leaves pinnate. Sepals of the females imbricated, convolute. Stamens 00. Fruit a globose drupe, with 2 or 3 angular stones.

1. S. saccharifer Blume. Arenga saccharifera Labill.—(The Gomuto Palm.) Fig. 71.

Petioles not spiny; pinnæ linear-lanceolate, acuminate, entire or emarginate, auriculate, white or silvery beneath; branches of the spadix long, clustered, pendulous; fruit yellowish.

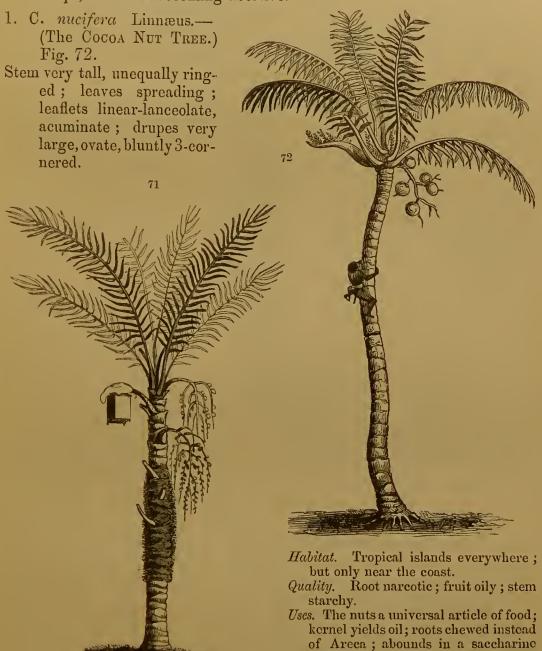
Habitat. The tropical parts of Asia.

Quality. Yields a saccharine fluid abundantly; also Sago.

Uses. Is a great source of Palm wine. The central bud or "eabbage" eatable.

Cocos. Linnœus.

Leaves pinnate. Flowers at the base of the branches female, the others male. Ovary simple, 3-celled. Fruit a coarse, fibrous, one-celled drupe, two cells becoming abortive.



Elæis. Jacquin.

fluid, from which Palm wine is made.

Leaves pinnated. Branches of inflorescence unisexual. In the males the sepals 3, papery, dry; the petals membranous, lanceolate. Ovary 3-celled. Fruit an angular 1-seeded drupe, with a fibrous oily rind.

1. E. guineensis Linnæus.—(The Oil Palm.) Fig. 73.

Petioles spiny; leaflets linear-lanceolate, acuminate, green beneath; drupes ovate, collected in huge creet heads, deep orange-yellow.



Habitat. Coast of Guinea; common now in tropical America.
 Quality. Drupes contain an emollient demulcent fixed oil in great abundance.
 Uses. Furnishes Palm oil, employed in soap making, for frictions, &c.; also eaten as butter when quite fresh.

THE NARCISSAL ALLIANCE (V. K., p. 146.) Patural Orders of Parcissals.

Bromeliates (Bromeliacew.) Flowers 3-petaloideous.

Amaryllidacew.) Flowers hexapetaloideous. Stamens 6, introrse.

Erivs (Iridaceæ.) Flowers hexapetaloidcous. Stamens 3, extrorse.

Natural Order, Bromeliace (V. K., p. 147.)

Prevailing Quality. Uncertain.

Ananassa. Lindley.

Fruit succulent, in spikes, consolidated into a single tuberculated comose mass.

74

1. A. sativa Lindley.—(The PINE-APPLE.)

Leaves glaucous, mealy; bracts shorter than the fruits.

Habitat. Tropical America only. Introduced elsewhere. Quality. Fruit subacrid; sweet, and pleasantly acid.

Uses. A well-known esculent fruit.

Natural Order, Amaryllidas; Amaryllidaceæ (V. K., p. 155.)

Prevailing Quality. Emetic, narcotic, poisonous.

LEUCOIUM. Linnœus.

Sepals and Petals distinct to base, all thickened at the point. Coronet 0. Stamens equal.

1. L. estivum Linnæus.—(Snow-flake.) Fig. 74. Spathe many-flowered, style clavate; ovary somewhat globose; leaves long, linear, equal to the fistular scape.

Habitat. Various parts of Europe.

NARCISSUS. Linnœus.

Sepals and Petals united in a tube surmounted by a coronet.

1. N. Pseudo Narcissus Linnæus.
—(Daffodil.)

Flowers solitary; coronet campanulate, erect, crisp, as long as the yellow perianth.

Habitat. Thickets and grassy places all over Europe.

Quality. Acrid, poisonous.

Uses. As an emetic.

2. N. Tazzetta Linnæus.—(Italian, or Polyanthus Narcissus.)

Flowers umbellate; coronet campanulate, plaited, truncate, 3 times as short as the white perianth.

Habitat. North of Africa and south of Europe. Quality and Uses. As the last.

AGAVE. Linnœus.

Caulescent. Flowers funnel-shaped, persistent, with erect or revolute lobes.

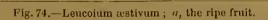
Capsule coriaceous, loculicidal. Seeds 00, flat.

1. A. americana Linnæus.—(American Aloe.)

Leaves very large, stiff, perennial, spiny at the edge; scape lofty, branched; stamens longer than the perianth.

Habitat. Tropical America; introduced elsewhere. Quality. Diuretic, antisyphilitic, detersive.

Uses. Roots a substitute for Sarsaparilla, with which they are mixed sometimes. Juice of leaves a substitute for soap. Sap of flowering branches sweet, subacid, readily ferments and forms a wine called Maguay, or Pulque.



Natural Order, Frids; Iridaceæ (V. K., p. 159.) Prevailing Quality. Acrid, purgative.

75 peculiar colour and aroma of true Saffron. C. sativus Allioni. – (SAFFRON Crocus.) Autumnal flowering; stigmas as long as the CROCUS. Linnœus.

Sepals and petals nearly equal, united into a long subterranean tube, with a balloonshaped limb; funnelshaped when expanded. Stigma 3parted, plaited, convolute.

1. C. vernus Linnæus.— (Spring Crocus.) Fig. 75.

Spring flowering; stigmas erect; throat of the flower bearded; skins corm fibrous. netted.

Habitat. Meadows of Europe. Quality and Uses. The corms are acrid, and were formerly reckoned discutient; the stigmas are nearly destitute of the

limb, and hanging down on one side; skins of the corm fibrous, reticulated, with narrow meshes.

Habitat. South of Europe.

Quality. The dried stigmas are reckoned to be cordial, emmenagogue, and stimulant; they constitute Saffron.

Uses. A more colouring or flavouring ingredient in this country. Saffron gives to water and alcohol three-fourths of its weight of an orange-red extract, largely employed in painting and dyeing. It must not be confounded with Saflowers, the dried florets of Carthamus tinctorius, with which it is often adulterated.

The latter consisting of corollas, and the former of stigmata, a little careful observation will readily detect the difference.

Iris. Linnœus.

Sepals reflexed. Petals erect, arched. Style 3-parted, petaloid, covering the stamens.

1. I. germanica Linnæus.
— (Purple OrrisROOT.) Fig. 76.

Bearded; spathes membranous, herbaceous at base; tube 2 or 3 times as long as the ovary; flowers deep purple.

Habitat. Walls and dry places in Europe.

Quality. Rhizomes fragrant, bitterish, acrid.

Uses. Yields part of the fragrant orris-root.

2. I. florentina Linnæus.

— (WHITE ORRIS-ROOT.)

Bearded; spathes herbaceous, glaucous, with a narrow scarious border; tube 2 or 3 times as long as ovary; flowers nearly white.

Habitat. Italy.
Quality and Uses. As in the last.

3. I. Pseudacorus Linnæus. — (Yellow-Flag.) Fig. 77.

Beardless; sepals oblong or ovate, long-stalked; petals narrower and shorter than the lobes of the style; flowers yellow.

Habitat. Ditches and rivers all over Europe.

Quality. Acrid.

Uses. Rhizome diuretic, purgative, and emetic.

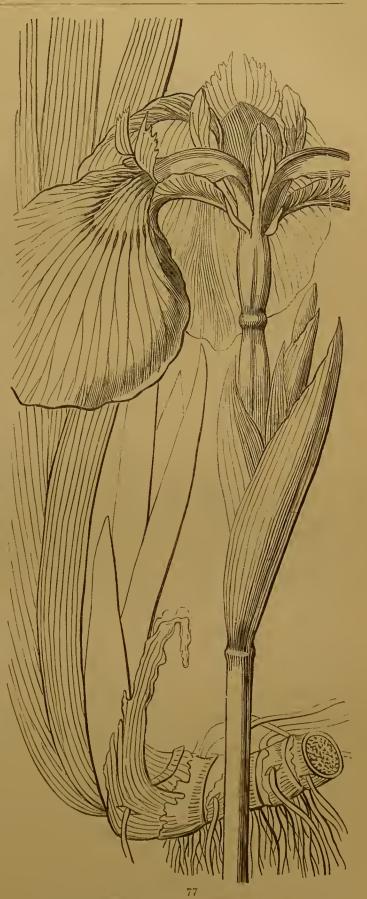


Fig. 77. -Iris Pseudacorus.

THE AMOMAL ALLIANCE (V. K., p. 162.)

Natural Orders of Amomals.

Musads (Musaceæ.) Stamens more than 1.

Gingerworts (Zingiberacew.) Stamen 1; anther complete.

Marants (Marantacea.) Stamen 1; anther halved.

Natural Order, Musads; Musaceæ (V. K., p. 163.) Prevailing Quality. Nutritious, diaphoretic.

Musa. Rumphius.

Flowers two-lipped; the lower lip tubular, 5-eleft, embracing the upper lip, which is dwarf and eoneave. Ovules 00, horizontal. baeeate.

1. M. sapientum Linnæus.--(Plantain. Banana.) Fig. 78.



Spadix nodding; spathes deciduous, or withering.

Habitat. Tropical Asia.

Quality. Fruit swect, soft, amylaccous.

Uses. A common fruit and nutritious esculent in all hot countries. Plantains and Bananas are mere varieties of each other.

79

Natural Order, Gingerworts; Zingiberaceæ (V.K., p. 165.)

Prevailing Quality. Aromatic, stimulating.

ZINGIBER. Garingr.

Stems annual. Lateral inner lobes of caralla Da Filament extended beyond the anther into a curved beak.

1. Z. officinale Roscoe.—(Common Ginger.) Fig. 79.

Leaves subsessile, narrowly lanceolate, smooth; spikes oblong, on a scape about 9 inches high; bracts acute; flowers whitish; lip 3-lobed, streaked with purple.

Habitat. Tropical parts of Asia.

Quality. Acrid, aromatic, stimulant, sialagogue.

Uses. A condiment; promotes digestion, relieves flatulency; chewed against tooth-ache.

ALPINIA. Linnœus.

Stems perennial. Inflorescence terminal. Inner lateral lobes of the corolla small or 0. Filament not extended beyond the anther. Fruit baccate.

1. A. racemosa Plumier.

Stems 4-5 feet high; leaves ovate-lanceolate, recurved at the point; raceme spiked; bracts ventricose; lip trifid; flowers white.

Habitat. Tropical America. Quality and Uses. As in the Galangale.

2. A. Galanga Linnæus.—(GALANGALE.)

Stems 6 or 7 feet high; leaves broad, sessile, with a whitish edge; panicle oblong, branched; flowers greenish-white; lip oblong, unguiculate, bifid; roots tuberous, pungent.

Habitat. Indian Archipelago.

Quality. Rhizome peppery, aromatic.

Uses. As Ginger.

Amomum. Linnœus.

Stems perennial. Inflorescence radical, cone-like. Inner lateral lobes of the corolla 0. Lip very large, flat. Filament flat, extended beyond the anther, 2-lobed, with an emarginate middle lobe.

1. A. Cardamomum Linnæus.—(Round Cardamom.)

Leaves short-stalked, lanceolate, acuminate, smooth; bracts villous, cinereous; lip 3-lobed, crenate, crisp, with two rosy streaks; fruit small, roundish, 3-cornered; seeds brown, angular, cunciform.

Habitat. Indian Archipelago. Quality. Seeds aromatic, camphoraceous. Uses. As those of Elettaria Cardamomum. 2. A. Grana Paradisi Smith. A. Meleguetta Roscoe.—(Grains of Para-

DISE PLANT. MALAGUETTA PEPPER.) Fig. 80, 81.

Leaves nearly sessile, linear-lanceolate, smooth; bracts . . . ; lip entire, obovate, evenate, plaited; fruit ovate, coriaceous, (6 inches long), yellow, spotted with orange; seeds angular, light brown.



Habitat. Coast of Guinea, &c.

Quality. Seeds aromatic and excessively peppery.

Uses. A spicy condiment; used in veterinary practice; in the illegal preparation of malt liquor, &c.

Fig. 80.—Leaves and analysis of Amomum Grana Paradisi, from *Pharmaceutical Journal*; a, flower: b, lip; c, anther, ovary, and style; d, barren stamens and style.



Fig. 81.—Fruit of Amomum Grana Paradisi, from Pharmaceutical Journal; a, full-sized fruit; b, a transverse section.

CURCUMA. Linnaus.

Stems annual. Lateral inner lobes of corolla similar to the exterior. Filament petaloid, 3-lobed, with a two-spurred anther on the middle

C. longa Linnæus. — (Turmeric.) Fig. 82.

Tubers long, lobed, pendulous, deep orange; leaves broad, lanceolate, whole coloured; spikes central, among the leaves, pale green, with a rose-coloured coma; flowers yellow, concealed by the bracts.

Habitat. East Indies.

Quality. A mild aromatic.
Uses. A condiment; an ingredient in curry powder; its juice a test for free alkalies.

In the East Indies Turmeric is regarded as an important bitter, aromatic, stimulant, tonic; and is employed in debilitated states of the stomach, intermittent fever, dropsy. The native practitiouers consider it, in the form of powder, as an excellent application for cleansing foul ulcers. It is also used in dyeing. There seems little doubt that it was the κυπειρος ινδικος of Dioscorides, as it certainly was the Carcumaa of Avicenna; the Persians now call it Kurkoom. The starch of the young white tubers forms one of the East Indian arrowroots.—Royle. See also the pendulous tubers of several other species of Curcuma yield beautiful pure amylaceous matter, which the natives of the countries where the plants grow prepare and eat like Arrow-root. In Travancore this flour or starch forms a large part of the dict of the inhabitants. It is, however, to be observed, that the same tubers which yield starch when young, yield turmeric when old; the

aroma colour and which give its character to the latter, appearing to be deposited in the cells at a later period of

growth.



Fig. 82.—Diminished figure of Curcuma longa; the small oblong colourless knobs are those in which starch alone exists; the larger and darker rhizomes are the older structure containing turmeric.

2. C. Zedoaria Roxburgh.—(ROUND ZEDOARY.)

Tubers long, palmate, yellow inside; leaves sessile, silky beneath, broad, whole coloured; spikes radical, comose, rose-coloured; flowers pink, shorter than the bracts.

Habitat. Tropical Asia.

Quality. Rhizome warm, aromatic, bitter.

Uses. As Curcuma longa; as a tonic.

3. C. Zerumbet Roxburgh.—(True Zedoary.)

Tubers palmate, straw-coloured inside; leaves green, stalked, broad, stained with purple in the middle; spike radical, comose, purple; flowers yellow, concealed by the bracts.

Habitat. East Indies. Quality and Uses. As in the last.

ELETTARIA. Rheede.

Stems perennial. Inflorescence radical, loose. Lateral inner lobes of corolla minute. Filament not extended beyond the anther.

1. E. Cardamomum Maton.—(CAR-

DAMOM.)

Root with fleshy fibres; leaves lanceolate, villous above, silky beneath, with villous sheaths; scapes radical, prostrate; flowers greenish-white; lip obovate, slightly 3-lobed, streaked with violet.

Habitat. Malabar.

Quality. Seeds an agreeable aromatic without acridity.

Uses. An adjunct to stimulant cordial mixtures.

Natural Order, Marants; Marantaceæ (V. K., p. 168.)

Prevailing Quality. Insipid; diaphoretic.

CANNA. Linnœus.

Ovules 00, horizontal. Style petaloid, straight. Stems simple. Flowers red, orange, or yellow.

1. C. edulis Ker. — (Tous Les Mois?) Fig. 83.

Tuberous; stem purple; leaves broad,

smooth, glaucous; corolla tri-partite, erect, with oval oblong retuse segments, of which the middle one is much the shortest; lip linear, revolute, emarginate.



Habitat. Peru.

Quality. Starch nutritive, emollient, demulcent.

Uses. Supposed to furnish the freeula ealled Tous les Mois in the shops.

2. C. Achiras Gillies.—(Achiras)

Tuberous; stem green, downy; leaves abruptly acuminate; corolla bipartite with linear divisions; lip revolute, lanceolate, emarginate.

Habitat. America, Mendoza to Guatemala.
Quality. See next species.
Uses. Tubers eaten as food in Chili and Peru.

MARANTA. Plumier.

Style fleshy, eurved downwards. Stems branched. Ovules solitary, basal. Flowers white.



Fig. 84.—Leaf and flowers of Maranta arundinacea; a, the stamen and style; 85. The tubers of the same, much less than natural size.

1. M. arundinacea Linnæus.—(Ara-root, or Arrow-root.) Fig. 84, 85. Stem branched; leaves ovate-lanceolate, hairy on the under side; peduncles 2-flowered.

Habitat. Tropical America.

Quality. Starch nutritive, emollient, demulcent.

Uses. Starch an article of diet, under the name of Jamaica arrow-root.

THE ORCHIDAL ALLIANCE (V. K., p. 170.)

Natural Order, Orchidaceae (V. K., p. 173.)

Prevailing Quality. Stimulating, fragrant.

Orchis. Linnœus.

Anther terminal, erect. Lip spurred. Pollen sectile. Pollen-masses two, with their glands inclosed in a common pouch.

1. 0. mascula Linnæus.

Roots oblong, undivided; leaves spotted; spike loose, many-flowered; sepals reflexed; lip 3-lobed, the intermediate lobe being emarginate, with a blunt horizontal spur.

Habitat. Meadows in Europe.

Quality. Roots gummy, nutritious, emollient, demulcent.

Uses. Roots form the agreeable diet called Salep.







2. O. maculata Linnæus.—(Spotted Orchis.) Fig. 86.

Leaves spotted; roots palmate; spike conical; sepals recurved; lip acutely 3-lobed, with a slender pendulous spur.

Habitat and Quality. As in the last.

Uses. Yields part of the inferior English Salep.

BLETIA. Ruiz and Pavon.

52

Pollen-masses waxy, 8, cohering by elastic straps. Lip spurless, 3-lobed, sessile, articulated with the column. Anther 8-celled.

1. B. verecunda R. Brown.

Petals oblong, obtuse, arched over the column; middle lobe of lip longer than broad, wavy, with numerous crisp veins, which are sometimes branched.

Habitat. West Indies.
Quality. Tuber somewhat fragrant, bitterish, aromatie.
Uses. In weak digestion.

VANILLA. Plumier.

Fruit a long pulpy pod, with round seeds not inclosed in a loose membrane.

1. V. planifolia Andrews.—(VANILLA.)

Leaves oblong-lanceolate, flat; sepals and petals oblong, flat, obtuse; lip crisp, convex, covered with numerous transverse wedge-shaped plates; fruit fragrant.

Habitat. Mexico, Guatemala, West Indies.
Quality. Aromatic, stimulant.
Uses. Asthenic fevers, rheumatism, hysteria, male impotence; in confectionary; in the preparation of chocolate.

THE JUNCAL ALLIANCE (V. K., p. 190.)

Natural Order, Orontiads; Orontiaceæ (V. K., p. 193.)

(These are Juncals with the form of Arals.)

Prevailing Quality. Acridity.

SYMPLOCARPUS. Salisbury.

Spathe cucullate. Spadix subglobose, all covered with flowers. Sepals 4, becoming baccate. Stamens 4, opposite the sepals. Ovary one-celled, with one ovule.

1. S. fætidus Salisbury.—(Skunk Cabbage.)

Stemless; leaves ovate, cordate.

Habitat. Ditches in Canada and the United States. Quality. Acrid, feetid, antispasmodie, expectorant.

Uses. Sceds and rhizome palliatives in paroxysms of asthma.

CALLA. Linnœus.

Spadix cylindrical, covered with a mixture of stamens and Spathe flat. pistils. Ovary 1-celled, with from 6 to 8 erect ovules.

1. C. palustris Linnæus.

A marsh plant, with a creeping rhizome; leaves cordate, cuspidate, stalked; spathe white; spadix yellow.

Habitat. Swamps of Europe, Siberia, and North America.

Quality. Aerid, eaustie; diaphoretie.
Uses. Rhizomes yield eatable stareh after grinding and washing.

Acorus. Linnœus.

Spathe replaced by a two-edged leaf-blade. Scales 6, permanent, herbaceous. Stamens with filiform filaments.

1. A. Calamus Linneus.—(SWEET FLAG.)

Spathe a direct continuation of the scape, in no respect different from the leaves.

Habitat. Marshes all over Europe.

Quality. Rhizome an aromatic stimulant, and mild tonic; stomachic.

Uses. An adjunct to other tonics; asthenic fevers, ague, chronic catarrh, dyspepsia; aromatic baths, perfumery, hair powder.

THE LILIAL ALLIANCE (V. K., p. 195.)

Natural Orders of Uilials.

Mclanths (Melanthacew). Anthers extrorse. Styles separate.

Milyworts (Liliaceæ). Anthers introrse. Styles united.

Natural Order, Mclanths; Melanthaceæ (V. K., p. 198.)

Prevailing Quality. Acrid-narcotic.

VERATRUM. Tournefort.

Flowers polygamous. Sepals and petals spreading flat, with an extremely short tube, persistent. Stamens perigynous; anthers opening transversely. Capsule three-horned, turgid.

1. V. album Linnæus.—(WHITE HELLEBORE.) Fig. 88.

Panicle much branched, downy, spreading; flowers greenish-white, longer than the lower bracts.

Habitat. Subalpine parts of Europe.
 Quality. A powerful aerid poison. In small doses, emetic and purgative.
 Errhine.

Uses. In melancholia, mania, epilepsy, herpes, gout; chronic affections of the brain; against pediculi.



Fig. 88.—Lateral branch of the inflorescence of Veratrum album; a, a stamen.

Colchicum. Linnœus.

Sepals and petals united into a subterranean tube; the limb balloon-shaped, funnel-shaped when expanded.

1. C. autumnale Linnæus. (Meadow Saffron.) Fig. 89.

Leaves broad; tube of flower five or six times as long as the limb; styles thickened and curved at the point, as long as the stamens or longer.



Habitat. Meadows in England, and other parts of Europe.
 Quality. An acrid poison. In small doses, emetic and purgative.
 Uses. Gout, lumbago, rheumatism, inflammatory diseases, humoral asthma, worm cases.

ASAGRÆA. Lindley.

Flowers racemose, naked. Sepals and petals narrow, coloured, with a honey-spot at the base. Stamens perigynous, alternately shorter; anthers bursting vertically. Follicles 3, acuminate, papery; seeds winged.

1. A. officinalis Lindley.—(SABADILLA.) Fig. 90.



Fig. 90.—Part of the spike of Asagræa officinalis; a, anther; b, capsule; 91. Stenanthium frigidum a, ovary and stamens.

Leaves grassy, green, rough at the edge; scape 4 or 5 feet long; raceme very dense; flowers white.

Habitat. Cool uplands of Mexico.
Quality. Like Veratrum, but more acrid.

Uses. Seeds anthelmintic; against pediculi; dangerous. A source of veratria.

STENANTHIUM. A. Gray.

Flowers panieled with leafy bracts. Sepals and petals adherent to the ovary at their base, eampanulate, non-nectariferous. Stamens perigynous; anthers reniform, opening at the back. Follicles 3, acuminate, papery; seeds winged.

1. S. frigidum Kunth. Helonias frigida Sehleeht.—(Sevoeja.) Fig. 91. Leaves linear, channelled, keeled; paniele simple; flowers large, dark purple, nodding, hermaphrodite.

Habitat. Cool uplands of Mexico. Quality. Acrid, poisonous.

Uses. As Asagræa.

Natural Order, Lilyworts; Liliaceæ (V. K., p. 200.)

Prevailing Quality. Subaerid, or insipid.

ALLIUM. Linnœus.

Bulbous. Flowers umbellate, inclosed within a spathe. Sepals and petals spreading, having the stamens inserted in their base. Fruit a eapsule. Seeds angular.

1. A. sativum Linnæus.—(Garlick.)

Umbel bulbiferous; leaves obseurely keeled; spathe 1-valved, deciduous; bulbs compound, covered by a loose white skin.

Quality. A local irritant; tonic, stimulant, diurctic.

Uses. As a condiment in cookery; chronic catarrh, dyspepsy; as a liniment in hooping cough, infantile convulsions, &c.

2. A. Scorodoprasum Linnæus.—(Rocambole.)

Umbel bulbiferous, few-flowered; leaf-sheaths 2-edged; spathe 2-valved, mucronate, permanent; lobes of the flowers ovate-laneeolate, aeute, as long as the stamens; bulbs simple.

Habitat. South of Europe.

Quality. Stimulant, diuretic. Uses. In cookery, as a stimulating flavouring ingredient.

3. A. Porrum Linnæus.—(Leek.)

Umbel not bulbiferous; stem leafy; spathe 1-valved, deciduous; lobes of the flower oblong, obtuse, about as long as the stamens; bulb simple, soft, being a mere continuation of the stem.

Habitat. South of Europe.

Quality, &c. As in the last, but much more mild.

4. A. Ascalonicum Linnæus.—(Sнацьот.)

Umbel not bulbiferous, globose; stem leafy at the base only; leaves subulate; spathe 2-valved; stamens 3-cuspidate, as long as the ovate lanceolate lobes of the flowers; bulbs clustered.

Habitat. Syria.

Quality, &c. As in the Rocambole.

5. A. Cepa Linnaus.—(Common Onion.)

Umbel not bulbiferous, globose; stem ventricose, leafy at the base; leaves terete; spathe reflexed; lobes of the flower obtuse, hooded, not half so long as the stamens; bulb solitary, flattened. Biennial.

Habitat. Egypt ?
Quality, &c. As in the last. "Raw Onions are occasionally taken with advantage, as an expectorant, by elderly persons affected with winter cough."—Pereira.

6. A. Schenoprasum Linnæus — (CHIVE.)

Umbel not bulbiferous, globose, compact; scape naked, as long as the subulate terete leaves; bulbs long, naked, small, clustered.

Habitat. Europe.

Quality, &c. As in the last.

7. A. fistulosum Linnæus.—(Welch Onion.)

Umbel not bulbiferous, globose; scape and leaves terete, fistular; stamens twice as long as the lobes of the flower; ovary 3-cornered. Perennial.

Habitat. Siberia.

Quality, &c. As in the common Onion; but very strong.

ASPARAGUS. Linnœus.

Caulescent. Flowers scattered. Sepals and petals herbaceous, partially united into a tube. stigmas 3, reflexed. Fruit succulent.

1. A. officinalis Linnæus.—(Asparagus.) Fig. 92.

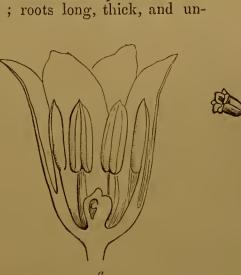
Stem unarmed, branched; false leaves setaceous; true leaves membranous, acute; peduncles lax, 1-flowered, drooping; roots long, thick, and un-

branched; young shoots covered with scales.

Habita'. Sea coast of Europe.

Quality. Diurctic; roots aperient.

Uses. Young succulent shoots a common esculent when boiled. Roots employed on the Continent for falsifying Sarsaparilla. A spirit has been obtained from the fermented berries.



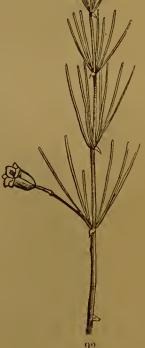


Fig. 92.—Asparagus officinalis; a, a section of its flower much magnified.

URGINEA. Steinheil.

Bulbous. Flowers racemose, stellate. Stamens distinct, perigynous.

Filaments subulate. Seeds numerous, flat, ascending.

1. U. Scilla Steinheil. Scilla maritima Linnæus.—(Officinal Squill.) Fig. 93.

Leaves appearing after the flowers; raceme verylong, many-flowered; bracts spurred at the base; flowers rotate.

Habitat. Sea coast of the Mediterranean.

Quality. Acrid, diuretic, expectorant, emetic, purgative.

Uses. Dropsies, chronic catarrh, asthma, hooping cough.

2. U. Pancration Steinheil. — (PANCRATIC SQUILL.)

Leaves shorter and narrower; scape more glaucous; flowers smaller and more compact; bulbs much smaller than in the last.

Habitat. The Mediterranean coast.

Quality and Uses. As in the last; but said to be milder in its effects. An obscure plant, supposed

to be the Πανκρατιον of Dioscorides.

Convallaria. Linnœus.

Caulescent. Flowers racemose, terminal.

Sepals and petals nearly separated, but forming a bell by their junction. Stigma obtuse, 3-cornered. Fruit succulent.

1. C. majalis Linnæus. — (Lily of the Valley.)

Scape naked; raceme one-sided; flowers campanulate, nodding.

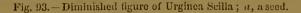
Habitat. Europe, in thickets and woods.

Quality. Rhizomes aerid, purgative, and diurctic.

Uses. The flowers are acrid; their powder forms a kind of eephalic snuff. Their distilled water is highly esteemed under the French name of ean d'or.

2. C. Polygonatum Linnæus.—(Solomon's Seal.)

The strong-smelling rhizomes of this plant are reputed to be soporific; at least they entered into the composition of what was called Solomon's opiate.



ALOE. Linnœus.

Caulescent. Leaves permanent, succulent. Flowers cylindrical. Stamens hypogynous. Ovules 00. Fruit a membranous capsule.

1. A. socotrina Haworth.—(SOCOTRINE ALOE.) Fig. 94.

Stem arborescent; leaves ensiform, green, with small white serratures; flowers yellow, or red and yellow.

94

Habitat. Island of Socotra.

Quality. Purgative, tonic, emmenagogue. Uses. Habitual costiveness, dyspepsia, irregular menses, worms, imperfect secretion of bile.

2. A. purpurascens Haworth.— (CAPE ALOE?)

Stem arborescent; leaves ensiform, glaucous, recurved at the point, with white serratures; flowers deep red.

Habitat. Cape of Good Hope. Quality and Uses. As in the last.

3. A. spicata Linnæus. — (CAPE ALOE.)

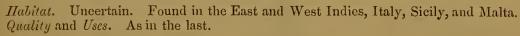
Stem arborescent; leaves ensiform, flat, dentate, spotted with white; flowers spiked, campanulate, horizontal, whitish.

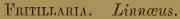
Habitat. Cape of Good Hope, Quality and Uses. As in the last.

4. A. vulgaris Lamarck. A. bar-badensis Miller.—(Barbadoes Aloe.)

Stem arborescent, throwing up many suckers from the base; leaves

ensiform, sinuate-serrated, white-spotted; flowers yellow.



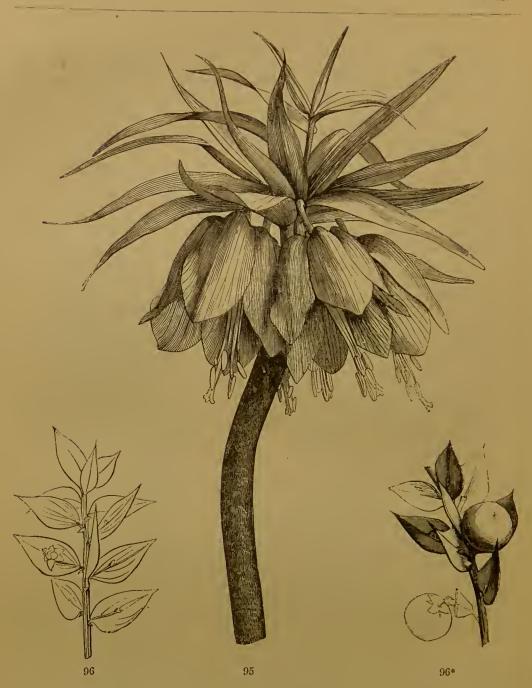


Bulbous. Sepals and petals campanulate, distinct, with a conspicuous honey-pore at the base. Style trifid at apex. Fruit a capsule. Seeds 00, thin, flat. Flowers often almost unisexual.

1. F. imperialis Linnæus.—(Crown Imperial.) Fig. 95.

Raceme short, comose; flowers nodding, with six large white honey pores at the base inside.

Habitat. Persia? Brought to Europe from Constantinople.
 Quality. Bulbs acrid, emetic, poisonous, with a peculiar heavy hireine smell.
 Uses. It is said that these bulbs are equally powerful as the corms of Colchieum.
 Orfila killed dogs by making them swallow pieces of the bulb.



Ruscus. Linnœus.

Caulescent. Flowers axillary, half unisexual. Sepals and petals distinct. Stigma capitate. Fruit Filaments monadelphous. Style 1. succulent.

1. R. aculeatus Linnæus.—(Butcher's Broom.) Fig. 96.

A straggling green shrub; false-leaves ovate, acute, spiny-pointed, rigid.

Habitat. Woods in Europe.

Quality. Roots bitter, subacrid, aperient, diuretic. An imperfect substitute for Sarsaparilla.

THE ALISMAL ALLIANCE (V. K., p. 207.)

Natural Orders of Alismals.

Butomats (Butomacew.) Carpels 00-seeded. Placentæ parietal. Alismate (Alismaceæ.) Carpels 1-2-seeded. Placentæ basal or sutural.

Natural Order, Butomads; Butomaceæ (V. K., p. 208.) Prevailing Quality. Acridity.

BUTOMUS. Linnœus.

Sepals and petals 6, coloured, half more petaloid than the others. Stamens 9. Carpels 6.



1. B. umbellatus Linnæus.— (Flowering Rush.) Fig. 97.

Leaves long, straight, ensiform, sheathing at the base; flowers rose-coloured, in an involucrated umbel.

Habitat. Ditches and ponds. Quality. Rhizome acrid, bitter, as well as the seeds; eaten among savages.

Natural Order, Alismads; Alismaceae (V. K., p. 209.)

Prevailing Quality. Aeridity.

SAGITTARIA. Linnœus.

Flowers monœcious. Sepals 3, herbaceous. Petals 3, coloured. Stamens 00. Carpels 00, compressed, one-seeded, on a globose receptacle.

1. S. chinensis Sims.—(CHINESE ARROWHEAD.)

Leaves deeply sagittate, acute; the basal lobes as long as the terminal one, ovate, acute, diverging; scape branched, polygonal; male flower terminal.

Habitat. Ditches and ponds in China. Quality. Subacrid; corms full of starch.

Uses. Sold in the markets of China and Japan as food.

2. S. sagittifolia Linnæus.—(Common Arrow-Head.)

Uses. This has been recommended, without reason, as a cure for hydrophobia.

CLASS V. DICTYOGENS (V. K., p. 211.)

The useful species of this Class are so few that it is not worth elassing them under their natural orders. The Genera alone are sufficient for the purpose of the student.

TAMUS. Linnœus.

(Order. Dioscoreaceæ.)

Ovary inferior. Fruit succulent.

> 1. T. communis Linnæus. — (Black Bryony.) Fig. 98.

Leaves cordate, undivided.

 Habitat. Hedges in all parts of Europe.
 Quality. Acrid, purgative, emetic.
 Uses. Fleshy roots used for stimulating plaisters. Nevertheless the young suckers, in which the acrid principle is not much developed, are eaten as Asparagus, after careful boiling, and changing the water.

DIOSCOREA. Linnœus.

(Order. Dioscoreaceæ, or Yams; V. K., p. 214.)

Ovary inferior. Fruit membranous, winged.

1. D. triphylla Linnæus.—(THREE-LEAVED YAM.)

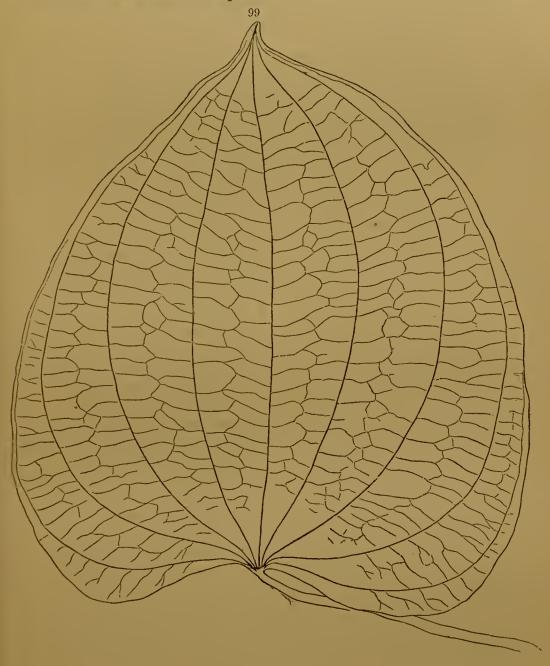
Somewhat prickly; leaves alternate, downy, ternate, with obovate enspidate leaflets.

Habitat. East Indies. Quality and Uses. Roots " dreadfully nauseous," even after being boiled.

2. D. sativa Linnæus.—(West Indian Yam.) Fig. 99. Not prickly; leaves alternate, smooth, cordate, with about 9 ribs, the angles of the base rounded.

Habitat. In Tropical America.

Quality and Uses. The great fleshy roots, filled with starch, are an important article of food in this and some other species.



SMILAX. Linnœus.

(Order. Smilaceæ; V. K., p. 215.)

Ovary superior. Fruit baccate.

1. S. medica Schlechtendahl.—(Vera Cruz Sarsaparilla.) Fig. 100.

Stem prickly, angular; leaves papery, cordate, auriculate, 5-ribbed, somewhat panduriform, occasionally tending to hastate; umbels about 12-flowered.

Habitat. Uplands of Mexico.

Quality. Diurctie, diaphoretie, emetie, alterative, tonie.

Uses. In venereal diseases, rheumatism, various skin diseases.

2. S. siphilitica Humboldt.—(Brazi-Lian Sarsaparilla.)

Stem slightly prickly, round; leaves leathery, oblong-lanceolate, acuminate, 3-ribbed.

Habitat. Woods of Tropical America. Quality and Uses. As in S. medica.

3. S. officinalis Kunth.— (Jamaica Sarsaparilla.)

Stem prickly, angular; leaves leathery, oblong, acute, cordate, 5-7-ribbed.

Habitat. Banks of Rio Magdaleua. Quality and Uses. As in S. medica.

4. S. aspera Linnæus.—(Italian Sarsaparilla.) Fig. 101.

Stem prickly, angular; leaves cordate, sometimes hastate; about 7-ribbed, leathery, prickly at the edge.

Habitat. South of Europe.

Quality and Uses. As Sarsaparilla, but of inferior quality.

5. S. China Linnæus.—(CHINA ROOT.) Fig. 102.

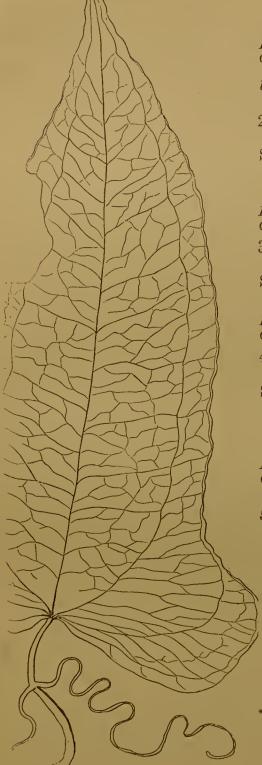
Stem prickly, round; leaves thin, roundish, oblong, about 5-ribbed, acute; rhizome tuberous.

Habitat. China.

Quality. Rhizome sub-astringent, diaphoretic.

Uses. As Sarsaparilla, and also caten as food, ou account of the abundance of its starch.

** According to Dr. Hancock, there is but one species of Smilax that yields genuine Sarsaparilla. This grows chiefly on the clevated lands of the Rio Imiquen, at Unturana and Caraburi; but it is constantly adulterated with inferior sorts.



100

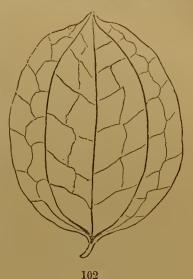
Fig. 100 - Leaf of Smilax medica.

Dr. Haneock says that the Sarsa of the Rio Negro, which comes by way of Angostura or Para is the best, and this is certainly not Willdenow's S. siphilitica; the true



species has no axillary spines. It appears that of six or eight species of Smilax growing in the woods of Guayana, but one is found to manifest to the taste any of the sensible properties of the genuine medieinal Sarsa; the root being insipid and inert; that one Dr. Hancoek describes thus:—

"The stem is round, armed with short eurved spines. The leaves are oblong, pointed, distant, smooth, and glossy. The root is a tuber with numerous divergent fibres of 2 or 3 lines in thickness and several feet in length."



CLASS VI. GYMNOGENS (V. K., p. 221.)

Natural Orders of Gymnogens.

Cycadeaceæ.) Stem simple.

Confers (Pinacece.) Stem branched. Females in cones.

Tarads (Taxaceæ.) Stem branched. Females solitary.

Natural Order, Cycades; Cycadeacee (V. K., p. 223.)

Prevailing Quality. Bitter, nutritious.

Zamia. Linnœus.

Males and Females both in cones, composed of woody scales, with a truncated hexagonal apex. Seeds two to each scale.

1. Z. tenuis Willdenow.

Leaflets linear, tapering to the base, obtuse, with 1 or 2 teeth on the edge, below the end; petiole triquetrous, smooth.

Habitat. Bahamas.

Quality and Uses. The dwarf fleshy trunk yields with the following an abundance of pure starch, used as a fine arrow-root in the Bahamas.

2. Z. furfuracea Aiton.

Leaflets lanceolate, acute, pointless, serrated from the middle up to the point; petiole terete, prickly.

Habitat. The West Indies.

Quality and Uses. The same as in the last.

Dion. Lindley.

Female cone composed of flat lanceolate woolly seales, cordate at the base, and bearing two seeds.

1. D. edule Lindley.

Leaflets sword-shaped, very sharp, attached to the petiole by their whole base; seeds as large as Chesnuts.

Habitat. Lowlands of Mexico.

Quality and Uses. The seeds yield a large quantity of starch, used as arrow-root in Mexico.

CYCAS. Linnœus.

Males in cones, with an acute thickened apex. Females bearing woolly pinnatifid leaves, on the edge of which the seeds stand singly.

1. C. circinalis Linnæus.

Leaflets linear-laneeolate, flat (not revolute at the edge.)

Habitat. East Indies.

Quality. Gummy, amylaecous.

Uses. A sago-like flour extracted from the secds; the dry gum produces rapid suppuration in malignant ulcers.

Natural Order, Conifers; Pinacece (V. K., p. 226.)

Prevailing Quality. Resinous, terebinthinous.

Pinus. Linnœus.

Flowers monœcious.

103

Cones woody, with numerous 2-seeded seales, having an angular truncated apex. Leaves accrose, in elusters of from 2 to 5, surrounded by searious seales at the base.

1. P. Pinea Linnæus.—(Stone Pine.)

Leaves in pairs; eones obtuse, somewhat round, with unarmed seales; seeds large, oblong.

Habitat. South of Europe. Quality. Irritant, stimulant, diurctic.

Quality. Irritant, stimulant, diurctic.

Uses. Seeds an article of dessert, under the name of Pignons.

2. P. sylvestris Linnæus.—(Scotch Fig.) Fig. 103. Leaves in pairs, rather spreading, short, glaueous; eones ovate, eonical, about as long as the leaves, recurved; a large tree.

Habitat. North of Europe.

Quality. As in No. 1.
Uses. Yields common turpentine, tar, and pitch; also red deal.

3. P. Pumilio Waldstein.—(The Mugho Pine.)

Leaves in pairs, adpressed, short, dark green; cones short, ovate, obtuse, erect; a trailing bush.

Habitat. Alps of Europe.

Quality. As in No. 1.

Uses. Yields Hungarian Balsam.

4. P. Pinaster Aiton.—(Cluster Pine.)

Leaves in pairs, dark green, long, stiff, and straight; cones oblong, conical, whorled, pendulous, with prickly scales.

Habitat. South of Europe.

Quality. As in No. 1.

Uses. Yields Bourdeaux turpentine. Wood of bad quality.

Abies. Tournefort.

Flowers monecious. Cones woody, with numerous 2-seeded scales, having a flat rounded apex. Leaves single, or, if clustered, indefinite in number.

1. A. excelsa Lindley.—(Common Spruce.)

Leaves 4-cornered, distichous; cones cylindrical, long, pendulous, with the end rounded and uneven.

Habitat. North of Europe. Quality. As in Pinus No. 1.

Quality. As in Pinus No. 1.

Uses. Yields frankingense and Burgundy pitch; also white Norway deal. Leaf buds in scurvy, rheumatism, gout.

2. A. Larix Lamarck.—(The Larch.) Fig. 104.

Leaves deciduous, clustered; cones short, ovate-oblong, loose, erect, with uneven-edged scales.

Habitat. Alps of Europc.
Quality. As in Pinus No. 1.
Uscs. Yields Venice turpentine, Larch manna,
Oxenburgh gum. Bark abounds in tannin.

3. A. nigra Lindley.—(Black Spruce.)

Leaves 4-cornered, straight, erect, dark glaucous green; cones short, ovateoblong, pendulous, with scales uneven at the edge.

Habitat. North America.

Quality. Diuretic, antiscorbutic.

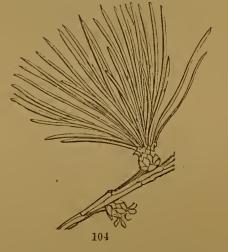
Uses. Yields essence of spruce; the basis of spruce-beer.

4. A. Balsamea Marshall. — (Balm of GILEAD FIR.)

Leaves flat, somewhat pectinate in arrangement, emarginate, whitish beneath; cones cylindrical, erect, with acuminate reflexed scales.

Habitat. North America. Quality. As in Pinus No. 1. Uses. Yields Canada Balsam.

5. A. Picea Lindley. A. pectinata DC.—(Silver Fir.)



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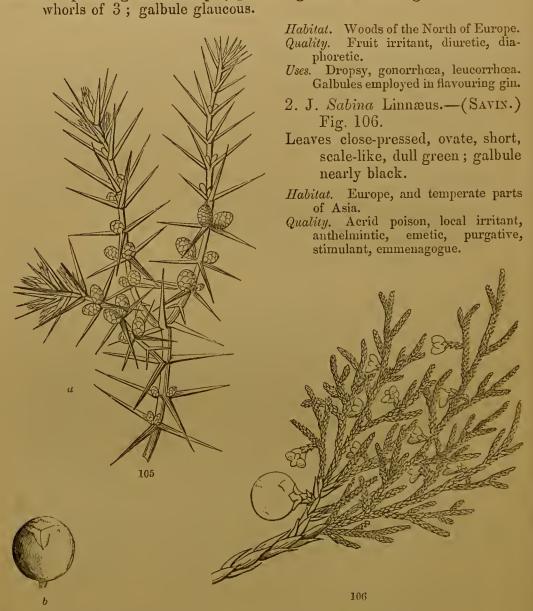
Habitat. Alps of Europe.
Quality. As in Pinus No. 1.
Uses. Yields Strasburgh turpentine.

JUNIPERUS. Linnœus.

Flower's diceious or monceious. Cones ripening into fleshy galbules.

1. J. communis Linnæus.—(Common Juniper.) Fig. 105.

Leaves spreading, accrose spiny-pointed, glaucous above, green below, in



Uses. Amenorrhoa, chlorosis, chronic rheumatism; perpetual blisters.

3. J. Oxycedrus Linnæus.

Leaves spreading, broad, 3-veined, pungent, in whorls of 3 and 4; galbule rufous, the size of a hazel-nut.

South of Europe.

Quality. Diuretic, emmenagogue, powerfully stimulant.

Uses. Its feetid oil employed in veterinary practice. Wood durable and fragrant.

Callitris. Ventenat.

Flowers monecious. Cones woody, of 4-6 scales, with from 3 to 6 seeds to each scale.

1. C. quadrivalvis Ventenat.—(SANDARACH TREE.)

A vast tree; branches straggling, jointed, brittle, naked, furrowed, with whorls of small ovate scales at the joints; cones small, purple, glaucous, 4-lobed.

Habitat. Mountains of Morocco.

Quality. Dry juice a brittle resin.

Uses. Resin forms pounce when bruised; varnishes; timber fragrant, hard, durable, mahogany-coloured.

Natural Order, Taxats; Taxaceæ (V. K., p. 230.)

Prevailing Quality. Narcotic.

Taxus. Linnœus.

Seed solitary, terminal, surrounded by a succulent cup.

1. T. baccata Linnæus.—(YEW TREE.) Fig. 107.

Leaves distichous, flat, linear, with a stout midrib.

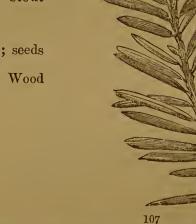
Habitat. All the north of Europe.

Quality. Narcotic; pulp of fruit harmless; seeds and leaves a dangerous poison.

Uses. Leaves a substitute for Digitalis. Wood very durable, tough, and elastic.







N.B.—There is some uncertainty concerning the circumstances under which the Yew is deleterious. The pulpy covering of the seeds is certainly harmless; and it is asserted that the seeds themselves are innoxious; but although their hard bony shell may guard the kernel so as to prevent its action on the stomach, it is unquestionable that they are a dangerous poison when crushed. Sheep and other animals browse on the leaves in winter with impunity; but if the leaves become partially dried they acquire even then their noxious qualities. The whole question demands renewed and careful experiment.

CLASS VII. EXOGENS (V. K., p. 235.)

Among the numerous Alliances in this Class, the following only demand the early attention of the student. They are here distinguished by their usual characters, which suffice for the identification of common plants:—

* Sub-class 1. Diclinous.

- AMENTALS. Males in catkins. Carpels more than 1, superior, consolidated. Albumen 0.
- URTICALS. Males scattered. Carpels 1 only, superior.
- EUPHORBIALS. Males scattered. Carpels more than 1 (3), superior, consolidated. Albumen much.
- MENISPERMALS. Males scattered. Carpels more than 1, superior, disunited.
- QUERNALS. Males in catkins. Carpels more than 1, inferior, consolidated. Placentæ axile.
- CUCURBITALS. Males scattered. Carpels more than 1, inferior, consolidated. Placentæ parietal.

Sub-class 2. Hypogynous.

- VIOLALS. Stamens definite, equal. Flowers dichlamydeous. Placentæ parietal.
- (Brassicaceæ. Stamens definite, tetradynamous; see Cistals.)
- SAPINDALS. Stamens definite. Flowers dichlamydeous, unsymmetrical in the stamens. Placentæ axile.
- BERBERALS. Stamens definite. Flowers dichlamydeous, unsymmetrical in the ovary.
- ERICALS. Stamens definite. Flowers dichlamydeous, symmetrical.
 Anthers porous.
- RUTALS. Stamens definite. Flowers dichlamydeous, symmetrical.
 Anthers slit. Petals flat.
- GERANIALS. Stamens definite. Flowers dichlamydeous, symmetrical.
 Anthers slit. Petals twisted.
- SILENALS. Stamens definite. Flowers monodichlamydeous. Carpels more than 1. Placenta free central.
- CHENOPODALS. Stamens definite. Flowers monochlamydeous. Carpel only 1. Placenta free central.
- PIPERALS. Stamens definite. Flowers achlamydeous.
- MALVALS. Stamens 00. Flowers dichlamydeous. Calyx valvate.

^{*} There are 4 Sub-classes of Exogens. 1. Diclinous, in which the flowers are always unisexual; 2, 3, 4, in which they are usually hermaphrodite, 2 having the stamens Hypogyneus, 3 Perigynous, and 4 Epigynous.

CISTALS. Stamens 00. Flowers dichlamydeous. Calyx imbricated. Embryo curved or spiral, exalbuminous. Carpels consolidated.

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- RANALS. Stamens 00. Flowers monodichlamydeous. Calyx imbricated. Embryo minute, straight. Carpels usually disunited.
- GUTTIFERALS. Stamens 00. Flowers dichlamydeous. Calyx imbricated. Placentæ axile.

Sub-class 3. Perigynous.

FICOIDALS. Polypetalous or apetalous, with an external annular embryo.

DAPHNALS. Apetalous. Carpel solitary.

RHAMNALS. Polypetalous or apetalous. Seeds definite. Carpels consolidated.

ROSALS. Polypetalous or apetalous. Seeds definite. Carpels disunited.

SAXIFRAGALS. Polypetalous or apetalous. Seeds 00.

GENTIANALS. Monopetalous. Placentæ parietal.

CORTUSALS. Monopetalous. Placentæ free central.

SOLANALS. Monopetalous. Capsular or baccate. Symmetrical. Placentæ axile.

BIGNONIALS. Monopetalous. Capsular or baccate. Unsymmetrical. Placentæ axile.

ECHIALS. Monopetalous. Nucamentaceous.

Sub-class 4. Epigynous.

CAMPANALS. Monopetalous. Styles with collecting hairs. Albumen little.

CINCHONALS. Monopetalous. Styles without collecting hairs. Albumen much.

MYRTALS. Polypetalous. Stamens indefinite. Placentæ axile.

CACTALS. Polypetalous. Stamens indefinite. Placentæ parietal.

GROSSALS. Polypetalous. Stamens definite. Seeds 00.

UMBELLALS. Polypetalous. Stamens definite. Seeds solitary or nearly so.

ASARALS. Apetalous.

THE AMENTAL ALLIANCE (V. K., p. 248.)

Natural Orders of Amentals.

Birthworts (Betulaceæ.) Ovary 2-celled. Ovule 1, pendulous. Liquitambars (Altingiaceæ.) Ovary 2-celled. Ovules 00, winged. Willaw-worts (Salicaceæ.) Ovary 1-celled. Ovules 00, cottony.

Natural Order, Birthworts; Betulaceæ (V. K., p. 251.)

Prevailing Quality. Astringent, subacrid.

ALNUS. Tournefort.

Stamens 4. Nuts angular, wingless.

1. A. glutinosa Gærtner.—(The Alder Tree.) Fig. 108.

Leaves roundish, very obtuse, wedge-shaped at the base, with the axils of the veins of the underside

bearded.

Habitat. Marshy places in Europe. Quality. Bark astringent, tonic. Uses. Gargles, ague, &e.

BETULA. Linnœus.

Stamens, 10-12. Nuts winged. 1. B. nigra Linnæus. — (The BLACK BIRCH.)

Leaves ovate-rhomboid, doubly serrated, downy beneath, entire at the base; scales of female catkins downy.

Habitat. North America. Quality. Bark aerid, balsamic. very hard and valuable.

2. B. alba Linneus. — (The Common Birch.)

Leaves somewhat rhomboid, doubly serrated, smooth; scales of female catkins hairless.



Habitat. North of Europe. Bark yields the empyreumatie birch oil.

Quality. Bark yields the empyreumatic birch on.

Uses. Employed in dressing Russia leather; timber of inferior quality.

Natural Order, Liquidambars; Altingiaceæ (V. K., p. 253.) Prevailing Quality. Aerid aromatic.

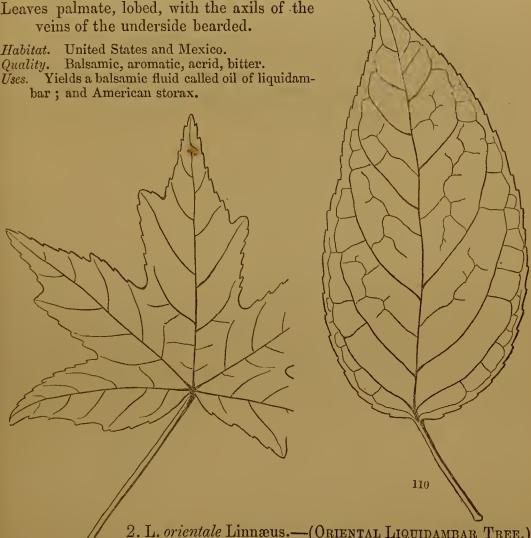
LIQUIDAMBAR. Linnœus.

Stamens 00. Female catkins globose. Capsules Flowers monæcious. 2-celled, many-seeded.

1. L. styraciflua Linnæus.—(AMERICAN LIQUI-DAMBAR TREE.) Fig. 109.

Leaves palmate, lobed, with the axils of the veins of the underside bearded.

Habitat. United States and Mexico.



2. L. orientale Linnæus.—(ORIENTAL LIQUIDAMBAR TREE.) Leaves palmate, lobed, with the axils of the veins of the underside hairless.

Habitat. Levant.

Quality. Bark hot, bitter, stomachic.

Uses. Yields common liquid storax, a stimulant expectorant; used in gonorrhoa, leucorrhoa, amenorrhoa, plithisis, asthma, &c.

3. L. Altingia, Blume. Fig. 110.

Leaves ovate, lanceolate, acuminate, serrated.

Habitat. Woods of Java.

Quality and Uses. Yields the fragrant stimulating liquid storax, or Rasamala of the Malay Archipelago.

Natural Order, Willow-worts; Salicaceae (V. K., p. 254.)

Prevailing Quality. Tonic, astringent, aromatic.

Populus. Linnaus.

Flowers furnished with an oblique, cup-shaped calyx. Stamens 8 or more. 1. P. nigra Linnæus.—(BLACK POPLAR TREE.) Fig. 111.

Leaves smooth on each side, serrated, somewhat rhomboid, acuminate, longer than broad.

Habitat. North of Europe.
Quality. Buds aromatic, bitter, resinous; diuretic, antispasmodic.

Uses. In ointment against tumours, wounds, and burns; balsam and tincture against

2. P. balsamifera Linnæus.—(Balsam Poplar.)

Leaves ovate, acuminate, with close serratures, white and netted beneath; buds very resinous.

Habitat. United States.

Quality and Uses. As in the last; Tacamahac obtained from the buds.

SALIX. Linnœus.

Flowers absolutely naked. Stamens 1-5.

1. S. pentandra Linnæus.—(Sweet Willow.) Fig. 112.

Stamens 5-10; scales of catkins whole-coloured, deciduous; leaves ovate-oblong, closely ser-





rated, very smooth, with ovate-oblong equilateral straight stipules.

Habitat. Woods of Europe.

Quality. Bark bitter, astringent, tonic, febrifugal.

Uscs. Dyspepsia, intermittents, &c.

The most aromatic of the Willows.

Fig. 111.—Populus nigra; 112. Salix pentandra.

2. S. Russelliana Smith.—(Bedford Willow.) Fig. 113.

Stamens 2; scales of catkins whole coloured, decidnous; the hypogynous gland much shorter than its stalk; leaves lanceolate, acuminate, smooth, silky only when young, serrated.

Habitat. Woods and meadows of England. Quality and Uses. As in No. 1. By some regarded as the best medicinal Willow.



3. S. vitellina Linnaus.—(Golden Willow). Fig. 114. Stamens 2; scales of catkin whole coloured, deciduous; hypogynous gland

very short, yet as long as its stalk; leaves lanceolate, acuminate, serrulate, silky on both sides; branches bright yellow.

Habitat. Meadows of Europe.

Quality and Uses. As in No. 1, but weaker.

4. S. purpurea Linnæus. S. Helix Linn. a variety. Fig. 115.

Stamen 1; gland longer than the base of the ovary; leaves lanceolate, finely serrulate, smooth, flat.

Habitat. Meadows of Europe.

Quality and Uses. As in No. 1; its bark intensely bitter.

Fig. 113.—Salix Russelliana; 114. Diminished figure of Salix vitellina; α , the under side of a leaf, natural size; 115. Salix purpurea.

THE URTICAL ALLIANCE (V. K., p. 258.)

Natural Orders of Urticals.

Acttlewarts (Urticaceæ.) Ovule erect. Embryo straight. Juiee watery.

Mempworts (Cannabinaceæ.) Ovule suspended. Juice watery.

Moracece.) Ovule suspended. Juice milky.

Artocarpads (Artocarpaceæ.) Ovule suspended. Embryo straight. Juice milky.

Natural Order, Acttleworts; Urticaceæ (V. K., p. 260.)

Prevailing Quality. Aerid; narcotie.

URTICA. Linnœus.

Male: Calyx 4-parted. Stamens 4, elastie. Female: Calyx 2-parted. Stigma sessile, eapitate, peneilled.

1. U. dioica Linnæus.—(LARGER STINGING NETTLE.)

Leaves coarsely serrated; panieles axillary, longer than the petioles.

Habitat. Waste places.

Quality. Poisonous, acrid; astringent, diuretic.

Uses. Young shoots in broth; flogging with nettles in arthritis and paralysis.

Parietaria. Linnœus.

Calyx of both sexes 4-parted. Style filiform. Stigma eapitate, peneilled. 1. P. officinalis Linnæus.—(WALL PELLITORY.)

Leaves ovate; stems prostrate, spreading, branched.

Habitat. Old walls all over Europe. Quality. Diuretic, lithontriptic.

Uses. In calculous and urinary affections; in dropsies.

Natural Order, Mempworts; Cannabinaceæ (V. K., p. 265.)

Prevailing Quality. Nareotic.

CANNABIS. Linnœus.

Flowers directions. Male: Calyx 5-parted. Stamens 5. Female: Calyx 1-leaved, rolled up. Styles 2.

1. C. sativa Linnæus.—(Hemp.) Fig. 116.

Leaves digitate, serrated; flowers axillary.

Habitat. India and Persia.

Quality. Stimulant, narcotic; allays pain; excites appetite; a certain aphrodisiac; produces catalepsy; causes delirium.

Uses. Rheumatism, tetanus, hydrophobia, cholera.

Humulus. Linnœus.

Flowers diecious. Male: Calyx 5-parted. Stamens 5. Female: Flowers in cones. Calyx scale-like, partially rolled up.

1. H. Lupulus Linnæus.—(The Hop.) Fig. 117.

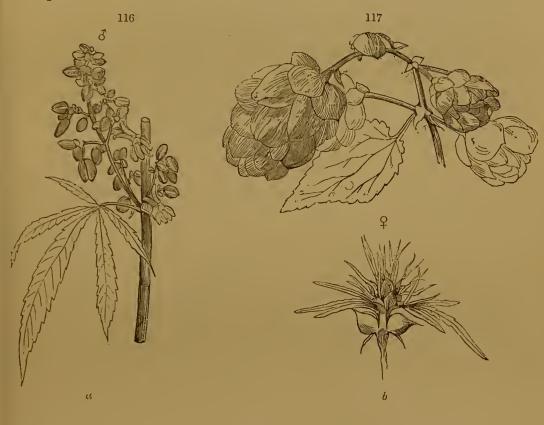
A twiner; leaves undivided, coarsely serrated, with harsh hairs.

Habitat. Hedges of Europe.

Quality. Narcotic; lupuline, aromatic, tonic; sedative.

Quality. Narcotic; Iupuline, aromatic, tonie; sedanie.

Uses. Pillows of hops in mania and restlessness; dyspepsia; in the preparation of malt liquor.



Natural Order, Morace (V. K., p. 266.)

Prevailing Quality. Acrid; narcotic; with elastic gum.

Ficus. Linnœus.

Flowers within a closed turbinate fleshy receptacle.

I. F. elastica Roxburgh.—(BENGAL INDIA-RUBBER TREE.)

Leaves stalked, oblong, acute, glossy, with numerous fine diverging veins and a stout midrib; fruit not eatable.

Habitat. Forests of Sylhet.

Quality. Milky juice acrid, tenacious.

Uses. Forms a large part of the caoutchouc exported from Bengal.

2. F. Carica Linnaus.—(Common Fig.)

Leaves cordate, palmate, scabrous on the upper side, downy on the lower.

Habitat. Levant.

Quality. Fruit nutritive, emollient, demulcent, laxative; apt to disorder the stomach; when young, acrid.

Uses. Food; heated and split open for gumboil, &c.; added to barley water in pulmonary and nephritic affections; forms part of the confection of schna.

Morus. Linneus.

Calyx 4-parted. Stamens 4. Styles 2. Fruit, a spike, composed of the succulent conglomerated axis, calyxes and earpels.

1. M. nigra Linnæus.—(The MULBERRY TREE.)

Leaves eordate, ovate, undivided or lobed, serrated, rough; fruit sessile, purple.

Habitat. Persia.
Quality. Fruits alimentary; allay thirst; diminish febrile heat; laxative.

Uses. A common dessert fruit; as a colouring substance.

Dorstenia. Linnœus.

Flowers monecious, naked, plunged in sockets of a plane receptacle. Stamens 2. Carpels becoming dry loose achænia.

1. D. Contrayerva Linnæus.—(Contrayerva.) Fig. 118.

Caulescent; leaves palmate, with deeply serrated or almost pinnatifid aeuminate lobes; receptacle somewhat quadrangular.

Habitat. Tropical America.

Quality. Rhizome stimulant, tonic, diaphoretie; emetic; keeps badly.

Uses. Low fevers, and where mild stimulants

arc required.

2. D. brasiliensis Lamarck.

Stemless; leaves eordate, oblong, obtuse, serrated; receptaele eireular, erenated.

Habitat. West Indies and Brazil.

As iu No. 1; also emetic. Said to be the most energetic Quality. species.

> Natural Order, Artocarpaceæ (V. K., p. 269.)

Prevailing Quality. Acrid; narcotic.

118

ARTOCARPUS. Linnœus.

Male Flowers in catkins, with 1 stamen and 2 sepals. Females naked, becoming a roundish fleshy tuberculated fruit.

1. A. incisa Linnans.—(The Bread-Fruit Tree.)

Leaves pinnatifid, sinuated, scabrous, downy on the under side; male catkins nodding.

Habitat. Islands of the Pacific, and Indian Archipelago.

Uscs. The large fruit nutritious when sliced and dried; filled with a tenacious white milk before becoming ripe.

Antiaris. Leschenault.

Males on a mushroom-like receptacle, with 3 or 4 sepals, and as many sessile anthers. Females solitary, becoming fleshy drupes.

1. A. toxicaria Leschenault.—(The UPAS

Tree.) Fig. 119.

Leaves oval-oblong, acute, hairy on both sides, especially on the main veins, slightly serrated; male receptacles stalked.

Habitat. East Indies.

Quality. Juice an acrid poison; emetic; causes convulsions.

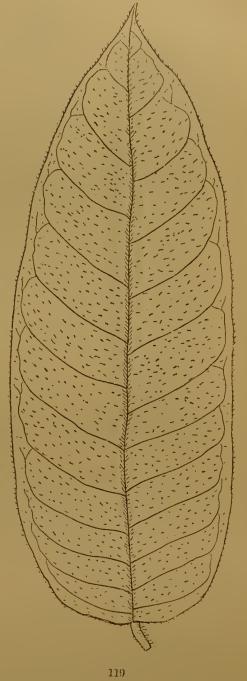
Uses. Poisons weapons; its fibre woven into coarse linen.

N.B.—The fables current concerning the action of the plant are a mixture of truth connected with distinct natural phenomena in Java, and the real properties of the plant. That its emanations are occasionally noxious is an undoubted feet though programmed and the statement of the plant. fact, though excessively exaggerated.

THE EUPHORBIAL ALLIANCE (V. K., p. 272.)

Natural Order, Spurgeworts: Euphorbiacece (V. K., p. 274.)

Prevailing Quality. Acrid; emetic.



Euphorbia. Linnœus.

Monacious. Flowers naked; males monandrous, surrounding a 3-coccous stalked female; the whole placed within a cup-shaped involucre.

1. E. officinarum Linnæus.—(Euphorbium Bush.) Fig 120. Leafless; stems succulent, tufted, prickly, with many angles; prickles in pairs, thick and strong.



Habitat. West of Barbary.

Quality. Resin violently acrid, narcotic, emetic, drastic.

Uses. Dropsy; as an errhine in chronic affections of the ears, eyes, or brain. Dangerous; mixed with cantha-rides, it forms "gout plaister."

2. E. antiquorum Linnæus.—(Euphorbium Bush.) Leafless; branches succulent, spreading, triangular, or quadrangular, with sinuated angles; prickles in pairs.

Habitat. West of Barbary.

Quality. Resin violently aerid, narcotic, emetic, drastic.

Uses. Dropsy; as an errhine in chronic affections of the ears, eyes, or brain. Dangerous; mixed with cantharides, it forms "gout plaister."

3. E. hiberna Linnæus.—(Winter Spurge.) Bracts and leaves ovate or elliptical, entire, obtuse; glands of involucre reniform; eapsule muricated; seeds smooth, somewhat shining.

Habitat. Ireland, and south-west of England. Uses. Root in venereal diseases. A fish-poison.

4. E. Peplus Linnæus.—(Petty Spurge.) Leaves broadly ovate, somewhat emarginate, stalked; glands of involuere with long horns; capsule smooth, with a double keel at each angle; seeds pitted.

Habitat. A common weed everywhere. Uses. Dried herb once used as a powerful purgative.

5. E. Cyparissias Linnæus.—(Cypress Spurge.)

Leaves linear, entire, smooth; glands of involucre with 2 horns; capsule dotted and rough at the angles; seeds smooth.

Habitat. Woods of Europe. Quality. A virulent poison. Uses. An unsafe purgative.

6. E. Gerardiana Jacquin.

Leaves glaucous, linear, mucronate, entire, smooth; glands of involucre undivided; capsule smooth or nearly so; seeds smooth.

Habitat. Europe, in fields and by roadsides. Quality. Root cathartic and emetic.

Uses. Said to be the best of the European Euphorbias.

7. E. Ipecacuanha Linnæus.—(American Ipecacuanha.)

Roots deep, large and fleshy; leaves opposite, sessile, oblong, smooth; involucres solitary, axillary, on long stalks, with 5 blunt segments and 5 intermediate glands.

Habitat. Sandy places in North America. Quality. Emetic, purgative, diaphoretic; apt to produce hypercatharsis. S. E. Lathyris Linnaus.—(CAPER SPURGE.) Fig. 121.

Leaves opposite, decussate, oblong, sessile, the uppermost cordate; glands

of involucre with 2 horns; capsules wrinkled, spongy; seeds articulated, wrinkled.

Habitat. Europe, in woods; common in cottagers' gardens.Quality. Violently acrid, narcotic.Uses. Oil of seeds a substitute for Croton oil. Bark of root also employed.

Buxus. Linnœus.

Flowers monecious. Males:
with about 4 unequal membranous sepals. Stamens
4. Females: central, of several imbricated scales.
Capsule 3-horned.

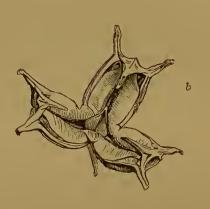
1. B. sempervirens Linnæus.

—(The Box Tree.) Fig.

Leaves evergreen, roundish, smooth, with a separable inferior epidermis; petioles and young branches slightly downy.







122

Habitat. Chalk-hills of Europe.

Quality. Bitter, nauseous, sudorific, purgative, acrid.

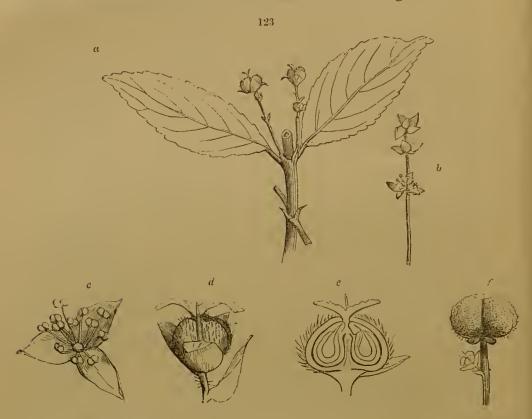
Uses. The empyreumatic oil and chips of wood in syphilis and chronic rheumatism; the first against toothache.

MERCURIALIS. Linnœus.

Sepals 3-4. Stamens 8 or more, with distinct filaments, and separate roundish anther-lobes. Styles 2. Fruit 2-celled, with solitary seeds.

Fig. 121.—Euphorbia Lathyris in fruit; 122. a, Buxus sempervirens; a branch in flower; b, the ripe fruit split open.

1. M. perennis Linnæus.—(Dog Mercury.) Fig. 123. Leaves ovate-oblong or lanceolate; female flowers on long stalks.



Habitat. Waste places and plantations. Quality. Very poisonous. Uses. A dangerous emetic.

2. M. annua Linnæus.

Leaves ovate-lanceolate or ovate; female flowers nearly sessile.

Habitat. Waste places among rubbish. Quality and Uses. As in the last, but more mild.

JANIPHA. Kunth.

Calyx campanulate, 5-parted. Stamens 10, distinct, alternately shorter. Stigmas 3, many-lobed. Fruit 3-celled, with solitary seeds.

1. J. Manihot Kunth. Jatropha Manihot Linnæus. Manihot utilissima Pohl.—(Mandioc Plant.) Fig. 124.

Root large, tuberous; leaves stalked, palmate, with lanceolate acuminate entire segments, glaucous beneath.

 $\begin{array}{ll} \textit{Habitat.} & \textbf{Brazil.} \\ \textit{Quality.} & \textbf{Recent juice narcotic, acrid ; faccula nutritious, emollient, demulcent.} \\ \textit{Uses.} & \textbf{The faccula forms cassava, tapioca, light digestible substances.} \end{array}$

CROTON. Linnœus.

Calyx 5-parted. Petals 5 in the males. Stamens 10 or more, distinct.

Fig. 123.—Mercurialis pereunis; a, β ; b, δ ; c, unle flower magnified; d, female flower ditto; c, perpendicular section of ditto; f, ripe fruit.

Styles 3, forked or many-parted. Capsules 3-coccous, with one seed in each cell. 1. C. Eleuteria Swartz.— (Cascarilla Bush.) Fig. 125. A small tree; leaves ovate, obtuse, entire, beneath silvery and densely downy; racemes axillary and terminal, compound; flowers subsessile, monæcious. Habitat. Bahamas. Bark aromatic, bitter, tonic; narcotic? Quality. Uses. Dyspepsia, low fevers, intermittents, diarrhœa, dysentery. 2. C. pseudo-China Schlechtendahl. —(COPALCHE BUSIL.) Leaves cordate-ovate, acuminate, 3-5-nerved, nearly entire, silvery on the under side; racemes axillary, simple, monæcious. Habitat. Mexico. Quality and Uses. As in No. 1. 124

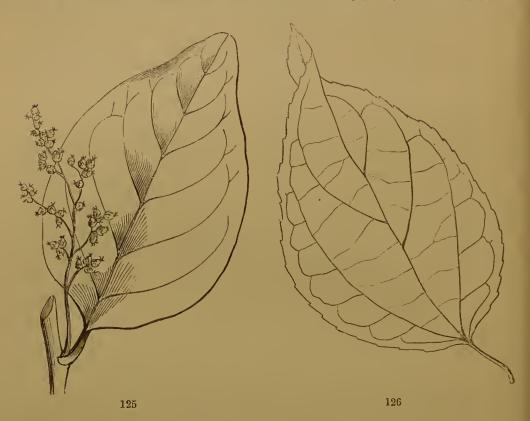
Fig. 124.--Leaf of Janipha Manihot. G $\,2\,$

3. C. Tiglium Lamarck. Fig. 126.

A small tree; leaves oval-oblong, acute, 3-5-nerved, acuminate, with shallow glandular serratures, thin and membranous, with 2 glands at the basc.

Habitat. East Indies.

Quality. Oil of seeds a powerful irritant, drastic, cathartic; poisonous. Uses. Mania, obstinate constipation, stereoraceous vomiting, paralysis, hydrocephalus.



4. C. Pavana Hamilton.—(TILLY SEED.) Leaves ovate, obtuse at the base, smooth, with all the veins alternate.

Habitat. Indian Archipelago, Ava, &c. Quality and Uses. As in C. Tiglium.

5. C. Draco Schlechtendahl.—(Mexican Dragon's Blood.)

All covered with starry coarse hairs; leaves cordate, acuminate, minutely toothed, with 4 glands at the apex of the petiole; racemes very long, interrupted.

Habitat. Mexico. Quality. Juice hardens into a kind of Dragon's blood, called Sangre del drago. Uses. A vulnerary and astringent in Mexico.

6. C. balsamiferum Linnaus.

A rusty, downy, resinous, balsamic shrub; leaves ovate-lanceolate, obtuse. with two cup-shaped glands at the base; spikes terminal compact.

Habitat. West Indies. Uses. A spirituous liquor, called Eau de Mautes, used in irregular menstruation, is distilled from it.

CROZOPHORA. Necker.

Calyx 5-parted, and Petals 5 in the males. Stamens 5-10, unequal, connate. Calyx 10-parted, and Petals 0 in the females. Styles 3, forked. Capsule tricoccous, with 1 seed in each cell.

1. C. tinctoria Necker. Croton tinctorium Linnæus.—

(Turnsole.) Fig. 127.

A hoary annual; leaves ovate-rhomboidal, repand, toothed, and crisp at the edge, about the same length as their stalk.

Habitat. Coast of the Mediterranean. Quality. Juice rendered blue by ammonia and air. Uses. Linen dipped in it a test for acids.

RICINUS. Linnœus.

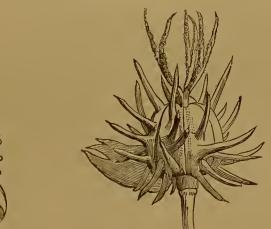
Calyx 3-5-parted. Petals 0. Stamens 00, with the filaments irregularly united into branches. Style 1. Stigma forked, feathery. Capsule 3-coccous, with I seed in each cell.

1. R. communis Linnæus. — (Castor Oil Plant.) Fig. 128.

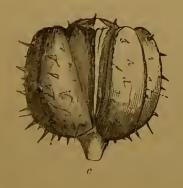
Stem glaucous; leaves peltate, deeply divided into 7 ovate, serrated, acuminate segments; flowers in long glaucous racemes.

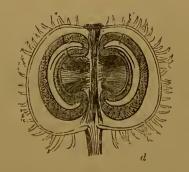
> Habitat. East Indies. Quality. Oil of seeds purgative.

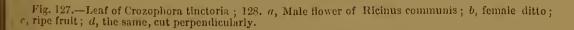
> Uses. Inflammation of bowels, obstructions, worms, &c., wherever a brisk purgative is demanded.

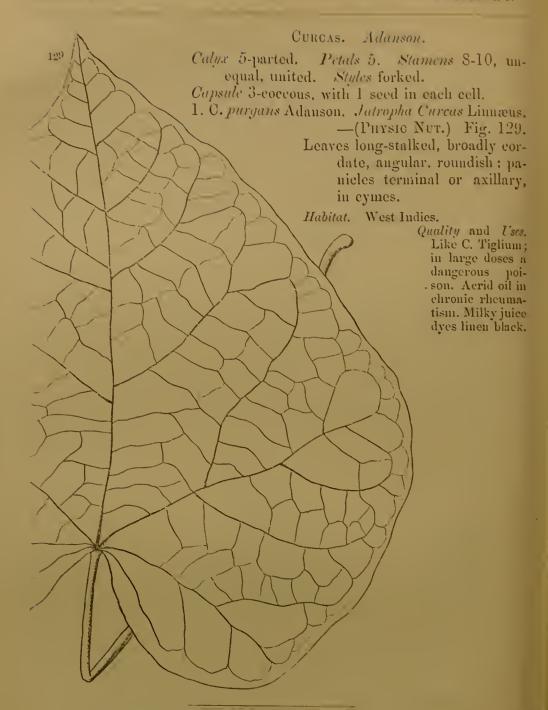












THE MENISPERMAL ALLIANCE (V. K., p. 297.) Natural Orders of Menispermals.

Autmegs (Myristicacew.) Albumen ruminated. Sepals united into a valvate cup.

Menispermats (Menispermacew.) Albumen solid. Sepals distinct, imbricated.

Natural Order, Autmegs; Myristicacece (V. K., p. 301.) Prevailing Quality. Aroma, acridity.

Myristica. Linnœus.

Calyx 3-toothed. Anthers 6-10, connatc. Stigma sessile. Seed surrounded by an aril, within a fleshy 2-valved pericarp.

1. M. moschata Thunberg.—(NUTMEG TREE.)

Leaves oblong, acuminate, smooth, with simple veins; fruit solitary, smooth.

Habitat. Moluccas.

Quality. Seed aromatic, acrid, narcotic, oily.

Uses. As spice; the seed is the Nutmeg; its arillus is Mace.

2. M. fatua Swartz.

Leaves oblong-lanceolate, covered with stellate hairs on the under side; veins simple; fruit raccmose, downy.

Habitat. West Indies and Surinam.

Quality and Uses. Seeds acrid, purgative, oily; produce nausea, fulness, and flatus.

Natural Order, Menispermacew (V. K., p. 307.)

Prevailing Quality. Bitter; narcotic.

CISSAMPELOS. Linnœus.

Males: Sepals 8, the inner formed into a cup. Stamens 2, monadelphous: anthers dehiseing hori-Females: Sepals 2. zontally. Ovary 1.

1. C. Pareira Linnæus.—(PAREIRA

BRAVA. VELVET LEAF.) Fig. 130.

Leaves orbicular, peltate, aristate, when full grown eovered silkydown; fruit searlet, round, hairy.



130

Habitat. Brazil.
Quality. Root tonic, diuretic.

Uses. Gonorrhea, leucorrhea, chronic inflammation of the bladder.

Cocculus. De Candolle.

Sepals 12, in 4 rows. Stamens 6; anthers dehiscing vertically. Ovaries 3 or more.

1. C. palmatus De Candolle.—(CALUMBA.)

Root large, fleshy; leaves circular, palmate, hairy, with 5 to 7 entire lobes; their stalk covered with glandular hairs.

Habitat. Mozambique.

Quality. Tonic, not stimulant, demulcent, stomachic.

Uses. Dyspepsia, diarrhoa, dysentery, to allay vomiting.

Anamirta. Colebrooke.

Sepals 6. Stamens monadelphous; anthers 00, forming a globose head. Drupes 1-3.

1. A. Cocculus Colcbrooke.—(Cocculus Indicus.)

Leaves roundish, acute, hard, leathery, shining, smooth, with 5 radiating ribs; fruit globosc.

Habitat. East Indies.
Quality. Poisonous, acrid, intoxicating.

Uses. Powdered seeds against pediculi; porrigo; in the adulteration of malt liquor.

THE QUERNAL ALLIANCE (V. K., p. 289.)

Natural Orders of Auernals.

Mastworts (Corylacea.) Ovary 2 or more celled. Ovules pendulous.

Juglands (Juglandacece.) Ovary 1-celled. Ovule

Natural Order, Mastworts; Corylacece (V. K., p. 290.) Prevailing Quality. Astringent, tonic.

Quercus. Linnœus.

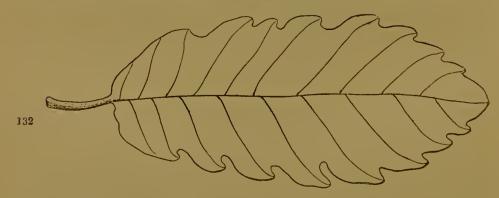
Ovary 3-celled. Fruit in a scaly truncated cup: acorn round.

1. Q. Suber Linnæus.—(Cork Oak.) Fig. 131.

Bark corky; leaves evergreen, hard, oblong, hoary beneath.

Habitat. South-west of Europe.

Uses. The bark forms the Cork of commerce.



2. Q. infectoria Linnæus.—(NUTGALL OAK.) Fig. 132. Leaves evergreen, oblong, coarsely and bluntly serrated, mucronate, smooth on both sides.

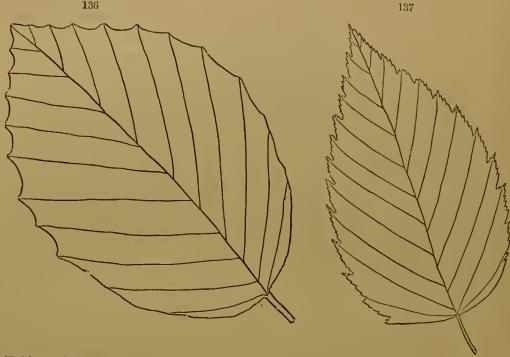
Habitat. Levant. Quality. Galls excessively astringent. Uses. Hemorrhages, old diarrheas, antidote to poisons, gargles, gleet, leucorrhea; in the preparation of ink. 3. Q. Gramuntia Linnæus.—(Belote OAK.) Fig. 134. Leaves evergreen, hard, round, spinytoothed, hoary beneath. Habitat. Spain. Uses. Acorns sweet, eatable, used as food in Spain under the name of Belotes. Q. pedunculata Willdenow. — (Long-stalk-ED OAK.) Fig. 133. deciduous, obo-Leaves vate-oblong, sinuated, short-stalked; acorns long-stalked. Habitat. North of Europe. Quality. Bark very astringent, tonic; abounds in tannin. Uses. Decoction in gargles; a wash in ulcers; an injection in leucorrhœa, &c.; an astringent in diarrhœas; a poultice in mortification. Timber invaluable. 133 135 134

Fig. 133. -Q. pedunculata in flower and fruit; 134. Leaf of Q. Gramuntia; 135. Q. sessiliflora.

5. Q. sessiliflora Smith.—(SHORT-STALKED OAK.) Fig. 135. Leaves deciduous, obovate, sinuated, long-stalked; acorns nearly sessile. Habitat. Europe, especially the central and southern parts. Quality and Uses. As in the last. Acorns sometimes sweet and eatable, like Chesnuts.

FAGUS. Linnœus.

Ovary 3-celled. Fruit in a prickly husk; mast triangular. 1. F. sylvatica Linnæus.—(The Beech Tree.) Fig. 136. Leaves ovate, smooth, toothed, slightly ciliated.



Habitat. Europe. Quality. Husks nareotie? Nuts eatable. Uses. Oil in abundance in the Nuts. Timber hard, but not durable.

CARPINUS. Linnœus.

Ovary 2-celled. Fruit within flat leafy bracts; nut small, striated. 1. C. Betulus Linnæus.—(The Hornbeam.) Fig. 137. Leaves ovate, doubly serrated; bracts 3-lobed.

Habitat. Woods of Europe.

Quality. Tonic.

Uses. Bark a bad febrifuge. Timber coarse and of little value?

Corylus. Linnœus.

Ovary 2-celled. Fruit rolled in a leafy lobed unarmed husk; nut round. 1. C. Avellana Linnæus.—(HAZEL NUT.)

Leaves roundish, cordate, acuminate; husks campanulate, spreading and lacerated at the end.

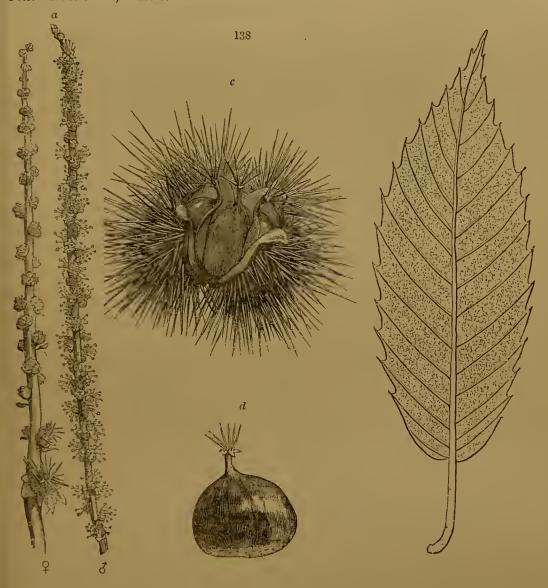
Habitat. Woods of Europe. Uses. Nuts sweet, eatable.

CASTANEA. Tournefort.

Ovary 5-8-celled. Fruit within a spiny husk; nuts compressed, rounded. 1. C. vesca Tournefort.—(Sweet Chesnut.) Fig. 138.

Leaves oblong-lanceolate, acuminate, mucronate-serrated, shining above, downy or smooth beneath.

Habitat. South of Europe.
Uses. Nuts sweet, eatable. Timber useful.



Natural Order, Juglandaceæ (V. K., p. 292.)

Prevailing Quality. Acridity, aroma.

JUGLANS. Linnœus.

Flowers monœcious. Stamens 18-24. Drupe with a 2-valved deciduous sarcocarp, or rind; and a deeply wrinkled putamen or shell.

Fig. 138.—a, 3 and 4, inflorescence of Castanea vesca, b, under side of leaf; c, cupule or husk opening; d, nut.

1. J. regia Linnæus.—(Walnut Tree.) Fig. 139.

A large tree; leaves pinnated, smooth, with about 9 oval nearly entire aromatic leaflets.

Habitat. Persia.

Quality. Sub-acrid, laxative.
Uses. Nuts abound in sweet drying oil; bark of root purgative, as is young fruit when preserved with sugar. Timber strong and durable; rising sap employed in pulmonary affections and in general debility.



139

THE CUCURBITAL ALLIANCE (V. K., p. 310.)

Natural Order, Cucurbits: Cucurbitaceae (V. K., p. 311.) Prevailing Quality. Narcotie, purgative.

LAGENARIA. Seringe.

Tendrils lateral. Stamens triadelphous. Anthers distinct. Style undi-Seeds thick-edged, 2-lobed. Stigmas 3,

1. L. vulgaris Seringe. Cucurbita lagenaria Linnæus.—(Trumpet Gourd. BOTTLE GOURD.)

Covered with soft down; stem elimbing; leaves cordate, nearly entire, somewhat glaucous, with 2 glands at the base; flowers monecious; fruit downy, smooth when ripe, long, and swollen at one end.

Habitat. East Indies.

Quality. A dangerous purgative; poisonous.

Uses. The ripe fruit hollowed out, eleared of the pulp, and deprived of all soluble matter by washing, is used as bottles.

Cucumis. Linnœus.

Tendrils lateral. Stamens triadelphous. Anthers distinct. Style undivided. Stigmas 3. Seeds thin-edged.

1. C. Melo Linnæus.—(The Melon.)

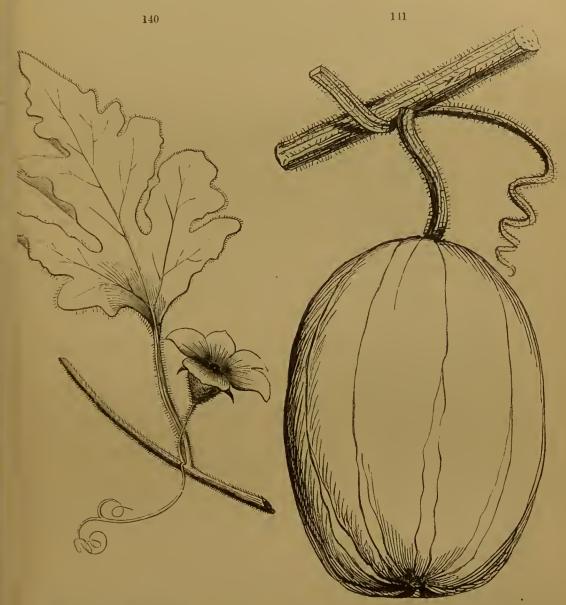
Leaves rounded, angular; anthers shorter than the connective; fruit ovate or roundish, downy when young, furrowed, with a sweet pulp.

Habitat. Persia.

Quality and Uses. Laxative, refrigerant; a grateful and delicions fruit.

2. C. Colocynthis Linnæus.—(Colocynth Gourd.) Fig. 140.

Leaves cordate-ovate, multifid, hoary with hairs on the under side, the lobes somewhat acute; fruit globose, whole-coloured, with an intensely bitter pulp.



Habitat. Syria and India.

Quality. Bitter, acrid, emetic, purgative, drastic cathartic, hydragogue.

Uses. Constipation, dropsy, alvine obstructions, amenorrhœa.

3. C. pseudo-colocynthis Royle.—(HIMALAYAN COLOCYNTH.) Fig. 141. Leaves scabrous, 5-lobed, the lobes and angles both rounded, the middle lobe usually 3-lobed; fruit oblong, striped, with an intensely bitter pulp.

Habitat. Plains of Northern India. Quality and Uses. As the last.

Momordica. Linnœus.

Tendrils lateral. Stamens triadelphous. Anthers connate. Calyx of the males short. Fruit finally splitting.

1. M. Balsamina Linnous.—(Balsam Apple.) Fig. 142.

Leaves 5-lobed, palmate, toothed, smooth, shining; fruit oblong, acuminate, with rows of oblong tubereles separated by erowds of roundish ones.

Habitat. South of Europe.

Quality. Fruit a dangerous poison when ripe.

Uses. Where hydragogues are required.

CUCURBITA, Linnœus.

Tendrils lateral. Stamens triadelphous. Anthers eonnate. Calyx of the males campanulate.

1. C. Pepo Linnæus.—(The Common Gourd.)

Stem prostrate; leaves eordate, obtuse, somewhat 5-lobed, toothletted; ealyx with a neck below the limb; fruit roundish or oblong, smooth.

Habitat. The Levant.
Quality. Slightly laxative; nutritious.
Uses. An agreeable kitchen fruit; the
young leaves and shoots the best of
Spinach. The Vegetable Marrow is
a variety of this.

2. C. Melopepo Linnæus. — (The SQUASH GOURD.)

Stem erect; leaves cordate, obtuse, somewhat 5-lobed, toothletted; calyx short, hemispherical, eampanulate, with a very wide mouth; fruit erect, depressed, circular, crenated.

Habitat. Uuknown. Quality and Uses. As the last.

3. C. maxima De Candolle.—(The Spanish Gourd.)

Stem prostrate; leaves cordate, large, very rugose; ealyx with a short neck below the limb; fruit very large, rather rough.

Habitat. Unknown. Common in gardens under the French name of Potiron.

Quality and Uses. As in No. 1. Fruit sometimes weighs, even in England, 200 lbs.

4. C. aurantia Willdenow.—(The Orange Gourd. False Colocynth.)

Stem prostrate, extremely seabrous; leaves somewhat cordate, 3-lobed, cuspidate, finely toothletted; fruit globose, smooth, deep orange, with a bitter pulp.

Habitat. Unknown. Quality and Uses. Like those of Colocynth, but milder

Fig. 142.—Fruit of Momordica Balsamina just before it sputs.

BRYONIA. Linnœus.

Tendrils lateral. Stamens triadelphous. Anthers distinct. Style trifid. Fruit not corticated, few-seeded.

1. B. dioica Jacquin.—(Common Bryony.) Fig. 143.

Stem climbing; leaves cordate, palmate, 5-lobed, toothed, with callous points, the terminal lobe longer; tendrils simple; flowers racemose, diæcious.



Habitat. Hedgerows.

Quality. Root emetic, purgative, acrid, poisonous.

Uses. Root applied topically to bruises.

ECBALIUM. Richard.

Tendrils lateral. Stamens monadelphous. Anthers connate. Calyx of males campanulate. Fruit expelling the seeds with elasticity, indehiscent.

1. E. agreste Richard. Momordica Elaterium Linnæus. — (Spirting Cucumber.)

Hispid, scabrous; stem dwarf, without tendrils; leaves cordate, somewhat lobed, crenate-toothed, very rugose, on long stalks.

Habitat. Rubbish and old walls in the south of Europe. Quality. Juice an acrid irritant, drastic, hydragogue. Uses. Dropsy, apoplexy, obstinate constipation, gout.

THE VIOLAL ALLIANCE (V. K., p. 326.)

Patural Orders of Violals.

Birads (Flacourtiacece.) Stamens 00.

Passianwarts (Passifloraceae.) Stamens definite. Flowers eoronetted.

Maringade (Moringaceae.) Stamens definite. Anthers 1-celled. Fruit siliquose.

Wigletworts (Violacea.) Stamens definite. Anthers erested.

Natural Order, Biraus; Flacourtiaceæ (V. K., p. 327).

Prevailing Quality. Uncertain.

FLACOURTIA. Commerson.

Sexes imperfect. Petals 0. Calyx deciduous. Berry globose.

1. F. Ramontchi L'Heritier.

Leaves roundish-ovate, acute, crenated.

Habitat. Madagascar.

Quality and Uses. Fruits resembling black Plums, eatable and wholesome.

BIXA. Linnœus.

Flowers complete. Stigma simple. Calyx hispid. Sepals 5. Capsule 2-valved.

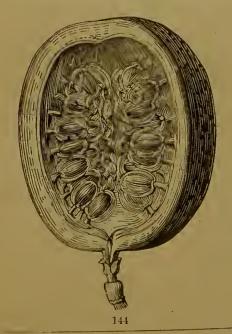
1. B. orellana Linnæus.—(ARNOTTO TREE.)

Leaves smooth on each side, &c.

Habitat. Tropical America.

Quality. Seeds cordial, astringent, febrifugal.

Uses. Seeds covered with a red pulp, called Arnotto, used in dyeing cheeses, and in chocolate making; a supposed antidote to the poison of Janipha.



Natural Order, Passifloraceæ (V. K., p. 328.)

Prevailing Quality. Narcotie.

Passiflora. Linnœus.

Ovary stipitate. Fruit pulpy. Coronet in several rows, of which the interior are very short.

1. P. quadrangularis Linnæus.—(GRANA-DILLA.)

Leaves smooth, cordate, ovate, acuminate; petioles with from 4 to 6 glands, stipules ovate entire as well as the bracts; branches with 4 winged angles.

Fig. 144.—Longitudinal section of the fruit of a Passiflora.

Habitat. Tropical America. Root emetic, narcotic.

Uses. Fruit common in tropical desserts: subacid pulp of the sceds the part used.

2. P. rubra Linnæus.— (Dutch-MAN'S LAUDANUM.)

Leaves velvety, cordate and 2-lobed at the base, awned at the sinus, beneath without glands as well as the petiole; pedicels solitary; ovary hairy, roundish.

Habitat. Jamaica.

Quality. Narcotic. U_{8e8} . Tincture of the flowers a substitute for opium.

3. P. fætida Linnæus. Fig. 145. Stem and petioles hispid; leaves villous on both sides, 5 nerved, cordate, 3-lobed; lobes acute, the lateral very short; involucre divided into fine glandular

entangled arms.



145

Habitat.West Indies.

Quality. Flowers pectoral; leaves emollient; narcotic? emmenagogue? Uses. Leaves in poultices; flowers in hysterics; root in amenorrhea.

Natural Order, Maringads; Moringaceæ (V. K., p. 336.)

Prevailing Quality. Pungency.

Moringa. Burmann.

Fruit long, siliquose, 3-angular, 3-valved, bearing the amygdaloid seeds on the face of the valves.

1. M. pterygosperma Gærtner.—(Horseradish Tree.)

Leaves twice or thrice pinnate, with an odd leaflet; leaflets roundish oblong; flowers white, in naked terminal panicles; seed roundish, with 3 membranous wings.

Habitat. India and Arabia.

Quality. Acrid, pungent, aromatic, stimulant.
Uses. Leaves in curries, as sinapisms; paralysis; intermittents; seeds yield oil of Ben; the bark a gum like Tragacanth.

Natural Order, Winterworts; Violacece (V. K., p. 338.)

Prevailing Quality. Emetic, depurative.

VIOLA. Linnœus.

Sepals nearly equal, extended backwards at the base. Petals very unequal, the lowermost spurred. Stamens distinct.

1. V. odorata Linnæus.—(Sweet Violet.)

Stemless, throwing off runners; leaves broadly cordate, pubescent; sepals blunt; flowers very sweet-scented.

Habitat. Hedgerows and woods.

Quality. Seeds and roots emetie and purgative; flowers anodyne, produce faintness. Uses. As a substitute for ipeeaeuanlia; flowers form an officinal syrup used as a test; acids redden it; alkalies render it green.

2. V. canina Linnaus.—(Dog Violet.)

Stems procumbent; leaves cordate, oblong-ovate; stipules on the middle of the stem fringed, much shorter than the petiole; flowers scentless.

Habitat. Hedgerows and woods. Quality and Uses. Roots and seeds as in No. 1.

3. V. tricolor Linnaus.—(The Pansy or Heartsease.)

Stems prostrate and ascending; leaves erenate; stipules leafy, lyrate, pinnatifid, with the middle lobe crenated; flowers 3-eoloured, seentless.

Habitat. Corn-fields and gardens. Quality. Aerid.

Uses. Leaves bruised, against entaneous affections (tinea capitis.)

IONIDIUM. Ventenat.



Sepals not extended at the base. Petals very unequal; I large and spreading, 4 small. Stamens separate.

1. I. Itubu Aublet. I. Ipccacuanha Auguste de St. Hilaire.—(WHITE IPECACUANHA.) Fig.

Extremely hairy; leaves oblong, servated; sepals fringed.

Habitat. Brazil and Guiana. Quality. Roots emetic. Uses. Substitute for Ipeeaeuanha.

2. I. microphyllum Humboldt. — (Cuichun-CHULLI.)

Half shrubby, smooth;

leaves minute, oblong, acute, serrated; peduncles 3 times as long as the leaves.

Habitat. Peru.

Emetie, purgative; very active. Quality.

Uses. Said to be a certain cure for the elephantiasis tuberculata.

THE SAPINDAL ALLIANCE (V. K., p. 373.)

Natural Orders of Sapindals.

Milkworts (Polygalaceee.) Anthers 1-celled. Calyx 2-winged.

Soapworts (Sapindacea.) Anthers 2-celled. Petals with an appendage. Ovules erect.

Grythrogyls (Erythroxylaceæ.) Anthers 2-celled. Petals with an appendage. Ovules pendulous.

Natural Order, Milkworts; Polygalaceæ (V. K., p. 375).

Prevailing Quality. Bitter, emetic.

Polygala. Linnœus.

Stamens 8. Capsule mucronate. Seeds hairy or Calyx persistent. carunculate.

1. P. vulgaris Linnæus.—(MILKWORT.) Fig. 147.

Leaves linear-lanceolate, more or less obtuse; stems ascending; wings ovate, shorter than the corolla, longer than the capsule; ovary nearly sessile.

Habitat. Heaths and open downs.

Quality. Bitter.

Uses. Pulmonary affections; spitting of blood.

2. P. rubella Pursh.

Leaves lanceolate-linear, mucronate; stem erect, furrowed, branched at the top; racemes somewhat spiked, lax, elongate: wings oval.

Habitat. United States.

Quality. Bitter, tonic, stimulant, diaphoretic.

Uses. Dyspepsia.

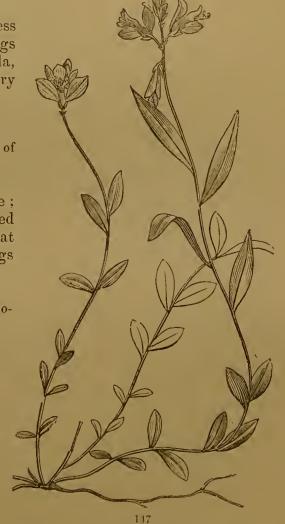


Fig. 147.—Polygala vulgaris. H $\sqrt{2}$

3. P. Senega Linnæus.—(The Seneka.) Fig. 148.

Leaves ovate-lanceolate, the upper acuminate; stems tufted, erect, simple; racemes spicate; wings circular; eapsule elliptical, emarginate.

Habitat. United States.

Quality. Root diaphoretic, diuretic, expectorant; emetic, purgative, emmenagogue.

Uses. Bronchial or pulmonary inflammation, chronic catarrh, humoral asthma, low fever, rheumatism, dropsy, amenorrhœa.

4. P. Chamæbuxus Linnæus.

Stems dwarf, branched, procumbent, shrubby; leaves evergreen, oblonglanceolate, mucronate; flowers single or in pairs; keel crested.

Habitat. Mountains of Europe. Quality and Uses. Like the last.

5. P. Poaya Martius.

Stem shrubby; leaves eoriaceous, 5-nerved; racemes spicate; wings oblong or obovate, obtuse; corolla crested; seeds clavate, shaggy.

Habitat. Brazil.

Quality. An active emetic. Uses. Root, when fresh, in bilious fevers.

Soulamea, Lamarck.

Stamens 6, Fruit samaroid. 1. S. amara Lamarck.—(The Bitter King.) Fig. 149. A shrub or small tree; leaves large, oval oblong; raeemes axillary, little longer than the petioles; fruit obcordate.

Fig. 148. - Polygala Senega; 149. Soulamea amara.

Habitat. Indian Archipelago.
Quality. Intensely bitter.
Uses. Cholera, pleurisy, intermittents.

Krameria. Loeffling.

Calyx without wings. Stamens 4, or fewer. Fruit a 1-eelled drupe covered with hooked spines.

1. K. triandra Ruiz and Pavon.—(RATTANY-ROOT.) Fig. 150.

Leaves oblong, softly hairy, rather acute; flowers in short racemes.

Habitat. Pern and Chili.

Quality. Root a powerful astringent.

Uses. Mucous discharges, passive hemorrhage; toothpowder, mouth-washes.



Natural Order, Soapworts; Sapindaceae (V. K., p. 382.)

Prevailing Quality. Aeridity.

NEPHELIUM. Linnœus.

Leaves alternate. Flowers regular. Calyx 5-6-toothed. Ovules solitary. Fruit indehiscent, brittle; seed covered with pulp.

1. N. Longan.—(The Longan.) Fig. 151.

Leaves pinnated; leaflets with the midrib very prominent below; fruit globose, areolate.

Habitat. China.

Quality and Uses. A very agreeable fruit, often imported from China, for the sake of the sweet subacid vinous pulp which covers the seed.

Paullinia. Linnœus.

Leaves alternate. Flowers irregular. Stamens 8. Fruit capsular, wingless, 3-eornered. Seeds solitary.

1. P. pinnata Linnæus.

Leaves pinnate, in 2 pairs with an odd one; leaflets ovate-laneeolate, sessile, crenated; petiole winged; fruit pyriform.

Habitat. Brazil.
Quality. Extremely aerid and poisonous.

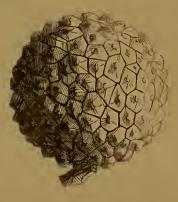
2. P. sorbilis Martius.

An uncertain plant, of which no description has been hitherto published.

Habitat. Brazil.

Quality. Astringent, febrifugal, stomachie, a certain aphrodisiae.

Uses. Pounded seeds form Guarana bread, cakes of which are consumed largely in Brazil; said to contain theine. (Specimens of this bread will be found in the Museum of the Royal Botanie Garden, Kew.)



Esculus. Linnœus.

Leaves opposite, digitate. Petals 5, spreading, with short claws, unequal.

Stamens 7, declinate. Fruit leathery, 3-valved.

1. Æs. Hippocastanum Linnæus.—(Horse-chesnut.) Fig. 152. Leaflets 7, obovate, cuncate, acute, toothed; fruit prickly.

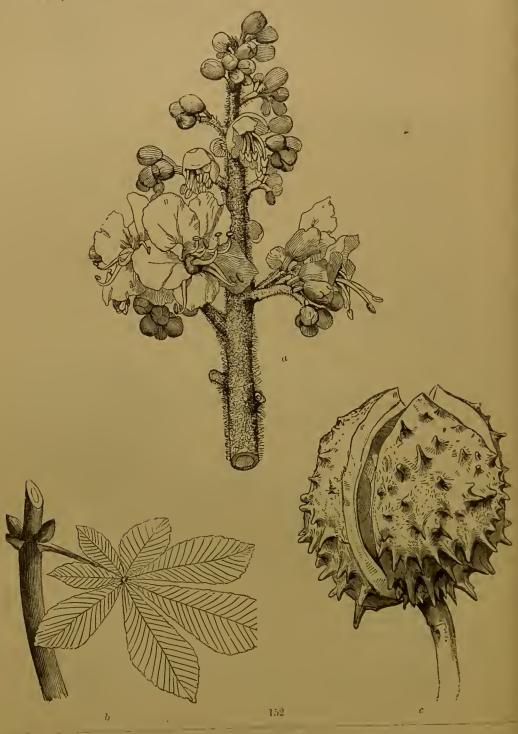


Fig. 152.—a, Inflorescence of Æse. Hippocastanum; b, a leaf; c, ripe fruit.

Habitat. Persia!

Quality. Seeds acrid; bark febrifugal.

Uses. Seeds a good sheep-food; yield abundance of nutritious starch when washed.

SAPINDUS. Linnœus.

Leaves alternate. Flowers regular. Disk complete. Stamens 8-10. Fruit wingless, indehi-

scent, fleshy.

1. S. saponaria Linnæus.—

(SOAP-BERRY.)

Leaves abruptly pinnate; leaflets oblique, entire, lanceolate, in 3 or 4 pairs, with a broad-winged petiole; flowers in large panicles.

Habitat. West Indies. Quality. Fruit detersive, acrid, narcotic.

Uses. Used instead of soap; intoxicates fish.

Natural Order, Gruthroryls; Erythroxylacece (V. K., p. 391.) Prevailing Quality. Uncertain.

ERYTHROXYLON. Linnœus.

Calyx 5-parted, pentangular at the base. Styles 3, distinct.

1. E. Coca Lamarck.—(The Coca.) Fig. 153.

Leaves oval, acute, thin, with 3 slight line-like ribs near the midrib.

Habitat. Peru.
Quality. Stimulating, narcotic.

Uses. Leaves largely chewed instead of Opium.

THE BERBERAL ALLIANCE (V. K., p. 432.)

Natural Orders of Berberals.

Berberids (Berberidaceæ.) Anther valves recurved.

Wincworts (Vitacece.) Anther valves straight.

Natural Order, Berberius; Berberidaceæ (V. K., p. 437.) Prevailing Quality. Astringency, slight acridity.

Berberis. Linnœus. Flowers complete, 3. Stamens 6. Petals with 2 glands at the base. Stigma sessile, peltate. Fruit fleshy.



1. B. vulgaris Linnæus.—(Berberry Bush.) Fig. 154.



Leaves obovate with eiliated serratures; raeemes pendulous, many-flowered.

Habitat. Europe.

Quality. Berries acid, astringent, seen.

Uses. Wood used by dyers, for its yellow colour. Berries acid, astringent; bark astringent.

2. B. Lycium Royle.

Spines 3-parted, conical; leaves coriaeeous, oblonglanceolate, tapering to the base, mueronate, with spiny teeth; flowering racemes erect; flowers small; racemes of fruit pendulous.

Habitat. North of India.
Quality. Very astringent.
Uses. Extract valuable in ophthalmia.

Natural Order, Wincworts; Vitacece (V. K., p. 439.)

Prevailing Quality. Aeridity.

VITIS. Linnœus.

Flowers 5. Calyx 5-toothed. Petals ealyptrate.

1. V. vinifera Linnaus.—(The VINE.)

Leaves angular, lobed, sinuated, toothed, more or less hairy; fruit sweet.

Habitat. North of India?

Quality. Ripe fruit nutritious, refrigerant, diuretie, laxative; skin astringent, indigestible; eolouring matter deranges the stomach.

Uses. Preparation of grape wine and brandy; fevers, inflammatory complaints, dysentery, phthisis.

Cissus. Linnæus.

Flowers \checkmark . Calyx 4-toothed. Petals horned.

1. C. cordata Roxburgh. C. repens Lamarck.

Stem crceping; leaves cordate-ovate, somewhat toothed, smooth; flowers in umbels, dark purple.

Habitat. Malabar.

Quality. Aerid.

Uses. Leaves as poulties for indolent tumours.

GENUS OF UNCERTAIN AFFINITY.

Somewhere in the neighbourhood of the Berberal Alliance must stand the following genus, whose structure is imperfectly ascertained.

CANELLA. P. Browne.

Sepals 3, blunt, imbricated. Petals 5. Stamens 20, on a truncated hypogynous cone; anthers linear. Ovary one-celled, with 2 or 3 pendulous anatropal ovules. Stigma emarginate.

1. C. alba Swartz.—(White Wood. WILD CINNAMON.) Fig. 155.

Leaves alternate, dotted, obovate, obtuse, glaucous beneath.

Habitat. West Indies.

Quality. Hot, aromatic, with a flavour between that of fennel and cinnamon, stimulant.

Uses. Seurvy; in addition to tonics or purgatives.

THE ERICAL ALLIANCE (V. K., p. 446.)

Natural Orders of Gricals.

Whinter Greens (Pyrolaceæ.) Flowers nearly polypetalous. Embryo minute. Herbs.

Weathworts -(Ericaceæ.) Flowers (usually) quite

monopetalous. Embryo axile. Shrubs.

Natural Order, Winter Greens; Pyrolaceæ (V. K., p. 450.)

Prevailing Quality. Diuretic.

CHIMAPHILA. Nuttall.

Stamens 10, with the filaments triangular at the base. Anthers hornless. Stigma nearly sessile, peltate. Capsule bursting at the upper end.

1. C. umbellata Nuttall.—(UMBELLED WINTER Green.) Fig. 156.

Leaves cuneate-lanceolate, whole coloured; filaments smooth.

Habitat. North America.

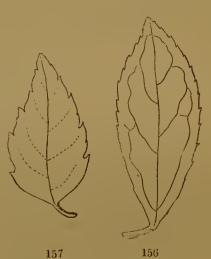
Quality. Acrid, tonic, diuretic, narcotic.

Uses. Dropsies, cystirrhea, calculus, dysury,
strangury, gonorrhea, &c., scrofula.

2. C. maculata Pursh.—(Variegated Winter Green.) Leaves ovate-lanceolate, blotched with white; filaments shaggy below the dilated part.

Habitat. United States.

Quality and Uses. Like the last.



Natural Order, Meathworts; Ericaceae (V. K., p. 453.)

 $Prevailing \ Quality.$ Narcotic.

ARCTOSTAPHYLOS. Adanson.

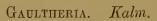
Drupe with 5 distinct 1-sceded stones. Corolla urccolate, with a revolute Stumens included. Anthers with 2 spurs at the back.

1. A. Uva Ursi Sprengel.—(Bear-Berry.) Fig. 158. Procumbent; leaves obovate, obtuse, entire, shining; flowers in short terminal racemes.

Habitat. North of Europe, Asia, and America.

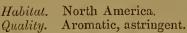
Quality. Astringent, diuretic, emetic.

Uses. Chronie affections of the bladder, calculus, bronchial affections.



Capsule 5-valved, loculicidal, covered over by the fleshy tube of the calyx.

1. G. procumbens Linnæus.—(Partridge-Berry.) Smooth, procumbent, rooting; leaves obovate, with setaceous serratures, acute at cither end; pedicels bearing 1-2 nodding flowers; anthers with 4 bristles.



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Uses, Emmenagogue; unsafe. Oil is a flavouring substance.

Andromeda. Linnæus.

Capsule 5-valved, loculicidal, naked. Anthers 2-awned. Corolla globose, with a contracted orifice.

1. A. polifolia Linnæus.

Leaves alternate, oval or linear-lanceolate, entire, revolute, glaucous beneath; flowers terminal, almost umbellate.

Habitat. Bogs of North of Europe and North America. Quality. An acrid dangerous nareotie; kills sheep.

LEDUM. Linnæus.

Petals 5, nearly, or quite, distinct. Stamens 5 to 10. Style short, straight, thick. Capsule septicidal.

1. L. latifolium Aiton.—(LABRADOR TEA.)

Leaves oblong; stamens 5, the length of the corolla.

Habitat. North of Europe and America.

Quality. Narcotie.

Uses. Agues, dysentery, diarrhœa; renders beer heady.

Kalmia. Linnæus.

Corolla campanulate, with 10 honey-porcs sunk in its sides, each holding back an anther, which finally rises by the elasticity of its arched filament.

1. K. latifolia Linnæus.—(Calico Bush.)

Leaves on long stalks, scattered, elliptical, acute at either end, shining and smooth; corymbs terminal, viscid.

Habitat. United States.

Uses. Narcotic, poisonous, dangerous.

AZALEA. Linnæus.

Stamens 5, loose. Calyx leafy. Corolla funnel-shaped. Capsule septicidal. 1. A. pontica Linnæus.

Leaves obovate-oblong, lanceolate, ciliated, very much wrinkled; flowers bright yellow, glutinous externally.

Habitat. Caucasus, Asia Minor.

Quality. Dangerous, narcotic, honey highly poisonous.

Rhododendron. Linnaus.

Stamens 10. Calyx obsolete. Corolla campanulate, or between campanulate and funnel-shaped. Capsule septicidal.

1. R. chrysanthum Pallas.—(Golden Rhododendron.) Fig. 159.

Leaves oblong-lanceolate, revolute, rugose, tapering to the base, pallid beneath; flowers campanulate, corymbose, bright

Habitat. Siberia, Dauria.

Quality. A powerful narcotic. Uses. Chronic rheumatism; venereal affections. The leaves largely employed by the Russians. It is said, that a long use of this narcotic does not affect the general health.

2. R. ferrugineum Linnæus. Leaves small, oblong, tapering to each end, above shining and smooth,

beneath covered with ferruginous scales; corolla funnelshaped, with

resinous dots externally. Habitat. Switzerland.

Quality. Narcotic. II_{ses} . Oil of the buds, called Olio di Marmotta, in pains of the joints.

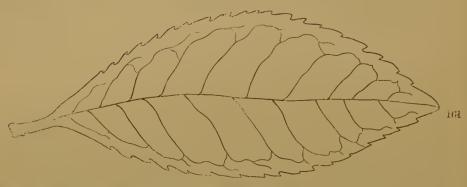


Arbutus. Linnæus.

Fruit fleshy, 5-celled, many-seeded, usually papillose. Corolla urceolate, 5-toothed. Hypogynous Scales 0.

1. A. Unedo Linnæus.—(Strawberry Tree.) Fig. 160, 161.

A tree; bark rugged; leaves oblong-lanceolate, bluntly serrated, smooth, shining; fruit globose, muricated.



Habitat. South and west of Europe.

Quality. Fruit narcotic; bark and leaves astringent.

THE RUTAL ALLIANCE (V. K., p. 456.)

Natural Order of Rutals.

Citronworts (Aurantiaceæ.) Leaves dotted. Fruit succulent, manycelled.

Amprites (Amyridaceæ.) Leaves dotted. Fruit dry. Petals valvate. Ovules sessile.

Rucworts (Rutaceæ.) Leaves dotted. Fruit dry. Petals imbricated.

Crurciaus (Cedrelaceæ.) Leaves dotless. Fruit dry. Petals imbricated. Ovules sessile.

Anacardiaceæ.) Leaves dotless. Fruit somewhat dry. Ovule supported by a long umbilical cord.

Quassians (Simarubaceæ.) Leaves dotless, alternate, without stipules. Stamens springing from scales.

Brancapers (Zygophyllaceæ.) Leaves dotless, opposite, with stipules. Stamens springing from scales. Branches jointed.

Mcliads (Meliacea.) Leaves dotless. Stamens forming a tube.

Natural Order, Citronworts; Aurantiaceæ (V. K., p. 457.)

Prevailing Quality. Aromatic, tonic.

CITRUS. Linnœus.

Stamens 20 or more, irregularly polyadelphous. Fruit pulpy with a spongy rind. Seeds smooth.

1. C. Aurantium Risso.—(Common Sweet Orange.) Fig. 162. Leaves ovate-oblong, acute, sometimes serrulate; petiole more or less winged; flowers white; fruit roundish, occasionally mammose, with the cortical vesicles convex.

Habitat. Forests of the Himalayasand China, whence all the genus has also been derived.

Quality. Pulp of fruit sweet, refrigerant; rind aromatic, tonic; leaves bitter and aromatic.

Uses. A grateful fruit; rind and flowers inferior to those of C. Bigaradia, though similar.

2. C. Bigaradia Risso.—(The SEVILLE ORANGE.)

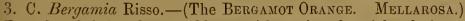
Spiny; leaves elliptical acute; petiole winged; flowers snow-white; fruit middlesized, roundish, smooth or wrinkled, deep yellow; with concave oil-cysts.

Habitat. Cultivated in the south of Europe.

Quality. Pulp of fruit acid and bitter. Rind very bitter; aromatic, tonic.

Uses. Flowers yield oil of Neroli; crushed fruit, boiled in sugar, forms marmalade. Essential oil stimulant, and antispasmo-

dic; Orange-flower water chiefly obtained from this.



Branches brittle; leaves oblong, with a winged petiole, dark green above, pale beneath; flowers small, white; fruit pyriform, smooth, pale yellow, with a green subacid firm fragrant pulp.

Habitat. Cultivated in the south of Europe.

Quality. Rind extremely fragrant.

Uses. The essential oil (oil of Bergamot) of both the flowers and fruit largely employed by perfumers; rind formed, by violent pressure in proper moulds, into

4. C. Limonum Risso.—(The Common Lemon.)

Leaves ovate or oblong, usually serrulate, pale green, with a winged petiole; flowers middle-sized, red outside; fruit oblong, wrinkled or furrowed, pale yellow, with the oil-cysts concave; rind tolerably thin; pulp very acid.

Habitat. Forests of north of India.

Quality. Rind having a peculiar fragrance, bitter, stomachic, and aromatic; juice agreeably acid, refrigerant, antiscorbutic.

Uses. In febrile complaints, preparation of effervescing draughts, lemonade; against scurvy in the navy.

5. C. Lumia Risso.—(The Sweet Lemon.)

Branches and leaves those of the lemon; flowers red outside; fruit like the lemon, but with a sweet pulp.

Habitat. Cultivated in the south of Europe.

Quality and Uses. As those of the lemon, of which, however, its juice wants the peculiar sharpness.

6. C. acida Roxburgh.—(The Lime.)

Spiny; leaves oval, oblong, or ovate-oblong, erenate, obtuse, petioles winged: petals generally 4; fruit small, blunt, oval, or oblong, with a thin rind, and an extremely acid juice.

Habitat. North of India and China.

Quality. Rind aromatic; pulp antiscorbutic.

Uses. As the lemon, but the acidity sharper, and rather more agreeable.

7. C. Limetta Risso.—(The Sweet Lime.)

Leaves ovate, obovate, and oblong; petiole almost wingless; flowers small, white; fruit ovate or roundish, pale yellow, with a raised point, and concave eysts of oil; pulp subacid.

Habitat. Cultivated in the south of Europe. Quality. An inferior description of lemon.

8. C. decumanus Risso.—(The Shaddock.)

Leaves large, with a broad-winged petiole; flowers very large, white; fruit very large, roundish, pale yellow; rind with flat or convex oil-cysts, white and spongy; pulp greenish, subacid, watery.

Habitat. Cultivated in the south of Europe.

Quality. Sub-aromatic, subacid. Uses. In preserves; as a pleasant cooling fruit.

9. C. Medica Risso.—(The Citron and Cedrate.)

Leaves oblong, toothed; flowers violet outside; fruit large, warted and furrowed; rind very thick, tender; pulp subacid.

Habitat. Forests of north of India.

Quality. Pulp refrigerant; rind and leaves aromatic, tonic.

Uses. Rind only used in preserving. Furnishes the fragrant perfumer's huile de Cedrat; juice employed in flavouring punch, &c.

Natural Order, Amyrius; Amyridacece (V. K., p. 459.)

Prevailing Quality. Stimulating.

Boswellia. Roxburgh.

Cal. 5-toothed. Pet. 5. Stam. 10. Disk fleshy, longer than the ealyx. Fruit triangular, 3-eelled, 3-valved, septicidal. Seed winged.

1. B. thurifera Colebrooke. B. serrata.—(OLIBANUM TREE.)

Leaves pinnated; leaflets ovate, acuminate, serrated, downy; racemes axillary, simple.

Habitat. Mountains of India. Quality. Yields a stimulating olco-resin.

Uses. Chronic diarrhea, old catarrhs, leucorrhea, gleet, hæmoptysis; stimulating plasters; fumigation.

BALSAMODENDRON. Kunth.

Sexes sometimes imperfect. Calyx 4-toothed, eup-shaped. Petals 4. induplicate-valvate. Stamens 8, arising from without a fleshy disk. Ovary 2-eelled. Drupe bony, 1-2 eelled.

1. B. Myrrha Nees.—(MYRRH TREE.)*

"Stem shrubby, arborescent; branches squarrose, spinescent; leaves ternate; leaflets obovate, obtuse, bluntly toothletted at the apex, the lateral smooth; fruit acuminate."—Nees.

Habitat. Abyssinia.
Quality. Stimulant, irritant, astringent, tonic (tonico-balsamic.)

Uses. Dyspepsia, flatulence, amenorrhœa, chlorosis, secretions from the mucous membranes; deutifrice, gargles, foul ulcers.

Natural Order, Kucwarts; Rutaceæ (V. K., p. 469.)

Prevailing Quality. Acrid, stimulating.

Ruta. Linnœus.

Petals 4-5, spoon-shaped. Stamens 8-10, all perfect. Anthers glandless, spreading equally. Ovary 4-lobed, with several ovules in each cell.

1. R. graveolens Linnæus.—(Common Rue.) Fig. 163.

Leaves supra-decompound; lobes oblong, that at the end obovate; petals entire, or somewhat toothed.

Habitat. South of Europe.

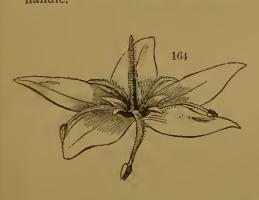
Quality. Acrid, antispasmodic, emmenagogue, anthelmintic, stimulant, narcotic, heavy-smelling.

Uses. Flatulent colic, infantile convulsions, hysteria, amenorrhœa.

2. R. montana Clusius.

Leaves supra-decompound; lobes all linear; petals entire.

Habitat. Spain.
Quality. Excessively acrid, dangerous to handle.



BAROSMA. Willdenow.

Flowers regular. Petals 5. Stamens 10, of which half are sterile and squamiform; anthers with a minute terminal gland. Ovary 5-lobed. Fig. 164.

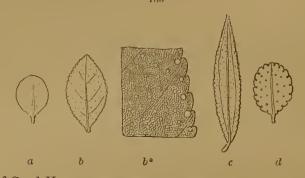


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Fig. 163.—Ruta graveolens; a, its capsule; 164. Flower of Barosma magnified.

^{*} Elemi, Bdellium, and similar drugs are obtained from plants related to this; but there is so little certainty upon the botanical part of the subject, that the reader is referred to Pereira, ed. 2, 11.1628, and Royle, p. 342, for such information as at present exists about them. The history of Myrrh itself is still far from clear. Balm of Gilead is said to be another Balsamodendron.

1. B. crenata Willdenow. Diosma crenata Linnaus.—(Bucku.) Fig. 165 b. Leaves ovate, acute, dotted, with glandular serratures; pedicels solitary, rather leafy.



Habitat. Cape of Good Hope.

Quality. Aromatic, stimulant, tonie; diuretie, diaphoretic.

Uses. Chronie inflammation of the bladder, stricture, gleet, prostatic affections, rheumatism, dyspepsia.

GALIPEA. Aublet.

Flowers regular. Petals 5, partially adhering to each other and the stamens. Stamens 4-8, of which a part are sterile, in no regular order; the filaments bearded.

1. G. Cusparia A. de St. Hilaire.—(Angostura Bark Tree.) Leaflets 3; racemes stalked, terminal or nearly so, calyx 5-toothed; sterile stamens 3.

Habitat. South America.

Quality. Powerfully aromatic and stimulant; stomachie, diaphoretic.
Uses. Intermittents, remittents, dyspepsia, diarrhœa, &c.

2. G. officinalis Hancock.—(Angostura Bark Tree.) Leaflets 3; racemes stalked, axillary or terminal; sterile stamens 5.

Habitat. Banks of the Oronoeo. Quality and Uses. As in the last.

DICTAMNUS. Linnœus.

Flowers irregular. Stamens 10 declinate, with the filaments covered with glands. Follicles 5, united at the base,

each with 2-3 seeds.

1. D. albus Linnaus.—(Fraxinella. Bastard Dittany.) Fig. 166.

Leaves alternate, unequally pinnated; stems glandular at the point; racemes terminal; flowers white or purple.

Habitat. South of Europe.

Quality. Aromatie, tonie, antispasmodie, diuretic, emmenagogue.

Uses. Root in intermittents, epilepsy, hysteria, amenorrhœa, ehlorosis, worms.

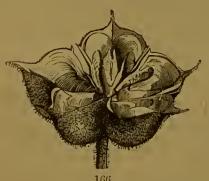


Fig. 165.—Leaves of various species of Bucku: a, Barosma graveolens; b, Diosma crenata; b^* , a magnified view of a portion of it; c, D. serratifolia; d, B. venusta. 166. Fruit of Dictammus.

Natural Order, Courciaus; Cedrelacece (V. K., p. 461.)

Prevailing Quality. Tonic, astringent.

CEDRELA. Linnœus.

Stamens distinct. Capsule 5-celled, 5-valved; seeds suspended, winged at the back.

1. C. Toona Roxburgh.

Leaves abruptly pinnated; leaflets ovate-lanceolate, acuminate, somewhat serrated, pallid beneath, glaucous; racemes axillary, panieled.

Habitat. Bengal, Indian Islands. Quality. Tonie, astringent.

Uses. Bark in epidemic fevers, diarrhœa, dysentery.

Soymida. Adrien de Jussieu.

Stamens united in a short, eup-shaped tube. Seeds winged all round.

1. S. febrifuga Adrien de Jussieu.

Leaves alternate, abruptly pinnated; leaflets in about 4 pairs, oval, obtuse or emarginate, rather oblique at the base; racemes forming a terminal paniele.

Habitat. Mountains of India. Quality. Tonie, febrifugal.

Uses. Bark in jungle fevers, typhus, gangrene.

Natural Order, Anacardiaceæ (V. K., p. 465.)

Prevailing Quality. Dangerous acridity.

Anacardium. Linnœus.

Fruit a kidney-shaped nut, seated on the end of a pyriform fleshy peduncle.

11. A. occidentale Linnæus.—(Cashew Nut.) Fig. 167.

A large tree; leaves oval, very blunt or emarginate, little narrowed to the base, rather longer than broad.

 Habitat.
 Tropies of both hemispheres.

 Quality.
 Aerid, venomous; gum astringent.

Uses. Seeds oily, when roasted eatable and wholesome; but dangerous to roast on account of the aerid vapour.

Mangifera. Linnœus.

Fruit a naked fleshy drupe. Petals 4-5. Stamens 5, mostly sterile. Ovary 1, seated in a fleshy disk.

1. M. indica Linnæus.—(MANGO TREE.)

A tree; leaves oblong-lanceolate, stalked; panieles erect; petals spreading at the point; stamen 1 perfect; fruit smooth.

Tabitat. East Indies.

Quality. Terebinthinous; gum-resin bitter, sub-aerid. Sees. Fruit of much value for the dessert, sweet, luseious.



PISTACIA. Linnœus.

Flowers apetalous, imperfectly diccious. Fruit a dry drupe, with a bony

1. P. atlantica Desfontaines.—(BARBARY MASTICIL.) Fig. 168.



Leaves unequally pinnated, deciduous; leaflets about 9, lanceolate. rather tapering to the base; the petiole winged between the terminal pairs.

Habitat. North of Africa; Levant. Quality and Uses. As in the next.

2. P. Lentiscus Linnæus.—(The MASTICH TREE.)

Leaves abruptly pinnated, evergreen; leaflets 8, lanceolate: petiole winged.

Habitat. South of Europe, North of Africa, Levant.

Quality. Resin fragrant, astringent. Uses. Occasionally in gleet, leucorrhea, &c.; chiefly by dentists, and as a varnish.

3. P. Terebinthus Linnæus.—(Turpentine Pistacia.)

Leaves unequally pinnate, deciduous; leaflets about 7, ovate-lanceolate, rounded at the base, acute, mucronate.

South of Europe, North of Africa, Levant.

Habitat. South of Europe, North of Afr Quality. Like that of other turpentines. Uses. Yields Scio or Cyprus turpentine.

4. P. vera Linnæus.—(Pistacia Nut.)

Leaves unequally pinnate, deciduous; leaflets ovate, somewhat narrowed to the base, rather mucronate, in fives, threes, or single.

Habitat. Syria.
Quality. Fruit oily.

Uses. At dessert: and for astringent emulsions.

Linnœus. RHUS.

Flowers 4. Petals from beneath a large orbicular disk. Ovary sessile; styles 3. Drupe nearly dry, with a bony stone.

1. R. Toxicodendron Linnæus.—(Poison Oak.)

Leaves trifoliolate; leaflets ovate, oblong, thin, cut and angular, pubescent; sometimes entire.

Habitat. United States.

Quality. Excessively acrid, and narcotic: even its gaseous emanations; a dangerous poison.

Uses. Paralysis, chronic rheumatism, amaurosis.

2. R. Metopium Linnæus.—(Hog Gum.)

Leaves unequally pinnate, in 2 pairs, very smooth; leaflets with a short stalk, ovate, entire.

Habitat. West Indies.

Gum astringent, vulnerary, diuretic. Quality.

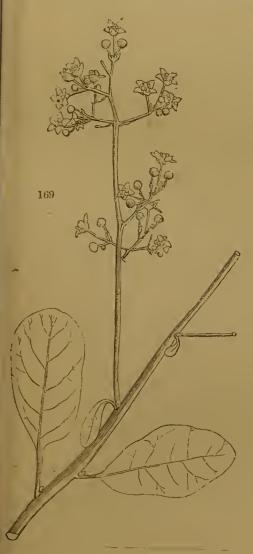
Uses. Fresh wounds, sores, colic, gonorrhea; as a plaster in gout and rheumatism.

3. R. Cotinus Linnæus.—(Venetian Sumac. Wig Tree.) Fig. 169. Leaves simple, obovate; branches of the panicle sterile, becoming covered with long hairs.

Habitat. South of Europe.

Quality. Wood astringent, dyes yellow.

Uses. As a dye under the name of Young Fustic.



Natural Order, Quassiads; Simarubaceæ (V. K., p. 477.)

Prevailing Quality. Bitter, narcotic.

Quassia. Linnœus.

Flowers hermaphrodite. Stamens 10, longer than the petals. Drupes 5.

1. Q. amara Linnæus.—(Surinam Quassia.) Fig. 170.

Leaves unequally pinnate, with a broad-winged jointed petiole; raccmes terminal; flowers large, red.

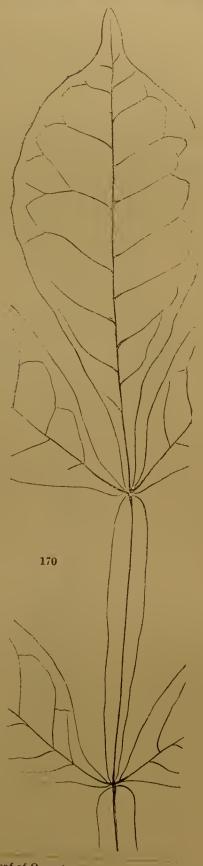


Fig. 169.—Branch in flower of Rhus Cotinus; 170. Leaf of Quassia amara.

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Habitat. Surinam. Quality. Intensely bitter.

Uses. Like those of Simaruba; its infusion a fly-poison.

SIMARUBA. Aublet.

Flowers polygamous. Stamens 10, as long as the petals. Carpels 5, surrounded by 10 short hairy scales.

1. S. amara Aublet.—(Mountain Damson.) Fig. 171. Leaves abruptly pinnate; leaflets alternate, on short stalks, downy on the under side.

Habitat. West Indies.
Quality. Bitter, tonic; emetie, purgative.

Uses. Dysentery, diarrhoa, anorexia, intermittents.



Picræna. Lindley.

Flowers polygamous. Stamens 5, as long as the petals. Carpels 3, on a tumid receptacle.

1. P. excelsa Lindley.—(Jamaica Quassia.) Leaves unequally pinnated; leaflets opposite, on short stalks.

Habitat. Jamaiea.

Nareotie poison; bitter, stomachic, Quality. tonie; antiseptie.

Uses. Dyspepsia, anorexia, intermittents.

Natural Order, Mcliaus; Meliaceae (V. K., p. 463.)

Prevailing Quality. Bitterness.

Melia. Linnœus.

Tube of stamens very long, ten-cleft, bearing 10 anthers below the end. Fruit a drupe, with a 1-celled bony nut.

1. M. Azedarach Linnæus.

Leaves unequally bipinnate with opposite ovate acute serrated leaflets; fruit the size of an Olive.

Habitat. Syria; eommonly eultivated in the south of Europe.

Quality. Root bitter, nauseous. Pulp of fruit suspicious.

Uses. Root as an anthelmintic in the United States.

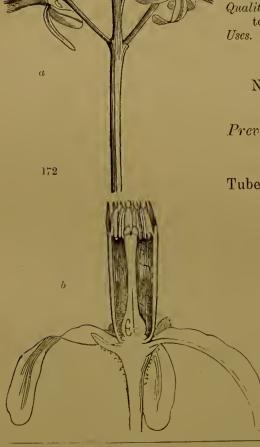


Fig. 171.—Portion of inflorescence of Simaruba amara; 172. a, do. of Melia Azedarach! b, a perpendicular section of a flower magnified.

Natural Order, Beancapers; Zygophyllaceæ (V. K., p. 478.)

Prevailing Quality. Acridity.

Zygophyllum. Linnæus.

Style tapering. Flowers complete, $\sqrt[5]{}$. Seeds in 2 rows in each cell.

1. Z. Fabago Linneus.—(Bean Caper.)

Leaflets in pairs, obovate; pedicels erect; calyxes smooth; petals undivided.

Hubitat. Syria.

Quality. Anthelmintic. Uses. As a vermifuge; flower-buds a substitute for capers.

GUAIACUM. Plumier.

Style tapering. Flowers complete, $\sqrt[5]{}$. Seeds (by abortion) solitary. Capsules fleshy, stipitate.

1. G. officinale Linnæus.—(LIGNUM

VITE.) Fig. 173.

Leaflets in 2 pairs, obovate or oval, obtuse.

Habitat. West Indies.
Quality. Acrid, stimulant, emmenagogue. Uses. Chronic rheumatism, gout, scrophula, syphilis, painful menstruation; leaves used as a substitute for soap; hard and heavy timber called lignum vitæ.

2. G. sanctum Linnæus.

Leaflets in 5 or 7 pairs, oval, obtuse, mucronulate; petioles and twigs somewhat downy.

Habitat. Porto Rico. Quality and Uses. As in the last.



THE GERANIAL ALLIANCE (V. K., p. 484.)

Natural Orders of Geranials.

Fruit beakless. Seeds exalbuminous. Leaves Flarworts (Linaceæ.) jointless.

Oralids (Oxalidacea.) Fruit beakless. Seeds albuminous. Leaves jointed.

Crancs-bills (Geraniaceæ.) Fruit beaked.

Natural Order, Hlayworts; Linaceæ (V. K., p. 485.)

Prevailing Quality. Purgative, emollient.

LINUM. Linnaus.

Sepals 3-5, persistent.

174

Petals 3-5, slightly united at the base. Stamens slightly monadelphous. Capsule 3-5-celled, each cell subdivided by a spurious partition.

1. L. usitatissimum Linnæus.—(Common Flax.) Fig. 174.

Stem simple, erect; leaves alternate, lanceolate; flowers blue; sepals ovate, acuminate, without glands.

Habitat. Hedges and woods of Europe.
Quality. Seeds, called Linseed, emollient, demulcent.
Uses. To allay inflammation; in tea, poultices. Oil largely employed by painters. The crushed seeds are the oil-cake of farmers.

2. L. catharticum Linnæus. — (Purging Flax.) Fig. 175.



Stem branched; leaves opposite, rough-edged, the lowest obovate, the others lanceolate; flowers white; sepals fringed with glands.

Habitat. Damp meadows and fields. Quality. Bitter, purgative, diuretic.

Uses. In rheumatism.

Fig. 174.—a, Linum usitatissimum; b, its pistil; c, diagram of its flower; 175. Linum catharticum; a, a flower seen in front; b, do. from behind.

Natural Order, Oralids; Oxalidaceæ (V. K., p. 488.) Prevailing Quality. Acidity.

> OXALIS. Linnæus.

Stamens 10. Fruit capsular.

1. O. Acetosella Linnæus.—(Wood Sorrel. Shamrock.) Fig. 176. Stemless; leaflets obcordate, downy; peduncle longer than the petiole, 1-flowered, with a pair of bracts above the middle.



Habitat. Dry woods, very common. Quality. Acid; refrigerant. Uses. Leaves used in salad; infusion in fevers.

2. O. crenata Jacquin.—(Oca.)

Tuberous; stem erect, leafy; leaflets obovate; peduncle 5-6-flowered, longer than the leaves; petals crenate.

Habitat. Mountains of South America.

Quality. Extremely acid, nutritious.

Uses. Tubers, after exposure to light, sweeten and become a useful food.

Natural Order, Crancs-bills; Geraniaceæ (V. K., p. 496.) Prevailing Quality. Aromatic, resinous.

GERANIUM. Linnœus.

Flowers regular. Stamens 10, all fertile.

1. G. Robertianum Linnæus.—(HERB ROBERT.)

Leaves in 3-5 divisions; lobes trifid, pinnatifid; petals entire, twice as long as the aristate calyx.

Habitat. A common weed. Quality. Astringent, aromatic. Uses. In nephritic disorders.

2. G. maculatum Linnæus.—(Alum-root.)

Stem somewhat angular, erect, dichotomous, hairy backwards; leaves in 3-5 divisions, cut, toothed, those next the root on long stalks, the uppermost opposite and sessile; petals entire.

Habitat. United States.
Quality. Root extremely astringent.

Uses. Gargles; diarrhoea, chronie dysentery, cholera infantum, hemorrhages, gleet, gonorrhea, &c.

Erodium. L'Heritier.

Flowers regular. Stamens 10, half being sterile.

1. E. moschatum Willdenow.

Stem procumbent; leaves pinnatifid, the segments on short stalks, ovate, unequally cut, serrated; peduncles many-flowered, covered with glandular pubescence.

Habitat. South of Europe.

Quality. Astringent, aromatic, musky.

THE SILENAL ALLIANCE (V. K., p. 495.)

Natural Orders of Silenals.

Silenats, or Cloveworts (Caryophyllacee.) Polypetalous, symmetrical. Leaves opposite, without stipules.

Burstancs (Portulacaceae.) Polypetalous, unsymmetrical. (Sepals 2).

Buckwheats (Polygonacece.) Apetalous. Leaves alternate, with ochreate stipules.

Natural Order, Silenads, or Cloveworts; * Caryophyllacea (V. K., p. 496.) $Prevailing\ Quality.$ Saponaceous; poisonous.

AGROSTEMMA. Linnœus.

Calyx with 5 long leafy teeth, naked. Stamens 10. Styles 5. Capsule eompletely 1-eelled.

1. A. Githago Linnæus.—(Corn-cockel.)

Petals blunt; segments of the calyx longer than both the tube and the petals.

Habitat. Corn-fields; annual.

Quality and Uses. Seeds contain saponine, a poisonous principle; they render flour unwholesome when ground among corn.

VACCARIA. De Candolle.

Calyx 5-toothed, naked, angular, winged. Stamens 10. Styles 2. Capsule 4-toothed.

1. V. vulgaris Host. Saponaria Vaccaria Linn.—(Soarwort.)

Stem erect, smooth; leaves lanceolate, connate at the base; flowers loosely corymbose.

² It seems desirable to change the name of Cloveworts, because of the identity in name of the garden Clove, a type of this order, and the Clove of the shops, which belongs to Myrtle-blooms.

Habitat. Europe, in fields and on hills; an annual. Quality and Uses. Roots contain saponine; herbage said to increase the milk of cows.

Natural Order, Purslancs; Portulacaceæ (V. K., p. 500.)

Prevailing Quality. Insipidity.

PORTULACA. Linnœus.

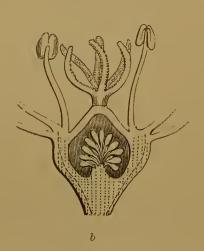
Calyx bifid, deciduous, leaving behind a circular base. Stamens 8-15, distinct. Stigmas 6. Capsule circumscissile.

1. P. oleracea Linnaus.—(Purslane.) Fig. 177.

Stem and branches fleshy, prostrate; leaves wedge-shaped, succulent; flowers solitary, sessile, yellow; sepals bluntly keeled.

177





Habitat. Cultivated in gardens.
Quality. Antiscorbutic, refrigerant.
Uses. Leaves a common potherb, and salad.

Natural Order, Buckwheats; Polygonaceæ (V. K., p. 502.)

Prevailing Quality. Purgative, astringent.

Polygonum. Linnœus.

Calyx 4-5-cleft, more or less coloured. Stamens variable in number, in 2 rows, generally with glands at the base. Styles more or less united at the base. Nut invested by the permanent calyx. Embryo lateral.

1. P. Hydropiper Linnæus.—(Water Pepper.) Fig. 179.

Leaves lanceolate; ochreæ with short fringes; spikes filiform, lax, pendulous; flowers hexandrous, with glandular dots.

Fig. 177.—a, a twig of Portulaca oleracea, natural size; b, section of the flower of Portulaca oleracea, magnified.



Habitat. Ditches.

Quality. Very acrid, diuretic. Uses. Leaves are vesicant, but they require to be fresh.

2. P. Bistorta Linnæus.— (BISTORT.) Fig. 178.

Leaves oblong-ovate, rather cordate and wavy; petioles winged; flowers in a dense terminal spike.

Habitat. Meadows.

Quality. Powerfully astringent; tonic.

Uses. Decoction in leucorrhea and gleet, spongy gums, relaxed sore throat, hemorrhages, fluxes; intermittents.

3. P. amphibium Linnæus. Stems creeping, root-like;

leaves stalked, generally floating, ovatelanceolate, more or acute, singleribbed, minutely serrated, smooth, bright green, slightly heartshaped at the base; stipules abrupt, smooth; flowers in dense, ovate, bracteated heads; stamens 5; styles 2, united at base; stigmas globular, red.

Ponds, ditches, and wet Habitat.

places.

Uses. The root-like stems bear some resemblance to Sarsaparilla, and are substituted for the foreign drug by the herbalists of Nancy; it is said that it resembles true Sarsaparilla in its properties, and that the apotheearies and druggists of Lorraine use it in preference.

P. aviculare Linnæus. -(Knot Grass). Fig. 180.

Stems prostrate, or nearly so, leafy up to the ends; leaves lanceolate or oblong; ochreæ bifid, 6-nerved; flowers axillary; nuts rugose.

Fig. 178.—Polygonum Bistorta.

Habitut. Waste places, every where.

Quality and Uses. The small nuts reputed to be emetic and purgative.



FAGOPYRUM. Tournefort.

As Polygonum; but embryo central, and flowers in panicled racemes.

Fig. 179.—Polygonum Hydropiper; 180. P. aviculare; a, a flower magnified.

cled, leafless.

1. F. esculentum Meisner.—(Buckwheat.) Fig. 181.

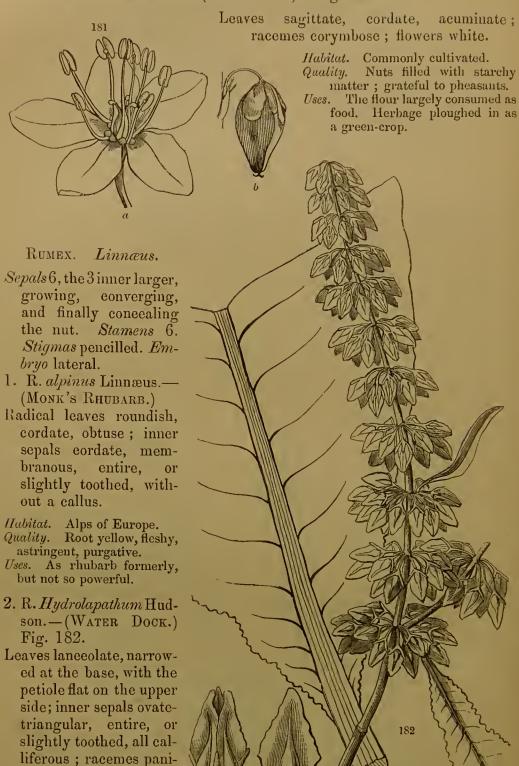


Fig. 181.—a, flower of Fagopyrum esculentum, magnified; b, fruit of do.; 182. Rumex Hydrolapathum; a, ripe sepals concealing the fruit; b, one of the sepals.

Habitat. Ditches and ponds. Quality. Root acrid, bitter, astringent, antiscorbutic.

Uscs. Scurvy, skin diseases, rheumatism; root a dentifrice, and an astringent gargle.

3. R. Acetosa Linnæus. — (COMMON SORREL.) Fig. 183.

Leaves sagittate or hastate, veiny; flowers diœcious; inner sepals roundish, cordate, not calliferous, with a deflexed scale at the base.

Habitat. Woods and pastures.

Quality. Acid, astringent, slightly
nutritive, refrigerant.

Uses. A pot-herb and salad; cool-

ing drinks.

RHEUM. Linnæus.

Sepals 6, withering. Stamens 9. Stigmas discoid. Nut naked, 3-winged. Embryo central. Fig. 184.

1. R. palmatum Linnæus. Leaves half palmate; petiole terete.

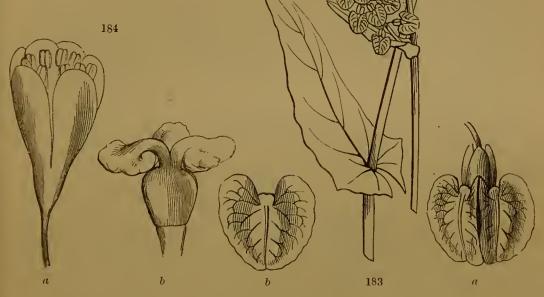


Fig. 183.—Rumex Acetosa; a, ripe calyx; b, one of the sepals; 184. a, flower of Rheum, much magnified; b, its pistil, do.

Habitat. Chinese Tartary.
 Quality. This and the following astringent, tonic, purgative.
 Uscs. As a purgative in diarrhea, dyspepsia; as an external application in healing indolent uleers. Supposed to be Russian Rhubarb.

2. R. undulatum Linnaus.

Leaves oval, obtuse, extremely wavy, when young covered with short white hairs; petioles crimson, semi-cylindrical, with elevated edges.

Habitat. Siberia.

Quality and Uses. As in the last. Supposed to be Russian Rhubarb.

3. R. Emodi Wallich.

Leaves roundish, cordate, entire, rather wavy, very rough; with angular rough petioles.

Habitat. Himalayah.Quality and Uses. As in the last, but more astringent, and less aromatic. Its root is Himalayan Rhubarb.

COCCOLOBA. Linnæus.

Calyx becoming pulpy and investing the bony nut. Embryo central.

1. C. uvifera Linnæus.—(Seaside Grape.)

Leaves orbicular, cordate, coriaceous, shining, entire; a small tree.

Habitat. Sea-coast in West Indies.

Quality. Astringent, sub-acid.

Uses. Fruit succulent, eatable; extract found extremely astringent. Jamaica Kino.

THE CHENOPODAL ALLIANCE (V. K., p. 505.)

Natural Orders of Chenopodals.

Auctagus (Nyctaginaceæ.) Calyx tubular, becoming bony at the base. Phytolaccaceæ.) Sepals distinct. Carpels several. Chenopodiacea.) Sepals distinct. Carpel single.

Natural Order, Ayctagus; Nyctaginaceæ (V. K., p. 506.)

Prevailing Quality. Purgative.

MIRABILIS. Linnæus.

Involuced resembling a calyx, 1-flowered. Calyx petaloid, funnel-shaped. Stamens 5. Stigma capitate. Fruit a corrugated false nut, formed out of the hardened base of the calyx.

1. M. Jalapa Linnæus.—(MARVEL OF PERU.) Fig. 185.

Leaves ovate, cordate, smooth; flowers clustered; tube of calyx twice as long as the limb, the segments of which are nearly entire.

Habitat. Tropics of both hemispheres. Quality. Roots drastie, purgative, when old; inert when young.

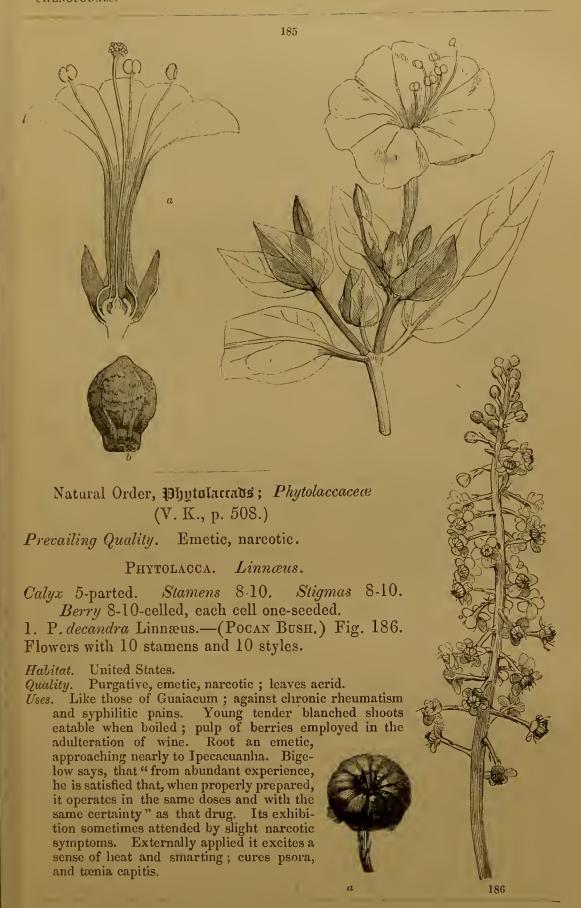


Fig. 185.—Mirabilis Jalapa; a, a flower cut perpendicularly; b, the ripe fruit; 186. Flowers of Phytolacca decandra; a, the ripe fruit.

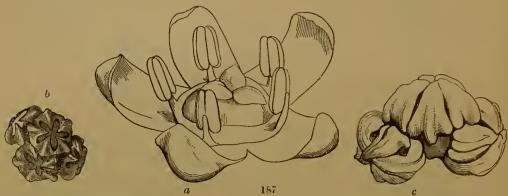
Natural Order, Chenopodiaceae (V. K., p. 512.) Prevailing Quality. Insipid; rarely aromatic and stimulating.

Beta. Linnœus.

Calyx 5-eleft. Stamens 5, inserted on a fleshy ring, surrounding the ovary. Fruit adhering to the calyx, and collected in clusters of 2 or 3.

1. B. vulgaris Linneus.—(Garden Beet.) Fig. 187.

Root large, fleshy, succulent; radical leaves ovate, obtuse, somewhat cordate.



Habitat. South of Europe. Quality. Roots sugary, nutritious.

Uses. As food for man and eattle; leaves like eabbage, but earthy and unpleasant.

Spinacia. Linnœus.

Flowers polygamo-diccious. 3 Calyx 4-parted. Stamens 4. 9 Calyx 2-3-cleft; styles 4. Fruit connate with the hardened calyx.

1. S. oleracea Linnæus.—(Spinach.)

Leaves hastate, oblong-ovate.

Habitat. Levant.
Quality. Insipid, nutritious.
Uses. Leaves a common pot-herb.

ATRIPLEX. Linnœus.

Flowers polygamo-monœcious. δ or \mathcal{Q} Calyx 3-5-parted. Stamens 3-5. \mathcal{Q} Calyx compressed, 2-lobed, or 2-parted.

1. A. hortensis Linnæus.—(GARDEN ORACH.)

An annual; leaves cordate, triangular, the upper rather hastate; calvx of fruit roundish ovate, netted, entire.

Habitat. Commonly eultivated.

Quality. Leaves insipid, nutritious. Seeds emetie?

Uses. Leaves an old-fashioned pot-herb.

Salsola. Linnœus.

Sepals 5; with a transverse appendage at the back when ripe. Stamens 5. 1. S. Kali Linnæus.

Leaves subulate, spiny at the point; ripe scpals cartilaginous, with acuminate segments as long as the round spreading appendages.

Habitat. Salt marshes of Europe. Quality. Saline.

Uses. A common source of soda.

Salicornia. Linnœus.

Calyx fleshy, entire, sunk in an excavation of the rachis. Stamens 1 or 2. 1. S. annua Smith.—(Saltwort.) Fig. 188. Stem herbaceous; calyxes placed in a triangle.

Habitat. Salt marshes. Quality. Saline.

Shoots, when young, pickled, and sold under the false name of Samphire. A source of soda.

CHENOPODIUM. Linnœus.

Flowers hermaphrodite. Calyx 5-cleft, without appendages. Stamens 5. Utricle depressed.

1. C. olidum Curtis.— (STINKING GOOSE-FOOT.)

Leaves rhomboid-ovate, entire, hoary with meal; racemes leafless; seeds shining, finely dotted.

Habitat. Waste ground, especially at the foot of walls.

Quality. Nauseously fetid. Uses. As an antispasmodic and emmenagogue; a popular remedy in much repute.

2. C. Botrys Linnæus. Ambrina Spach.— (JERUSALEM OAK.) Fig. 189.

Leaves pinnatifid, sinu-

ous, obtuse, covered with viscid glands, racemes axillary and terminal,

Habitat. South of Europe.

Quality. Fragrant, expectorant; anthelmintic.

Uses. Catarrh, and humoral asthma.

3. C. anthelminticum Linnæus.—(Wormseed.)

Leaves smoothish, oblong, narrowed to the base, acute, unequally sinuate and serrate; racemes spicate, naked, axillary, and terminal.

Habitat. United States.

Quality. Strong scented, somewhat aromatic.

Uses. Seeds yield Wormseed oil; both employed in the expulsion of worms.



THE PIPERAL ALLIANCE (V. K., p. 515.) Patural Orders of Piperals.

Prepresents (Piperaceae.) Ovule erect. Leaves usually alternate.

Chloranthaceae.) Ovule suspended. Leaves opposite, with intermediate stipules.

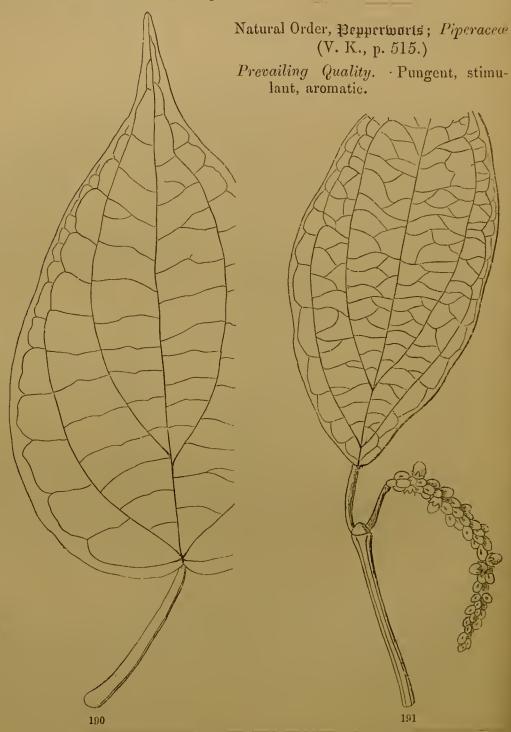
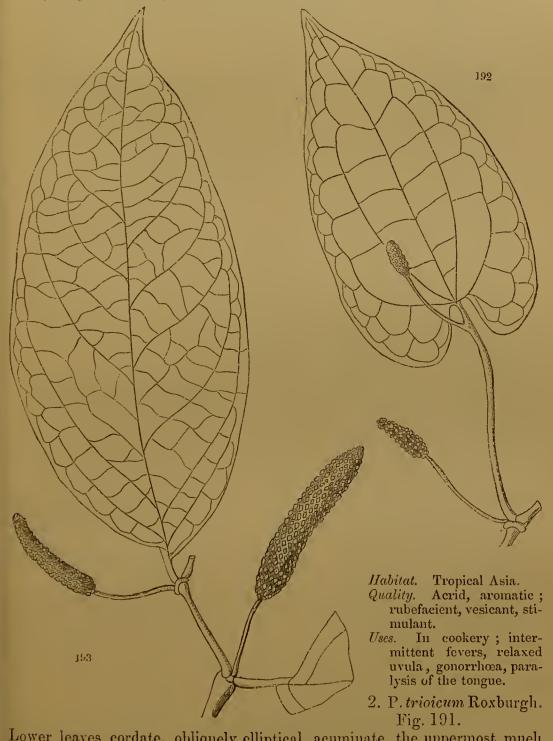


Fig. 190.—Leaf of Piper nigrum; 191. P. trioicum in flower.

Piper. Miquel.

Woody. Spikes solitary, opposite the leaves. Flowers sessile, polygamodiccious. Bracts oblong, sessile, decurrent.

1. P. nigrum Linnæns.—(Black Pepper. White Pepper.) Fig. 190. Lower leaves roundish ovate, nearly equilateral, pale beneath, dotted when young; amenta ♂ or ♀, filiform, pendulous.



Lower leaves cordate, obliquely elliptical, acuminate, the uppermost much narrower; amenta polygamous, 3 filiform, 2 stiffer and shorter.

Habitat. East Indies.

Quality and Uses. Like the last, but more pungent.

CHAVICA. Miquel.

Woody. Spikes solitary, opposite the leaves. Flowers sessile, diceious. Fruit sessile. Bracts stalked, quadrangular, peltate. Style 0.

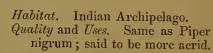
1. C. Roxburghii Miquel.—(Common Long Pepper.) Fig. 192.

Rather hairy; lower leaves roundish ovate, 7-nerved; female spikes eylindrical, about as long as their stalk.

Habitat. Bengal.
Quality and Uses. Yields the common
Long Pepper of the shops; see
C. officinarum.

2. C. officinarum Miquel. Piper longum Linnæus. — (Java Long Pepper.) Fig. 193.

Smooth; lower leaves ovate-cordate, 3-5 nerved; female spikes cylindrical, short, rather narrowed at the point.



3. C. Betle Miquel. Piper Betle Linnæus. — (Betle Pepper.)

Leaves smooth, the lower broadly cordate, acuminate, 7-9-nerved; female spikes short, reflexed, on long stalks.

Habitat. All over the East Indies.
 Quality and Uses. The leaf wrapped round the Areca, with a little quicklime, is chewed by Oriental nations as a stimulating narcotic and astringent: but it is uncertain what its precise quality is.

194

CUBEBA. Miquel.

Woody. Spikes solitary, opposite the leaves. Flowers diceious. Fruit stalked. Bracts sessile.

1. C. officinalis Miquel. Piper Cubeba Linnæus.—(Cubebs.)

Leaves coriaceous, smooth, rather large; fruit globose, shorter than their stalks.

Habitat. Java.

Quality. Acrid, aromatic, stomachic, stimulant of the urinogenital apparatus, aphrodisiac, diuretic.

Uses. Gonorrhœa, gleet, leucorrhœa; dyspepsia.

2. C. canina Miquel.—(Cubebs.) Fig.

Leaves membranous, hairy; fruit roundish-ovate, almost longer than their stalks.

Habitat. Java.

Quality and Uses. According to Blume, this furnishes part of the Cubebs of the shops.

ARTANTHE. Miquel.

Woody. Spikes solitary, opposite the leaves. Flowers Q. Style 0. Bracts peltate or cucullate.

1. A. elongata Miquel. Piper angustifo-lium Ruiz and Pavon. — (MATICO

PLANT.) Fig. 195.

Leaves short-stalked, harsh, oblong-lanceolate, acuminate, tessellated on the upper side, because of the sunken veins.

Habitat. Peru. Quality. Powerful styptic.

Uses. Diseases of genital organs and rectum; hæmorrhages; also as Cubebs.

MACROPIPER. Miquel.

Spikes clustered, axillary. Woody. Flowers diecious.

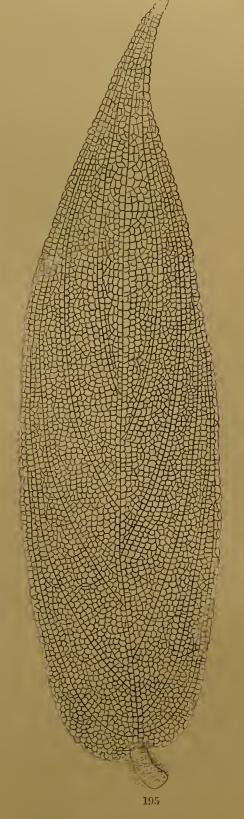
1. M. methysticum Miquel. Piper methysticum.—(KAWA, or AVA PLANT.)

Leaves membranous, equal-sided, broadly ovate, roundish, deeply cordate, with 9-10 nerves.

Habitat. Society Islands.

Quality. Stimulating narcotic, sudorific, aromatic.

Uses. Chronic rheumatism; venereal diseases.



Natural Order, Chloranths; Chloranthaceae (V. K., p. 519.)

396

Prevailing Quality. Aromatic, stimulant.

CHLORANTHUS. Swartz.

Bracts scale-like. Anthers lobed, 2-or-4-celled. Stigma scssile. A drupe.

1. C. officinalis Blume.

Leaves oblong, acuminate, thin, shining, with glandular serratures; bracts dotted with glands.

Habitat. Java.

Quality. Aromatic, fragrant, powerfully stimulant.

Uses. Spasms, typhoid fevers, malignant small-pox.

2. C. inconspicuus Swartz.—
(The Chu-Lan.)

Leaves thin, obovate, crenate or dentate, with blunt glandular serratures; bracts without glands.

Habitat. China.
Quality. Like the last.
Uses. Spikes of flowers scent Tea in
China.

THE MALVAL ALLIANCE (V. K., p. 359.)

Natural Orders of Malbals.

Byttneriads (Byttneriacew.)
Stamens monadelphous,
partly sterile.

Mallow-worts (Malvaccw.)
Stamens columnar, all perfect.

Lindenblooms (Tiliacew.)
Stameus separate.

Fig. 196.—Leaf of Theobroma Cacao.

Natural Order, Byttucriads; Byttneriacece (V. K., p. 363.)

Prevailing Quality. Uncertain.

THEOBROMA. Jussieu.

Sepals 5. Petals 5, arched at the base, and extended into a strap. Fruit fleshy, 5-celled. Seeds lying in buttery pulp.

1. T. Cacao Linnæus.—(Cocoa or Chocolate Tree.) Fig. 196.

Leaves quite entire, ovate-oblong, acuminate, smooth and the same colour on both sides.

Habitat. West Indies.

Quality. Somewhat astringent, oily, nutritious. Uses. Forms chocolate with Vanilla, &c.

GUAZUMA. Plumier.

Sepals 5, more or less combined. Petals 5, 2-horned. Capsule woody, warted, valveless, 5-celled, pierced by many perforations.

1. G. ulmifolia Lamarck.

Leaves when full-grown oblong, unequally toothed, smooth on each side.

Habitat. West Indies.
Quality. Mucilaginous, sudorific.

Uses. Sweet succulent fruit, eaten in Brazil; bark in cutaneous diseases.

Natural Order, Mallow-worts; Malvacece (V. K., p. 369.)

Prevailing Quality. Mucilaginous.

ALTHÆA. Linnæus.

Calyx 5-cleft, surrounded by a 6-9-cleft involucel. Styles numerous. Fruit as in Malva.

1. A. officinalis Linnæus.—(Marsh Mallow. Guimauve Fr.)

Leaves soft and hoary on each side, the lower 5-lobed, the upper 3-lobed.

Habitat. Meadows in Europe. Quality. Demulcent, pectoral.

Uses. As Malva sylvestris; injections in difficult parturition.

2. A. rosea Cavanilles.—(Ногичноск.)

Stem tall, straight, hairy; leaves cordate, 5-7-angled, crenate, rugose; flowers axillary, sessile, or forming terminal spikes; petals hairy at base.

Habitat. South of Europe.

Quality. Flowers mucilaginous, demulcent. Leaves dye blue.

Uses. As the last.

ABELMOSCHUS. Medicus.

Involuced of from 8-15 bracts. Carpels many-seeded. Seeds smooth, or hairy along a dorsal line. Corolla spreading flat.

1. A. esculentus Wight and Arnott. Hibiscus esculentus Linn.—(Ochro. Gobbo.)

Stem unarmed; leaves cordate, 5-lobed, toothed; bracts 10, deciduous; calyxes bursting laterally.

Habitat. Both Indies.
Quality. Fruit extremely mucilaginous.

Uses. In thickening soups; leaves as poultices.



2. A. moschatus W. and A. Hibiscus Abelmoschus Linn,— (Musk-seed.) Fig. 197.

Leaves rather peltate, cordate, 7-angled, acuminate, serrated; stem hispid; bracts 8-9; capsule bristly.

Tropical America and Asia.

Quality. Seeds musky, stimulating, cordial, stomachic.

Uses. Tincture against scrpent bites; seeds said to be roasted along with coffee by the Arabs.

197

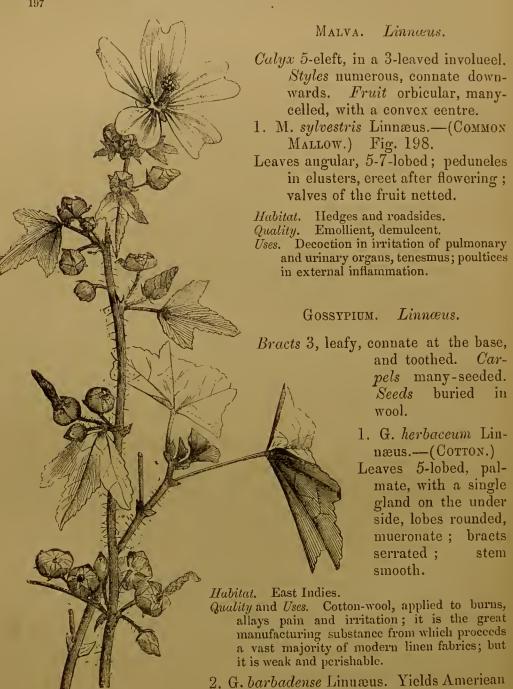


Fig. 197.—Seed of Abelmoschus moschatus, magnified; 198. Malva sylvestris.

198

cotton.

Natural Order, Lindenblooms; Tiliaceae (V. K., p. 371.)

Prevailing Quality. Mucilaginous, subastringent.

Corchorus. Linnœus.

Sepals 5, deciduous. Petals 5. Stamens 00. Capsule with 2-5 septiferous valves. Seeds in 2 rows.

1. C. olitorius Linnæus.

Leaves ovate-oblong, serrated; the lower screatures usually extended into a bristle; capsule oblong, taper, smooth.

Habitat. Tropical countries.

Quality. Mucilaginous, insipid, nutritious.

Uses. A pot-herb.

TILIA. Linnœus.

Flowers growing from a thin membranous bract. Sepals 5, deciduous.

1. T. europæa Linnæus.—(Lime or Linden Tree.) Fig. 199.

Leaves roundish-cordate, oblique, hairy beneath, especially at the axils of the leaves.



Habitat. Woods of Northern Europe.

Quality. Fibrous tunic very tough; flowers sudorific, emollient; bracts astringent. Uses. Inner bark makes Russian mats; infusion of flowers in vertigo and spasms, and against cough.

THE CISTAL ALLIANCE (V. K., p. 348.)

Natural Orders of Cistals.

Rock-roses (Cistaceae). Flowers 3/ or 5/. Stamens 00.

Crucifers (Brassicaceae). Flowers $\sqrt[4]{}$. Stamens tetradynamous.

Capparidaceæ). Flowers ∜. Stamens 00.

Natural Order, Rock-roses; Cistaceæ (V. K., p. 349.)

Prevailing Quality. Resinous, fragrant, stimulant.

CISTUS. Linnœus.

Sepals 5, the 2 outer unequal or deficient. Capsule 5-10 valved.

1. C. creticus Linnæus.—(Ladanum Bush.)

Leaves ovate, obtuse, hairy, blunt, much wrinkled; flowers purple; style as long as the stamens.

Habitat. Candia, &c.

Quality. Resinous juice stimulant.

Uses. In plaisters; in perfumery, and pastiles; as an expectorant.

Natural Order, Crucifors; Brassicaceæ (V. K., p. 351.)

Prevailing Quality. Pungent, antiscorbutic.

Brassica. Linnœus.

Silique terete; each valve with one straight dorsal rib, and no lateral veins. Seeds globose in one row. Embryo conduplicate $\bigcirc >>$.

1. B. oleracea Linnæus.—(Cabbage.)

Leaves glaucous, never hispid; siliques and calyx both erect.

Habitat. Sea-coast of Europe, on cliffs.

Quality. Antiscorbutic, nutritious. Uses. A common pot-herb.

2. B. Rapa Linnæus.—(Turnip.)

Leaves bright green, hispid; root fleshy, succulent.

Habitat. France and the south of Europe.

Quality and Uses. Like the last.

3. B. Napus Linnæus.—(RAPE.)

Leaves glaucous, never hispid; siliques spreading.

Habitat. North of Europe?

Quality. Like the last.

Uses. Seeds yield rape-oil; the crushed residuum rape-cake; much grown as a green-

SINAPIS. Linnœus.

Silique terete; the valves with 3 or 5 straight strong ribs. Seeds globose in a single row. $Embryo \bigcirc >>$.

200

1. S. alba Linnaus.—(White Mustard.)

Nearly smooth; leaves pinnated; valves of the silique 5-nerved, terminated by a sword-shaped horn.

Habitat. Fields.
Quality. As in S. nigra, but milder.

Uses. Seeds in torpor of digestive organs; young leaves as salad.

2. S. nigra Linnæus.—(Black Mustard.)

Rough with hispid hairs; leaves lyrate; silique short, bluntly quadrangular, pressed close to the axis, without a sword-shaped point.

Habitat. Fields.

Quality. Acrid, stimulant, volatile, pungent, diuretic; oil purgative.

Uses. Seeds produce vomiting; employed in dyspepsia, dropsy, intermittents, and for forming sinapisms; distilled water has been used against itch.

RAPHANUS. Linnœus.

Silique indehiscent, spongy, somewhat jointed. Embryo $\bigcirc > >$.

1. R. sativus Linnæus.—(Radish.)

Siliques terete, acuminate, hardly longer than their stalks; roots fleshy, annual.

Habitat. Commonly cultivated.

Quality. Roots sub-acrid, succulent and tender when young.

Uses. A well-known esculent vegetable.

Crambe. Linnœus.

Silicle indehiscent, of 2 unequal joints, of which the upper is globose, the lower obsolete. $Embryo \bigcirc >>$.

1. C. maritima Linnæus.—(Sea Kale.) Fig. 200.

Leaves roundish, sinuated, wavy, toothed, exsious; the longer filaments forked.

Habitat. Sea-coast, in clay.

Quality. Antiscorbutic, nutritive, acrid when old.

Uses. The blanched sprouts a favourite esculent vegetable.

CARDAMINE. Linnœus.

Silique compressed, with flat nerveless valves. Stigma capitate. Seeds in one row. Embryo accumbent O=.

1. C. pratensis Linnæus.—(Cuckoo-flower.)

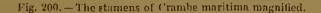
Leaves pinnate; leaflets roundish-ovate, of the upper leaves linear, entire; petals obovate, 3 times as long as the ealyx.

Habitat. Meadows.

Quality. Flowers stimulant, diaphoretic, diuretic, nervine. Uses. Epilepsy, cholcra, spasmodic astlima.

NASTURTIUM. Brown.

Silique short, cylindrical; valves convex, with searcely any nerves. Stigma capitate. Seeds in 2 irregular rows. Embryo $\bigcirc =$.



1. N. officinale Brown.—(Watercress.) Fig. 201.

Leaves pinnated; leaflets repand, the lateral elliptical, the terminal ovate, rather cordate.

Habitat. Running streams.
Quality. Pungent, antiscorbutic.
Uses. A favourite salad.

Cochlearia. Linnœus.

Silicle globose, with very convex valves. Seeds numerous. Embryo

1. C. officinalis Linnæus.—(Scurvy-grass.) Fig. 202. Radical leaves broadly ovate, rather cordate; the upper amplexical; valves of the silicle one-ribbed. An annual.

Habitat. Sea-coast of Europe.

Quality. Stimulant, aperient, diuretic, antiscorbutic.

Uses. Visceral obstructions; salads.



2. C. Armoracia Linnaus.—(Horse-Radish.) Fig. 203. Radical leaves cordate, or obovate-oblong, crenate; valves of the silicle ribless. A tap-rooted perennial.

Fig. 201. Nasturtium officinale; a, the silique in the act of dehiscing; b, a seed; c, an embryo; 202. Cochlearia officinalis; b, its silicle in the act of dehiscing.



Habitat. Meadows of Europe.
 Quality. Pungent, acrid, stimulant, vesicant.
 Uses. A condiment; masticatory; hoarseness; in infusion in cases of poisoning.

LEPIDIUM. Linnœus.

Silicle roundish, with compressed valves keeled at the back. Seeds 1 in each cell. Embryo incumbent $\bigcirc \parallel$, with multifid cotyledons.

1. L. sativum Linnaus.—(Garden-Cress.)

Lower leaves stalked, irregularly ent, lobed, pinnate; silicles roundish, winged, emarginate, pressed close to the rachis.

Habitat. Waste places.
Quality. Pungent, antiseorbutic.

Uses. A common vegetable, esculent when only the first leaves after germination have been formed.

Natural Order, Capparids; Capparidaceae (V. K., p. 357.)

Prevailing Quality. Aeridity.

CAPPARIS. Linnœus.

Calyx 4-parted. Petals 4. Carpophore slender. Stamens 00. Berry with a rind.

1. C. spinosa Linnæus.—(Caper Bush.) Fig. 204.

Leaves roundish, blunt, or emarginate; stipules spiny, curved.

Habitat. South of Europe.

Quality. Antiseorbutic, stimulant, aperient.

Uses. Young buds as "Capers," a well-known piekle; bark of root diuretic?

Polanisia. Rafinesque.

Sepals 4, spreading. Petals 4. Stamens 8-32. Silique sessile, or with a short stalk.

1. P. viscosa De Candolle. Cleome dodecandra and icosandra Linnæus.

Hairy, glandular; leaflets 3-5, obovate, euneate, or oblong; stamens 8-16; pod sessile, striated, glandular.

Habitat. East Indies.

Quality. Leaves pungent, like Mustard.

Uses. Leaves to form sinapisms; root as a vermi-

CRATÆVA. Linnæus.

Sepals 4. Petals 4, larger. Stamens 8-28. Berry stipitate, with a thin rind, pulpy internally.

1. C. gynandra Linnæus.—(GARLIC PEAR.)

204

Leaves ovate, acute; stamens 20-24, inserted on a cylindrical stipe, longer than the petals.

Habitat. Jamaica.

Quality. Bark of root blisters like Cantharides.

THE RANAL ALLIANCE (V. K., p. 416.)

Datural Orders of Ranals.

Magnoliace. Carpels distinct. Stipules convolute. Flowers 3.

Anonace. Carpels distinct. Stipules 0. Corolla valvate. Flowers 3.

Crowfoots (Ranunculaceæ.) Carpels distinct. Stipules 0. Corolla imbricated.

Hoppyworts (Papaveraceæ.) Carpels consolidated. Placentæ parietal.

Natural Order, Magnaliaus; Magnaliaceae (V. K., p. 417.)

Prevailing Quality. Bitter, tonic.

205

Drymis. Forster.

Carpels crowded, berried, manyseeded. Connective broad, and disjoining the anthercells.

1. D. Winteri Forster.—(WIN-TER'S BARK TREE.) Fig. 205.

Leaves dotted, oblong, obtuse, very glaucous beneath; flowers corymbose; sepals 2-3.

Habitat. Mountainous parts of South America.

Quality. Bark stimulant, aromatic,

Uses. As Cinnamon; in scurvy.

ILLICIUM. Linnœus.

Carpels whorled, one-sided, opening near the upper end.
Sepals 3-6 petaloid.

1. I. anisatum Linnæus.—(Star Anise Plant.)

Leaves evergreen, smooth, dotted; petals about 30, yellowish, the outer oblong, the inner subulate.

Habitat China and Japan.

Quality. Fruit aromatic, smelling like Anise, carminative.

Uses. In preparation of liqueurs.



MAGNOLIA. Linnœus.

Carpels spiked, arranged in cones, opening at the dorsal suture. Seeds pendulous by a long umbilical cord.

1. M. glauca Linnæus.—(Swamp Sassafras.)

Leaves thin, elliptical, obtuse, glaucous beneath; petals ovate concave.

Habitat. United States.

Quality. Bark and fruit bitter, aromatic, febrifugal.

Uses. As Cinchona; in chronic rheumatism.

LIRIODENDRON. Linnœus.

Carpels spiked, arranged in cones, indeliscent, winged at the end.

1. L. tulipifera Linnæus.—(Tulip Tree.)

Leaves truncate, 4-lobed.

Habitat. United States.

Quality and Uses. As in the last.

Natural Order, Anonads; Anonaceae (V. K., p. 420.)

Prevailing Quality. Aromatic.

XYLOPIA. Linnœus.

Fruits on a convex receptacle, dry, indehiscent, cylindrical or moniliform. Seeds several, adhering to the pericarp.

1. X. aromatica Blume. Habzelia aromatica A. De Candolle.—(African PEPPER.)

Leaves ovate-lanceolate, acute, smooth, glaucous beneath; fruits taper, moniliform.

Habitat. Sierra Leone.
Quality. Aromatic, pungent, stimulant.
Uses. As pepper; the fruit is the Piper Æthiopicum of authors.

2. X. glabra Linnæus.—(BITTER-WOOD.)

Leaves oblong-ovate, smooth, dotted; fruit oblong, stipitate.

Habitat. West Indies.Quality. All the parts aromatic and intensely bitter.

3. X. grandiflora St. Hilaire. Uvaria febrifuga Martius.

Leaves elliptical, lanceolate, acute, pubescent above, downy beneath: inner petals 3-cornered, each with 2 auricles.

Habitat. Brazil.
Quality. Fruit aromatic, tonic.

Uses. A valuable remedy for fevers in Brazil.

Natural Order, Crowfoots; Ranunculacea (V. K., p. 425.)

Prevailing Quality. Acridity, causticity.

CLEMATIS. Linnœus.

Sepals 4, valvate or induplicate. Petals 0. Carpels one-seeded achania.

1. C. erecta Linnæus.

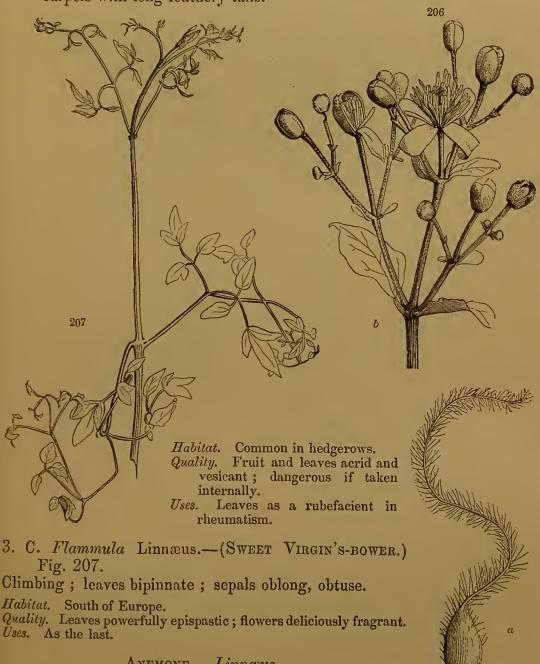
Erect; leaves pinnate; leaflets ovate acuminate; sepals smooth, downy at the edge.

Habitat. Europe.

Quality. Leaves extremely acrid and epispastic. Uses. Unsafe vesicants; in cachectic diseases.

2. C. Vitalba Linnæus.—(Traveller's Joy.) Fig. 206.

Stem climbing, woody; leaflets 5, cordate, unequally cut, finely hairy; carpels with long feathery tails.



ANEMONE. Linnœus.

Sepals $\sqrt[3]{}$, imbricated, not distinguishable from the petals. Achænia soft, woolly, tailed, or tailless.

Fig. 206.—Clematis Vitalba; a, a portion of the inflorescence; b, an achænium; 207. Young shoot of Clematis Flammula.

1. A. nemorosa Linnaus.—(Wood Anemone.) Fig. 208. Rhizome ereeping; leaves ternate; leaflets three-lobed cut; bracts exactly like the leaves; flowers solitary, erect, white.



Habitat. Woods of the north of Europe. Quality. Rhizome acrid, vesicant.

Quality. Rhizome acrid, vesicant.

Uses. Has been recommended, along with other species, in rheumatism, and in obstinate cases of tænia.

RANUNCULUS. Linnœus.

Sepals 3-5. Petals with a gland at their base. Achaenia mucronate. Fig 209.

1. R. Ficaria Linnæus.—(PILEWORT.) Fig. 210.

Leaves roundish cordate, shining, the upper angular sepals 3.

Habitat. Plantations, lawns and meadows. Quality. Subacrid, antiscorbutic.

Uses. Leaves sometimes used as a potherb; boiling renders them insipid.



Fig. 208.—Anemone nemorosa; 209. A petal of Ranunculus; the distinctive mark of the genus exhibited by gl, the gland.

2. R. Flammula Linnæus. Fig. 211.

Leaves lanceolate or linear; stem many-flowered; achania smooth, with a short point.



Habitat. Ditches and wet meadows. Quality. Epispastic, poisonous.

Uses. Distilled water an active and useful emetic.

3. R. acris Linnæus.—(UPRIGHT CROWFOOT.)

Leaves palmated, with rather rhomboid cut divisions, the upper 3-parted; peduncles terete; carpels lenticular, with a beak much shorter than the achænium; receptacle smooth.

Habitat. Meadows.

Quality. As a rubefacient and epispastic.

Uses. A powerful acrid.

4. R. sceleratus Linnæus. Fig. 212.

Succulent, smooth, annual; lower leaves palmate, erenated, upper 3-parted; head of achænia like a spike; achænia not keeled, finely wrinkled.



Habitat. Ditches everywhere.

Acrid, corrosive, very dangerous if taken internally; water an antidote.

Helleborus. Linnœus.

Sepals 5, petaloid, permanent. Petals small, tubular, 2-lipped. Follicles sessile, many-seeded.

1. H. niger Linnæus.—(Black Hellebore. Christmas Rose.) Fig. 213. Scape 1-2-flowered, with 2-3 oval bracts; flowers whitish.

Habitat. Shady woods of Central Europe.

Quality. Drastic purgative, emmenagogue; a narcotico-acrid poison.

Uses. Mania, epilepsy, dropsy, chronic skin diseases.

2. H. orientalis De Candolle; officinalis Sibthorp.—(ORIENTAL HELLEBORE.) Scape 3-5-flowered, with lanceolate finely serrated bracts; sepals acute; flowers whitish.

Habitat. Asia Minor.

Quality and Uses. As H. niger. The true Black Hellchore of the ancients.

3. H. fætidus Linnæus.—(Stinking Hellebore.)

Scape many-flowered, leafy; bracts oval; stem leafy; flowers green.

Habitat. Woods and waste places.

Quality. Leaves emetic, purgative, poisonous.

 $U_{ses.}$ As an emmenagogue; against the Ascaris lumbricoides.

NIGELLA. Linnœus.

Sepals 5, petaloid. Petals minute, unguiculate, with a scale at the base.

Follicles 5 united into a spuriously 10-celled capsule.

1. N. sativa Linnæus.—(Black Cummin.) Fig. 214.

Involucre 0; capsules rough; seeds wrinkled transversely.

Habitat. Corn-fields and gardens in Europe.

Quality. Seeds pungent, aromatic, strong-smelling.

Uses. As a condiment instead of pepper; pounded, as a sternutatory.

214





Sepals 5, the upper spurred. Petals 4; the 2 upper having spurs plunged in the sepaline spur. Follicles 1-5, many-seeded.

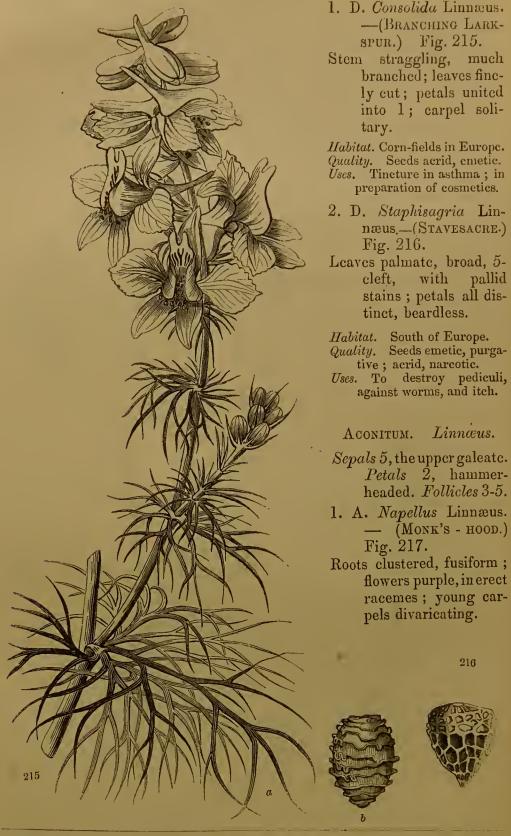


Fig. 215.—a, branch of Delphinium Consolida; b, one of its seeds magnified; 216. Seed of D. Staphisagria magnified.

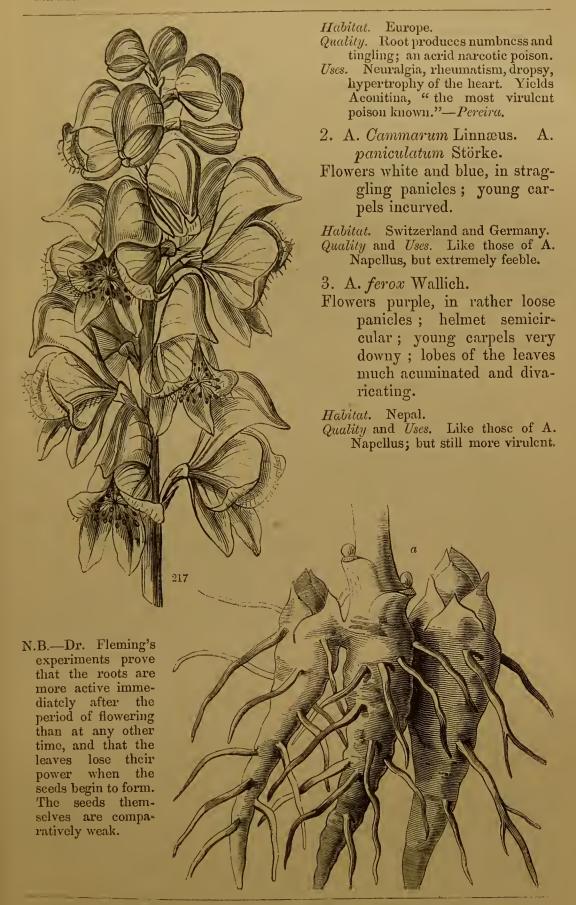
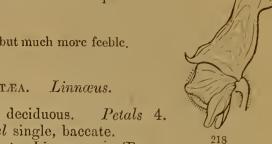


Fig. 217.—Flowers of Aconitum Napellus; a, one of its roots.

4. A. Lycoctonum Linnaus.—(Wolfsbane.) Fig. 218. Flowers yellow; petals with a filiform circinate spur.

Habitat. Switzerland. Quality. Scentless, bitter, subacrid.

Uses. Similar to those of A. Napellus, but much more feeble.



ACTEA. Linnœus.

Sepals 4, deciduous. Carpel single, baccate.

1. A. spicata Linnæus. — (BANE-BERRY.) Fig. 219.

Leaves ternate, twice pinnate; leaflets ovate-oblong, incised; raccmes ovate.

Habitat. North of Europe.
Quality. Poisonous, antispasmodic, astringent.
Uses. Roots in catarrh.

Natural Order, Hoppyworts; Papaveraceæ (V.K., p. 430.) Prevailing Quality. Narcotic, poisonous.

PAPAVER. Linnœus.

Sepals 2, deciduous. Petals 4. Stigma with from 4 to 20 rays.

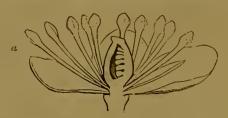
1. P. somniferum Linnæus. — (OPIUM POPPY.)

Leaves oblong, amplexicaul, glaucous, smooth; capsule smooth.

Habitat. Syria.

Quality. A stimulating narcotic; aphrodisiac?

Uses. In fevers, inflammatory discases, cholera, insanity, delirium tremens, convulsive diseases, vencreal disorders, &c., &c. Seeds (of a variety) called maw seeds, demulcent.



219

N.B.—From the wounded half-ripe capsules flows the juice which concretes into opium. From the dried capsules the decoction, syrup, and extract of Poppies are prepared. Dr. Percira justly observes, that these capsules or "heads" would be more active if gathered before ripeness: when full grown and just when the first change of colour is perceptible should be the best time to collect them. The seeds are not narcotic, but yield a bland oil similar to that obtained from Olives.

Fig. 218.—Flower of Aconitum Lycoctonum; 219. Actaa spicata; a, a perpendicular section of a flower.



Fig. 220.—Papaver Rhœas; a, one of its seeds; 221. Chelidonium majus.

1. A. mexicana Linnæus. Fig. 222.

Leaves sessile, repand, sinuated, spiny, variegated with white; flowers yellow.



Habitat. Common in tropical countries, derived from Mexico.

Quality. Narcotic, purgative, diurctic.

Uses. Seeds instead of opium, and of ipecacuanha; juice in ophthalmia, and as an application to chancres.

SANGUINARIA. Linnœus.

Petals 8-12. Stigma 2. Capsule oblong, ventricose, with 2 deciduous valves and a persistent many-seeded frame.

1. S. canadensis Linnæus.—(Puccoon. Blood Root.) Fig. 223. Rhizome fleshy, with red juice; leaves solitary, radical, roundish, deeply eordate, with about 7 toothed angles; flower solitary, radical.

Habitat. United States.

Quality. Acrid, narcotic, emetic.

Uses. Rhizome in typhoid pneumonia, catarrh, pertussis, croup, rhcumatism, jaundice, &c. Over-dosc dangerous.

THE GUTTIFERAL ALLIANCE (V. K., p. 392.)

Natural Orders of Guttiferals.

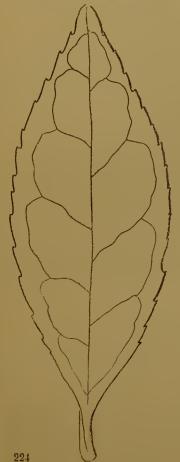
Thraus (Ternströmiacew.)
Leaves alternate.

Suttifiers (Clusiaceae.) Leaves opposite. Seeds few. Petals equilateral.

Tutsans (Hypericaceæ.) Leaves opposite. Seeds 00. Petals oblique.

Natural Order, Thrads; Ternströmiaceae (V. K., p. 396.)

Prevailing Quality. Stimulating, subnarcotic.





THEA. Linnœus.

Sepals 5-6. Petals 6-9, in two rows. Stamens nearly distinct. Capsule 3-valved, septicidal.

1. T. Bohea Linnaus.—(The Tea Plant.) Fig. 224.

Leaves eoriaeeous, flat, oblong-lanceolate or somewhat obovate, slightly toothed.

Habitat. Southerly districts of China.

Quality and Uses. As in the last.

Leaves thin, lanceolate, rather wavy,

2. T. viridis Linnæus.—(The Tea Plant.) Fig. 225.

eoarsely toothed.

Habitat. Northerly districts of China. Quality. Astringent, antisoporific, sedative, diluent; diaphoretic, diuretic.

Uses. A well-known beverage is prepared from the leaves. Black tea is the leaf more fermented than green tea.

Natural Order, Guttifers; Clusiacea (V. K., p. 400.)

Prevailing Quality. Aerid, purgative.

GARCINIA. Linnœus.

Flowers polygamous. Stamens more or less united; Anthers opening longitudinally. Fruit succulent, 4-10-eelled.

1. G. Mangostana Linnæus.—(MAN-GOSTEEN.)

Leaves rather rhomboidal, obtuse; male flowers fascicled; females solitary, terminal; fruit 6-10celled, about the size of an orange.

Habitat. Indian Archipelago.

Quality. Refrigerant, nutritious, laxative.

Uses. The most delicious of known fruits.

HEBRADENDRON. Graham.

Flowers polygamous. Stamens more or less united; anthers circumseissile. Fruit succulent, 4-10celled.

1. H. pictorium Christison.—(Mysore GAMBOGE TREE.) Fig. 226.

Leaves oval, acute at each end; flowers axillary, solitary; fruit slightly furrowed when ripe; seeds 4.

Habitat. Mysore and Malabar.

Quality. Gum resin hydragogue, and drastic; acrid. Uses. Constipation, apoplexy, dropsy, tapeworm cases.



2. H. gambogioides Graham. Cambogia Gutta Linn.—(CEYLON GAMBOGE TREE.)

Leaves oval or slightly obovate, obtusely acuminate; flowers axillary, aggregate; fruit globose; seeds 4.

Habitat. Ceylon.

Quality and Uses. As the last.

Natural Order, Tutsans; Hypericaecae (V. K., p. 405.)

Prevailing Quality. Astringent, subacrid.

Androsæmum. Allioni.

Capsule baccate, indehiscent.

1. A. officinale Allioni.—(Tutsan.)

Branches quadrangular; leaves ovate or cordate, sessile.

Habitat. Woods.

Quality and Uses. An ancient and powerful vulnerary; bruised leaves employed.

HYPERICUM. Linnœus.

Capsule membranous, 3-5 valved.

H. perforatum Linnæus.—(ST.

John's Wort.)

Leaves opposite, ovate, obtuse, strongly marked with clear transparent dots; flowers in terminal panicles.

Habitat. Groves, hedges, and waysides. Quality. Astringent.
Uses. Gargles and lotions.

VISMIA. Vandelli.

Berry membranous. Styles 5; stigmas peltate.

V. guianensis Persoon.—(AMERICAN GAMBOGE.)

Stem 4-cornered; leaves ovate-lanceolate, acuminate, dilated at the base, shortstalked, rufous beneath, smooth above.

Habitat. Guiana.

Quality. Resin aerid, purgative. Uses. As those of Gamboge.

THE FICOIDAL ALLIANCE (V. K., p. 523.)

Prevailing Quality. Mucilaginous, insipid.

TETRAGONIA. Linnœus.

(Natural Order. Aizoons.)

Calyx 4-cleft, adherent; by degrees gaining several horn-like processes. Nut bony, adherent, winged or horned.



1. T. expansa Aiton.—(New Zealand Spinach.) Fig. 228. A trailing succulent annual; leaves stalked, ovate, rhomboid; fruit 4-horned, 6-8-seeded.

Habitat. New Zealand.

Quality and Uses. Cultivated in gardens for its mucilaginous, insipid, succulent foliage; used instead of Spinach.



MELLOCA. Lindley.

(Natural Order. Basellads.)

Calyx membranous, 5-parted, free, stellate. Ovary 1-eelled, 1-seeded. 1. M. tuberosa Lindley. Ullucus tuberosus.—(The Melloco.) Fig. 229. Leaves reniform, cordate; flowers in short axillary spikes.



Habitat. Peru.

Mucilaginous, amylaceous, nutritious.

Quality. Mucilaginous, amylaceous, nutritious. Uses. Tubers employed like potatoes; leaves insipid, as Spinach.

THE DAPHNAL ALLIANCE (V. K., p. 529.)

Natural Orders of Waphnals.

Maphnads (Thymelacew.) Anther-valves straight.

Laurels (Lauraceæ.) Anther-valves recurved.

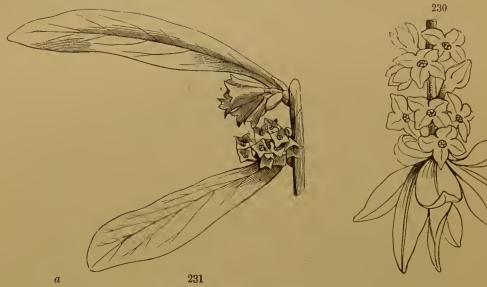
Natural Order, Daphnads; Thymelaceæ (V. K., p. 530.) Prevailing Quality. Acridity.

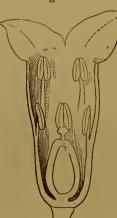
DAPHNE. Linnœus.

Calyx long, tubular, naked at the mouth. Stamens 8. Hypogynous scales 0. Fruit a drupe.

1. D. Mezereum Linnæus.—(Mezereon.) Fig. 230.

Leaves deciduous; flowers lateral, sessile.





Habitat. Woods; indigenous.

Quality. Bark acrid, laxative, poisonous.

Uses. Venereal, rheumatic, scrofulous and chronic cutaneous diseases; a masticatory.

2. D. Laureola Linnæus.—(Spurge Laurel.) Fig. 231. Leaves evergreen; flowers in axillary clusters.

Habitat. Woods; indigenous.

Quality and Uses. As in the last; fruits the food of birds; poisonous to other animals.

Natural Order, Laurels; Lauraceæ (V. K., p. 535.) Prevailing Quality. Aromatic, stimulant.

CINNAMOMUM. Nees.

Leaves ribbed; buds not scaly. Fertile stamens, 9 in 3 rows, with 4-celled anthers, of which the inner only are extrorse; the inner ones with 2 glands at their base. Calyx coriaceous.

1. C. zeylanicum Nees. Laurus Cinnamomum Linnæus.—(CINNAMON.) Leaves ovate or ovate-oblong, with a blunt point, 3-nerved or triple-nerved.

Habitat. Ceylon.

Quality. A spicy stimulating aromatic, astringent, tonic. Uses. The same as that of other spices; diarrhoa, low fevers, flatulence, colic.

2. C. Cassia Blume.—(CINNAMON CASSIA. CHINESE CINNAMON.)

Leaves long-oblong, acute at each end, triple-nerved; the ribs vanishing below the point.

Habitat. China.

Quality and Uses. As in Cinnamon, less sweet, and more astringent.

Camphora. Nees.

Leaves ribbed; buds scaly. Calyx thin. Otherwise as Cinnamomum. 1. C. officinarum Nees. Laurus Camphora Linnæus.—(Camphor Tree.) Leaves triple-nerved, shining on the upper side, with a porous gland in the axil of the veins on the under side.

Habitat. Island of Formosa, China, Japan.

Quality. Acrid, anodyne, vascular excitant, sudorific, poisonous, anaphrodisiac.

Uses. Typhoid fevers, internal inflammations, measles, scarlatina, spasms, strangury, satyriasis, nymphomania, onanism, cholera.

NECTANDRA. Rottboell.

Leaves veiny. Fertile stamens 9, with 4-celled subsessile anthers, of which the inner only are extrorse. Calyx rotate.

1. N. Rodicei Schomburgk.—(BIBIRI or GREENHEART TREE.)

Leaves nearly opposite, oblong-elliptical, shortly acuminate, coriaceous, smooth, shining and obscurely netted on the upper side; panicles fewflowered, axillary, much shorter than the leaves, finely downy; anthers all thick, oblong, without glands. Bentham.

Habitat. Guiana.
Quality. Powerfully tonic and febrifugal,

Uses. Yields the alkaloid Beebeerine, of great value in intermittents.

Sassafras. Nees.

Leaves veiny. Anthers all introrse, 4-celled. Fertile stamens 9. 1. S. officinale Nees. Laurus Sassafras Linnæus.—(Sassafras Tree.) Leaves thin, oblong, entire or 2-3-lobed.

Habitat. United States.

Quality. Wood and bark stimulant, sudorific, subacrid.

Uses. Rheumatism, venereal diseases.

LAURUS. Linnœus.

Leaves veiny. Anthers all introrse, 2-celled. Fertile stamens 12.

1. L. nobilis Linnæus.—(Sweet Bay.)

Leaves lanceolate or oblong-lanceolate, acute, smooth, wavy, and rather toothed, purple-ribbed, with a hairy pore at the axil of the under veins.

Habitat. South of Europe.

Quality. Aromatic, stimulant, narcotic.

1.28. Leaves used by confectioners to flavour creams; dyspepsia, flatulence.

THE RHAMNAL ALLIANCE (V. K., p. 576.)

Patural Arders of Rhammals.

Elmwarts (Ulmaceæ.) Flowers apetalous.

Mhamnads (Rhamnaceæ.) Flowers polypetalous. Calyx valvate.

Spindle Trees (Celastraceæ.) Flowers polypetalous. Calyx imbricated.

Saputads (Sapotaceæ.) Flowers monopetalous. Ovules ascending.

Storarworts (Styracaceæ.) Flowers monopetalous. Ovules suspended.

Natural Order, Climworts; Ulmaceae (V. K., p. 580.) Prevailing Quality. Mucilaginous, astringent.

PLANERA. Michaux.

Fruit globose, membranous, wingless, indehiscent.

1. P. Abelicea Römer and Schultes.

Leaves elliptical, equally serrate, unequal-sided, tomentose and discoloured on the under side.

Habitat. Candia.

Quality and Uses. Wood aromatic; formerly officinal, under the name of Pseudosantalum creticum.



Celtis. Linnœus.

Fruit a fleshy, globose, 1-celled drupe.

1. C. australis Linnæus.—(NETTLE TREE.) Fig. 232.

Leaves oblong-lanceolate, acuminate, finely serrated, rough above, soft with down beneath, unequal-sided.

Habitat. South of Europe.

Quality. Astringent, sub-aromatic.

Uses. Branches boiled and the infusion used in dysentery, and blennorrhea.



Fig. 232.—Celtis australis; a, a flower magnified.

ULMUS. Linnœus.

Fruit thin, 2-winged, veiny, indehiscent.

1. U. montana Smith.—(WITCH-ELM.) Fig. 233.

Leaves obovate, cuspidate, doubly and coarsely serrate; branches cinereous, smooth.

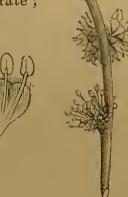
Habitat.

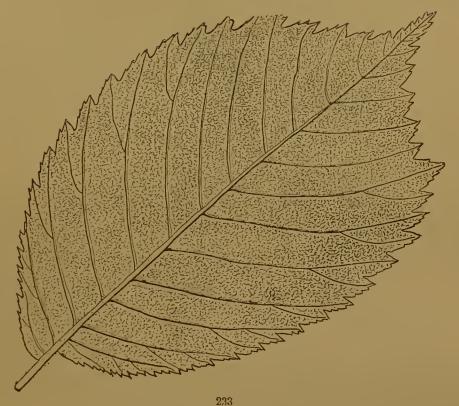
Great Britain, &c. Inner bark mucilaginous, bitter, astrin-Quality.

gent, diaphoretic, diuretic.

Uses. Cutaneous eruptions, ichthyosis; a substitute for Sarsaparilla; wood the basis of some soft snuffs.







Natural Order, Rhamnads; Rhamnaceae (V. K., p. 581.)

Prevailing Quality. Purgative.

RHAMNUS. Linnœus.

Calyx campanulate, 4-5-cleft, circumscissile after flowering. Fruit globose, rather dry, or spongy, or succulent, with 2 to 4 stones.

Fig. 233.—Leaf of Ulmus montana; α , its flowers, natural size; b, a flower cut open and magnified.

1. R. catharticus Linnæus.—(Buckthorn.) Fig. 234. Leaves deciduous, ovate, erenate; flowers fascicled; branches spiny.



Habitat. Hedges and plantations.

Quality and Uses. Berries hydragogue, cathartic; inconvenient to use, because of the sickness and thirst that accompany their exhibition.

2. R. Frangula Linnæus.—(BLACK ALDER.) Fig. 235.

Leaves oval, entire, with 10-12 lateral pinnated veins, smooth as well as the ealyx.

Habitat, Quality, and Uses. Like the last.

3. R. infectorius Linnæus.—(Dyers' Buckthorn.)

Leaves ovate-lanceolate, serrulate, nearly smooth; branches procumbent, spiny.

Habitat. South of Europe. Quality. Berries purgative.

Uses. Unripe fruit, called yellow herries, yields a brilliant yellow dye; it stains yellow moroeco.

ZIZYPHUS. Tournefort.

Calyx rotate, 5-eleft, circumseissile after flowering. Fruit oblong,

drupaceous, with a single 2-celled stone.

1. Z. vulgaris La-

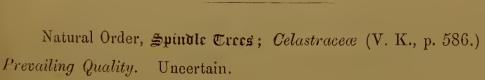
marck.—(Jujube.)
Leaves ovate, retuse,
rather toothed,
smooth; branches
with no hooks, or
very few, in pairs,
of which one is
recurved; drupes
oblong.

Habitat. Levant.
Quality. Fruit subacid,
pleasant.

Uses. Employed in the preparation of Pâte de Jujube, and in hoarseness and sorethroat.







CATHA. Forskähl.

Stamens 5, inserted below the edge of a disk. Ovary 3-celled. Capsule 3-cornered. Calyw rotate.

Fig. 235.—Rhamnus Frangula in flower; a, perpendicular section of a flower magnified.

1. C. edulis Forskähl.—(Arabian Tea.)
Erect, smooth; leaves elliptical, obtusely serrated; cymes axillary, dichotomous.



Habitat. Arabia.

Quality. Leaves stimulant, antisoporific, narcotic.

Uses. Employed by the Arabs instead of green tea to produce wakefulness.

EUONYMUS. Linnœus.

Stamens 5, standing on as many glands. Ovary 4-5-celled. Capsule lobed. Calyx rotate.

1. E. europæus Linnæus.—(Spindle Tree.) Fig. 236.

Branches smooth; leaves lanccolate-ovate, finely serrated; peduncles bearing about 3 flowers; petals oblong, acute.

Habitat. Hedges and woods; indigenous.

Quality. Seeds acrid, nauscous, purgative, emetic.

Uses. Ointment prepared from them kills pediculi.

Natural Order, Sapotads; Sapotaceæ (V. K., p. 590.)

Prevailing Quality. Astringent, febrifugal, lactescent.

Achras. Linnœus.

Some of the stamens sterile, lanceolate, alternate with the lobes of the corolla. Fruit a berry, containing ercct, nut-like, shining seeds with a broad scar occupying all the inner angle.

1. A. Sapota Linnæus.—(Sapodilla Plum.)

Leaves elliptical, acute at each end; petioles and calvx covered with ferruginous down; flowers \(\frac{5}{\sqrt{}} \).

Habitat. West Indies.

Quality and Uses. Fruit subacid, sweet, esteemed in the West Indics; bark astringent, febrifugal, equivalent to cinchona.

Bumelia. Gærtner.

Two sterile stamens between each lobe of the corolla; fertile 5, opposite the lobes, with a pair of scales at the back of each. Fruit 1-seeded, somewhat drupaceous.

1. B. lycioides Gærtner.

Leaves obovate, obtuse, with very distinct areolate nervures; flowers fascicled; corolla about twice as long as the calyx.

Habitat. United States.

Quality and Uses. Fruit austere, sweetish; recommended in diarrhea.

ISONANDRA. Wight.

Stamens all fertile, twice as numerous as the lobes of the corolla.

1. I. Gutta Hooker.—(GUTTA PERCHA TREE.) Fig. 237.

Leaves on long stalks, obovate-oblong, with a short point, golden beneath; flowers axillary, fascicled; stamens 12.

Habitat. Malay Archipelago.

Quality and Uses. Yields the gum resin called Gutta Percha, now in extensive use for various economical purposes.



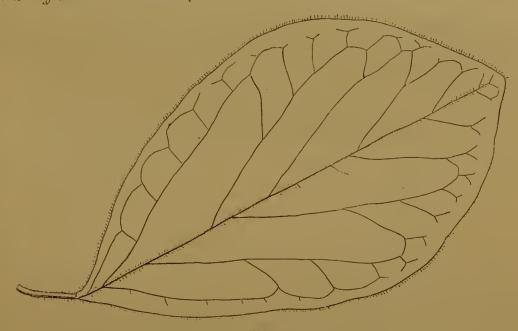
Natural Order, Storagworts; Styracaceæ (V. K., p. 592.)

Prevailing Quality. Stimulant, fragrant.

STYRAX. Linnœus.

Calyx campanulate, slightly toothed, or entire. Corolla hoary, 5-parted. Stamens monadelphous. Drupe globular, downy, seated in the permanent calyx.

1. S. officinale Linnæus.—(STORAX TREE.) Fig. 238.



Leaves downy beneath, oval, obovate, smooth on the upper side; racemes few-flowered.

Habitat. Coasts of the Mediterranean.
 Quality. Resin balsamic, stimulating, expectorant; detergent.
 Uses. Chronic bronchial affections; foul

ulcers.

2. S. Benzoin Dryander.—(BENJAMIN TREE). Fig. 239.

Leaves downy and white beneath, oblong, acuminate; racemes compound, many-flowered, rather shorter than the leaves.

Habitat. Indian Archipelago.
Quality. As the last; resin very fragrant.
Uses. Chronic pulmonary affections, fumigations.

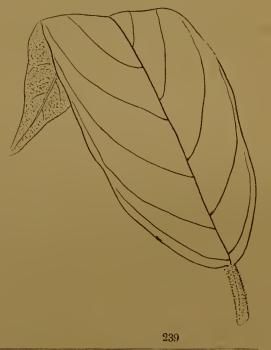


Fig. 237.—Isonandra Gutta, from the *Pharmaceutical Journal*; 1, a flower unexpanded; 2, the same full-blown; 3, the pistil; 4, a cross section of the ovary; 5, the same cut vertically; 6, an anther; 7, an unripe fruit; 8, its cross section.

Fig. 238.—Styrax officinale; 239. Styrax Benzoin.

THE ROSAL ALLIANCE (V. K., p. 539.)

Patural Orders of Rosals.

Acguminous Plants (Fabaceae.) Carpel solitary. A Legume.

Almondworts (Drupacea.) Carpel solitary. A Drupe. Petals 5.

Applemants (Pomacew.) Carpels several, adherent.

Ruseworts (Rosaceæ.) Carpels several, free.

Banguisorbs (Sanguisorbacew.) Carpel 1 or 2. Petals 0. Calyxtube hardened.

Natural Order, Leguminous Plants; Fabaceæ (V. K., p. 544.) Prevailing Quality. Deleterious.

* Papilionaceous Genera.

LATHYRUS. Linnaus.

Calyx 5-toothed. Stamens diadelphous. Style dilated upwards. Pod continuous, 2-valved. Leaves with tendrils.

1. L. Cicera Linnæus.

Leaflets in 1 or 2 pairs; peduncles 1-flowered, shorter than the leaf; ripe pod with 2 narrow wings on the upper edge; seeds angular; flowers red.

Habitat. Fields throughout Europe. Quality. Ripe seeds narcotic, poisonous, spoiling flour in which they are ground.

2. L. Aphaca Linnaus. Fig. 240.

Leaflets 0; petioles filiform; stipules large, ovate, auriculate.

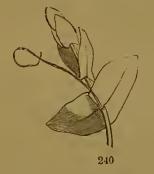
Habitat. Indigenous.

Quality. Ripe seeds narcotic.

Uses. Green seeds and pods eaten as a potherb.

3. L. tuberosus Linnæus.

Leaves pinnated, of one pair; stem angular, wingless; peduneles many-flowered; the upper ealycine teeth short, triangular.



Habitat. Europe, in chalky or heavy land. Tubers amylaceous, eatable.

Uses. Employed as food in Holland; sometimes called Dutch Mice.

ERVUM. Linnœus.

Caly.v 5-toothed, with sharp linear divisions. Style hairy all round. Pod oblong, continuous, 2-4-seeded. Leaves with tendrils.

1. E. Lens Linnaus.—(Lentil.)

Leaflets about 8, oblong, smoothish; stipules lanceolate, ciliated; peduncles 2-3-flowered, as long as the leaf; pod broad, short, somewhat truncate, finely netted, smooth, 2-seeded.

Habitat. Hedges in Europe.

Quality. Seeds amylaceous, nutritious; subnarcotic in large doses; difficult of digestion.

Uses. A food in southern countries; the base of Revalenta, a flour so called.

Faba. Tournefort.

Calyx 5-toothed. Stamens diadelphous. Style filiform. Pod coriaceous, tumid, spongy inside. Seeds with a large scar.

1. F. vulgaris Mench. Vicia Faba Linnæus.—(Common Bean.)

Leaflets thick, 2-5, oval, mucronate; teeth of calyx linear.

Habitat. Borders of the Caspian Sea.

Quality. Roots diuretic; seeds nutritious when young, but somewhat poisonous when ripe.

GLYCYRRHIZA. Tournefort.

Calyx tubular, 5-cleft, 2-lipped. Stamens diadelphous. Pod ovate or oblong, 1-4-seeded.

Leaves pinnated, with an odd one.

1. G. glabra Linnæus.— (Liquorice.) Fig. 241.

Leaflets ovate, rather blunt; stipules 0; spikes stalked, longer than the leaf; pods smooth, 3-4-seeded.

Habitat. South of Europe.
Quality. Emollient, demulcent,
nutritious.

Uses. Root, or its extract, in coughs, and in the preparation of pills.



Fig. 241.—Glycyrrhiza glabra.

COLUTEA. Linnœus.

Calyx 5-toothed. Stamens diadelphous. Pod stipitate, membranous, inflated, indehiscent or nearly so.

1. C. arborescens Linnæus.—(Bladder Senna.)

Leaflets elliptical, retuse; peduncles with about 6 flowers.

Habitat. South of Europe.

Quality. Leaves purgative.

Uses. Employed in adulterating blunt-leaved Senna.

CORONILLA. Linnœus.

Calyx campanulate, with the 2 upper of its 5 teeth close together. Claus of the petals longer than the ealyx. Stamens diadelphous. Pod

1. C. Emerus Linnæus.—(Scorpion Senna.)

Shrubby, smooth; stipules minute; leaflets 5-7, obovate; peduncles 3-flowered.

Habitat. South of Europe.

Quality. Leaves purgative, drastie; inconvenient on account of their griping effects.

Spartium. Linnœus.

Calyx membranous, spathaeeous, 2-lipped. Stamens monadelphous. Pod eompressed, many-seeded.

1. S. junceum Linnæus.—(Spanish Broom.)

Branches smooth, spongy; leaves few, simple, lanceolate; flowers large, yellow, in terminal racemes.

Habitat. South of Europe.

Quality. Seeds emetie, purgative, diuretie, tonie.

Uses. Dropsy.

Phaseolus. Linnœus.

Calyx eampanulate, 2-lipped. Stamens diadelphous; these, the keel and the style, rolled spirally.

1. P. multiflorus Willdenow.—(SCARLET RUNNER.)

Roots tuberous; stem twining; leaflets ovate-acuminate; racemes stalked, longer than the leaves.

Habitat. East Indies.

Quality. Green fruit nutritious, digestible; roots nareotie, dangerous.

Uses. Young pods eaten boiled as Kidney Beans; ripe seeds eaten stewed under the name of Harieot Beans.

ASTRAGALUS, Linnœus.

Calyx 5-toothed. Stamens diadelphous. Keel obtuse. Pod continuous, 2-eelled by the expansion of the dorsal suture. Leaves pinnate, with an odd one.

1. A. gummifer Labillardière.—(WHITE TRAGACANTH.) Fig. 242.

A spiny bush; leaflets smooth, in 4-6 pairs, oblong-linear; flowers 3-5, axillary, sessile; ealyxes woolly, 5-eleft.

Habitat. Koordistan.
Quality. Gum emollient, demulcent; nutritive.

Uses. Irritation of mucous membranes, gonorrhoa, as a vehicle for calomel.

2. A. strobiliferus Lindley.—(RED TRAGACANTH.) Fig. 243.

A spiny bush; leaflets woolly, in 3 pairs, aristate; flowers in sessile axillary ovate eones; ealyx feathery.



Habitat. Koordistan. Quality and Uses. As the last, but of inferior quality.

3. A. verus Olivier.

Usually said to be the source of gum Tragacanth, is very little different from No. 1.

MUCUNA. Adanson.

Calyx eampanulate; the upper of its two lips broad and entire. Standard shorter than the wings and keel. Stamens diadelphous, alternately imperfeet. Pod oblong, torose, 2-celled, eovered with brittle stinging hairs.

1. M. pruriens De Candolle.—(COWAGE PLANT.)

Flowers racemose; leaflets 3, acuminate; the middle rhomboid, hairy on the under side.

Habitat. East Indies.

Quality. Root diuretic; hairs of the pod brittle and productive of unbearable itching. Uses. Hairs in worm cases.

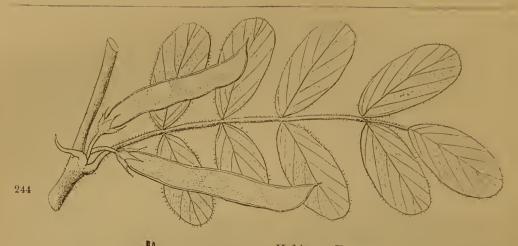
TEPHROSIA. Persoon.

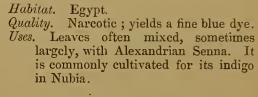
Calyx nearly equal, 5-toothed. Standard broad, downy on the outside. Stamens irregularly monadelphous or diadelphous. Pod sessile, compressed, many-seeded, with flat valves.

1. T. Apollinea De Candolle.—(EGYPTIAN INDIGO.) Fig. 244.

Spreading, with elose-pressed hairs; leaflets in 4 or 5 pairs, obovate, silky beneath.

245





Cytisus. De Candolle.

Calyx 2-lipped, the upper lip generally entire. Standard broad.

Stamens monadelphous. Pod compressed, many-seeded.

1. C. scoparius Link. — (Broom.) Fig. 245.

Branches angular, smooth; leaves small, the upper simple, the lower trifoliate; flowers axillary, solitary, stalked; pods hairy at the edges.

Habitat. Heaths of all Europe.

Quality. Emetic, purgative, diuretic.

Uses. Broomtops in dropsy.

2. C. Laburnum Linnæus.—(LA-BURNUM.)

A tree; leaflets 3, ovate-lanceolate, downy beneath; racemes pendulous, many-flowered.

Habitat. Alps of Europe.
Quality. Seeds narcotic, dangerous.
Uses. Seeds are a frequent cause of accidents among children. This is owing to the presence of an active principle called Cytisine.

3. C. alpinus Miller.—(The Scotch LABURNUM of Gardens.)

Perhaps a variety of the last; has, no doubt, similar properties.

Fig. 244.—Tephrosia Apollinea; 245. Cytisus scoparius.

Trigonella. Linnœus.

Calyx campanulate, 5-cleft. Carina very small; the wings and standard presenting the appearance of a tripctalous corolla. Pod many-seeded, cylindrical, acuminate.

1. T. Fænum Græcum Linnæus.—(Fenugreek.)

Leaflets 3, obovate, obscurely toothed; stipules falcate, entire; flowers sessile; pods netted lengthwise, with a falcate beak.

Habitat. South of France.

Quality. Seeds emollient.

Uses. Poultices of the flour employed in veterinary practice.

Indigofera. Linnœus.

Calyx 5-cleft. Keel bent back with elasticity. Stamens diadelphous. Style filiform, smooth. Pod taper, many-seeded. Seeds truncate, usually separated by cellular diaphragms.

1. I. tinctoria Linnæus.—(East Indian Indigo.)

Leaflets in 4-5-pairs, oval, nearly smooth beneath; racemes axillary, shorter than the leaf; pods torulose, curved, dcflexed.

Habitat. East Indies.
Quality. Emetic, cathartic, narcotic.

Uses. Epilepsy, infantine convulsions, chorea, hysterics; said to be an effectual cure for the "yaws" in the West Indies.

Pterocarpus. Linnœus.

Calyx 5-toothed. Stamens 10, variously united. Pod irregular, nearly orbicular, surrounded by a wing, often varicose, 1-seeded.

1. P. santalinus Linnæus.—(RED SANDAL-WOOD.)

Stamens 1 and 9; leaflets 3-5, alternate, rather round, retuse, smooth; racemes axillary; petals crenate. A tree.

Habitat. East Indies.
Quality. Astringent.
Uses. A mere colouring agent.

2. P. erinaceus Lamarck.—(African Kino Tree.)

Leaflets alternate, elliptical, obtuse, smooth above, covered beneath with brown down; pod with a short lateral point. A trec.

Habitat. Gambia.
Quality. Astringent.
Uses. Chronic diarrhœa, pyrosis, leucorrhœa; gargles, injections.

3. P. Marsupium Roxburgh.—(Indian Kino Tree.)

Stamens monadelphous; leaflets 5-7, alternate, elliptical, rather emarginate, leathery, smooth; branches and calyxes smooth; paniele terminal; pod half circular, oblique, smooth. A tree.

Habitat. Malabar. Quality. Astringent.

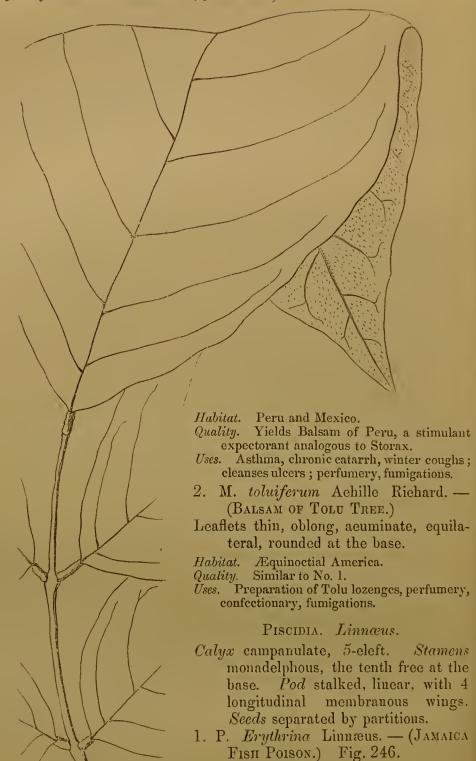
Uses. In restraining mucous discharges.

Myrospermum, Jacquin.

Calyx campanulate, 5-toothed. Standard much larger than the other petals. Stamens free. Pod stipitate, samaroid.

Leaflets coriaccous, oval, obtuse, smooth; pod-wing very thick on one side, not veiny on the other.

1. M. peruiferum De Candolle.—(QUINQUINO.)



calyx, and broken wings. Quality. Bark of root a powerful narcotic. Habitat. West Indies. Uses. Substitute for opium; as a poison for stupifying fish.

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A tree; leaves pinnated; leaflets ovate; pod with a stalk thrice as long as the

* * CÆSALPINEOUS GENERA.

Cassia. Linnœus.

Sepals 5, somewhat unequal. Petals 5, unequal. Stamens 10, unequal: 3 long, 4 short, 3 abortive.

1. C. elongata Lemaire.—(TINNIVELLY SENNA.)

Leaflets lanecolate, rather downy beneath, with fine close-pressed hairs; petiole without gland; pods oblong, membranous.

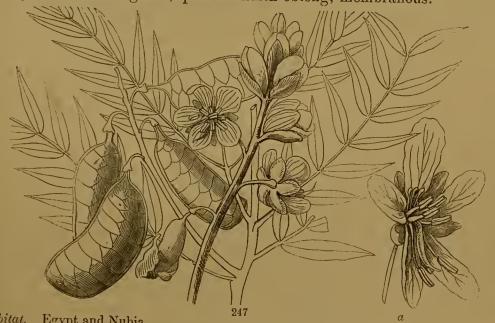
Habitat. Arabia.

Quality. Leaves purgative, scarcely tonic.

Uses. Constipation, worms, &c.

2. C. acutifolia Delile.—(Alexandrian Senna.) Fig. 247.

Leaflets ovate, with long spreading hairs near the midrib on the under side; petiole without gland; pods roundish-oblong, membranous.



Habitat. Egypt and Nubia. Quality and Uses. As in the last.

3. C. obovata Colladon. C. Senna Linnæus.—(Blunt-leaved Senna.) Leaflets obovate, obtuse; petiole without gland; pods flat, curved, tumid, and erested about the middle.

Habitat. Egypt, India.

Quality and Uses. As the last, but less esteemed; probably owing to the extensive adulteration to which this sort is subject.

4. C. Fistula Linnaus.—(Pudding Pipe Tree.)

Pods long, cylindrical, with a pulpy chamber for every seed.

Habitat. East Indies.
Quality. Pulp of pods purgative.

Uses. Mixed with other purgatives; called Cassia by pharmaceutical writers.

TAMARINDUS. Linnœus.

Sepals 5, tubular, reflexed: the two lower entirely connate. Petals 3. Stamens 9-10, monadelphous: 7 sterile. Pod many-seeded, filled with pulp.

1. T. indica Linnaus.—(Tamarind Tree.)

A tree; leaves abruptly pinnated, in many pairs; flowers racemose; pods at least six times longer than broad.

Habitat. East Indies.
Quality. Pulp of fruit nutritive, refrigerant, laxative.

Uses. Infusion forms a cooling drink; a constituent of mild laxative medicines.

Copaifera. Linnœus.

Sepals 4, united at base. Petals 0. Stamens 10, distinct. Legume stipitate, 1-seeded.

1. C. officinalis Linnæus.—(COPAIVA TREE.) Fig. 248.



Leaves pinnated; leaflets in 2 or 3 pairs, oblique, ovate, bluntly acuminate, containing oblong, kidney-shaped, and circular oil-cysts of very unequal

Habitat. Tropical America.

Quality. The oil stimulant, acting principally upon the mucous membranes, and urinogenital apparatus.

Uses. Gonorrhœa, catarrhus vesicæ, leucorrhœa, &c.

[N.B. — Various species of Copaifera yield Copaivi balsam of various quality.]

CERATONIA. Linnœus.

Calyx 5-parted. Petals 0. Stamens 5. Stigma orbieular. Pod eoriaceous. many-seeded, filled with a spongy pulp.

1. C. Siliqua Linnæus.—(CAROB TREE. ALGAROBA. LOCUST TREE. ST.

John's Bread.)

A large tree; leaves evergreen, abruptly pinnate; leaflets oval, obtuse, flat.

Habitat.

Quality. Pulp of fruit sweet and nutritious, but laxative.

Uses. A common article of food in the Mediterranean both for man and cattle.

CAESALPINIA. Linnœus.

Sepals 5, unequal, united into a nearly permanent cup, the lowest, largest

Petals 5, unguiculate. Stamens 10, ascending, all and arched. perfect. Pod unarmed, compressed.

Fig. 248. Leaf of Copaifera officinalis; a, a magnified view of a portion of a leaf, showing the transparent oil-cysts.

1. C. coriaria Willdenow.—(DIVIDIVI TREE.)

Unarmed, smooth; leaves bipinnate, with 5-7 pairs of pinnæ; leaflets in 15-20 pairs, linear, blunt; racemes panicled.

Habitat. Tropical America.

Quality. Pods gathered before ripeness excessively astringent.

Uses. By tanners and dyers.

Hæmatoxylon. Linnœus.

Calyx tubular, with 5 deciduous segments. Petals 5, seareely longer than the calyx. Stamens 10, hairy; anthers glandular. Pod compressed, flat, acuminate at each end, indehiseent, 2-seeded, breaking across in the middle.

1. H. campeachianum Linnæus.—(Logwood Tree.)

Leaves pinnate, or imperfeetly bipinnate; leaflets obeordate; flower-buds red; flowers yellow.

Habitat. Campeachy.
Quality. Bark a mild astringent.

Uses. Old diarrheas, dysenteries, hemorrhages, leucorrhea. A dye.

* * * Mimoseous Genera.

Acacia. Linnœus.

Calyx 4-5-toothed. Petals 4-5. Stamens 00. Pod continuous, juieeless, 2-valved.

1. A. Verek Guillemin.—(GUM ARABIC TREE.) Fig. 249.

Branches smooth; spines recurved, in threes; petiole unarmed; pinnæ in 3-5 pairs; leaflets in 10-15 pairs, linear, obtuse, glaucous; flowers spiked; pod oblong, thin.



Habitat. Senegal. Quality. Bark astringent, tonic.

Uses. Yields true white Gum Arabic. Perrottet.

2. A. arabica Willdenow. A. nilotica Delile.

Spines in pairs; branches and petioles downy; pinnæ in 4-6 pairs; leaflets in 10 pairs, oblong-linear, smooth; a gland on the petiole; flowers in globose heads; pod moniliform.

Habitat. Senegal, &c.
Quality. As the last.
Uses. Yields a bad red gum, unknown in commerce. Perrottet.

3. A. vera Willdenow. Mimosa nilotica Linnæus.

Spines in pairs; branches and leaves smooth; pinnæ in 2 pairs; leaflets in 8-10 pairs, oblong-linear; a gland between the pinnæ; heads of flowers globose; pods moniliform.

Habitat. Senegal.

Quality. Pods very astringent.
Uses. Said to yield Gum Arabic, and a part of Gum Senegal.

4. A. Adansonii Guillemin.—(RED GUM ARABIC TREE.)

Spines in pairs; branches and leafstalks downy; pinnæ 4-6 pair; leaflets 12-16 pair, oblong-linear; a gland between the upper and lower pinnæ: heads stalked, axillary, in threes or fours; pod torulose, 10-12-seeded.

Quality. Pods and bark powerfully astringent. Uses. Yields red Gum Arabic. Perrottet.

5. A. Catechu Willdenow.—(CATECHU TREE.)

Stipulary, prickly, straight when young, hooked afterwards; pinnæ in 10 pairs; leaflets in 40-50 pairs, with a single depressed gland at the base of the petiole, and 2 or 3 between the upper pinnæ; spikes cylindrical.

Habitat. East Indies.
Quality. Astringent; "more powerful than Kino." Pereira. Uses. Relaxed uvnla, dyspepsia, diarrhœa, gleets, fluor albus, &c.

INGA. Plumier.

Calyx 5-toothed. Petals 5, united. Stamens 00. Pod linear, filled with pulp or farinaceous matter.

1. I. Sassa Willdenow.

Pinnæ in 3-4 pairs; leaflets in 12 pairs, oblong-ovate; flowers in umbellate panieles; stamens monadelphous beyond the eorolla.

 $\begin{array}{ll} \textit{Habitat.} & \textbf{Abyssinia.} \\ \textit{Quality.} & \textbf{Pulp of fruit sweet ; a source of gum.} \\ \textit{Uses.} & \textbf{Said to produce the Gum Sassa of commerce.} \end{array}$

Natural Order, Almondworts; Drupacea (V. K., p. 557.)

Prevailing Quality. Production of Hydroeyanie acid.

Tournefort. AMYGDALUS.

Drupe with coarsely-furrowed and wrinkled putamen. Young leaves

1. A. communis Linnæus.—(Almond Tree.) Fig. 250.

Leaves oblong-lanecolate, serrulate; flowers solitary; drupe downy, with a tough fibrous sarcocarp.

Habitat. Barbary.

Quality. Seeds of the Sweet Almond nutritive and emollient, but indigestible; of the Bitter Almond poisonous, abounding in hydrocyanic acid.

Uses. Sweet Almonds in dessert, confectionary, emulsion; Bitter Ahmonds when hydrocyanic acid is

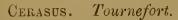
required, and as a flavouring agent.

2. A. Persica Linnæus.—(The Peach. The NECTARINE.)

Leaves oblong-lanceolate, serrulate; flowers solitary; drupe downy or smooth, with a tender succulent sapid sarcocarp.

Habitat. North of India; Persia.
Quality. Nutritious, refrigerant; bark, blossoms, and skin of the seeds poisonous.

Uses. Common at dessert; blossoms a vermifuge; stewed fruit in slight constipation; kernels when bitter are like Bitter Almonds.



Drupe smooth, with a polished even putamen. Young leaves conduplicate.

1. C. Laurocerasus Loiseleur. — (Common Lau-REL.) Fig. 251.

ovate-lanceolate, Leaves evergreen, convex, remotely serrated, with from 2 to 4 glands on the under side; racemes shorter than the leaves.

Habitat. Trebizond.

Quality. Poisonous, acts like

hydrocyanic acid.

Uses. Forms laurel-water, a substitute for hydrocyanic acid in palpitation of the heart, &c. Vapour of bruised leaves destroys small in-

2. C. virginiana Michaux. - (Virginian Bird & CHERRY.)

Leaves oblong-acuminate, doubly-toothed, smooth, deciduous, with about 4 glands on each petiole; flowers in crect racemes.

Habitat. United States. Quality. Bark astringent, febrifugal.

Uses. Against intermittents; dysentery.



3. C. vulgaris Miller.—(Common Cherry.)

Leaves oblong, serrate, acuminate, deciduous, with long glandular petioles; flowers in clusters; petals white; fruit succulent, sapid.

Habitat. Asia Minor.
Quality. Fruit succulent, sweet, subacid; a favourite article of dessert. Bark yields Cherry-tree gum, a substitute for Tragaeanth.

PRUNUS. Tournefort.

Drupe smooth, glaucous, succulent, with a smooth putamen. Young leaves eonvolute.

1. P. spinosa Linnæus.—(The Sloe.)

Branches spiny; leaves obovate-elliptical or ovate, downy beneath, finely and doubly toothed; peduncles solitary; fruit very austere.

Habitat. Hedges. Indigenous.
Quality. Fruit austere, astringent.
Uses. Leaves dried and mixed with tea; bark in intermittents.

2. P. Coccomilia Tenore.

Leaves obovate, smooth on each side, with glandular erenatures; peduneles short, in pairs; fruit ovate-oblong, mucronate.

Habitat. Calabria.
Quality. Bark febrifugal.

Uses. Largely employed against the intermittents of Calabria.

3. P. domestica Linnæus.—(The Common Plum.)

Possesses qualities like the last, but much weaker. Fruit laxative when stewed. Bark exudes a gum analogous to Tragaeanth.

4. P. Armeniaca Linnæus.—(The Apricot Tree.)

Leaves cordate, long-stalked, smooth; flowers sessile; fruit sapid, with a downy skin.

Habitat. The Levant, and the Himalayahs.
 Quality. Fruit refrigerant, laxative.
 Uses. The fruit, whether fresh or dried, is largely employed, and with great success, in the East, against the dangerous fevers of the country.

Natural Order, Applemarts; Pomaceae (V. K., p. 559.)

Prevailing Quality. Austerity.

Pyrus. Linnœus.

Fruit 5-celled, with a eartilaginous endocarp, and 2 seeds in each cell.

1. P. Malus Linnaus.—(The Apple Tree.)

Leaves ovate, acute, crenate, woolly beneath, as are the ealyx-tube and their own under-side; styles smooth; fruit narrowest next the point.

Habitat. Middle of Europe.
Quality. Fruit agreeable; when eooked, nutritious and digestible.
Uses. A common article of dessert; the more austere varieties form cyder.

2. P. communis Linnaus.—(The Pear Tree.) Fig. 252.

Leaves ovate, serrated, smooth on both sides, as well as the wood and buds: fruit narrowest at the base.

Habitat. Middle of Europe.

Quality and Uses. As in P. Malus. The fermented juice is perry.

3. P. Aucuparia Gertner.—(The Mountain Ash.)

Leaves pinnated, nearly smooth; leaflets serrated; buds downy; fruit globose.

Hubitat. Woods.

Quality and Uses. Flowers, bark, and root yield hydrocyanic acid in large quantity. Berries contain malic acid in abundance.

CYDONIA. Tournefort.

Fruit 5-celled, with a cartilaginous endocarp; and many mucilaginous seeds in each cell.

1. C. vulgaris Persoon.—(The Quince Tree.) Fig. 253.

Leaves ovate, entire, deciduous, downy on the under side, as is also the calyx; sepals leafy.



Mabitat. South of Enrope.Quality. Fruit, when stewed, an agreeable food; mucilage or bassorin of seeds nutritive, demulcent, emollient. Enauthic ether occurs in the rind.

Uses. Fruit forms a marmalade much esteemed; fermented juice forms a pleasant wine; mucilage of seeds applied externally to cracked lips, cracked nipples, painful hæmorrhoids, crysipelatous affections of the skin.

Natural Order, Roseworts; Rosaceæ (V. K., p. 563.)

Prevailing Quality. Astringency.

Potentilla. Linnœus.

Calyr 4-5-lobed, with as many bracts. Carpels 00, dry.
1. P. reptans Linnæus.—(Cinqueroil. Five Fingers.)
Stem creeping; leaflets 5-nate, obovate, toothed; calyx 5-lobed; flowers axillary, solitary, longer than the leaves.

Habitat. Common in hedges and woods.

Quality and Uses. Like those of P. Tormentilla. Also a febrifuge. 2. P. Tormentilla Nestler.—(Tormentil.) Fig. 254. Calyx and corolla tetramerous.



Habitat. Hedges and heathy downs everywhere.

Quality. Astringent and tonic. Uses. Chronic diarrhœa, dysentery (especially of cattle); tans in the Orkneys, dyes red in Lapland.

3. P. anserina Linnæus.—(Silverweed.)

Stem creeping; leaves silvery, with soft hairs, interruptedly pinnate; peduncles solitary.

Habitat. Roadsides.

Quality and Uses. Roots extremely astringent, sometimes used for tanning. Distilled water said to be cosmetic.

Fragaria. Linnœus.

Calyx 5-lobed, with as many bracts. Carpels 00, dry, on a convex deciduous succulent torus.

1. F. vesca Liunæus.—(Wood Strawberry.)

Leaves hairy, plaited, thin, pale green; hairs of the flower-stalks closepressed.

Habitat. Woods of Europe.

Quality. Fruit a delicious article of dessert.

2. F. virginiana Miller.—(GARDEN STRAWBERRY.)

Leaves broad, smooth, shining, nearly even, glaucous beneath.

Habitat. United States and Canada.

Quality. Like the last, but not so aromatic, and more sweet.

GEUM. Linnœus.

Calyx 5-lobed, with as many bracts. Carpels 00, dry, with hardened hooked styles, forming a bur.

1. G. urbanum Linnæus.
— (Avens. Herb
Bennett.) Fig. 255.

Radical leaves interruptedly pinnate and lyrate, those of the stem ternate; lower joint of the style much longer than the upper, which is smooth.

Habitat. Hedges and thickets. Quality. Aromatic, tonic, astringent.

Uses. Diarrhœa, leucorrhœa, dysentery, intermittents; an ingredient in some ales.

2. G. rivale Linnæus.—
(WATER AVENS.)

Leaves interruptedly pinnate and lyrate, those of the stem ternate; flowers nodding, dull purple; the two joints of the style of equal length.

Habitat. Wet meadows and woods.

Quality and Uses. Same as the last. Root in bladder diseases.

3. G. canadense Jacquin.
—(CHOCOLATE ROOT.
BLOOD ROOT.)

This, which is a native of the United States, has some reputation as a mild tonic.



Fig. 255.—Geum urbanum.

AGRIMONIA. Linnœus.

Calyx 5-cleft, without bracts; tube fleshy, at length tough, covered with hooked bristles, and investing a couple of carpels.

1. A. Eupatoria Linnæus.
—(AGRIMONY.) Fig.
256.

Leaves interruptedly pinnate, serrate, downy beneath; ealyx of the fruit obconic; outer bristles spreading.

Habitat. Fields and roadsides. Quality. Slightly aromatic, styptic, bitter.

Uses. Decoction used in gargles; dried leaves form a kind of herb-tea; root has been employed as a vermifuge.

COMARUM. Linnæus.

Calyx 5-eleft, with as many bracts. Carpels 00, dry, on a convex persistent succulent torus.

1. C. palustre Linnæus. Leaves pinnate; leaflets oblong, sharply serrate; flowers dark purple; petals small.

Habitat. Marshes and bogs. Quality. Said to be a valuable remedy for intermittent fevers.



Fig. 256.--Agrimonia Eupatoria; a, perpendicular section of flower; b, ripe fruit.

256

Rubus. Linneus.

Calyx 5-lobed, without bracts. Drupes 00, placed upon a long torus, and adhering to each other.

1. R. Ideus Linnæus.—(The Raspberry.)

Stem erect; leaves pinnate, white beneath; flowers axillary and terminal, corymbose; calyx woolly.

Habitat. Woods in the west of England.
Quality. Fruit fragrant, subacid, wholesome.

Uses. Forms preserves; a kind of vinegar; a useful fever drink.

Spiræa. Linnœus.

Calyx 5-eleft, without bracts. Carpels 1 or more, follicular, manyseeded.

1. S. Filipendula Linneus.— (Dropwort.)

Leaves interruptedly pinnate; leaflets all oblong, deeply cut and serrate; cymes panicled; follicles hairy.

Habitat. Upland pastures. Quality. Tonic, fragrant: the tubers rather nutritious.

2. S. Ulmaria Linnæus. — (Meadow Sweet.) Fig. 257.

Leaves interruptedly pinnate; leaflets ovate, the terminal large, 3-5-lobed; cymes compound, proliferous; follicles smooth, contorted.

Habitat. Moist meadows.

Quality. Flowers yield a fragrant distilled water. Roots astringent.

Brayera. Kunth.

Calyx turbinate, with a double 5-parted limb. Petals resembling scales. Carpels 2, 1-2-seeded. Stigmas peltate. Seeds solitary, pendulous.

1. B. anthelmintica Kunth.

A tree; peduncles branched, covered with soft hairs; flowers in fours; bracts roundish. (Leaves unknown.)

Habitat. Abyssinia. Quality. Purgative, anthelmintic; very active. Uses. Reported to be a very effectual vermifuge.

257

GILLENIA. Moench.

Calyx tubular, contracted at the mouth, 5-toothed. Petals long, linear. Stamens 10-15, short, enclosed. Carpels 5, with a filiform style and capitate stigma, partially connate.

Fig. 257.—Spiræa Ulmaria.

1. G. trifoliata Mench.

Leaves 3-foliolate; stipules linear, acuminate, entire.

Habitat. United States.

Quality. Root emetic; employed as Ipecacuanha, but said to be uncertain in its operation.

Rosa. Linnœus.

Calyx with a fleshy permanent tube, enclosing 00 bony carpels.

1. R. gallica Linnæus.—(French Rose.)

Prickles and setæ nearly equal, weak; leaflets stiff, elliptical; flowers erect; sepals ovate; fruit braeteate, nearly globose; sepals compound.

Habitat. Centre of Europe.

Petals mild astringents and tonics; also laxative. Uses. Chiefly used for colouring and flavouring other medicines.

2. R. centifolia Linnæus.—(Provins Rose. Cabbage Rose.)

Priekles and setæ unequal, the larger falcate; leaflets oblong, wrinkled,

fringed with glands; flowers nodding; ealyxes viscid; fruit bracteate, oblong.

Habitat. The eastern slope of Caucasus.

Quality. Petals laxative, deliciously fragrant; the odour dangerous to some constitutions.

Uses. Petals form Syrup of Roses, and yield rosewater by distillation.

3. R. canina Linnæus.—(Dog Rose.)

No setæ; prickles equal, hooked; leaflets ovate, without glands, with converging serratures, rigid; sepals deciduous, compound; root-shoots arehed.

Habitat. Hedgerows.
Quality. Pulp of fruit nutritive, slightly refrigerant and astringent.

Uses. Forms Conserve of Heps.

Natural Order, Sanguisorbs; Sanguisorbacea (V. K., p. 561.)

Prevailing Quality. Astringency.

Poterium. Linnœus.

Flowers polygamous. Three scales at the base of the Stamens 00. Stigma pencilled. ealyx.

1. P. Sanguisorba Linnæus.—(Burnett.) Fig. 258. Leaves pinnate; leaflets roundish-ovate; heads of flowers, male at the base, female at the apex.

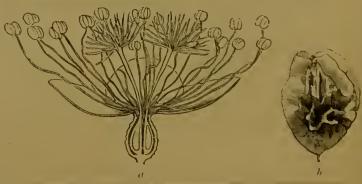


Fig. 258. + Poterium Sanguisorba; a, perpendicular section of flower; b, fruit.

Quality. Astringent, tonic. Habitat. Meadows. Uses. Sometimes used as a herb tea. A common sheep food.

THE SAXIFRAGAL ALLIANCE (V. K., p. 566.)

Natural Orders of Saxifragals.

Sarifrages (Saxifragaceæ.) Styles distinct. Leaves alternate.

Louisestrifes (Lythracea.) Styles consolidated. Leaves opposite.

Natural Order, Sarifrages; Saxifragaceae (V. K., p. 567.)

Prevailing Quality. Astringency.

HEUCHERA. Linnœus.

Calyx 5-cleft. Petals undivided. Stamens 5. Styles very long.

1. H. americana Linnæus.—(Alum-root.)

Covered with clammy down; leaves roundish, lobed, with mucronate dilated teeth; peduncles dichotomous, straggling.

Habitat. United States. Quality. Root strongly styptic. Uses. Where powerful astringents are needed; forms a wash for wounds and obstinate ulcers.

Natural Order, Lousestrifes; Lythraceae (V. K., p. 574.)

Prevailing Quality. Astringency, acridity.

LYTHRUM. Linnœus.

Calyx cylindrical, striated, with a double row of short broad teeth. Petals 4-6. Stamens twice as many. Style filiform. Stigma capitate.

1. L. Salicaria Linnæus.—(Common Loosestrife.)

Leaves lanceolate, cordate; flowers spiked, nearly sessile.

Habitat. Ditches and river banks.

Quality. Demulcent, astringent. Uses. Diarrhea, dysentery.

Ammannia. Linnœus.

Calyx campanulate, with a double row of teeth. Petals 0. Stamens 4. 1. A. vesicatoria Roxburgh.

Stem erect, branched; leaves sessile, lanceolate, tapering to the base; flowers sessile, in close whorls.

Habitat. East Indies.

Quality. The whole plant has a strong muriatic smell; acrid. Used in India to raise blisters in rheumatism, &c.



Heimia. Link.

Calyx campanulate, with 2 bracts at base, with a double row of 12 teeth. Petals~6. Stamens 12.

1. H. salicifolia Link.—(Hanchinol.)

Leaves in threes or opposite, the upper often alternate; petals obovate.

Habitat. New Spain.

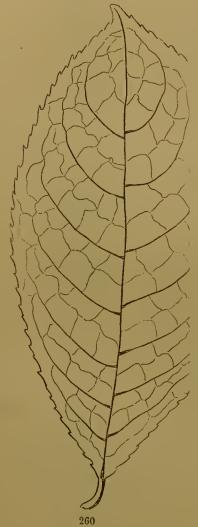
Quality. A powerful sudorifie and diuretic.

Uses. Has a great Mexican reputation in venereal diseases.

THE GENTIANAL ALLIANCE (V. K., p. 594.)

Natural Orders of Gentianals.

Hollyworts (Aquifoliacea.) Stipules 0. Stigma simple. Placentæ axile.



Bughanes (Apocynaceæ.) Stipules 0. Stigma trochlear.

Loganiacea.) Stipules interpetiolar.

Gentianworts (Gentianaceæ.) Stipules 0. Stigma simple. Placentæ parietal.

Natural Order, Hollyworts; Aquifoliaceae (V. K., p. 597.)

Prevailing Quality. Tonic, emetic, diuretic.

Prinos. Linnœus.

Flowers polygamous \checkmark . Fruit with 6 stones. 1. P. verticillatus Linnæus.

Leaves deciduous, oval, acuminate, serrated, downy beneath; male flowers axillary. in small umbels.

Habitat. United States.
Quality. Bark and fruit tonic; the latter also emetie. Uses. In cases of great debility, attended by fever.

ILEX. Linnœus.

Flowers polygamous 4.5/. Fruit with 4-5 stones.

1. I. Aquifolium Linnaus. — (The Holly Tree.) Fig. 261.

Leaves ovate, acute, wavy, shining, spinytoothed; flowers somewhat umbelled.

Habitat. Woods.Quality. Leaves astringent, tonic; root and bark emollient, expectorant, diuretic.Uses. Intermittent fevers; ieterus. Bark yields birdline.

2. I. paraguayensis St. -/ Hilaire. — (Paraguay Tea.) Fig. 260.

Perfectly smooth; leaves lanceolate-oblong, apiculate, serrated; peduncles axillary, manyparted; stones wrinkled.

Habitat. Paraguay and Brazil.
Quality. Stimulating, narcotic;
diuretic, diaphoretic.

Uses. Forms the Paraguay Tea or Maté, largely used in South America.

3. I. vomitoria Aiton.

Leaves oblong, blunt at each end, crenato-scrrate, smooth; umbels lateral, nearly sessile.

Habitat. United States.

Quality. A strong decoction acts as a mild emetic.

Natural Order, Dogbanes; Apocynaceæ (V.K., p. 599.)

Prevailing Quality. Acrid, emetic, drastic, poisonous.

CERBERA. Linnœus.

Calyx without glands. Corolla hypocrateriform. Ovules 2-4 in each ovary. Fruit a Drupe.

1. C. Tanghin Hooker.
Tanghinia venenifera
Poiret.



Leaves lanceolate, much tapering to the base, coriaceous, smooth, revolute at the edge; cymes dichotomous, terminal.

Habitat. Madagascar.

Quality. Kernel a deadly poison. It is asserted that, although not larger than an Almond, one kernel is sufficient to destroy twenty people. It was used in Madagascar as an ordeal, but the practice is now discontinued. The kernel was pounded on a stone with water, and the emulsion thus obtained was distributed among the supposed criminals.

Fig. 261.—Hex Aquifolium; a, a flower magnified; b, a perpendicular section of the fruit.

2. C. Manghas Linnaus.

Leaves lanceolate, tapering to the base, coriaceous, smooth; cymes dichotomous, terminal.

Habitat. East Indies.

Quality. Kernel emetic; poisonous, purgative.

Uses. Leaves used in some parts of India as a substitute for Scnna, especially in Java, according to Waiz.

NERIUM, Linnœus.

Calyx 5-parted, with numerous glands inside. Corolla hypocrateriform, with large lacerated faucial appendages. Fruit bifollicular.

1. N. Oleander Linnæus.—(The Oleander.) Leaves opposite and ternate, lanceolate, acute.

Habitat. Shores of the Mediterranean.
Quality. All the parts acrid, poisonous, very dangerous.

Uses. Decoction of leaves kills vermin and cures itch; powdered bark and wood a rat-poison. Cases are recorded of persons having been poisoned by meat roasted upon skewers of Oleander wood.

ALLAMANDA. Linnœus.

Calyx 5-parted, without glands. Flowers funnel-shaped, with a campanulate limb. Fruit a prickly capsule.

1. A. cathartica Linnæus.

Leaves whorled or opposite, oblong, acuminate, membranous; lobes of the calyx acuminate, smooth.

Habitat. West Iudies.
Quality. Cathartic, poisonous, emetic. Uses. An infusion of the leaves in small doses in painters' colic. In over-doses it is violently emetic and purgative.

Ichnocarpus. R. Brown.

Corolla hypocrateriform, with a callous contracted orifice. Hypogynous glands 5, long, capitate. Stigma with a long subulate point.

1. I. frutescens R. Brown. Fig. 262. Leaves elliptical, acute at each end, smooth above.

Habitat. East Indies, especially the island of Ceylon.

Quality. Purgative, alterative.

Uses. Sometimes used in the East Indies as a substitute for Sarsaparilla.



Fig. 262.—Ichnocarpus frutescens in flower, after Burmann's figure.

263

Natural Order, Loganiads; Loganiacea (V. K., p. 602.)

Prevailing Quality. Tonic, poisonous.

Spigelia. Linnœus.

Calyx glandular inside. Corolla long, slender, valvate. Stamens with long filaments. Capsule composed of 2 cocci, circumscissile at the base. 1. S. marilandica Linnæus.—(Worm Grass.)

Perennial; stem simple, quadrangular; leaves sessile, ovate-lanceolate, hairy at the edge; corolla scarlet outside, yellow inside.

Habitat. United States.

Quality. Purgative; a poisonous nareotie.

Uses. A very powerful vermifuge.

2. S. Anthelmia Linnæus.

Annual; leaves ovate-oblong, acuminate, the upper in whorls of 4; racemes spicate from the axils of the upper leaves; flowers very small, purplish.

Habitat. Tropical America. Quality and Uses. Like the last; but its properties disappear with keeping.

STRYCHNOS. Linnœus.

Corolla hypocrateriform, with valvate lobes. Stamens with very short filaments. Berry coated with a rind, 1-celled, with discoidal seeds lodged in pulp.

1. S. Nux-vomica Linnæus.—(Nux-VOMICA TREE.) Fig. 263. Cirrhi 0; leaves roundish-oblong, stalked, 3-5-nerved, perfectly smooth; corymbs terminal.

Habitat. East Indies.
Quality. Seeds a
most dangerous poison; yield strychnia. Tonie, diuretie.

Uses. Paralysis, nervous affeetions, dyspepsia, pyrosis, impotenee, dysentery.

2. S. pseudoquina A. St. Hilaire.— (COPALCHE PLANT.)

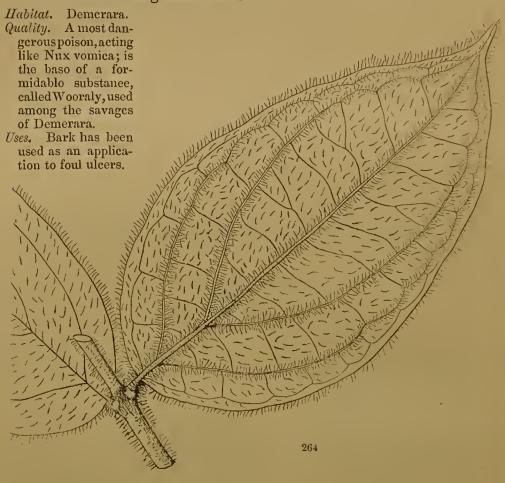
Bark corky; cirrhi 0; leaves ovate, quintuple-nerved, velvety and rufous on the under side; racemes axillary, panicled, velvety.

Quality. All the parts bitter, astringent, except the fruit.

Uses. Its bark (Copalelie bark) reputed to be the most valuable of all remedies for the intermittents of Brazil.

3. S. toxifera Bentham.—(WOURALY SHRUB.) Fig. 264.

Branches elimbing and covered with long rufous hairs, as well as the cirrhi; leaves nearly sessile, oval-oblong, membranous, 3-nerved, acute, eovered with long coarse hairs.



Natural Order, Gentianworts; Gentianaceæ (V. K., p. 619.)

Prevailing Quality. Pure bitterness.

GENTIANA. Linnœus.

Estivation of the corolla left-handed. Style 0. Flowers not glandular. Stigmas 2, revolute.

1. G. lutea Linnæus.—(Yellow Gentian.)

Corolla rotate, yellow; leaves broad, many-nerved, on a stout, erect stem.

Habitat. European Alps.

Quality. A pure bitter; nareotic, deleterious in large doses.

Uses. Dyspepsia; intermittents; against worms. In full doses it is apt to relax the bowels, and it does not always agree with the stomach; in fact it possesses a volatile principle capable of producing nausea and a kind of intoxication. The root contains a good deal of sugar and mucilage, which enables the Swiss to prepare from it a liqueur held in high esteem among that people.

2. G. punctata Linnæus.

Corolla plaited, campanulate; stigmas naked; capsule sessile; plaits of the corolla triangular; calyx entire; leaves acute.

Habitat. Alps of Europe. Quality and Uses. Quite like the last.

3. G. purpurea Linnaus.

Corolla plaited, campanulate; stigmas naked; capsule sessile; plaits of the corolla truncate; leaves smooth at the edge.

Habitat. Alps of Europe. Quality and Uses. As the last. All yield "Gentian-root."

4. G. Amarella Linneus, 5. G. campestris Linnaus,

are other European substitutes for Gentiana lutea.

6. G. pannonica Murray,

AGATHOTES. Don.

Estivation of corolla left-handed. Style 0. Corolla naked at base, with glandular pits, covered in by a fringed scale. Stamens monadelphous.

1. A. Chirayita Don.—(CHIREETA PLANT.)

Flowers 4/; corolla longer than the calyx; leaves ovate and cordate, smooth.

Habitat. North of India.

Those of Gentiana lutea. Uses. Dyspepsia in gouty subjects.

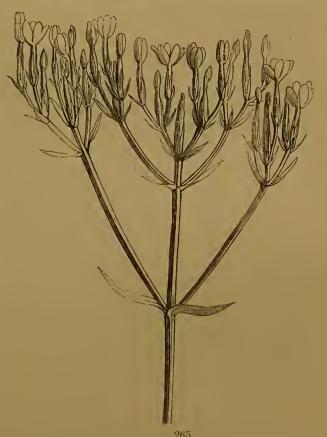
and diminishes the tendency to acidity."—Pereira. The whole plant is pulled up at the time the flowers begin to de-cay, and is dried for use. Its febrifugal properties are in high estimation with European practitioners in India, who use it instead of Cinchona when the latter is not to be procured.

ERYTHRÆA. Renealm.

Estivation of corolla lefthanded. Style distinct, deciduous. Anthers having a spiral and projecting connective. Inflorescence centrifugal. Corolla regular, hypocrateriform.

1. E. Centaurium Persoon,— (Centaury.) Fig. 265.

Cymes dichotomous; flowers numerous, pink; stigma double; tube of corolla twice as long as the calyx; stem erect.



"Strengthens the stomach, obviates flatulency

Fig. 265.—Erythræa Centaurium.

Habitat. Dry gravelly and heavy pastures.

Quality and Uses. As Gentian. It possesses all the essential properties of the Gentian of the shops, and although not used professionally is a valuable native medicine. In many places it is earefully collected for use in rustic pharmacy.



MENYANTHES. Linnœus.

Æstivation of corolla induplicative. Seeds in the middle of each valve.

1. M. trifoliata Linnæus.— (BUCK BEAN.) Fig. 266.

Rhizome creeping; leaflets ternate, entire at the base; corolla bearded.

Habitat. Swamps.

Quality. Tonie, astringent; cathartic, even emetic.

Uses. Where bitter tonics are required, the rhizome, gathered in August, and also the seeds have been used. An occasional substitute for hops. All the plant intensely bitter.

Reekoned one of the most valuable of tonics. Large doses produce vomiting, purging, and frequently powerful diaphoresis. Especially recommended in intermittent and remittent fevers, gout, herpetic complaints, rheumatism, dropsy, scurvy, and worms.

VILLARSIA. Ventenat.

1. V. nymphæoides Ventenat.

This common wild aquatic possesses properties analogous to those of Menyanthes.

Fig. 266.—Menyanthes trifoliata; a, ripe fruit; b, a cross section of it; c, a seed.

THE CORTUSAL ALLIANCE (V. K., p. 637.)

Natural Order of Cortusals.

Uradworts (Plumbaginaceæ.) Stamens opposite petals. Styles 5. Seed 1.

Primwarts (Primulaceae.) Stamens opposite petals. Style 1. Seed 00.

Natural Order, Lcadworts; Plumbaginaceæ (V. K., p. 640.)

Prevailing Quality. Acridity, causticity.

Plumbago. Linnœus.

Calyx 5-lobed, herbaceous, glandular. Corolla hypocrateriform. Styles connate.

1. P. zeylanica Linnæus.

Stem scrambling, shrubby; leaves oblong, slightly auriculate; flowers in long dense spikes; corolla regular, white.

Habitat. East Indies.

Quality. Extremely acrid.

Uses. Sliced roots and leaves produce blisters as readily as cantharides; applied in India to incipient buboes; an infusion in olive oil forms a useful wash for ulcers.

2. P. scandens Linnæus.

Stem scrambling, shrubby; leaves oblonglanceolate, slightly auriculate; spikes long, terminal, lax; corolla regular, white.

Habitat. West Indies. Quality and Uses. Like the last.

3. P. europæa Linnæus. — (Leadwort.) Fig. 267.

Branches long, slender, striated; leaves auriculate, with calcareous powder on the under side; limb of the corolla slightly irregular; flowers violet.

Habitat. South of Europe.

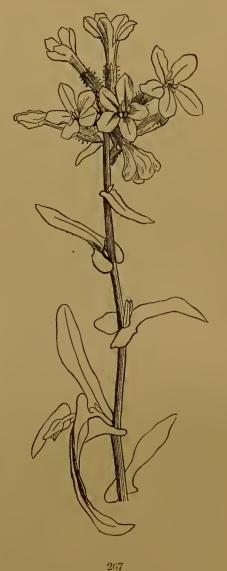
Quality. Excessively acrid; emetic.

Uses. A stimulating wash for old ulcers, but extremely painful; the leaves chewed against toothache; forms issues; raises blisters.

Armeria. Willdenow.

Calyx membranous, naked. Styles distinct, feathery.

1. A. vulgaris Willdenow.—(Thrift.)



Cæspitose; leaves linear, smooth, or nearly so; scapes dwarf, villous; involucral leaves herbaceous at the back.

Habitat. Cliffs. Common in gardens as an edging. Quality. Flowers active and useful as diuretics.

Natural Order, Primworts; Primulaceae (V. K., p. 644.)

Prevailing Quality. Acridity.

PRIMULA. Linnœus.

Corolla hypocrateriform, dilated in the orifice. Filaments very short. Capsule ovate, 5-valved.

1. P. veris Linnæus.—(Cowslip.)

Leaves oblong, rugose; scape longer, bearing an umbel at the end; limb of corolla short, concave.

Habitat. Meadows.

Quality. Flowers sedative.

Uses. When fermented with sugar they form a soporific domestic wine; used for

CYCLAMEN. Linnœus.

Corolla rotate, with a long reflexed limb. Anthers prominent, cuspidate. Peduncles twisted spirally downwards after flowering. Fruit leathery, scarcely dehiscent.

1. C. europæum Linnæus.—(Sow-Bread.) Fig. 268.





Pig. 268.—Cyclamen europæum; 269. Anagallis arvensis.

Leaves reniform-orbicular, crenated, slightly angular; orifice of the corolla 5-sided.

Habitat. South of Europe. Quality and Uses. Extremely acrid; a drastic purgative; emmenagogue.

ANAGALLIS.

Corolla rotate. Capsule circumscissile (a pyxis).

1. A. arvensis Linnæus.—(PIMPERNEL.) Fig. 269.

An annual; stems procumbent, angular; leaves opposite, or ternate, ovate,

sessile, shorter than the axillary peduncles.

Habitat. Cornfields.

Quality. Acrid.

Uses. Has been prescribed in epilepsy, dropsy, and mania.

THE SOLANAL ALLIANCE (V. K., p. 615.)

Natural Orders of Solanals.

Oliveworts (Oleaceæ.) Stamens 2, free.

Dightshaues (Solanaceae.) Stamens 5, free. Placentæ axile. Seeds 00.

Asclepiadaceæ.) Stamens and stigma consolidated.

Schestens (Cordiacece.) Stamens 5, free. Placentæ axile. Seeds solitary.

Bindweeds (Convolvulacea.) Stamens 5, free. Placenta basal.

Natural Order, Olíbemorts; Oleacece (V. K., p. 616.)

Prevailing Quality. Bitter, tonic.

OLEA. Linnœus.

Calyx 4-toothed. Corolla 4-cleft. drupe.

1. 0. europæa Linnæus. — (The Olive Tree.)—Fig. 270.

Leaves lanceolate, opposite, entire, pale beneath; racemes axillary, compound, short.

Habitat. South of Europe. Quality. Oil of pericarp unctuous, scentless, almost tasteless; bark tonic, bitter, astringent.

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Uses. Oil in plasters, enemata, salads, &c. Bark a good substitute for cinchona.

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Syringa. Linnœus.

Calyx 4-toothed. Corolla 4-cleft. A 2-celled Capsule, with navicular valves.

1. S. vulgaris Linnæus.—(The LILAC.) Leaves cordate, acuminate.

> Habitat. East of Europe. Quality. Bitter, tonic. Uses. Unripe fruit and seeds valuable as a cure for intermittent fevers.

FRAXINUS. Linnœus.

Calyx obsolete. Corolla 0, or Flowers very imperfect. 3-4-parted. A Samara.

1. F. Ornus Linnæus. Ornus europæa Persoon.—(Flowering Ash.)

Leaflets in about 3 pairs, lanceolate or elliptical, serrate; flowers complete.

Habitat. South of Europe.

Quality. Branches exude the bitter-sweet laxative substance called



2. F. excelsior Linnaus. —(ASH TREE.) Fig. 271.

Leaflets in 3-6 pairs, sessile, 'lanceolateoblong, acuminate, serrated; flowers apetalous.

Habitat. Woods. Bark tonic; leaves Quality.

cathartic and diuretic. Uses. Timber largely used where strength and elasticity are required. Also yields Manna in hot countries.

Natural Order, Night= shades; Solanaceæ (V. K., p. 618.)

Prevailing Quality. Narcotic.

SOLANUM. Linnœus.

Corolla rotate. Anthers connivent, opening by a pore. A Berry.

1. S. tuberosum Linnæus. —(Ротато.)

Fig. 271.—Flower of Fraxinus excelsior, magnified; 272. Solanum Dulcamara.

Leaves interruptedly pinnated, downy; flowers white; tuberous.

Habitat. Chili.

Quality. Leaves and fruit narcotic.

Uses. Tubers abound in starch, which is sometimes used as arrow-root, but it is of very control of the starch of delicate persons. inferior quality, causing flatulence, and disordering the stomach of delicate persons. They are among the most valuable of known food, if perfectly ripe and well cooked.

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2. S. Dulcamara Linnæus.—(Bittersweet.) Fig. 272.

Stem scrambling; leaves ovate-cordate, the upper hastate; corymbs opposite the leaves; flowers violet; berries red.

Habitat. Hedges. Quality. Diaphoretic, diuretic, acro-narcotic.

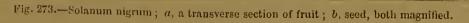
Uses. Chronic catarrhs, rheumatism, gout, eczema and psoriasis. The root and young branches, in the form of a decoction, much di-luted with milk, have been recommended in scrophulous or glandular obstructions. Smith.—The plant is a dangerous narcotic, and its gay tempting berries have occasionally caused serious accidents among children and others who have eaten them. In medicine the plant has been considered serviceable both internally, and used as a wash in lepra, and other cutaneous disorders. It is said to have been advantageously exhibited in asthma.

3. S. nigrum Linnæus.— (BLACK NIGHTSHADE.) Fig. 273.

An annual; stem ereet, angular; leaves sinuatetoothed, downy; flowers white; berries black, filled with purple pulp, in which the seeds are embedded.







Habitat. Waste places all over the world.

Quality. Slightly narcotic.

Uses. As a resolvent; berries catable without danger; in hot countries, leaves used as spinach.

4. S. Lycopersicum Linnæus.—(Tomato.)

An annual; leaves interruptedly pinnate, hairy; flowers yellow; berries large, ribbed, many-celled.

Habitat. Peru.

Uses. The juice of the fruit subacid, much used as a sauce.

5. S. Melongena Linnæus.—(Egg Plant.)

An annual, gray, with stellate hairs; leaves ovate, angular; flowers purple; fruit oblong, smooth, shining, with a hard skin.

Habitat. East Indies.

Uses. Fruit much used as food, when skilfully cooked. Called, in the countries where it grows, Aubergine, Brinjal, &c.

HYOSCYAMUS. Linnœus.

Corolla funnel-shaped, irregular. Fruit a pyxis enclosed in a permanent



1. H. niger Linnæus.—(Hen-BANE.) Fig. 274.

Leaves sessile, viscid, amplexicaul, pinnatifid; flowers nearly sessile; corolla yellow, veined with purple.

Habitat. Waste places.

Quality. Sedative, narcotic, poisonous.

Uses. As an anodyne, and antispasmodic; cough, gonorrhea, toothing, glandular swellings; to dilate the pupil of the eye.





DATURA. Linnæus.

Corolla funnel-shaped, plaited. Calyx deciduous, with a permanent circular base. A 4-celled, 4-valved Capsule.

1. D. Stramonium Linnæus.—(Thorn Apple.) Fig. 275.

NIGHTSHADES.

An annual; leaves ovate, smooth, unequally sinuate-toothed; capsules erect, spiny; flowers white.

Habitat. Waste places.

Quality. Like those of Henbane and Belladonna. Seeds produce maniacal delirium.

Uses. To allay pain; in tie-douloureux, spasmodie asthma, mania, epilepsy.

2. D. sanguinea Ruiz and Pavon.—(Flori-PONDIO.)

A tree; leaves oblong-acuminate, toothed, angular, hairy; flowers pendulous, red, with narrow acuminate lobes to the

Habitat. Peru.

Quality. Seeds produce furious excitement.

Uses. To bring on fits of delirium; to form a stupefying beverage.

Mandragora. Tournefort.

Corolla campanulate, plaited. Stigma capitate. Stamens inclosed in the tube of the calyx, spreading. Berry 2-celled, surrounded by the enlarged calyx.

1. M. officinarum Miller. Atropa Mandragora

Linnæus.—(MANDRAKE.)

A stemless plant, with a large forked fleshy perennial root; leaves lanceolate, spreading, grey; flowers hidden among the leaves, pale violet.

Habitat. South of Europe. Aero-nareotie, Quality. purgative, anæsthetic, aphrodisiae.

Uses. An old ingredient in philtres; dangerous and disused. "Le professeur Fodevé avait eueilli un pied de Mandragore, et l'avait laissé par inadvertence dans un petit eabinet où il se livrait au tra-Au bout d'un quart d'heure il fut pris de vertiges, de faiblesse, et d'une langueur telle qu'il avait peine à se soutenir. Il ne songeait plus à eette plante, et son premier mouvement fut d'ouvrir la fenêtre. S'étant appuyé sur la plante même, il en

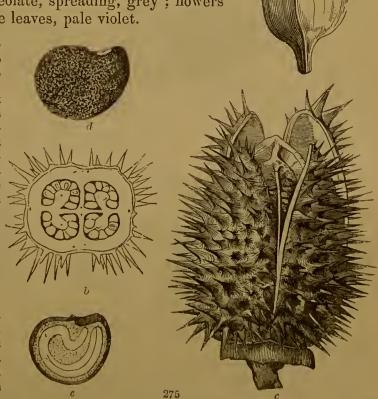
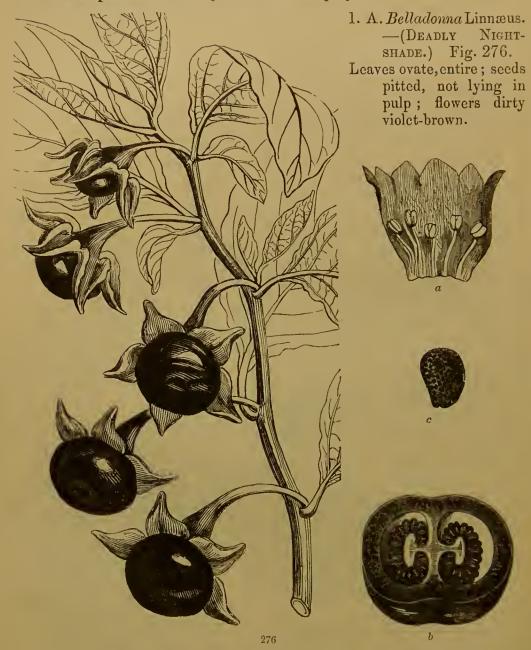


Fig. 275.—Datura Stramonium; a, flower; b, cross section of ovary; c, ripe fruit; d, magnified view of a seed; e, section of ditto.

sortit une odeur fortement nauséabonde qui lui fit aperçevoir aussitôt la cause de ees aecidens." (Roques, Médecine Légale, tom. iv. p. 22.) Dr. T. H. Silvester has shown that the root was formerly employed in the same way as chloroform and other anæsthetie agents now are.

ATROPA. Linnœus.

Corolla campanulate. Berry not filled with pulp.



Habitat. Woods.

Like those of Henbane.

Quality. Like those of Henbane.
 Uses. Nervous irritation, tic-douloureux, rigidity of the os uteri, spasmodic stricture, hooping cough, maladies of the eyes, epilepsy, hysteria, mania, chorea.

NICOTIANA. Linnœus.

Corolla funnel-shaped, with a plaited limb. Stigma capitate. Capsule 2-celled, 4-valved at the point.

1. N. Tabacum Linnæus.—(American Tobacco.) Fig. 277.

Leaves ovate or oblong, lanceolate, acuminate, the lower decurrent; corolla much longer than the calyx, pink, with acute segments.

Habitat. Tropical America.

Quality. Narcotic, purgative, emetic, anodyne;

relaxes muscular fibre.

Uses. Colic, hernia, constipation, ischuria and dysuria, tetanus, dropsy. A favourite luxury. Constitutes all the American cigars and Indian cheroots.

2. N. rustica Linnæus.—(SYRIAN TOBACCO.) Leaves stalked, ovate, obtuse, entire; corollas not much longer than the calyx, green, with rounded segments.

Habitat. Levant.

Quality and Uses. Like the last, but milder; forms Turkish, Syrian, Latakia Tobaccos.

3. N. persica Lindley.—(Tobacco of Shiraz.) Stem-leaves amplexicall, oblong, acuminate; corolla much longer than the calyx, white, with ovate emarginate unequal segments.

Habitat. Persia.

Quality and Uses. Like the first, but much more fragrant and agreeable; not used in medicine. Forms the finest Persian Tobacco; but not suited to cigars, from the difficulty of making it burn.



CAPSICUM. Linnœus.

Corolla rotate. Stamens projecting, converging, opening by slits. Fruit a dry berry.

1. C. annuum Linnæus.—(CHILLI.)

Leaves ovate, acuminate, entire, smooth; fruit long, conical.

Habitat. Mexico, where it was called Tchitli according to Hernandez.

Quality. Stimulant, rubefacient, vesicant; in excess dangerous.

Uses. This and other species furnish the well-known condiment called Cayenne Pepper. The fruit and seeds are a powerful stimulant, without any narcotic property. Cayenne pepper consists principally of the ground seeds. It is employed in medicine, in combination with Cinchona, in intermittents and lethargic affections, and also in atonic gout, dyspepsia accompanied by flatulence, tympanitis, paralysis, &c. Its most valuable application appears, however, to be in cynanche maligna and scarlatina maligna, used either as a gargle or administered internally.

- 2. C. frutescens Linnæus.—(Goat Pepper;)
- 3. C. baccatum Linnæus.—(BIRD PEPPER;)

Quality. Have similar properties, but are more acrimonious.

Natural Order, Astlepiads; Asclepiadaceae (V. K., p. 623.) Prevailing Quality. Acrid, purgative, emetic.

ASCLEPIAS. Linnœus.

Coronet consisting of 5 cucullate processes, each bearing a horn in its inside. Fig. 278.

1. A. tuberosa Linnæus. A. decumbens Linn.—(Butter-FLY WEED.)

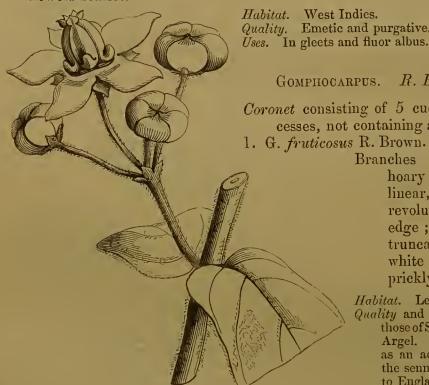
Stem ascending, hispid; leaves linear-oblong, hirsute; umbels rather corymbose; pedicels downy; flowers orange red.

Habitat. United States.

Root expectorant, diaphoretic; a mild tonic and stimulant. Uses. Catarrh, pneumony, pleurisy.

2. A. curassavica Linnæus.

Leaves lanceolate, acuminate, membranous, smooth; peduncles shorter than the leaves; umbels many-flowered; lobes of corolla acuminate; flowers scarlet.



Quality. Emetic and purgative. Uses. In gleets and fluor albus.

Gomphogarpus. R. Brown.

Coronet consisting of 5 cucullate processes, not containing a horn.

> Branches minutely hoary; leaves smooth, linear, revolute at the edge; processes truncate; flowers white; follicles prickly.

Habitat. Levant. Like Quality and Uses. those of Solenostemma Argel. Rarely seen as an adulteration of the senna that comes to England.

CALOTROPIS. R. Brown.

Coronet consisting of 5 blunt saccate processes adhering to the base of the filaments.

1. C. gigantea R. Br.—(MUDAR PLANT.) Fig. 279.

Processes of the coronet short, incurved, blunt; leaves cordate, ovate, acute.

Habitat. East Indies.
Quality. Alterative and sudorific.

Uses. Elephantiasis, venereal diseases, chronic cutaneous affections, worms.

Moench. VINCETOXICUM.

Coronet without accessory processes, scutelliform, fleshy, with 5-10 lobes; tube very short

1. V. officinale Mench. Cynanchum vincetoxicum.

Branches with two hairy lines; leaves cordate, ovate-lanceolate, ciliated; cymes shorter than the leaves; stem erect; flowers white.

Habitat. South of Europe. Quality. Emetie, purgative. Uses. An old antidote to poisons.

Solenostemma. Hayne.

Coronet raised on a long shaft, with 5 obtuse concave processes at its base, opposite the lobes of the corolla.

1. S. Argel Hayne. Cynanchum Argel Delile.—(ARGHEL.) Fig. 280. Stem 2 feet high, erect, branched; leaves lanceolate, leathery, nearly veinless, wrinkled and downy on the under side.





Habitat.Egypt. Aerid, purgative.

Forms a considerable proportion of many samples of Alexandrian senna, but readily known by the thick leathery texture of the leaves, which are veinless, wrinkled, and downy.

Hemidesmus. R. Brown.

Coronet 0. Corolla rotate. Filaments not united upwards; anthers free from the stigma, with 20 pollen masses.

1. H. indicus R. Brown.—(Indian Sarsaparilla.) Fig. 281.

Smooth, twining; leaves narrow oblong, obtuse at each end; flowers axillary, nearly sessile.

Habitat. East Indies. Quality. Alterative, sudorifie, diuretie. Uses. A substitute for Sarsaparilla.

Natural Order, Schostons; Cordiaceæ (V. K., p. 628.)

Prevailing Quality. Mucilaginous, emollient.

CORDIA. Plumier.

Calyx tubular, not striated, Corolla hypotoothed. crateriform or funnelshaped. Drupe pulpy, surrounded by the permanent calyx.

1. C. Myxa Linnæus. Fig. 282. Branches smooth, round; leaves stalked, ovate, occasionally repand, smooth above, rather rough beneath; tube of corolla as long as calyx; drupe egg-shaped, mucronate.

Habitat. East Indies.

Quality. Fruit sueeulent, mueilaginous, emollient.

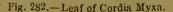
Yields the Sebesten Plums, formerly employed in the pre-paration of lenitive electuary; also as a pectoral medicine.

2. C. latifolia Roxburgh.

Branches angular; leaves stalked, roundish-ovate, sometimes rather cordate and repand, nearly smooth above; tube of corolla rather shorter than calyx; drupe roundish obovate.

Habitat. East Indies.
Quality and Uses. Like the last, but of better quality.

N.B.—Under the name Sebesten Plums, Sebestans, or Sepistans, two sorts of Indian fruit have been employed as pectoral medicines, for which their mucila-ginous qualities, combined with some astringeney, have recommended them. They are believed to have been the Persea of Dioseorides. According to Mr. Colebrooke this is a larger and more mueilaginous sort than that described by European writers on Materia Medica, which is the produce of the last species. Linneus applied the name of Sebesten to an American species of this genus, not known in medicine.



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Natural Order, Bindwrrds; Convolvulaceæ (V. K., p. 630.)

Prevailing Quality. Purgative.

Convolvulus. Linnœus.

Calyx naked. Stigmas 2, linear. Ovary 2-eelled, with 4 ovules.

1. C. Scammonia Linnæus.—(Scammony.) Fig. 283.

Perennial; stem smooth; leaves sagittate with truncate or lobed aurieles; peduneles very long, many-flowered; sepals truncate, much shorter than the calyx.

Habitat. Levant.

Quality. A powerful drastic purgative. Uses. Constipation, worm cases, dropsy.

2. C. arvensis Linnæus. — (SMALLER BINDWEED.) Fig. 284.

Perennial, ereeping rooted; leaves sagittate, auricled; sepals roundishovate.

Habitat. Hedges.

Quality and Uses. Like Scammony, but less active.



3. C. dissectus Cavanilles. Perennial; stem downy; leaves deeply 5-parted or sagittate, linear; peduneles 1-2-flowered; ealyx downy, nearly as long as the corolla.

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Habitat. South America and South Africa.

Quality. Abounds in prussic acid. Gives its flavour to the liquor called noyeau imported from Martinique, &c., where the plant is called "the Noyeau Vine."

CALYSTEGIA. R. Brown.

Calyx concealed within 2 large leafy bracts. Stigmas 2; linear. Ovary 2-celled at base, 1-celled at apex.

1. C. sepium R. Brown.—(LARGER BINDWEED.) Fig. 285.

Stem twining, smooth, angular; leaves large, smooth, sagittate, truncate at base; peduneles angular, 1-flowered; flowers large.



Habitat. Hedges.
Quality and Uses. Like Scammony, but less active.

IPOMŒA. Linnœus.

Calyx naked. Stigmas 2, capitate. Ovary 2-celled, 4-seeded.

1. I. pandurata Meyer.

Stem slender, rather downy; leaves cordate, entire or pandurate, or even 3-lobed; peduneles 1-3-flowered, longer than the petioles; sepals small, ovate; eorolla large, white and purple.

Habitat. West Indies and Southern States of the North American Union, Quality. Powdered root acts like rhubarb. Uses. Calculous cases, gravel.

BINDWEEDS.

2. I. operculata Martius.

Stem quadrangular, winged, smooth; leaves palmate, smooth; peduncles 1-flowered, longer than the petiole; sepals orbicular, the outer large; corolla long, tubular, white; capsule opereulate.

Habitat. Brazil.

Quality and Uses. Like those of jalap, but weaker.

3. I. macrorhiza Michaux. Convolvulus Jalapa Linnæus.

This plant, inhabiting the sandy soil of Georgia and Carolina, with white insipid farinaceous roots weighing from 40 to 50 lbs., is said to possess no purgative properties whatever. Dr. Baldwin administered six drachms of the powdered root without effect; in fact it contains little or no resin, but like Batatas eonsists chiefly of saccharine and farinaceous matter.

Exogonium. Choisy.

Calyx naked. Corolla tubular. Stamens prominent. Stigma capitate. Ovary 2-celled, 4-seeded.

1. E. Purga Bentham.—(True Jalap.) Fig. 286.

Leaves cordate, acuminate, smooth; peduncles 2-flowered; sepals smooth, the outer shortest; corolla large, crimson, hypocrateriform; root tuberous.

Habitat. Mexico, near Xalapa.

Quality. A powerful drastic purgative.

Uses. Constipation, worm cases, water in the brain, dropsies, retention of the eatamenia.

BATATAS. Rumphius.

Calyx naked. Stigmas 2, capitate. Ovary 4-celled.

1. B. edulis Choisy. Convolvulus
Batatas Linnæus. — (SWEET
POTATO.)

Stem creeping widely; leaves cordate, acute, angular, stalked; peduneles longer than the petiole, 3-4-flowered; sepals mucronate; corolla large, purple; root very large, tuberous.

Habitat. East Indies; cultivated in all tropical countries.

Quality. Sweet, nutritive, laxative.

Uses. The tubers are largely consumed

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eet
ed;
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ourus.

for food in all hot countries, where they occupy the place of potatoes with us.

PHARBITIS. Choisy.

Calyx naked. Stigma capitate. Ovary 3-eelled, with 2 seeds in each eell. 1. P. Nil Choisy. Convolvulus Nil Linnaus.—(Convolvulus Major.)

Stem hairy backwards; leaves cordate, entire or 3-lobed, hairy; peduneles 2-3-flowered, generally longer than the petiole; sepals hispid at the base; corolla large, pallid, showy.

Habitat. Tropical countries.

Quality. Seeds purgative, when roasted.

Uses. A common purgative in India, under the name of Kala Dana. Said to be an effectual quick eathartic. Seeds are roasted like eoffee, powdered, and administered in doses of from 30 to 40 grains, in any convenient vehicle.

THE BIGNONIAL ALLIANCE (V. K., p. 668.)

Natural Orders of Bignonials.

Placentæ parietal.

Bignoniates (Bignoniacea.) Placente axile. Albumen 0.

Linariads * (Scrophulariacew.) Placentæ axile. Albumen abundant.



Natural Order, Pedaliacea (V. K., p. 669.)

Prevailing Quality. Emollient, oily.

Sesamum. Linnœus.

Upper lobe of calyx smaller. Corolla longeampanulate, with an unequal 5-lobed border. Capsule oblong, 4-cornered, 2-valved. Seeds thick; apterous.

1. S. indicum Linnæus.—(Sesame. Til or Teel.) Fig. 287.

Stem erect, downy; leaves lanceolate, downy, entire, or lobed.

Habitat. East Indies.

Quality. Emollient, demuleent.

Uses. Oil of seeds employed instead of Salad-oil, but is apt to become raneid. Meal of seeds for poultices, like Linseed.

Fig. 287.—Sesamum indicum, less than the natural size; 1, a ripe fruit; 2, a valve of the fruit; 3, a seed; 4, a cross section of it.

^{*} The ambiguity of the term "Figworts," employed by me on former occasions, induces me to change it for the more expressive Linariads.

Natural Order, Bignoniads; Bignoniaceæ (V. K., p. 675.)

Prevailing Quality. Uncertain.

CATALPA. Scopoli.

Stamens 5, 3 being sterile. Capsule long, Corolla campanulate. siliquiform.

1. C. syringifolia Sims.—(CATALPA TREE.)

Leaves membranous, ovate, cordate, acuminate, nearly entire, downy beneath; flowers panicled.

Habitat. United States.

Quality. Emollient.

Uses. In Italy a decoction of the fruit for coughs and hoarseness; bark said to be the first a rearry allied species, or perhaps the same, be bitter. [According to Kæmpfer a nearly allied species, or perhaps the same, found in Japan, has extremely bitter leaves and bark, and a decoction of the pods is employed in asthmatic complaints; the leaves are also used for fomentations.]

TECOMA. Jussieu.

Corolla short-tubed, with a dilated orifice and an irregular 5-lobed limb. Rudiment of a 5th stamen. Capsule 2-valved, with the partition opposite the valves.

1. T. stans Jussieu.

Leaves unequally pinnated, with 3 pairs of lanceolate, deeply serrated, acuminate leaflets; flowers panicled, yellow.

Habitat. West Indies.
Quality. Roots bitter, diuretic.

Natural Order, Linariads; Scrophulariaceæ (V. K., p. 681.)

Prevailing Quality. Purgative, emetic, bitter; narcotic.

DIGITALIS. Linnœus.

Calyx 5-parted. Corolla campanulate, with an oblique 4-cleft limb. Stamens 4; anthers with divaricating lobes. Capsule 2-celled, 2-valved, opening septicidally.

1. D. purpurea Linnaus. — (Fox-glove.) Fig. 288.

Leaves downy, crenated; corolla large, purple or white, quite smooth.

Habitat. Roadsides.
Quality. Diuretic, emetic, purgative, narcotic; reduces the pulse.

Uses. In fevers, inflammation, dropsy, hæmorrhages, diseases of the heart, phthisis, insanity, &c.



289

SCROPHULARIA. Linnœus.

Corolla nearly globose, with a small 5-lobed limb; the lowest lobe reflexed. Stamens 4, with an additional barren spathulate one.

1. S. nodosa Linneus.—(Figwort.) Fig. 289.

Leaves smooth, doubly serrated, the lower serratures longer and sharper than the others.

Habitat. Ditches.

Quality. Emetic, purgative, diuretic, narcotic.

Uses. Leaves in fomentations; ointment in skin diseases.



LINARIA. Tournefort.

Calyx 5-parted. Corolla ringent, spurred, the upper lip bifid.

1. L. vulgaris Miller. — (TOAD-FLAX.)

Fig. 290. Leaves numerous, lanecolate-linear,

thickly covering the upright stem; rachis and pedicels covered with glandular hairs.

Habitat. Hedgerows and planta-

tions.

Quality. Purgative, diuretic, bitter.

Uses. Chronic diseases of skin; decoction a fly poison.



Calyx 5-parted. Upper lip of corolla bifid, lower trifid. Only 2 stamens fertile; anthers pendulous.

1. G. officinalis Linnæus.— (Hedge Hyssop.) Fig. 291.

Leaves sessile, laneeolate, 3-nerved, serrulated, entire at the base; flowers solitary, axillary.

Habitat. Meadows in Europe.
Quality. A violent cathartic, diuretie, emetic; an acrid bitter poison.

Visceral obstructions, liver affections, dropsy, seurvy, venereal diseases, hypoeliondriasis.

A very active plant, formerly called Gratia Dei. It is extremely bitter, acts



Fig. 289.—Flower of a Scrophularia, seen in front; 290. Linaria vulgaris flowers; α, a seed magnified; 291. Gratiola officinalis.

violently both as a purgative and emetic, and has been said to be the basis of the gout medicine, called *Eau Médicinale*. In over-doses it is a violent poison, and according to Haller, renders, by its abundance, some of the Swiss meadows useless as pastures.

EUPHRASIA. Linnœus.

Calyx tubular, 4-toothed. Corolla bilabiate, with a flat limb. Capsule obtuse, many-seeded. Seeds striated, apterous.

1. E. officinalis Linnæus.—(EYEBRIGHT.)

Leaves ovate, with about 5 teeth on each side; lobes of the corolla veiny, lobed.

Habitat. Downs, meadows, woods.

Quality. Slightly bitter and aromatic.—" Nearly inert."—Percira.

Uses. Catarrhal inflammations of the eyc, cough, hoarseness.

Franciscea. Pohl.

Calyx 5-toothed. Corolla hypocrateriform, with a very slightly unequal limb. Stamens 4. Capsule dry. Seeds large, immersed in pulp.

1. F. uniflora Pohl. F. Hopeana Hooker.—(Manaca.) Fig. 292.

A smooth shrub; leaves oblong or obovate, obtuse; flowers solitary, purple changing to white, with a narrow tubular ealyx.



292

Habitat. Brazil.

Quality. Purgative, emetic, emmenagogue, alexipharmic; nauscously bitter. Uses. Root and bark employed largely in Brazil against syphilis, under the name of Mereurio vegetal.

VERBASCUM. Linnœus.

Corolla rotate. Stamens 5, very unequal, the upper nearly abortive. 1. V. Thapsus Linnaus.—(Mullein. High Taper.) Fig. 293.

Leaves woolly, erenated, decurrent from one to the other; filaments covered with white wool, the two longest smooth or nearly so.

Habitat. Roadsides.

Quality. Seeds and flowers poisonous; foliage acrid and bitterish.







THE ECHIAL ALLIANCE (V. K., p. 649.)

Natural Orders of Echials.

Borageworts (Boraginaceae). Flowers symmetrical.

Labiates (Lamiaceæ). Flowers unsymmetrical. Nuts 4.

Werbenes (Verbenaceae). Ditto. Nuts confluent.

Natural Order, Borageworts; Boraginaceæ (V. K., p. 655.)

Prevailing Quality. Mucilaginous, inert.

Borago. Linnœus.

Corolla rotate. Filaments bifid, with their inner leg antheriferous.

1. B. officinalis Linnæus.—(Borage.)

Lower leaves elliptical obtuse, tapering to the base; lobes of the corolla ovate, acuminate, flat.

Habitat. Waste places.

Quality and Uses. Commonly employed to cool beverages in which its leaves are steeped.

Anchusa. Linnœus.

Corolla hypocrateriform, with 5 inflexed scales in the orifice. Nuts surrounded at the base by a tumid edge.

1. A. tinctoria Linnæus.—(ALKANET.)

Stem herbaceous, procumbent, rough with hairs; leaves lanceolate, obtuse, hoary; calyx hairy, rather shorter than the tube of the corolla; nuts warted.

Habitat. South of Europe and Levant.
Quality. Roots yield a reddish colouring matter.

Used to colour fatty substances; alkalies render it blue.

Fig. 293 – Part of the flower-spike of Verbascum Thapsus; a, one of the stellate hairs; b, a capsule magnified.

Natural Order, Labiates; Lamiaceae (V. K., p. 659.)

Prevailing Quality. Aromatic, tonic.

Salvia. Linnœus.

Stamens ascending, 2, with half an anther borne on one end of a divaricating connective.

1. S. officinalis Linnæus.—(GARDEN SAGE.)

A low shrub; leaves hoary, crenulate, rugose; bracts deciduous; calyxteeth spiny.

Habitat. South of Europe. Quality. Stomachic, aromatic, bitter.

Uses. As an ingredient in culinary seasoning.

2. S. Sclarea Linnæus.—(Clary.)

Stem herbaceous, villous; leaves green, hairy, cordate, rugose; bracts large, coloured, deciduous; calyxes spiny.

Habitat. Middle of Europe. Quality. Stimulant, aromatic, bitter.

Uses. In the preparation of a domestic wine.

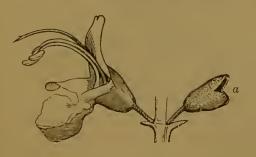
Rosmarinus. Linnæus.

Stamens ascending, 2, with 2-celled anthers, and toothed filaments. Calyx bilabiate $\frac{1}{2}$.

1. R. officinalis Linnaus.—(Rose-MARY.) Fig. 294.

A bush; leaves narrow, sessile, un-

Habitat. Hills in the South of Europe. Quality. Carminative, stimulant. Uses. Hypochondriasis; oil in the preparation of unguents for the hair.



LAVANDULA. Linnœus.

Stamens declinate, 4, included. Corolla bilabiate 3.

1. L. vera De Candolle.—(COMMON LAVENDER.)

Floral leaves rhomboid-ovate.

Habitat. Basin of the Mediterranean.

Quality. Extremely fragrant; stimulant, tonie, stomachie, cordial.

Uses. Hysteria, headache; and as a perfume; the tineture for faintness, flatulence, &c.



2. L. Spica De Candolle.—(French Lavender.) Floral leaves lanceolate-linear, or subulate.

Habitat. Basin of the Mediterranean. Quality. Yields oil of Spike.

Uses. By painters on porcelain, and by artists in the preparation of varnish.

MENTHA. Linnœus.

Stamens straight, 4. Corolla nearly equal, little longer than the ealyx. Anthers each with 2 parallel cells. Calyx 5-toothed.

1. M. viridis Linnæus.—(MINT. SPEARMINT.) Fig. 295.

Leaves glabrous, sessile, lanceolate, acute, serrate; spikes lax, cylindrical; bracts subulate; throat of calyx naked.

Habitat. Marshy places.

Quality. Aromatic, carminative, stimulant, tonic. Uses. Leaves as sauce and salad; against colic.

The herb has a strong, peculiar and pleasant odour, with an aromatic bitter taste, followed by a sense of coldness when air is drawn into the mouth. It is an aromatic and carminative, employed in flatulence and to relieve the pain of colic. Various preparations are ordered by Pharmacopœias, of which oil of spearmint, and spearmint water are the most common.



2. M. piperita Linnæus.— (Peppermint.) Leaves stalked, oblong, acute, serrated; spikes oblong-cylindrical, interrupted below; calyx-teeth straight in fruit; throat naked.

LABIATES.

Habitat. Meadows, rare.

Quality. Aromatic, carminative, stomachie, stimulant.

Uses. Against flatulence, nausea, colic, &c.—Peppermint is an aromatic stimulant, and the most pleasant of all the mints. It is employed principally to expel flatus, to cover the unpleasant taste of other medicines, and to relieve nausea and griping pains of the alimentary canal. The volatile oil is sometimes taken as an antispasmodic; it is what gives their flavour to peppermint lozenges.—Pereira.

3. M. Pulegium Linnæus.—(Pennyroyal.) Fig. 296.

Stems prostrate; leaves elliptical, obtuse, nearly entire; verticillasters remote, axillary; calyx, when in fruit, closed by a ring of hairs.

Moist heaths and Habitat. downs.

Quality. Aromatic, carminative, emmenagogue, antispasmo-

Uses. Obstructed menstruction, hysteria, hooping cough.

Hyssopus. Linnœus.

Stamens straight, diverging, 4. Calyx with 15 ribs.

1. H. officinalis Linnæus.— (Hyssop.)

Leaves lanceolate, entire; flowers in one-sided verticillate racemes.

Habitat. South of Europe. Quality. Stimulating, stomachic, carminative.

Uses. Against flatulence and in hysterical complaints.

> MELISSA. Linnœus.

Stamens ascending, 4. Calyx ribbed, bilabiate. Tube of corolla longer than calyx, without any

1. M. officinalis Linnæus.— (Balm.)

Leaves ovate, crenate-serrate, the lower cordate; verticillasters secund; bracts ovate.

Habitat. South of Europe. Quality. Stimulant, tonic.

Uses. Balm-tea as a diaphoretic in fevers; an emmenagogue; in amenorrhoea and chlorosis; as an exhilarating drink; in hypochondriasis.



OCYMUM. Linnæus.

Stamens declinate, 4. Calyx of the fruit deflexed, with a large ovate upper lobe.

1. O. Basilicum Linnæus.—(Basil.)

Leaves narrowed at the base, ovate or oblong, remotely serrated; verticillasters 6-flowered; calyxes in fruit completely bent down, more than 2 lines long, the upper lip round; stamens about twice as long as corolla.

Habitat. East Indics.

Quality. Stimulant, aromatic.

Uses. An ingredient in culinary seasoning; a palliative in the pains of childbirth.

ORIGANUM. Linnœus.



Stamens straight, diverging, 4. Calyx 10-ribbed, equally 5-toothed, with a villous orifice. Spikes loose, with broad bracts.

1. O. vulgare Linnaus.—
(WILD MARJORAM.)
Fig. 297.

Leaves ovate, acute; bracts without glands on the upper side.

Habitat. Chalky pastures.

Quality. Tonic, stimulant, fragrant.

Uses. As a seasoning in cookery; powder an errhine; tea for nervousness. This plant yields what is called oil of thyme in the shops, a common remedy for the pain of carious teeth. It is frequently used, mixed with olive oil, as a stimulating liniment against baldness, in rheumatic complaints, and against sprains and bruises.

THYMUS.

Stamens straight, diverging, 4. Calyx 10-ribbed, 2-lipped, $\frac{3}{2}$, with a villous orifice.

1. T. Serpyllum Linnæus.—(GARDEN THYME.)

Leaves flat; upper lip of corolla ovate, nearly quadrangular.

Habitat. Hills, heaths, and exposed places. Quality. Fragrant, stimulating, carminative.

Uses. Chiefly as an ingredient in culinary seasoning.

TEUCRIUM.

Stamens 4, ascending, prominent. Corolla with upper lip 2-parted, and declinate, as long or longer than the lower, which is large and concave.

1. T. Marum Linnæus.—(CAT THYME.)

Verticillasters 2-6-flowered, racemose; leaves hoary, entire, with a few teeth near the point; a small shrub.

Habitat. Basin of the Mediterranean.

Quality. Stimulating, aromatic. Uses. A very remarkable feline aphrodisiac.

NEPETA. Linnœus.

Stamens 4, ascending, the uppermost longest. Calyx equal, 15-nerved, with the upper lobe rather broader than the others. Cells of the anthers diverging.

1. N. Cataria Linnæus.—(CAT MINT.)

Leaves ovate, acute, serrato-crenate, cordate, hoary beneath; verticillasters panicled; flowers white; nuts smooth.

Habitat. Hedges.

Quality. Stimulating.

Uses. In amenorrhœa; a remarkable feline aphrodisiac.

2. N. Glechoma Bentham. Glechoma hederacea Linn.—(Ground Ivy.) Stem creeping; leaves crenate, reniform.

Habitat. Dry ditches, plantations, &c.
Quality. Stimulant, pectoral, aromatic.
Uses. A tea prepared from the leaves in great repute among the poor.

SATUREIA. Linnœus.

Stamens straight, diverging, 4. Calyx 10-ribbed, 5-toothed, nearly equal, with a nearly hairless orifice. Upper lip of corolla ovate.

1. S. hortensis Linnæus.—(Summer Savory.)

An annual; leaves linear-lanceolate, pointless.

Habitat. South of Europe.

Quality. Aromatic, carminative.

Uses. An ingredient in culinary seasoning.

2. S. montana Linnæus.—(WINTER SAVORY.)

A small shrub. Leaves lanceolate, mucronate, marked with glandular dots on each side.

Habitat. South of Europe. Quality and Uses. As the last.

MARRUBIUM. Linnœus.

Calyx tubular, 10-ribbed, with 5-10 spiny equal teetle. Stamens 4, included. Corolla $\frac{1 \text{ or } 2}{3}$.

1. M. vulgare Linnæus.—(Horehound.) Fig. 298.

Leaves ovate, crenate, rugose, downy; verticillasters almost globose; calyx-teeth hooked, smooth above the middle.

Habitat. Waste places, hedgerows, &c. Quality. Tonic, stimulant, laxative.

Uses. Coughs; uterine and hepatic affections.

Scutellaria. Linnæus.

Calyx 2-lipped, the upper lip truncate, external to the lower lip, which is truncate and entire. Gynophore long and curved.

1. S. galericulata Linnæus.—(Common Scullcap.) Fig. 299.

Leaves oblong-lanceolate, cordate, remotely crenate; flowers axillary, opposite, racemose.



Habitat. Wet ditches.

Quality and Uses. An old exploded remedy for hydrophobia; also formerly used against intermittents; has little or no useful effect upon the constitution, unless as a weak tonic.

Natural Order, Berbenes; Verbenaceæ (V. K., p. 663.)

Prevailing Quality. Aromatic, subacrid.

STACHYTARPHETA. Vahl.

Ovules erect, solitary. Fruit a dicoccous capsule. Flowers spiked. Stamens 2.

1. S. jamaicensis Vahl.

Nearly smooth; leaves oval or roundish ovate, coarsely serrated; spikes very long; bracts aristate.

Habitat. West Indics.

Quality. Reported to be purgative and anthelmintic.

Uses. Juice as a purgative for children; fresh leaves applied to ulcers; when dried, form a bad kind of tea, sometimes sold in Austria as Brazilian Tea.

LIPPIA. Linnœus.

Fruit a dicoccous capsule. Flowers capitate. Ovules erect, solitary. Stamens 4. Calyx membranous.

1. L. Pseudo-thea Schauer. Lantana Pseudo-thea Aug. de St. Hilaire.

An erect viscid shrub. Leaves erect, stiff, lanceolate, serrate, entire at the base; heads of flowers hemispherical; bracts acute, as long as the tube of the corolla.

Habitat. Brazil. Quality. Aromatic, fragrant. Uses. In coughs, rheumatism, medicated baths; when dried, forms an agreeable tea.

VITEX. Linnœus.

Ovules pendulous. Fruit a drupe, with a 4celled stone. $Corolla \frac{2}{3}$.

1. V. Agnus castus Linnæus.—(Chaste Tree.) Fig. 300.

Downy; leaves white at the back, digitate; leaflets lanceolate, acuminate, entire or nearly so; calyx campanulate; corolla three times as long as the calyx; inflated in the throat.

Habitat. Basin of the Mediterranean.

Quality. Fruit acrid.
Uses. Seeds used in Smyrna as an external application against colic; taken internally, act as powerful aphrodisiacs.

2. V. Negundo Linnæus.

In India a decoction of the aromatic leaves of this plant helps to form the warm bath for women after delivery; bruised they are applied to the temples for headache; pillows stuffed with them are put under the head to remove catarrh and the headache attending it.

3. V. trifolia Linnæus.

The leaves of this Indian species are a powerful discutient and are employed by the Malays to remove the boss. The leaves are given in decoction and infusion, and formed into a cataplasm which is applied to the enlarged spleen.

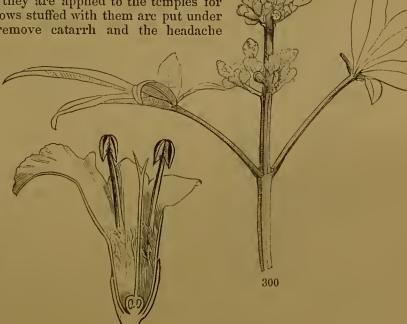


Fig. 300.—Vitex Agnus castus; a, flower divided perpendicularly and magnified.

THE CAMPANAL ALLIANCE.

Natural Orders of Campanals.

Lobeliace. Anthers syngenesious. Ovules 00.

Waltrianworts (Valerianace.) Anthers free. Ovule 1, pendulous.

Composites (Asterace.) Anthers syngenesious. Ovule 1, erect.

Natural Order, Labeliaceae (V. K., p. 692.)

Prevailing Quality. Narcotico-acrid.

Lobelia. Linnœus.

Corollas $\frac{2}{3}$, the upper lip split to the base. Stigma surrounded by a fringe. Capsule 2-3-celled.

1. L. inflata Linnæus.—(Indian Tobacco.) Fig. 301.

Smooth, erect; leaves irregularly toothed; flowers small, blue, racemose; capsule ovate, inflated.

Habitat. United States.

Quality. Diaphoretic, expectorant; emetic; an

acro-narcotic poison.

Uses. Asthma, hernia, croup, hooping-cough. In small doses it is expectorant and diaphoretic, exciting expectoration without the pain of coughing. In such doses as a common tea spoonful of the seeds and leaves, in which quantity irregular practitioners have ventured to give it, it frequently proves fatal in five or six hours. It has been used instead of tobacco, in the form of enema, in strangulated hernia.

2. L. cardinalis Linnæus. — (CARDINAL FLOWER.)

Downy, erect; leaves oblong-lanceolate, irregularly toothed; bracts glandular; flowers scarlet, racemose; calyx with a smooth hemispherical tube.

Habitat. United States.

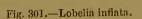
Quality and Uses. Like the next.

3. L. siphilitica Linnæus.

Hairy, erect; leaves ovate, irregularly toothed; flowers racemose, blue; calyx hairy, with a hemispherical tube and lanceolate auriculate lobes.

Habitat. United States.
Quality. Emetic, cathartic, diuretic.

Uses. Root supposed to be useful in syphilis, but now disused.



Natural Order, Unicrianworts; Valerianaceæ (V. K., p. 697.)

Prevailing Quality. Stimulating, aromatic.

VALERIANA. Linnœus.

Calyx pappose. Corolla spurless. Stamens 3.

1. V. officinalis Linnœus.—(True Valerian.) Fig. 302.

Leaves all pinnatifid, with 7-8 pairs of lanceolate segments; corymb becoming panicled; fruit smooth.

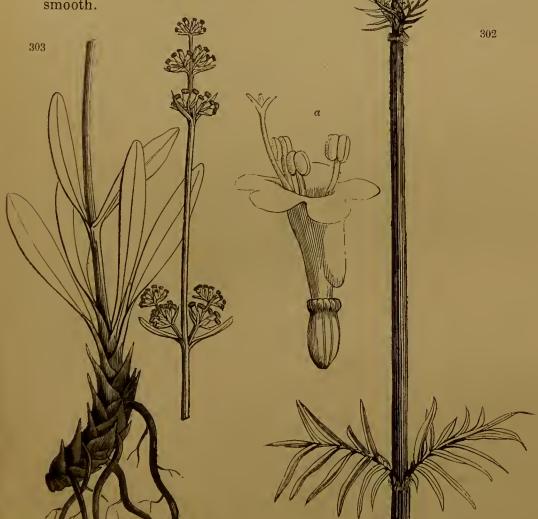
Habitat. Damp meadows in Europe.

Quality. Nervine, tonic, antispasmodie; a
remarkable feline stimulant.

Uses. Epilepsy, chorea, spasms, hypoehondriasis, hysteria.

2. V. Phu Linnæus.

Radical leaves oblong: cauline pinnatifid with oblong lobes; corymb panicled; stigmas slender; fruit smooth.



Habitat. Alps of Europe. Quality and Uses. As in the last. This, or V. Dioseoridis, supposed to be the $\Phi o \tilde{v}$ of the Greeks, and to be strongest of the European Valerians.

3. V. celtica Linnaus. Fig. 303.

Smooth; leaves entire, obtuse, those next the root obovate; stem simple; flowers in interrupted spikes; fruit hairy.

Habitat. European Alps.

Quality and Uses. Like those of Nardostachys, as a substitute for which this is largely employed by Eastern nations.

4. V. dioica Linnæus. Fig. 304.

Radical leaves ovate: cauline pinnatifid with linear lobes; flowers diecious; stigmas connate; fruit smooth.





Habitat. Boggy places all over Europe. Quality and Uses. As in V. officinalis, but more feeble.

NARDOSTACHYS. De Candolle.

Calyx with leafy toothed lobes. Corolla spurless. Stamens 4.

1. N. Jatamansi De Candolle.—(SPIKENARD.)

Stem villous; leaves lanceolate, downy; fascicles of flowers lateral, opposite, stalked and terminal.

Habitat. Himalayas.

Quality and Uses. Stimulant, bitter; used as a perfume by eastern nations, and against hysteria and epilepsy.

Moench. VALERIANELLA.

Calyx with an imperfect toothed limb. Corolla spurless. Stamens 3.

1. V. olitoria Mench.—(LAMB'S LETTUCE.)

Fruit globose, smooth, compressed, oblique, with scarcely any limb; leaves linear-oblong, nearly entire; stem with rough angles.

Habitat. Cornfields and gardens. Quality. Insipid.

Uses. Occasionally grown as a small salad.

Natural Order, Composites; Composite (V. K., p. 702.)

Prevailing Quality. Bitter, and tonic.

* Corymbiferous Composites.

Arnica. Linnœus.

Pappus hairy. Florets of the ray Q, of the disk φ . Stigmas clavate, terminated by a hairy cone. Bracts forming a cylindrical involucre. Receptacle naked. Achænia wingless, striated.
1. A. montana Linnæus.—(Mountain Tobacco.)

Radical leaves obovate, 5-nerved; stem few-flowered; bracts glandular.

Habitat. Alpine meadows.

Quality. Acrid, nauseous, emetic, causes constipation.

Uses. Typhoid fevers; amaurosis, paralysis, dropsy, chlorosis, amenorrhœa, dysentery, &c.

EUPATORIUM. Linnæus.

Pappus hairy. Florets all tubular, 3. Stigmas clavate. Bracts imbricate, oblong. Receptacle naked.

1. E. cannabinum Linnæus.

Leaves stalked, 3-5-parted, with lanceolate-serrated segments, the middle of which is longest.

Habitat. Common by the side of ponds and ditches. Quality. Root bitter, aromatic, pungent. Uses. Root purgative; not now employed.

2. E. glutinosum Lamarck.

A shrub. Branches smooth, glutinous; leaves stalked, cordate, lanceolate, acuminate, serrated, extremely wrinkled, smooth on the upper side, downy on the lower.

Habitat. Peru.

Quality and Uses. Said to be the true Matico: but this is questioned. See Piper.

INULA. Linnœus.

Pappus pilose, uniform, in one row. Florets of the ray Q; of the disk Q. Anthers with 2 bristles. Bracts imbricated, in many rows. Receptacle naked.

1. I. Helenium Linnæus.—(ELECAMPANE.)

Leaves unequally dentato-serrate, downy beneath, those of the stem cordateovate, acuminate, amplexicaul.

Habitat. Europe, in damp meadows.

Quality. An aromatic tonic. Diaphoretic, diuretic, expectorant, emetic.

Uses. Root in coughs, dyspepsia, exanthemata.

Tussilago. Linnœus.

Pappus hairy. Florets of the ray Q, in many rows, ligulate; of the disk 3. Receptacle naked. Bracts with a membranous edge.

1. T. Farfara Linnaus.—(Coltsfoot.) Fig. 305.

Leaves angular, cordate, appearing after the scapes, which are covered with scales, and carry each a cylindrical yellow flower-head.



Habitat. Waste places.
Quality. Emollient, demuleent, tonic.

Uses. A common remedy for troublesome coughs; formerly smoked, now used in decoction.

HELIANTHUS. Linnœus.

Pappus paleaceous, deciduous. Florets of the ray 0; of the disk \$\hat{\phi}\$. Anthers without tails. Bracts imbricated. Achænia flat, all of the same form.

1. H. tuberosus.—(Jerusalem Artichoke.)

A tall tuberous perennial.

Leaves triple-nerved,
serrated, scabrous,
the lower cordate, the
upper ovate-lanceolate; heads small.

Habitat. Brazil.

Quality. Tubers nutritious,
slightly aromatic.

Uses. A common esculent.

Pyrethrum. Linnœus.

Pappus an elevated membranous border. Florets of the ray Q, in one row; of the disk \hat{Q} . Bracts forming a hemispherical flower-head. Receptacle rather convex, naked. Achania angular, not winged.

1. P. Parthenium Smith.—(Feverfew.)
Leaves downy, pinnated; leaflets elliptical, obtuse, pinnatifid, the segments rather toothed.

Habitat. Woods and gardens. Quality. Bitter, tonie.Uses. A decoetion a favourite popular remedy for slight fevers.

TANACETUM. Linnœus.

Pappus a slight membranous border. Florets all tubular, of the ray Q, of the disk of. Bracts forming a hemispherical flower-head. Receptable naked. Achænia oblong, angular, with a large epigynous disk.

1. T. vulgare Linnaus.—(Tansy.)

Leaves bipinnatifid, with serrated segments.

Habitat. Road-sides.
Quality. Aromatic, bitter, tonic, anthelmintic.

Uses. Dyspepsia, intermittents, gout; as an ingredient in puddings and cakes; in

ACHILLEA. Linnaus.

Pappus 0. Florets of the ray short, Q; of the disk \emptyset , with a flattened winged tube. Bracts forming an ovate or oblong imbricated flowerhead. Receptacle scaly, subconvex. Achania compressed.

1. A. Millefolium Linnæus.—(MILFOIL.) Fig. 306.

Leaves woolly, those of the stem lanceolate or nearly linear, bipinnatifid, with deeply divided pinnæ; the rachis scarcely at all toothed.

Habitat. Road-sides.
Quality. Strong-scented, bitter, stimulating, tonic.

Uses. Its astringent leaves have been used to staunch wounds.

2. A. nobilis Linnæus.

Leaves woolly, oval, bipinnatifid, with deeply divided pinnæ; the rachis toothed from the point to the middle.

Habitat. Fields in Europe. Quality and Uses. As in the last.

3. A. Ptarmica Linneus. — (Sneezewort.) Fig. 307.

Leaves lauceolate, acute, sharply and finely serrated.

Habitat. Europe, in damp places.

Quality. Acrid, burning.

Uses. Root a substitute for Anacyclus Pyrethrum; powdered leaves produce succeing.

ARTEMISIA. Linnœus.

Pappus 0. Florets few, all tubular; of the disk \$\\ \phi\$; of the ray in one row. Bracts forming a roundish imbricated head. Receptacle naked or hairy. Acheenia obovate, with a small epigynous disk.

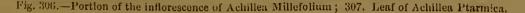
1. A. Abrotanum Linnæus.—(Southernwood.)

Leaves downy beneath, not auricled, bipinnate, with extremely narrow segments; flower-heads hoary, nearly round; receptacle naked.

Habitat. Common in gardens.

Quality. Fragrant, bitter, acrid.

Uses. Leaves dried to drive away moths from linen; an ingredient in some Continental beer.



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2. A. Absinthium Linnaus.—(Wormwood.) Fig. 308.

Leaves hoary, 2-3-pinnatifid, with lanceolate obtuse segments; receptacle hairy.

Europe. 308 Leaves very small, stiff, hairless, glandu-309

Habitat. Thickets and mountainous places in

Quality. Aromatic, bitter, tonic; produces headache and giddiness.

Uses. Dyspepsia, intermittents, worm cases.

3. A. Sieberi Besser. Art. Contra Linnæus. — (Semen Contra. Se-MENCINE.) Fig. 309.

> lar, 3-5-parted; the middle lobe pinnatifid, the latter trifid and linear; flower-heads very. small, panicled, few-flowered, glandular.

Habitat. Palestine.

Quality. Odour nauseous, balsamic, bitter; sialagogue. Uses. The leaves and flower-

heads a celebrated remedy for worms. Several allied species furnish the Semen Cinæ or Semencine of the Continental druggists.





4. A. Moxa De Candolle.—(MOXA WEED.)

A shrub. Leaves hoary, with a loose separable down, bipinnatifid, with linear-lanceolate obtuse segments; heads middle-sized, globose, in racemose panicles.

Habitat. China.

The loose wool, or the beaten tops, form an inflammable substance, called Quality. Moxa, employed to produce eschars, instead of the actual cautery.

Uses. Paralysis of the nerves; sciatica, lumbago, neuralgia, spasmodic asthma, white swelling, stiff joints, visceral diseases.

Fig. 308.--Artemisia Absinthium; 309. Artemisia Sieberi; a, a leaf; b, a flower-head; both magnified.

5. A. Dracunculus Linnæus.—(Tarragon. Estragon Fr.) Leaves green, smooth, linear-lanceolate, undivided; flower-heads nearly round.

Habitat. Siberia. Common in gardens.

Quality. Warm, aromatic, slightly sialagogue.

Uses. Chiefly employed as a pickle, and to flavour vinegar. The names, Dracunculus, Estragon, Tragon, Tarragon, are said to allude to the convolutions of the root, which have been compared to a dragon's tail.

Anthemis. Linnœus.

Pappus 0. Florets of the ray Q or 0, in one row; of the disk \$\display\$. Bracts

imbricated. Receptacle conical, scaly. Achænia obscurely 4-cornered.

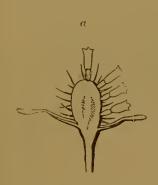
1. A. nobilis Linnæus.— (CHAMOMILE.) Fig. 310.

Perennial, prostrate; leaves pinnate, downy, the lobes pinnatifid; receptacle long, conical.

Habitat. Pastures on gravel. Quality. Aromatic, bitter, tonic,

Uses. Intermittents, dyspepsia, flatulence, colic, eructation.





Anacyclus. Linnœus.

Like Anthemis, except that the Achenia are winged and obcordate.

1. A. Pyrethrum De Candolle. Anthemis Pyrethrum Linnæus.—(Pelli-TORY OF SPAIN.)

Stems procumbent, downy; radical leaves nearly smooth, pinnate, with pinnatifid segments and linear subulate lobes; branches monocephalous.

Habitat. Barbary, Spain, Levant.

Quality. Rubefacient; a very powerful local irritant; sialagogue.

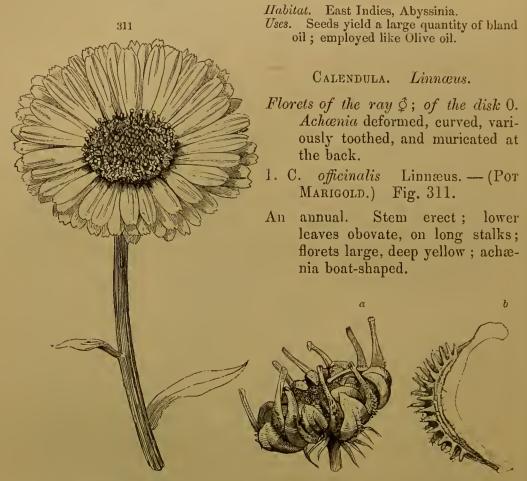
Uses. As tineture for toothache; chewed for palsy of the tongue, and neuralgia of the head and face; as a gargle in relaxed uvula.

GUIZOTIA. Cassini.

Pappus 0. Florets of the ray Q, in one row; of the disk Q, covered with thick jointed hairs below the middle. Bracts in two rows, leafy. Receptacle paleaceous. Achænia angular.

1. G. oleifera De Candolle. Verbesina sativa Roxburgh.—(RAM-TIL.)

Stem downy at the upper end; leaves half amplexicaul, ovate-lanceolate or cordate, remotely serrated, rather rough; outer bracts more leafy and spreading than the others.



Habitat. Common in gardens.Uses. It was formerly much employed as a earminative; it is chiefly used now to adulterate saffron.

* * CYNARACEOUS COMPOSITES.

CENTAUREA. Linnœus.

Pappus pilose, in many rows; second row longest. Bracts imbricated, spiny or lacerated. Filaments papillose. Receptacle chaffy. Achænia attached obliquely.

1. C. Calcitrapa Linnæus.—(STAR THISTLE.)

Fig. 311.--Calendula officinalis; a, a capitulum in fruit; b, an achænium.

Bracts smooth, palmate, spiny, with a strong channelled central spine; heads lateral; leaves deeply pinnatifid.

Habitat. Gravelly and sandy places. Quality. Roots bitter.

Uses. Employed as a substitute for the Cnicus Benedictus.

CNICUS. Linnœus.

Bracts of the involucre coriaceous, extended into a long hard pinnated spine. Achænia regularly furrowed, smooth, with a broad lateral scar. Pappus triple; the outer horny, short; the next composed of 10 long bristles; the third of 10 short bristles.

1. C. Benedictus Linnæus. Fig. 312.

A branched rather shaggy annual; leaves amplexicaul, rather decurrent, half pinnatifid; heads terminal, enveloped in leaves; florets yellow.

Habitat. Levant, Persia; now in South America. Quality. Tonic, diaphoretic, emetic.

Quality. Tonic, diaphoretic, emetic.
Uses. Weak digestion; warm infusion in chronic diseases.

CYNARA. Linnœus.

Bracts of the involucre fleshy at the base, emarginate, with a hard point. Receptacle fringed.

C. Scolymus Linnæus.—(The Artichoke.)

Leaves rather spiny, pinnatifid and undivided; scales of the involucre ovate.

Habitat. South of Europe, Uses. The receptacle or "bottom" of the flower-head is largely employed as a delicate esculent. The pappus forms the "choke."

ARCTIUM. Linnœus.

Pappus short, pilose, distinct. Bracts forming a globular head, armed with hard hooks, and constituting a bur.

1. A. majus Schkuhr. Lappa major.—(Burdock.) Fig. 313.

Involucrenearly smooth; bracts all subulate and hooked, longer than the florets; heads rather corymbose.

Habitat. Road-sides, waste places,

old gravel pits.
Quality. Resolvent, diaphoretic, diurctic; achænia diurctic and

purgative. U_{Ses} . Roots, leaves, and fruit, as an alterative and resolvent in

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gouty, rheumatic, calculous, and venereal complaints. N.B.—The smaller Burdock, Arctium minus, known by its cobwebby heads, placed in racemes, has the same property.

* * * CICHORACEOUS COMPOSITES.

TARAXACUM.

Pappus filiform, very soft, deciduous. Bracts in 2 rows; the outer short Achenia compressed, beaked, muricated. Receptacle and lax. naked.

1. T. Dens Leonis Desfontaines.—(Dandelion. Dent de Lion.)

Leaves runcinate, toothed; achenia linear, obovate, blunt, scaly, muricated, with a long beak.

Habitat. Pastures and waste places, everywhere.

Quality. Stomachic, tonic, aperient, diuretic.

Uses. Weak digestion, hepatic affections, dropsy, dyspepsia, cutaneous diseases, uterine obstructions.

LACTUCA. Linnœus.

Pappus filiform, soft, deciduous. Heads few-flowered. Bracts in 2-4 rows, outer shorter, with a membranous edge. Receptacle naked. Achenia compressed, contracted into a filiform beak, which is not muricated.

1. L. virosa Linnæus.—(ACRID LETTUCE.)

Leaves with a prickly keel, auricled, toothed or sinuate, mucronate; achania black, as long as the white beak.

Habitat. Dry banks,
Quality. Narcotic, subacrid.
Uses. Yields Lettuce-opium or Lactucarium.

2. L. Scariola Linnaus.—(Prickly Lettuce.)

Leaves with a prickly kecl, sagittate, sinuate, amplexicaul; achænia pale, as long as the white beak.

Habitat. Waste places.

Quality and Uses. As in the last.

3. L. sativa Linnaus.—(Garden Lettuce.)

Leaves oblong, erect, narrower at the base, smooth on the keel; with a long leafy flowering stem.

Habitat. East Indies? Common in gardens.

Quality. Sedative, hypnotic, antiscorbutic, (anaphrodisiac?).

Uses. Leaves largely as salad. Lettuce opium in troublesome coughs, inflammation, nervous disorders, as a substitute for opium, but more uncertain.

SCORZONERA. Linnœus.

Pappus feathery, in several rows. Bracts imbricated. Receptacle naked. Achænia neither stalked nor beaked, with a lateral scar.

1. S. hispanica Linnæus.—(Viper's Grass.)
Root cylindrical, succulent; branches monocephalous; leaves amplexicaul, lanceolate, wavy; involucres smooth; flowers yellow.

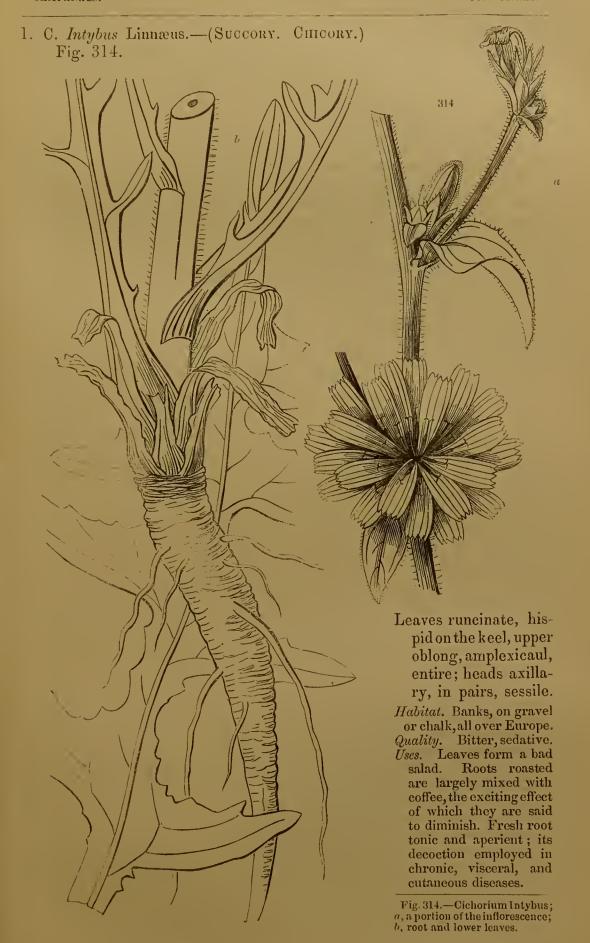
Habitat. Spain and the south of Europe. Common in gardens.

Quality. Root said to be sudorific; nutritious, subaromatic.

Uses. A delicate entable root; fancied by the Spaniards to be a specific against viper

CICHORIUM. Linnœus.

Pappus two rows of minute palex. Bracts in 2 unequal rows, the outer reflexed from the first, the inner afterwards. Receptacle nearly naked. Achænia obovate, striated,



2. C. Endivia Linnaus.—(Endive.)

Stem smooth, or rather hairy; lower leaves oblong, sinuated, nearly smooth, those next the flower-heads broadly auricled; florets blue or white.

Habitat. East Indies. Common in gardens. Quality. Bitter.

Uses. Employed largely as a winter salad.

Tragorogon. Linneus.

Pappus feathery, in many rows. Bracts in one row, 8-10, united at the base. Receptacle punctured. Achievia striated, with a long beak.

1. T. porrifolium Linnæus.—(Salsafy. Cercifis or Salsifis Fr.)

Smooth; leaves ereet, linear-lanceolate, acuminate, entire; peduneles obconieal, fistular; flowers purple; roots cylindrical, succulent.

Habitat. Meadows all over Europe. Common in gardens.

Quality. Said to be sudorific. Root nutritious and subaromatic. Uses. Roots sweet, tender; much estecmed as an esculent.

THE CINCHONAL ALLIANCE (V. K., p. 757.)

Natural Orders of Cinchonals.

Cranberries (Vacciniacea.) Stamens epigynous, porandrous.

Cinchonads (Cinchonacea.) Stamens epipetalous. Leaves opposite, with interpetiolar stipules.

Caprifoliace.) Stamens epipetalous. Leaves opposite, with no stipules.

Struates (Galiaceae.) Stamens epipetalous. Leaves verticillate, with no stipules, Fruit didymous.

Natural Order, Cranberries; Vacciniaceae (V. K., p. 757.) Prevailing Quality. Uncertain.

Oxycoccus. Persoon.

Corolla rotate, 4-parted, revolute. Stamens 8. Berry 4-celled.

1. O. palustris Persoon.—(Cranberry.)

Branches ereeping, filiform; leaves oval, entire, rolled back at the edge.

Habitat. Bogs over all the north of Europe. Quality. Fruit largely used in tarts and puddings.

VACCINIUM. Linnœus.

Corolla 4-5-cleft, eampanulate or urceolate. Stamens 8-10. Berry 4-5eelled, many-seeded.

1. V. Vitis Idea Linnæus.—(Red Whortleberry.)

A dwarf shrub; leaves evergreen, obovate, emarginate, rolled back at the edge, marked beneath with black dots.

Habitat. North of Europe and America.
 Uses. The berries form one of the most agreeable of marmalades. Leaves sometimes used to adulterate samples of Arctostaphylos uva ursi.

2. V. uliginosum Linnæus.—(Whortleberry.)

Stem much branched, ferruginous; leaves small, obovate, entire, downy and glaucous on the under side.

Habitat. All Europe, from the polar region to the Mediterranean. Quality. Fruit succulent; when fermented, producing a heady liquor. Natural Order, Cinchonates; Cinchonaceæ (V. K., p. 761.)

Prevailing Quality. Tonic, emetic.

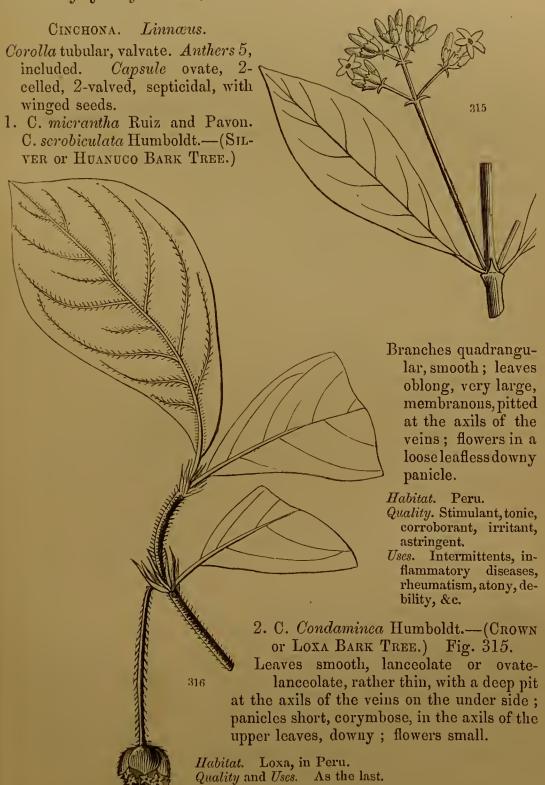


Fig. 315.—Cinchona Condaminea; 316. Cephaëlis Ipecacuanha in flower.

CEPHAËLIS. Swartz.

Flowers in heads, surrounded by a leafy involuere. Calyx with a short-lobed limb. Lobes of corolla small, obtuse. Anthers included. Fruit succelent, 2-celled, with the stones striated on the external side.

1. C. Ipecacuanha A. Richard.—(True Ipecacuanha.) Fig. 316.

A creeping herbaceous plant; leaves oblong-lanceolate, rough above, downy beneath; stipules multifid; heads long-stalked, pendulous.

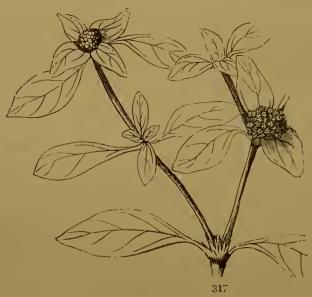
Habitat. Woods of Brazil. Quality. Emetic, narcotic.

Uses. Hooping-cough, croup, asthma, cases of poisoning, mucous catarrh, bronchial hæmorrhage, indigestion, dyscntery, &c.

RICHARDSONIA. Kunth.

Calyx with a globose tube and a 4-7-parted limb. Corolla obconical, valvate. Stamens 3-5, projecting. Style 3-4-eleft, with capitate stigmas. Capsules composed of 3-4 indehiscent 1-seeded shells.

1. R. scabra Aug. de St. Hilaire.—(White Ipecacuanha.) Fig. 317. Leaves ovate-lanceolate, rough at the edge; teeth of the stipules shorter than their tube; heads many-flowered; calyx-lobes triangular, ciliated.



Habitat. Tropical America in many places. Quality and Uses. As in Cephaëlis Ipecacuanha.

UNCARIA. Schreber.

Flowers in globular heads. Calyx 5-cleft. Corolla funnel-shaped, with a naked mouth. Capsules 2-celled, clavate, with numerous winged seeds.

1. U. Gambir Roxburgh.—(GAMBIR PLANT.)

Leaves ovate-lanceolate, acute, smooth; stipules ovate; peduncles axillary, solitary, with 2 bracts in the middle, the lower barren and hooked.

Habitat. East Indies, Malay Archipelago.
Quality. One of the most powerful of pure astringents.
Uses. Yields Gambir, a substitute for Catechu.

Manettia. Mutis.

Calyx permanent. Corolla funnel-shaped, 4-eleft. Anthers 4, sessile in Capsules 2-valved, septicidal, with numerous the hairy mouth. winged seeds.

1. M. cordifolia Martins.

Stem twining, terete, rough; leaves ovate, cordate, acute, downy on each side; peduncles axillary, 1-flowered.

Quality. Bark of root emetic. Habitat. Woods of Brazil. Uses. Regarded in Brazil as a valuable remody in dropsy and dysentery.

CHIOCOCCA. P. Browne.

Calyx 5-toothed. Corolla short, funnel-shaped, smooth inside. Stamens 5, in the bottom of the corolla. Fruit succellent, crowned by the calyx,

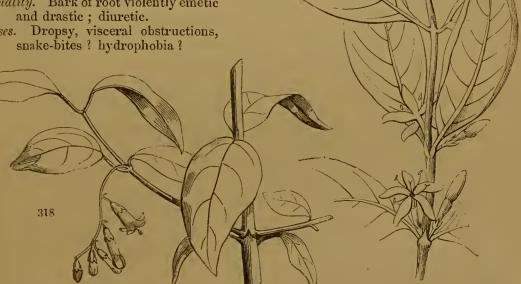
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with 2 papery stones. 1. C. densifolia Martius. Fig. 318. Leaves ovate, rather cordate; stipules broad at the base; racemes many-flowered; corolla much longer than the calyx.

Habitat. Tropical America.

Quality. Bark of root violently emetic

Uses. Dropsy, visceral obstructions,



Coffea. Linnœus.

Calyx 4-5-cleft. Corollas funnel-shaped, with 4-5 oblong spreading twisted lobes. Fruit a compressed drupe, furrowed along the side, crowned by the calyx. Seeds solitary, plano-convex, with a deep furrow along the flat side. Putamen like parchment.

1. C. arabica Linnæus.—(Coffee Tree.) Fig. 319.

Leaves oblong, ovate, acuminate, smooth; peduncles axillary, short, clustered; corolla 5-cleft; stamens projecting.

 Mabitat. Arabia Felix and Nubia.
 Quality. Antisoporific, stimulating; apt to produce constipation.
 Uses. Counteracts opium, relieves intoxication, removes headache; in dyspepsia, diarrhœa, intermittents: some nervous disorders; spasmodic asthma.

Natural Order, Caprifolis; Caprifoliaceae (V. K., p. 767.) Prevailing Quality. Subacrid, emetic.

Sambucus. Linnœus.

Calyx 5-toothed. Corolla rotate, 5-cleft. Stamens 5. Stigmas 3, sessile. Berry with 3-5 seeds.

1. S. nigra Linnæus.—(Elder Bush.) Fig. 320.

Stem almost arborescent; leaves pinnated; leaflets ovate-lanceolate, serrated; eorymb 5-rayed at the first division.

Habitat. Woods and hedgerows all over Europe.

Quality. Flowers stimulant and sudorific; fruit aperient and diuretic; inner bark hydragogue, cathartic, emetic.

Uses. Flowers form an ointment and a distilled water; berries make a grateful wine; bark in dropsies.



VIBURNUM. Linnœus.

Calyx 5-toothed. Corolla rotate, eampanulate, or tubular, 5-lobed. Stamens 5. Stigmas 3, sessile. Berry 1-seeded.

1. V. Opulus Linneus. Fig. 321. Leaves 3-5-lobed, with acute toothed lobes; flowers neuter and radical in the eircumference of the eorymb.

Fig. 320.—Sambucus nigra in fruit; 321. Viburnum Opulus; a, a leaf; b, a flower, magnified.

Habitat. Marshes; common in gardens, with all the flowers neuter and radiant, forming the "Gueldres Rose."

Quality. Leaves emetic, drastic; fruit austere.

Uses. Leaves as those of Sambueus; fruit a miserable food for savage northern nations.

Natural Order, Stellates; Galiaceæ (V. K., p. 768.)

Prevailing Quality. Astringent.

Rubia. Linnœus.

Fruit succulent, didymous. Corolla rotate.

1. R. tinctorum Linnæus.—(MADDER.) Fig. 322.

Leaves in fours, netted, lanceolate, with reversed hooks at the edge; lobes of the corolla taper-pointed.

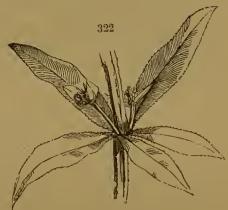
Habitat. Levant. Commonly cultivated in fields in the south of Europe.

Quality. A mild astringent and tonic. Colours red the bones of animals that feed on it. Uses. A valuable red dye.

ASPERULA. Linnœus.

Fruit dry, didymous. Corolla funnelshaped, or campanulate. Style bifid, with capitate stigmas.

1. A. odorata Linnæus.—(WOODRUFF.) Leaves in whorls of 6 and 8, lanceolate, smooth, rough at the edge and keel; fruit covered with hooked bristles.



Habitat. In woods in most parts of Europe.

Quality. Possesses a very agreeable fragrance when dried.
Uses. Said to be diuretic; forms an agreeable herb-tea; dried leaves said to drive away moths from clothes.

THE MYRTAL ALLIANCE (V. K., p. 717.)

Natural Orders of Myrtals.

Myrobalans (Combretacea.) Leaves dotless. Stamens definite. Ovules 1 or 2, pendulous. Ovary 1-celled.

Myrtleblaams (Myrtaceee.) Leaves dotted. Stamens 00. Ovules axile. Ovary 2- or more-celled.

Natural Order, Myrobalans; Combretaceæ (V. K., p. 717.) Prevailing Quality. Astringent.

TERMINALIA. Linnæus.

Calyx campanulate, deciduous. Petals 0. Fruit a wingless juiceless drupe.

1. T. Bellerica Roxburgh.—(Beleric Myrobalan.)

Leaves alternate, elliptical, entire, acute at each end, smooth, on long stalks, with 2 small glands at the end of the petiole.

Habitat. Mountains of India. Quality. Fruit astringent, tonic, attenuant.

Habitat. Kernels eaten in India; said to intoxicate; gum, though soluble in water, is inflammable, and burns like a candle.

2. T. Chebula Retzins.

Leaves rather opposite, ovate, acute, stalked, when old smooth on the upper side, but when young coarsely silky; with 2 glands at the end of the petiole, and a few along its sides.

Habitat. The mountains of India.

Quality. Fruit and galls extremely astringent.

Uses. Employed by dyers; dyes yellow with alum, black with salts of iron.

Natural Order, Autlichlumms; Myrtaceae (V. K., p. 734.) Prevailing Quality. Aromatic, astringent.

CARYOPHYLLUS. Linnœus.

Calyx cylindrical, 4-cleft, much longer than broad. Petals 4. Stamens distinct, in 4 clusters. Berry oblong, with 1-2 cells and as many seeds.

1. C. aromaticus Linnæus.—(The CLOVE TREE.) Fig. 323. Leaves ovate-oblong, acuminate at each end; cymes many-flowered.

Fig. 323.—Leaf of Caryophyllus aromaticus; 324. Leaf of Eugenia Pimenta; a, a portion of it magnified to show the oil-cysts.

Habitat. East Indian Islands.

Quality. Fragrant, sweetish, very agreeable; stomachie, earminative.

Uses. Dried flower-buds much used as flavouring ingredients; in dyspepsia, nausca, flatulence.

Eugenia. Linnœus.

Calyx roundish, 4-parted. Petals 4. Stamens distinct. Berry roundish, 1-2-celled, with as many seeds.

Myrtus Pimenta Linnæus.—(Pimento. 1. E. Pimenta De Candolle.

Allspice.) Fig. 324.

Leaves oblong or oval, obtuse, smooth; peduncles axillary and terminal, in trichotomous panicles; berry globose, 1-seeded.

Habitat. West India Islands.
Quality. "Intermediate between pepper and cloves."

Uses. As a spice in cookery; in weak digestion; to relieve flatulency, &c.

Myrtus. Linnœus.

Calyx roundish, 5-cleft. Petals 5. Stamens distinct. Berry 2-3-celled, many-seeded.

1. M. communis Linnæus.—(The MYRTLE.) Fig. 325.

Leaves ovate and lanceolate, acute; pedicels solitary, 1-flowered, about as long as the leaf, with a pair of linear deciduous bracts beneath each flower.

Habitat. Persia. Common in gardens.

Quality. Fragrant, aromatic.
Uses. Dried fruit and flower-buds formerly used as a spice; and are said to be so still in Tuscany; form a kind of wine; flowers yield a distilled water called Eau d'Ange.

Punica. Linnœus.

Calyx coriaceous, tubular, 5-7-cleft, valvate. Petals 5-7, crumpled. Fruit a leathery indehiscent case, with numerous irregular cells, and 00 seeds, covered with pulp.

1. P. Granatum Linnæus.—(The Pomegra-NATE.) Fig. 326.

A tree; leaves lanceolate.

Habitat. Barbary and the south of Europe.

Quality. Astringent; bark of root emetic and purgative.

Uses. Bark of root in worm cases; rind of fruit for gargles; pulp of seeds refrigerant, in fevers, especially bilious.

Melaleuca. Linnœus.

Calyx 5-parted. Petals 5. Stamens polyadelphous, in 5 polyandrous phalanges. Capsule inclosed in the calyx, adnate to the very branch, with 00 angular seeds.





1. M. Cajeputi Roxburgh. M. minor Smith.—(Cajeput Tree.) Leaves alternate, elliptical-lanceolate, 3-5-nerved; flowers spiked, rather

wide apart, with a woolly rachis.

Habitat. Amboyna and other Indian islands.

Quality. Oil a powerful antispasmodic, stimulant and sudorific.

Uses. Low fevers, paralysis, cholera, spasms, colie, chronic rheumatism, stimulating liniments.

THE CACTAL ALLIANCE (V. K., p. 741.)

Natural Order of Cactals.

Endian Figs (Cactacea.) Sepals and petals 00, undistinguishable. Fruit succulent.

Natural Order, Endian Figs; Cactaceae (V. K., p. 746.)

Prevailing Quality. Uncertain.

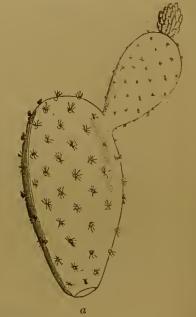
Opuntia. Tournefort.

Stems flat, jointed, obovate or oblong, or ovate, at length confluent in a terete trunk.



1. O. vulgaris Miller.—(Indian Fig.) Fig. 327.

Spreading; joints of ovate; priekles all of the same form, very short and numerous.



Habitat. Southern states of North America. Commonly cultivated in the south of Europe. Quality and Uses. Ripe fruit agreeable, and sold for the table in southern countries;

stains the urine red.

THE GROSSAL ALLIANCE (V. K., p. 749.)

Natural Order of Grossals.

Currantworts (Grossulariaeea.) Fruit pulpy. Seeds parietal.

Natural Order, Currantworts; Grossulariacea (V. K., p. 750.) Prevailing Quality. Subaromatic.

Ribes. Linnœus.

Calyx 5-lobed. Petals 5, scale-shaped. Fruit a succulent berry.

1. R. rubrum Linnaus.—(Common Currant.)

Leaves angular, bluntly 3-5-lobed, downy beneath, smooth above; racemes peudulous. Unarmed.

Habitat. Hedge rows and woods.

Quality. Juice of the fruit refrigerant and grateful to persons suffering from fever. Largely cultivated for dessert and for cooking.

2. R. nigrum Linnæus.—(Black Currant.)

Leaves angular, 3-5-lobed, with glandular dots on the underside. Unarmed.

Habitat. Woods of Europe and Siberia.

Quality. Tonic, stimulant, aromatic, subacid.

Uses. Fruit much cultivated for dessert and for cooking; forms a very useful domestic conserve employed for sore throat. N.B.—The Gooseberry is Ribes Grossularia.

THE UMBELLAL ALLIANCE.

Natural Orders of Umbellals.

Umbellifees (Apiaceæ.) Fruit didymous.

Kuywarts (Araliaeece.) Fruit not didymous. Flowers pentamerous. Leaves alternate.

Corncle (Cornacea.) Fruit not didymous. Flowers tetramerous. Leaves opposite.

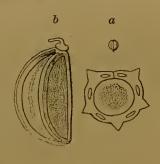
Natural Order, Umbellifers; Apiaceæ (V. K., p. 773.)

Prevailing Qualities. Aromatic; stimulating; poisonous.

APIUM. Linnœus.

Umbels compound. Involucre 0. Calyx obsolete. Fruit roundish, contracted at the side. Ridges 5, narrow, equal, the lateral on the edge. Vittee 1 to each furrow. Albumen terete.

1. A. graveolens Linnæus.—(Celery.) Fig. 328. Smooth; leaves pinnated; leaflets cuneate, cut and toothed at the point.



328

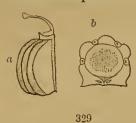
Fig. 328.-a, Fruit of Apium graveolens, natural size; b, half of it magnified; c, transverse section

Habitat. Ditches, especially in salt marshes.

Quality. Aerid, poisonous when growing in wet places and unblanched. Uses. When cultivated forms a favourite salad and ingredient in soups.

CICUTA. Linnaus.

Umbels compound.



Involucre: general, obsolete; partial of many subulate bracts. Calyx leafy. Fruit roundish, eon-tracted at the side. Ridges 5, flattish, equal, the lateral at the edge. Vittee: 1 large to each furrow. Albumen terete.

1. C. virosa Linnæus. Fig. 329.

Leaves tripinnate; leaves linear-lanceolate, acute, serrated.

Habitat. Ditches and river sides.

Quality. A dangerous poison, aeting like Conium.

Petroselinum. Hoffmann.

Umbels compound. Involucres: partial of many, general of few bracts.

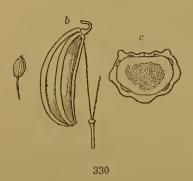
Calyx obsolete. Fruit ovate, contracted at the side. Ridges 5,

narrow, equal, the lateral on the edge. Vittæ 1 to each furrow. Albumen planoconvex.

1. P. sativum Hoffmann.—(Parsley.) Fig. 329.

Stem angular; leaves shining, 3-pinnate; leaflets toothed.

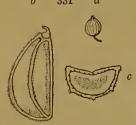
Habitat. Common in gardens.
Quality. Pleasant, stimulating, aromatic, diurctic.
Uses. Leaves a common garnish to meat, &c. A favourite pot-herb.



PIMPINELLA. Linnœus.

Umbels compound.

b 331 a



Involucres usually 0. Calyx obsolete. Fruit contracted at the side, ovate. Ridges 5, filiform, equal; the lateral on the edge. Vittee 00. Albumen eoncavo-convex.

1. P. Anisum Linnæus.—(Anise.) Fig. 330.

Lower leaves roundish-cordate, cut, those of the stem pinnate, with wedge-shaped leaflets; fruit downy.

Habitat. Egypt and Syria. Commonly eultivated. Quality. Aromatic, stimulant.

 U_{ses} . As a flavouring substance for liqueurs, sweetmeats, &c.

The officinal preparations, especially the aqua anisi, are employed to relieve flatulence, and eolieky pains, especially of children. Nurses sometimes take it to promote the secretion of milk. It has also been used in pulmonary affections. Its effects are condimentary, stimulant, and carminative.—Pereira.

Fig. 329.—a, half a fruit of Cicuta virosa, magnified; b, its transverse section; 330. a, Fruit of Petroselinum sativum, natural size; b, half of it magnified; c, its transverse section; 331. a, Fruit of Pimpinella Anisum, natural size; b, half of it magnified; c, its transverse section.

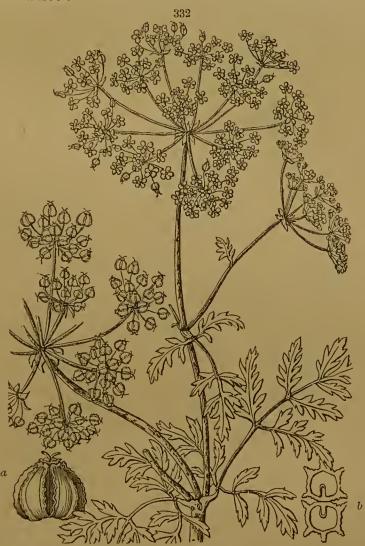
UMBELLIFERS.

CONIUM. Linnœus.

Umbels compound. Involucre both general and partial, small. Calyx obsolete. Fruit ovate, compressed. Ridges 5, prominent, wavy. Vittee 0. Albumen with a deep furrow on the side next the commis-

1. C. maculatum Linnæus.—(Hemlock.) Fig. 332.

Stem and all the parts perfectly hairless; bracts lanceolate, shorter than the partial umbel.



Habitat. Hedgerows and waste places. Quality. Diuretic, discutient, narcotic; poisonous; anaphrodisiac.
Uses. In glandular enlargements, obstinate skin diseases, foul ulcers, bronchocelc, syphilis, hooping cough, tetanus, rheumatism, neuralgia.

ÆTHUSA. Linnœus.

Umbels compound. Involucre: general 0; partial long, pendulous, halved. Calyx obsolete. Fruit ovate. Ridges 5, raised, thick, acute, the lateral on the edge and broader. Vittæ 1 to each furrow. Albumen terete.

1. Æ. Cynapium Linnæus.—(Fool's Parsley.) Fig. 333.

Bracts longer than the umbel; stalks of the circumference twice as long as the fruit.

Habitat. Hedgerows and waste places. Quality. Poisonous; narcotic, aerid, emetic.

Uses. Leaves a frequent cause of dangerous accidents, on account of their resemblance to Parsley.



CARUM. Linnœus.

Umbels compound. Involucre small or obsolete. Calyx



334

obsolete. Fruit oblong, compressed. Ridges 5, narrow, equal, the lateral on the cdge. Vittæ 1 to each furrow. Albumen tcrete.

1. C. Carui Linnæus. — (CARAWAY.) Fig. 334.

Leaves bipinnate; leaflets multifid, the lower pair decussating; stem angular; root fusiform.

Habitat. Europe. Cultivated in gardens.

Quality. An aromatic stimulant and condiment.

Uses. In flatulent colie; chiefly as a flavouring material, for liqueurs and eakes.

CRITHMUM. Linnœus.

Umbels compound.

Involucre of many lanceolate bracts. Calyx obsolete. Fruit oblong, rather flattened from the back. Ridges 5, winged, sharp, the lateral rather the widest. Vittee 00. spread over all the seed. Albumen terete.

1. C. maritimum Linnæus.—(Samphire.) Fig. 335. Leaves fleshy, 2-3 pinnate; leaflets lanceolate, few.

Habitat. Rocky cliffs of the sea coast. Quality. Aromatic, saline.

A favourite ingredient in pickles.

335

Fig. 333.—Æthusa Cynapium; a its fruit magnified; 334. a, Fruit of Carum Carui, natural size; b, half of it magnified; c, its transverse section; 335. a, Fruit of Crithmum maritimum, natural size; b, one of the halves, magnified; c, its transverse section.

Calyx minute.

SIUM. Linnœus.

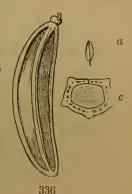
Umbels compound. Involucres both partial and compound.

Fruit compressed from the side. Ridges 5, equal,
narrow, the lateral on the edge. Vittæ 3 or thereabouts to each furrow. Albumen subterete.

1. S. Sisarum Linnæns.—(Skirret.) Fig. 336.

Root tuberous, fascicled; lower leaves pinnate, with bollong scrrated leaflets, the terminal being cordate; the upper ternate with lanceolate leaflets.

Habitat. Japan, China. Common in gardens.Quality. Roots sweet, succulent, nutritious, subaromatic, employed in cookery in the same way as Scorzonera.



SMYRNIUM. Linnœus.

Umbels compound. Involucres variable. Calyx obsolete. Fruit roundishovate, compressed, didymous. Ridges sharp, thick, the 3 dorsal prominent, the lateral distant, on the edge. Vittæ 00. Albumen

1. S. Olusatrum Linnæus. — (Alexanders.) Fig. 337.

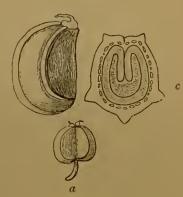
Stem terete; leaves ternate, stalked, serrate; fruit black.

Habitat. Waste ground, near ruins.

involute.

Quality. Aromatic, rather pleasant when blanched; fruit carminative.

Uses. Formerly instead of Celery; rarely cultivated



CORIANDRUM. Linnœus.

Umbels compound. Involucres: general 0, partial 3-leaved, halved. Calyx 5-toothed. Fruit spherical. Ridges: primary narrow, round, zigzag, obsolete; secondary prominent, filiform. Vittæ 0, except on the commissure. Albumen hemispherical, concave.

1. C. sativum Linnæus.—(Coriander.) Fig. 338. Upper leaves multifid; flowers white.

Habitat I event a cultivated in gardens

Habitat. Levant; cultivated in gardens. Quality. Aromatic, stimulant, carminative.

Uses. Fruit in confectionary; and as an adjuvant to other medicine.



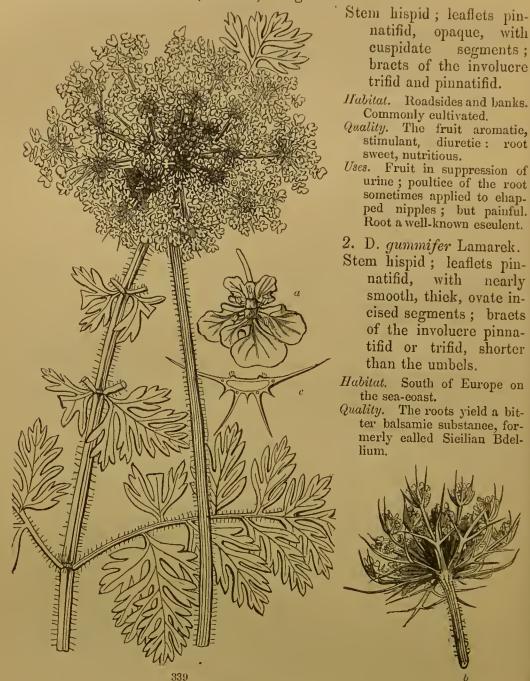
DAUCUS. Linnœus.

Fruit with both primary and secondary ridges, compressed from the back.

Ridges prickly, or broken into irregular segments. Vittæ 1
beneath each secondary ridge. Albumen plano-convex.

Fig. 336.—a, Fruit of Sium Sisarum, natural size; b, one of the halves, magnified; c, its transverse section; 337. a, Fruit of Smyrnium Olusatrum, natural size; b, one of the halves, magnified; c, its transverse section; 338. Fruit of Coriandrum, magnified; b, transverse section of one of its halves.

1. D. Carota Linnaus.—(Carrot.) Fig. 339.



CENANTHE. Linnœus.

Umbels compound. Involucres variable. Calyx stiff, leafy. Fruit oblong, erowned by the stiffened styles. Ridges 5, very convex. Vittæ 1 to each furrow. Albumen subterete.

1. Œ. crocata Linnæus.—(Hemlock Dropwort.) Fig. 340.

Root large, branched, fusiform; stem-leaves pinnate, with lozenge-shaped leaflets cut long the upper sides; fruit eylindrical, in close hard heads.

Fig. 339.—Daucus Carota; a, a flower of the ray; b, an umbel of fruit; c, a transverse section of half a fruit magnified.

Habitat. Wet places and swampy meadows.

Quality. Poisonous; narcotico-aerid; loses its virulence in northern latitudes. Roots, resembling small parsnips, a frequent cause of fatal accidents.



2. Œ. Phellandrium Sprengel. Phellandrium aquaticum Linnæus.— (Water Dropwort.) Fig. 34.

Rhizome jointed, with numerous whorled fibres; leaves repeatedly pinnate, cut into innumerable fine dark-green segments.

Habitat. Ditches, ponds, and wet places. Quality. As in the last, but less dangerous.

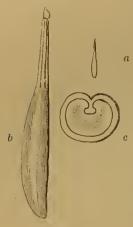
Anthriscus. Hoffmann.

Umbels compound. Involucres: general 0; partial of many bracts. Calyx obsolete. Fruit contracted at the side, beaked. Ridges 0, except on the beak, which has 5. Vittee 0. Albumen half-terete, furrowed next the commissure.

1. A. vulgaris Persoon.

Stem smooth; umbels lateral, stalked; fruit ovate, hispid, about twice as long as the beak, which is smooth.

Fig. 340.—Œnanthe crocata; a, its fruit of the natural size; b, ditto, magnified; c, one of the halves; d, its transverse section; 341. a, Fruit of Œnanthe Phellandrium, natural size; b, half of it magnified and seen from the back; c, a transverse section of it.



Waste places, a common weed.

252

Deleterious; has been the cause of accidents in consequence of being mistaken for the following. Some Dutch soldiers, who gathered it by mistake for common Chervil, were poisoned by the soup into which it was put.—Burnett. Anthriseus sylvestris is reputed to be similar in its effects to Hemlock, only rather less narcotic. (Herba Cicutariae Officin.)

2. A. Cerefolium Hoffmann,—(Chervil.) Fig. 342. Stems hairy above the joints; umbels lateral, sessile; fruit smooth, about twice as long as the beak.

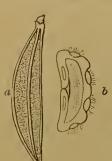
Habitat. Waste ground of Europe. Occasionally cultivated in gardens.

Quality. Leaves agreeably aromatic. Uses. Grown merely for soups, and salads.

342

Cuminum. Linnœus.

Umbels compound.



Involucre: general of 2-4 bracts, partial halved, finally reflexed. Calyx of 5 lanceolate setaceous teeth. Fruit slightly contracted at the side. Ridges blunt, filiform, the lateral on the edge. Vittee 1 beneath each prominent hairy furrow. Albumen nearly flat.

1. C. Cyminum Linnæus.—(Cummin.) Fig. 343. b Leaves multifid, setaceous; umbels 3-5-cleft; involucres longer than the hairy fruit.

Habitat. Egypt and the Mediterranean.

Quality. Mildly stimulant and carminative; discutient.

In the preparation of plaisters in veterinary practice; and in liqueurs.

343

FENICULUM. Hoffmann.

Involucre 0. Calyx a tumid Umbels compound. margin. Fruit taper. Ridges 5, prominent, bluntly keeled. Vittæ 1, large, to each furrow. Albumen plano-convex.

1. F. officinale Allioni.—(Fennel.) Fig. 344.

Leaves multifid, with setaceous segments.

Habitat. Coast of the Mediterranean. Common in gardens. An aromatic stimulant, carminative. Uses. Chiefly as a potherb for flavouring sauces.



OPOIDIA. Lindley.

Involucres: general obsolete, partial of many bracts. Umbels compound. Calyx obscurely 5-toothed. Fruit terete, eval. Ridges = 3 dorsal



Vittæ one large one beneath each angles. furrow, and one small one beneath each ridge. Albumen furrowed next the commissure.

1. O. galbanifera Lindley. Fig. 345. Leaflets oblong, obtuse, serrulate, decurrent.

Fig. 342.—a, Fruit of Anthriscus Cerefolium, uatural size; b, one of its halves, magnified; c, its transverse section; 343. a, half the fruit of Cuminum Cyminum, magnified; b, its transverse section; 344. a, Fruit of Fæniculum officinale, natural size; b, one half magnified; c, its transverse section; 345. Transverse section of half a fruit of Opoidia galbanifera, magnified.

Habitat. Persia.

Quality. Supposed to yield the fetid gum-resin ealled Galbanum; but Dr. Pereira now thinks that the substance obtained from it is different from either Galbanum or Sagapenum.

ARCHANGELICA. Hoffmann.

Umbels large, compound.
Involucres: general 0,
partial of many bracts.
Calyx 5-toothed. Fruit
compressed from the back.
Ridges 5, winged, the lateral short of the edge and
broader than the dorsal.
Vittee 00, covering the
plano-convex albumen,
which is loose.

1. A. officinalis Hoffmann.—
(ANGELICA.) Fig. 346.
Stem smooth, furrowed;
leaves bipinnate, with

ovate, or somewhat cordate broad serrated leaflets; upper petioles ventricose.

a



Habitat. Watery places.
 Quality. Root and fruit pungent, aromatic, stimulant, tonic.
 Uses. The candied stalks are stomachic. Chiefly employed in the preparation of gin.

ANETHUM. Linnœus.

Umbels compound. Involucres none. Calyx obsolete. Fruit compressed from the back, with a broad dilated edge.

Ridges: 3 dorsal, filiform, equidistant; lateral lost in the margin. Vittæ 1 to each furrow.

Albumen thin, lenticular.

1. A. graveolens Linnæus.—(Dill.) Fig. 347. Segments of leaves long, setaceous; fruit elliptical; border flat.

Habitat. South of Europe, near the coast. Quality. Aromatic, stimulant, earminative.

Uses. As a condiment; to relieve the flatulence and griping of infants.



347

Fig. 346.—Archangelica officinalis; a, transverse section of half a fruit magnified. In this the vittæ are indistinctly shewn by the engraver; 347. a, Fruit of Anethum graveolens, magnified; b, a transverse section of one half of it.

PASTINACA. Linnœus.

Umbels compound. Involucres: general obsolete, partial 0. Calyx obsolete.

Fruit thin, compressed from the back, surrounded by a broad border.

Ridges 5, very fine, the 3 dorsal near each other, the 2 lateral distant and close to the edge. Vittæ 1 to each furrow.



Fig. 348.—Pastinaca sativa; a, fruit magnified; b, its transverse section; 349. a, Fruit of Opopanax Chironium, natural size; b, the same magnified; c, transverse section of one-half.

OPOPANAX. Koch.

Umbels compound. Involucres general and partial, of few bracts. Petals roundish, entire, with an involute point. Calyx obsolete. Fruit thin, compressed from the back. Ridges 3, filiform. Vittæ 3 to each furrow, and 6-10 on the commissure. Albumen flat.

1. O. Chironium Koch.—(OPOPANAX.) Fig. 349.

Leaves bipinnate, with unequally cordate, crenate, obtuse segments.

Habitat. South of Europe.

Quality. One of the plants yielding a fetid antispasmodic gum-resin analogous in its effects to Ammoniacum.

NARTHEX. Falconer.

Involucres 0. Calyx obsolete. Umbels compound. Fruit thin, compressed at the back, with a dilated border. Ridges 3 only, dorsal. Vittee 1 to each dorsal furrow, and 2 to the laterals. Albumen thin, flat.

1. N. Asafætida Falconer. Ferula Asafætida Linnæus.—(Asafætida.) Fig. 350.

Radical leaves 3-parted; segments bipinnatifid, with oblong-lanceolate, obtuse, decurrent lobes.

Habitat. Laristan, Affghanistan, the Punjaub.

Quality. Gum-resin fetid, stimulating, antispasmodic.

In spasms and convulsions, chronic catarrh, flatulent colic, uterine obstructions.

N.B.—This is the genuine Asafœtida plant, but probably the substance is also yielded by even species of Ferula. It has been conjectured to have produced the Silphium or Laser of the ancients, but on unsatisfactory evidence. See Thapsia, p. 256.

FERULA. Linnœus.

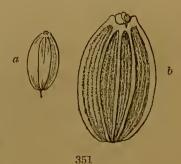
Umbels compound. Involucres variable. Petals ovate, acuminate. Calyx slightly 5-toothed. Fruit thin, compressed from the back, surrounded by a broad border. Ridges 5, the dorsal filiform, the lateral disappearing in the border. Vittæ 3 or more in the dorsal furrows, 4 or more on the commissure. Albumen flat.

1. F. persica Willdenow. Fig. 351.

Stem dwarf, glaucous; leaves supradecompound, with distant segments, and linear-lanceolate cut lobes, dilated at the point; the first umbel sessile.

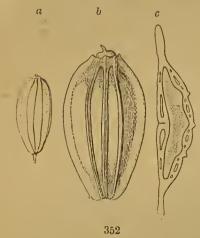
Habitat. Persia.

There seems to be little doubt that this yields some part of the Asafætida of commerce. Its fruit has been received from Persia as that of the Asafeetida plant; and an old plant at Chelsea yielded a gum-resin so like the drug that, until the re-discovery of Narthex, it was generally believed to be its real source.



2. F. orientalis Linnæus.

Stem branched; leaves supradecompound; leaflets setaceous, minutely downy; upper petioles much inflated.



Habitat. Asia Minor, Greece.

Uses. Said to furnish African Ammoniacum; but if that drug is yielded by the Fashook of the Moors, then it is eertain that its source is the next

F. tingitana Linúæus.—(African Ammo-NIACUM.) Fig. 352.

Stem branched; leaves supradecompound, shining; segments oblong-lanceolate, much cut; upper petioles large and dilated; terminal umbel on a short stalk.

Various places in the North of Africa. Quality. The fetid gum-resin is analogous in its effects to eommon Ammoniacum.

Heracleum. Linnœus.

Umbels compound. Involucres obsolete. Calyx 5toothed. Fruit compressed from the back, thin, with a broad border. Ridges 5, filiform, the 3 dorsal near each other, the lateral distant. Vittee 1 to each furrow, short, clavate. Albumen thin, flat.

1. H. Sphondylium Linnæus.—(Cow Parsner. WEED.) Fig. 353.

Leaflets lobed or pinnatifid, cut and serrated; fruit smooth, emarginate; 2 vitte on the commissure.

Habitat. Hedges and dry ditches; very common. Quality. Acrid, vesicant. Rind of the root ulcerates the skin, if applied in a fresh state.

THAPSIA. Linnœus.

Umbels compound. Involucres variable. Calyx 5-toothed. Fruit compressed from the back. Ridges: 5 primary dorsal, filiform, 2 secondary lateral winged. Vittee 1 beneath each of the 2 intermediate ridges, and 2 on the commissure. Albumen

nearly flat.

1. T. garganica Linnæus.—(Asa Dulcis.) Fig. 354.

Stem smooth; leaflets linear, acute, decurrent; fruit widely cordate.

South of Europe and Barbary. Uses. This, or a nearly allied species, ealled T. Silphium, yielded the Laser eyrenaieum or Asa duleis, a drug enjoying the highest reputation among the ancients

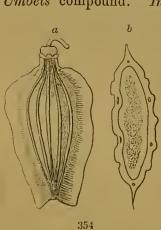
as an antispasmodie, deobstruent, and diuretie.

Fig. 352.—Fruit of Ferula tingitana, natural size; b, the same magnified; c, transverse section of the same; 353. Fruit of Heracleum Sphondylium, magnified; 354. a, Fruit of Thapsia garganica, magnified; b, its transverse section.



353





DOREMA. D. Don.

Umbels proliferous, racemose. Involucres 0. Calyx obsolete. Epigynous disk cup-shaped, toothed. Fruit compressed from the back, surrounded by a broad border. Ridges 3, dorsal filiform,

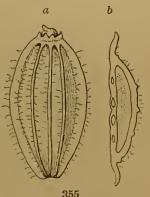
lateral very minute within the border. of the furrows 0, of the commissure 4.

1. D. ammoniacum D. Don.—(Ammoniacum.) Fig.

Leaves large, bipinnatc, with pinnatifid segments, and oblong, obtuse lobes; petioles and fruit woolly.

Habitat. Persia.
Quality. The fetid gum-resin stimulating, discutient.

Uses. Deficient expectoration; as a plaister for glandular enlargements.



ERYNGIUM. Linnœus.

Umbels simple, capitate. Involucre leafy. Calyx leafy. Fruit taper, obovate, scaly. Ridges 0. Vittæ 0.

1. E. maritimum Linnæus.

Leaves spiny-toothed, those next the root undivided, cordate, on the stem amplexical, palmate; bracts ovate, generally 3-lobed, spiny.

Habitat. Sandy coasts of the sea.

Quality. Root sweet, aromatic, tonic, diuretic.

Uses. The candied root used as an aperient, and in visceral obstructions. Reputed to be an aphrodisiac.

2. E. campestre Linnæus.

Leaves ternate, bipinnatifid, netted, those of the stem with lacerated auricles.

Habitat. Barren places. Europe. Quality and Uses. As the last.

Natural Order, Knyworts; Araliaceæ (V. K., p. 780.)

Prevailing Quality. Tonic?

ARALIA. Linnœus.

Styles diverging, 5.

1. A. nudicaulis Linnæus.

Leaf solitary, radical; petiole trifid: segments ovate, acute, serrated; scape shorter than the leaf.

Habitat. The United States.

Quality. Alterative and tonic.

Uses. Root said to equal Sarsaparilla in value.

Fig. 355.—a, Fruit of Dorema Ammoniacum; b, its transverse section, both magnified.

^{*} In the "Flora Medica" the fruit is misdescribed in consequence of wrong specimens having been furnished by Mr. Don.

HEDERA. Linnœus.

Styles converging, or connate, 5-10.

1. H. Helix Linnaus.—(Common Ivy.) Fig. 356.

Stem creeping by fibrous rootlets; leaves coriaceous, smooth, angular; umbels simple, downy.



Habitat. Bark of trees, and walls, everywhere.

Quality. Leaves bitter; fruit bitter, aperient, emetic.

Uses. Has had some reputation as a sudorific; leaves applied to cauterised surfaces. The gum-resin called Hederine, used by varnish makers, and said to be depilatory and emmenagogue.

Natural Order, Cornels; Cornaceæ (V. K., p. 782.)

Prevailing Quality. Astringent, tonic.

Cornus. Linnœus.

Calyx nearly obsolete, 4-toothed. Petals 4, sessile. Stamens 4. Style 1. Fruit a 2-3-celled drupe.

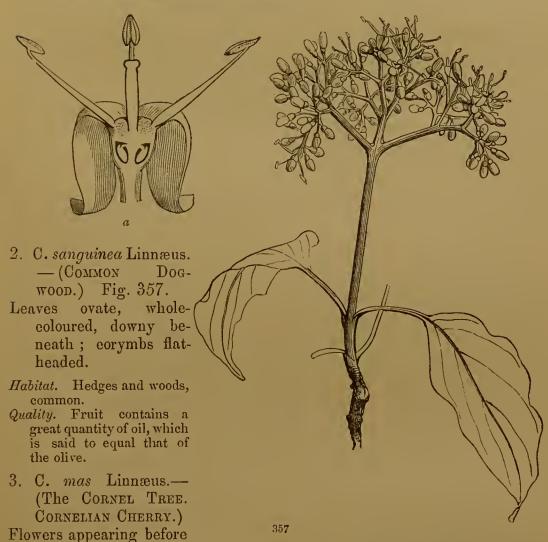
1. C. florida Linnæus.

Flowers appearing with the leaves in close heads, surrounded by large white roundish bracts; a tree.

Habitat. The United States.

Quality. Tonic, astringent, bitter.

Uses. Bark employed advantageously in intermittent fevers in the United States. It approaches Cinchona in its general effects, and is not inferior to it in the cure of intermittents. The young branches stripped of their bark, and rubbed with their ends against the teeth, render them white.



the leaves in small yellow heads with 4 inconspicuous bracts; a tree.

Habitat. Woods and plantations from England to Japan.

Quality and Uses. Wood very hard and tough. Fruit austere, becoming subacid when perfectly ripe; formerly fermented for a beverage. Bark said to have power in intermittents.

4. C. suecica Linnæus.

Flowers appearing with the leaves in close heads, surrounded by white bracts; leaves sessile, ovate; herbaceous.

Northern parts of Europe. Habitat.

Berries tonic; said to increase the appetite in a very remarkable manner. Quality.

THE ASARAL ALLIANCE (V. K., p. 786.)

Datural Orders of Asarals.

Moranths (Loranthaceae.) Ovary 1-celled. Birthworts (Aristolochiaceae.) Ovary 3-6-celled.

Natural Order, Moranths; Loranthaceae (V. K., p. 789.)

Prevailing Quality. Unknown.

VISCUM. Linnœus.

Calyx obsolete. Petals 4. Anthers adnate to the petals, honeycombed. 1. V. album Linnæus.—(Misselto.)

Stem dichotomous, much branched; leaves lanceolate, blunt, veinless.

Habitat. Europe, parasitical on trees.

Quality. Bark astringent. Berries yield a viscid matter of the same nature as

Natural Order, Birthworts; Aristolochiacece (V. K., p. 792.)

Prevailing Quality. Stimulant, aromatic.

ARISTOLOCHIA. Linnœus.

Calyx tubular, oblique, inflated at the base. Stamens adnate to the style. 1. A. Clematitis Linnæus.—(Common Birthwort.) Fig. 358.

Leaves roundish-cordate, stalked; stem erect, striated; flowers axillary, crowded, erect, with an ovate obtuse lip.

Habitat. Many parts of Europe, among rubbish, and in waste places. Quality. Roots strong scented, powerfully stimulating. Uses. Once in great repute as an aid in difficult parturition.

2. A. rotunda Linnæus. Fig. 359.

Leaves cordate, amplexicaul, obtuse; stem nearly erect; flowers solitary, sessile, erect, with an oblong lip.

Habitat. South of Europe.

Quality. Bitter, acrid roots stimulant and tonic.

Uses. In amenorrhœa as an emmenagogue; in gout. Said to stupify snakes.

3. A. longa Linnæus.

Leaves cordate, ovate, retuse; stem prostrate; flowers erect, with a lanceolate acute lip; root oblong.

Habitat. South of Europe. Quality and Uses. As in A. rotunda.

4. A. Serpentaria Linnæus.—(Serpentary.) Fig. 360.

Leaves cordate, oblong, acuminate; stem zigzag, ascending; peduncles growing from the root, scaly; flowers with a triangular mouth.

Fig. 358.—Aristolochia Clematitis ; 359. Aristolochia rotunda ; 360. Leaf of Aristolochia Serpentaria ; a, one of its flowers.

trating resinous smell, and a pungent bitter taste. It acts as a tonic, and in certain cases as an antispasmodie and anodyne. It is peculiarly useful in supporting

the strength and in allaying the irregular action which attends great febrile debility. Dr. Chapman eonsiders it "admirably suited to eheck vomiting and to tranquillise the stomach, more particularly in bilious eases."

BIRTHWORTS.

5. A. anguicida Linnæus. Fig. 361. Leaves cordate, acuminate; stipules cordate, solitary, amplexicaul; calyx erect, with a lanceolate lip.

Habitat. Carthagena and Mexico.

Quality. The juice of the root enewed and introduced into the mouth of a serpent so stupifies it, that it may for a long time be handled with impunity; if the reptile is eompelled to swallow a few drops, it perishes in convulsions. The root is also reputed to be an antidote to serpent-bites. Jacquin, l.e.

6. A. Guaco.—(The Guaco.) Fig. 362. Leaves thin, oblong, almost parallel-edged, somewhat cordate, shortly acuminate, obtuse, smooth, 3-nerved at the base.

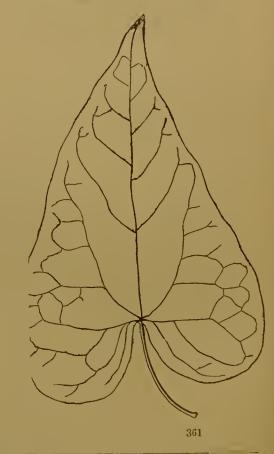


Fig. 361.-Leaf of Aristolochia anguicida; 362. Leaf of Aristolochia Guaco.

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Habitat. Equinoctial America.

Quality and Uses. This appears, from the testimony of Dr. Hancock, to be the real Guaco, to which, as an alexipharmic, so much interest has attached by the relation of Humboldt. What is sold as Guaco in Colombia is certainly an Aristolochia of some kind. The accompanying figure is taken from one of Dr. Hancock's specimens.

Asarum. Linnœus.

Stamens 12, horned, distinct from each other, and from the style. Calyx campanulate, 3-lobed.

1. A. canadense Linnæus.

Leaves reniform, mucronate, pubescent, in pairs.

Habitat. Canada.

Quality. A warm aromatic, stimulant and diaphoretic, and as a substitute for Serpentary.

2. A. europæum Linnæus.—(ASARABACCA.) Fig. 363.

Leaves reniform, obtuse, hairy, in pairs.

Habitat. Woods of Europe.

Acrid, emetic, purgative, diuretic? diaphoretic; excites sneezing. Quality.

Uses. As a substitute for Ipecacuanha; as a counter irritant in affections of the eyes, brain, &c., headache, toothache, ophthalmia. Drunkards in the south of France use it to sober themselves by emptying the stomach. Powder said to form the base of Cephalic snuff.



Fig. 363.—Asarum europæum; a, the ovary and stamens magnified.



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ERRATA.

Page 71, line 16, for "GENTIANALS. Monopetalous. Placentæ parietal," read "GENTIANALS. Monopetalous. Placentæ parietal or axile. Embryo minute."

Page 71, line 18, add "Embryo large."

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