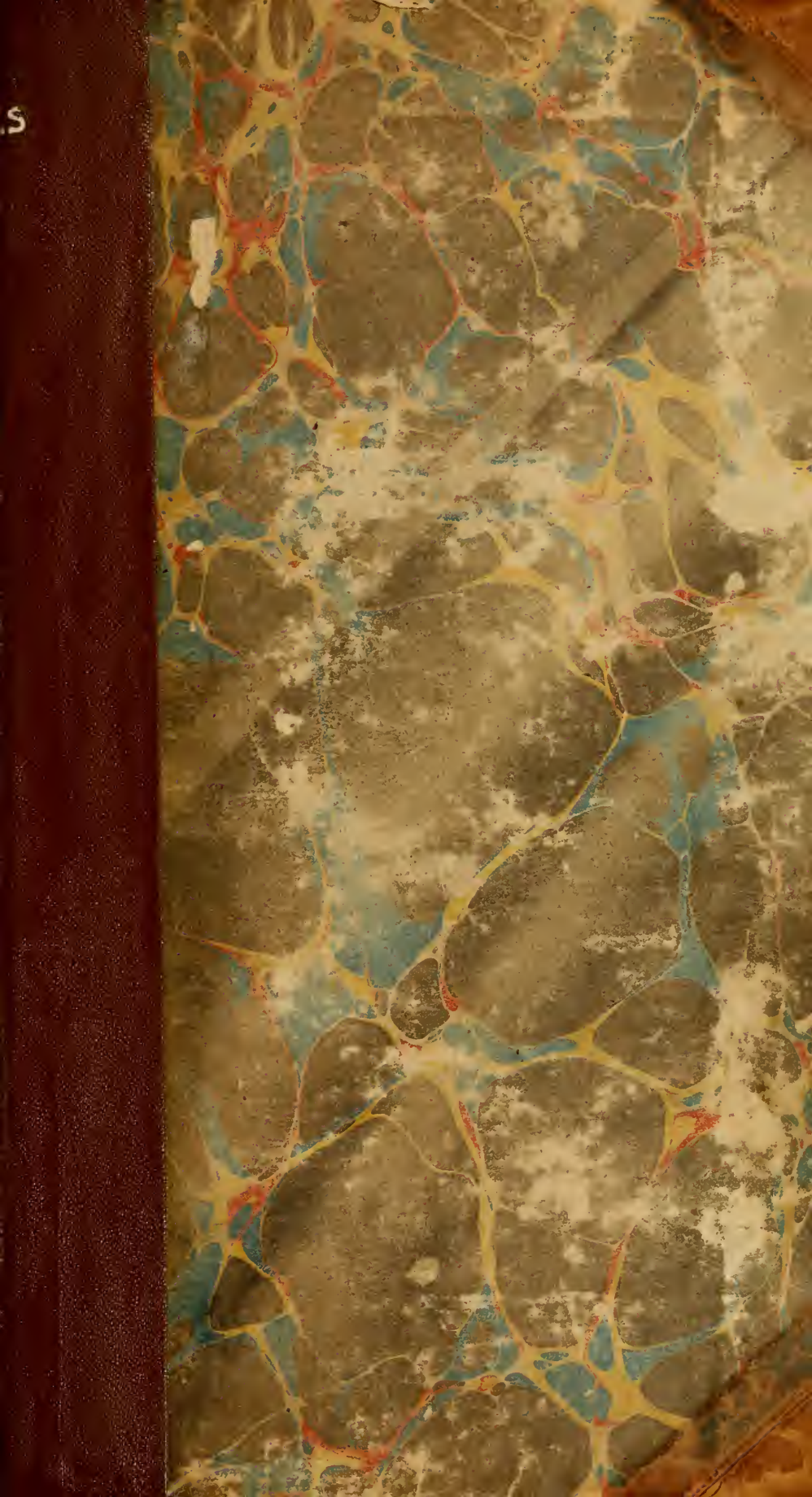

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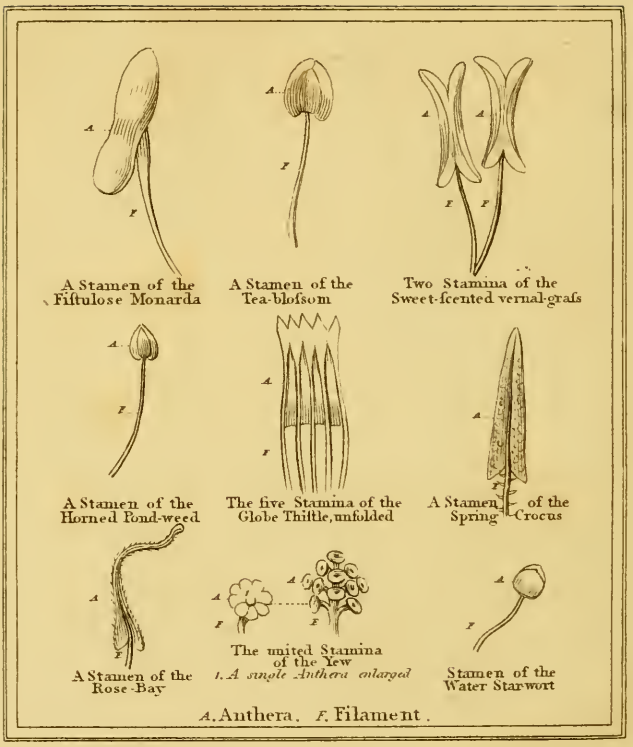

STAMĬNA

SHEWING THE VARIOUS CHARACTER & APPEARANCE OF THE ANTHERA IN DIFFERENT PLANTS.

THE

CLASSES AND ORDERS

OF THE

LINNÆAN SYSTEM

OF

BOTANY.

ILLUSTRATED BY

SELECT SPECIMENS

OF

FOREIGN AND INDIGENOUS PLANTS.

VOL. II.

LONDON:

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v. 2
1816

DECANDRIA.

CLASS V.

TEN STAMINA.

THIS CLASS HAS FIVE ORDERS.

ORDER I.

ANDROMEDA POLIFOLIA.

Marsh Andromeda.

MONOGYNIA.

One Pistillum.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-cleft. *Corolla*, ovate; its orifice 5-cleft. *Capsula*, superior, 5-celled; the partitions from the middle of the valves. *Antheræ*, with 2 pores.

SP. CH. *Flowers*, clustered, terminal. *Leaves*, alternate, lanceolate, revolute, glaucous beneath.

THIS plant grows wild on most of the peat-bogs in the mountainous parts of England and Ireland, and the lowlands of Scotland, intermingled with *Ericæ*, *Vaccinia*, &c. It blossoms in June.

Linnæus, in his *Lapland Tour*, as well as in his *Flora Lapponica*, has given his fanciful associations, which led him to adopt the name of *Andromeda* for this genus. In Lycksele Lapland he seems to have been first ena-

MONOGYNIA.
One Pistillum.

moured with it: "At this time," (June 12, 1732) he says, "it is in its highest beauty, decorating the marshy grounds in a most agreeable manner. The flowers are quite blood-red before they expand; but when full grown, the corolla is of a flesh colour. Scarcely any painter's art can so happily imitate the beauty of a fine female complexion; still less could any artificial colour upon the face itself bear a comparison with this lovely blossom. As I contemplated it, I could not help thinking of Andromeda, as described by the poets; and the more I meditated upon their descriptions, the more applicable they seemed to the little plant before me."

MONOGYNIA.
One Pistillum.

PYROLA UNIFLORA.

Simple-flowered Winter-green.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-cleft. *Petals*, 5. *Capsula*, 5-celled, bursting at the angles.
SP. CH. *Stalk*, bearing a solitary flower.

THIS plant has been found in Scotland in moist alpine woods: it is also a native of Lapland, Norway, Germany, and Switzerland: it bears a flower of great elegance, compared by Clusius to that of the *Parnas-*

sia, and possessing the fragrance of the Lily of the Valley. The blossom is in perfection about July.

MONOGYNIA.
One Pistillum.

DIONÆA MUSCIPULA.

Fly-trap of Venus.

MONOGYNIA.
One Pistillum.

Essential Generic Character.

GEN. CH. *Calyx*, 5-leaved. *Petals*, 5. *Capsula*, 1-celled, with many seeds. *Seeds*, black, shining, obovate, very acute at the lower end, half-buried in the cavities of a honeycombed receptaculum.

THIS plant, of which there is but this one species, is a native of the swamps of South Carolina, in America, and exhibits a very remarkable instance of vegetable irritability; the leaves, which are at the bottom of the foot-stalk, are each divided into two lobes, the lobe at the extremity having long teeth on the margin, like the antennæ of insects, and within, armed with six spines, three on each side: these leaves lie spread upon the ground round the stem, and the lobes of each are so irritable, that when a fly happens to light upon the spines of one of them, that part of the leaf immediately folds up, and crushes the fly to death; and this irritability is greatest in proportion to the slightness of the pressure on these spines. It is observed,

MONOGYNIA.

One Pistillum.

from the same cause, no sensible contraction ensues in cold weather; in warm weather and particularly at noon, it is very strong.

Mr. Knight, formerly Mr. Hibbert's gardener at Clapham, made an experiment on one of this species, by supplying it with fine filaments of raw beef, and the plant so supplied was more luxuriant than any other; it seems therefore probable, that the decomposition of animal matter is peculiarly favourable to its economy; and the singular structure of its leaves may be designed to supply it with insects, whose putrescence may act as similar decompositions do, when applied to the roots of other plants; and the innumerable insects drowned in the cup-formed leaves of the Dipsacus, Sarracenia, and Nepenthes, may probably serve for the same purpose.

British Plants of this Order.

Botanical Generic Names.		Common Names.
25	ANDROMEDA.....	1 MARSH ANDROMEDA
10	ARBUTUS.....	3 STRAWBERRY-TREE
2	MONOTROPA[a].....	1 YELLOW BIRD'S-NEST
6	PYROLA.....	5 WINTER-GREEN

[a] The terminal flower of the *Monotropa hypopithys* is larger than the rest, and has generally ten stamina, with other parts in proportion. The lateral ones have from six to eight. Linnæus always takes the character of the CLASS from the central or terminal flower, which the young Bo-

British Species figured in Sowerby's English Botany.

Andrométda, 713. *Arbútus*, 2377, 2030, 714. *Monotrópa*, 69. *Pyróla*, 213, 158, 517, 146, 1945.

ORDER II.

DIGYNIA.

Two Pistilla.

DIANTHUS CARYOPHYLLUS.

Clove Pink.

Gen. Ch. *Calyx*, cylindrical, of 1 leaf, with about 4 scales at the base. *Petals*, 5, furnished with claws. *Capsula*, cylindrical, 1-celled.

Sp. Ch. *Flowers*, solitary. *Scales*, of the calyx almost rhomboid, and very short. *Petals*, notched, beardless.

The botanical name given to this plant by Linnæus would seem to shew that it was a favourite with him; Dianthus meaning the Flower of Jove. Ray and Hudson[b] are of opinion that this plant is not a native of this country; but Sir James Edward Smith has inserted it in his *Flora Britannica* as indigenous.

tanist must attend to, where there is a difference in the number of the stamina in the different flowers of the same plant. The common Garden Rue, *Ruta graveolens*, is put in Class *Decandria monogynia*, though all the flowers, except the central one, have only eight stamina.

[b] William Hudson, in a work entitled *Flora Anglica*, made the first successful attempt to arrange English Botany according to the rules of the Linnæan School.

DIGYNIA.
Two Pistillæ.

SAXIFRAGA AIZOIDES.

Yellow Mountain Saxifrage.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* in 5 divisions. *Corolla,* of 5 petals. *Capsula,* with 2 beaks, 1 cell, and many seeds.

Sp. Ch. *Stem-leaves,* linear, scattered, generally edged with tooth-like ciliæ, radical ones aggregate. *Stem,* decumbent.

Plentiful in Scotland, and in the north of England, on alpine hills and moist rocks, in a black boggy soil. It blossoms from June till the end of autumn.

British Plants of this Order.

Botanical Generic Names.		Common Names.
2	Chrysosplenium.....	2 Golden Saxifrage
30	Dianthus.....	5 Pink
9	Saponaria.....	1 Soap-wort
50	Saxifraga.....	20 Saxifrage
3	Scleranthus.....	2 Knawel

British Species figured in Sowerby's English Botany.

Chrysosplenium, 54, 490. *Dianthus,* 317, 956, 214, 61, 62. *Saponaria,* 1060. *Saxifraga,* 167, 440, 663, 9, 1009, 39, 500, 664, 2275, 501, 794, 2314, 455, 454, 1561, 2276, 2277, 2278, 2291, 2322. *Scleranthus,* 351, 352.

ORDER III.

SILENE CONICA.

Corn Catch-fly.

TRIGYNIA.

Three Pistils.

GEN. CH. *Calyx*, of 1 leaf, swelling. *Petals*, 5, with claws. *Capsula*, superior, imperfectly 3-celled, bursting at the top. *Seeds*, many.

SP. CH. *Stem*, forked. *Petals*, cloven, crowned. *Leaves*, soft. *Calyx*, when in fruit, conical, with 30 furrows.

THIS plant is a native of Kent, and not known to be a native of any other part of Britain; it blossoms in July, and thrives most in a barren sandy soil. In the evening it emits a sweet scent, like that of an honeysuckle, but weaker.

The Night flowering Catchfly is another species of this genus; it has cream-coloured petals tinged with red, which roll themselves up during the day, and unfold in the evening while warm weather continues, and, like the Corn Catchfly, is sweet scented.

These plants, as the Nightingales among the feathered tribe, are unattractive in their appearance, and, when nature has retired to rest, they cheer the peaceful stillness of the night.

TRIGYNIA.
Three Pistilla.

STELLARIA HOLOSTEA.

Greater Stichwort.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5 leaved, spreading. *Petals*, 5, cloven. *Capsula*, of 1 cell, with many seeds.
SP. CH. *Leaves*, lanceolate, serrulated. *Petals*, 2-lobed.

VERY frequent in groves, and at the bottoms of hedges, in a dry situation. It blossoms in the spring.

British Plants of this Order.

Botanical Generic Names.		Common Names.
31	ARENARIA	9 SAND-WORT
1	CHERLERIA	1 CYPHEL
17	CUCUBALUS	1 CAMPION
66	SILENE	10 CATCH-FLY
17	STELLARIA	8 STITCH-WORT

British Species figured in Sowerby's English Botany.

Arenaria, 189, 1483, 923, 852, 958, 219, 512, 1744, 1745. *Cherleria*, 1212. *Cucubalus*, 1577. *Silene*, 1178, 86, 465, 164, 957, 85, 922, 291, 1398, 1081. *Stellaria*, 92, 537, 511, 803, 825, 1074, 911, 1269.

ORDER IV.

CERASTIUM LATIFOLIUM.

PENTAGYNIA
Five Pistilla.

Broad-leaved rough Chick-weed.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-leaved. *Petals*, cloven. *Capsula*, of 1 cell, bursting at the top.

Sp. Ch. *Leaves*, elliptical, clothed with short-spreading bristles. *Flower-stalks*, terminal, simple, mostly solitary. *Capsula*, oval.

This plant is a native of high mountains, both in Wales and Scotland. It blossoms from the end of May till August.

OXALIS ACETOSELLA.

PENTAGYNIA.
Five Pistilla.

Common Wood-sorrel.

Gen. Ch. *Calyx*, 5-leaved. *Petals*, 5, connected by their claws. *Capsula*, superior, of 5-cells, 5-sided, bursting at the angles. *Seeds*, clothed with an elastic tunic.

Sp. Ch. *Stalk*, single-flower. *Leaves*, ternate, inversely heart-shaped, hairy. *Root*, of scaly joints.

Very common in groves and thickets. It blossoms in April or May, and is a good example of this Order.

British Plants of this Order.

Botanical Generic Names.	Common Names.
4 Agrostemma	1 Corncockle
18 Cerastium.....	8 Mouse-ear Chickweed

PENTAGYNIA.

Five Pistilla.

Botanical Generic Names.		Common Names.
19	COTYLEDON	2 NAVEL-WORT
12	LYCHNIS [c]	4 LYCHNIS
96	OXALIS	2 WOOD-SORREL
30	SEDUM	10 STONE-CROP
7	SPERGULA	5 SPURREY

British Species figured in Sowerby's English Botany.

Agrostēmma, 741. *Cerastĭum*, 789, 790, 1630, 166, 93, 472, 473, 538. *Cotylēdon*, 325, 1522. *Lychnis*, 573, 788, 1579, 158, 2254. *Oxălis*, 762, 1726. *Sēdum*, 1319, 656, 171, 839, 1946, 394, 1578, 695, 170, 1802. *Spergŭla*, 1535, 1536, 694, 2105, 1082.

ORDER V.

No British Plant of this Order.

DECAGYNIA.

Ten Pistilla.

PHYLOLACCA DECANDRA.

Virginian Poke.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, none. *Petals*, 5, calycine. *Berry*, superior, 10-celled, 10-seeded.

SP. CH. *Flowers*, 10-stamined, and 10-styled.

OF this genus there are six species; this is a perennial plant, and a native of America,

[c] One species of this genus, *Lychnis dioica*, has the stamina on one plant and the pistilla on another, and therefore, in strict conformity to this system, belongs to the Class *Dioecia*.

but also found wild in many countries in Europe. It blossoms in July, and through the latter part of the summer and autumn. The berries yield a beautiful purple colour, and are said to have been at one time much used in Portugal to give a deep colour to the Red Port; but the taste being complained of by the merchants, the government ordered the plant to be every where cut down before the berries were ripened. In North America and the West Indies the young shoots are boiled and eaten as spinach.

The different British Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of the Linnæan System.*

MONOGYNIA.

One Pistillum.

ANDROMEDA.

CALYX. *Perianthium,* with 5 divisions, acute, very small, coloured, permanent.

COROLLA *Petal,* 1, bell-shaped, with 5 clefts. *Segments,* reflected.

STAMINA. *Filaments,* 10, awl-shaped, shorter than the corolla, to which they very slightly adhere. *Antheræ,* with 2 horns, nodding.

PISTILLUM. *Germen,* roundish. *Style,* cylindrical, lower than the stamina, permanent. *Stigma,* blunt.

PERICARPIUM. *Capsula,* roundish, with 5 angles, 5 cells, and 5 valves, opening at the angles. Partitions opposite to the valves.

SEEDS. Roundish, shining.

** The corolla in some species is egg-shaped, but in others exactly bell-shaped; and the antheræ are either with or without awns. This Genus differs from Erica, to which it was formerly attached, in the number of the parts.

MONOGYNIA.

One Pistillum.

PYROLA.

CALYX. *Perianthium,* with 5 divisions, very small, permanent.

COROLLA. *Petals,* 5, circular, concave, expanding.

STAMINA. *Filaments,* 10, awl-shaped, shorter than the corolla. *Antheræ,* large, nodding, with 2 horns point upwards.

PISTILLUM. *Germen,* roundish, angular. *Style,* thread-

shaped, longer than the stamina, permanent. *Stigma*, rather thick. MONOGYNIA.

Pericarpium. *Capsula*, roundish, depressed, with 5 angles, 5 valves, and 5 cells, opening at the angles. *Partitions*, opposite to the valves. One Pistillum.

Seeds. Numerous, chaffy.

*** In some species the stamina and styles are erect, in others, leaning to one side, and in others, expanding. The shape of the stigma is different in different species.

DIANTHUS.

DIGYNIA.

Two Pistilla.

Calyx. *Perianthium*, cylindrical, tubular, scored, permanent, with 5 teeth at the mouth, and encompassed at the base with 4 scales, 2 of which are opposite, and lower than the other 2.

Corolla. *Petals*, 5. *Claws*, as long as the perianthium, narrow, fixed to the receptaculum. *Limbs*, flat, broadest towards the end, blunt, scolloped.

Stamina. *Filaments*, 10, awl-shaped, as long as the perianthium, standing wide towards the top. *Antheræ*, oval-oblong, compressed, fixed sideways.

Pistilla. *Germen*, oval. *Styles*, 2, awl-shaped, longer than the stamina. *Stigmata*, rolled back, tapering to a point.

Pericarpium. *Capsula*, cylindrical, covered, of 1 cell, opening at the top in 4 directions.

Seeds. Many, compressed, roundish. *Receptaculum*, loose, 4-cornered, only half as long as the seed-vessel.

*** In some species, the *Styles* are but little longer than the stamina; in others, they are very long, but rolled back so as to render any bending down of the flower unnecessary. Scales at the base of the calyx sometimes only 2, but they vary even in the same species.

DIGYNIA.

SAXIFRIGA.

Two Pistilla. CALYX. *Perianthium,* 1, leaf, with 5 divisions, short, acute, permanent.

COROLLA. *Petals,* 5, expanding, narrow at the base.

STAMINA. *Filaments,* 10, awl-shaped. *Antheræ,* roundish.

PISTILLA. *Germen,* roundish, but tapering to a point, and ending in 3 short styles. *Stigmata,* blunt.

PERICARPIUM. *Capsula,* somewhat egg-shaped, with 2 beaks and 2 cells, opening between the beaks.

SEEDS. Numerous, minute.

*** In some species the germen is beneath, in others it is above. After the flower is open, 2 of the stamina opposite to each other bend down to the stigmata, and discharge their pollen perpendicularly over them; the next day, 2 others bend down; and this process is continued until they have all done the same.

TRIGYNIA.

SILENE.

Three Pistilla. CALYX. *Perianthium,* 1 leaf, inflated, with 5 teeth, permanent.

COROLLA *Petals,* 5. *Claws,* narrow, as long as the perianthium, bordered; *Limb,* flat, blunt, frequently cloven. *Nectarium,* composed of 2 little teeth, at the neck of each petal, and constituting a crown at the mouth of the tube.

STAMINA. *Filaments,* 10, awl-shaped, every other filament fixed to the claws of the petals, and shedding their pollen later. *Antheræ,* oblong.

PISTILLA. *Germen,* cylindrical. *Styles,* 3, simple, longer than the stamina. *Stigmata,* bending to the left.

PERICARPIUM. *Capsula,* cylindrical, covered, with 1 or 3 cells, opening at the point in 5 or 6 different directions.

SEEDS. Many, kidney-shaped.

*** The nectariferous crown of the blossom distinguishes this genus from the *Cucubalus.* LINN.

STELLARIA.

TRIGYNIA.
Three Pistilla.

Calyx. *Perianthium,* 5 leaves. *Leaflets,* egg-spear-shaped, concave, acute, erect, expanding, permanent.

Corolla. *Petals,* 5, deeply divided, flat, oblong, shrivelling.

Stamina. *Filaments,* 10, thread-shaped, shorter than the corolla, and each alternately shorter than the other. *Antheræ,* roundish.

Pistilla. *Germen,* roundish. *Styles,* 3, hair-like, expanding. *Stigmata,* blunt.

Pericarpium. *Capsula,* egg-shaped, covered, with 1 cell and 6 valves.

Seeds. Many, roundish, compressed.

CERASTIUM.

PENTAGYNIA.
Five Pistilla.

Calyx. *Perianthium,* 5 leaves; *leaflets,* egg-spear-shaped, acute, expanding, permanent.

Corolla. *Petals,* 5, cloven, blunt, erect, but expanding, as long as the perianthium.

Stamina. *Filaments,* 10, thread-shaped, shorter than the blossom, alternately longer and shorter. *Antheræ,* roundish.

Pistilla. *Germen,* egg-shaped. *Styles,* 5, hair-like, erect, as long as the stamina. *Stigmata,* blunt.

Pericarpium. *Capsula,* egg-cylindrical, or globular, blunt, with 1 cell, opening at the top, with 10 teeth or 5 valves.

Seeds. Many, roundish.

Cerastium semi-decandrum has only 5 stamina in each flower. The species are subdivided into such as have oblong, and such as have globular capsulæ. Linn.

OXALIS.

PENTAGYNIA.
Five Pistilla.

Calyx. *Perianthium,* with 5 divisions, acute, very short, permanent.

PENTAGYNIA.

Five Pistilla.

COROLLA. With 5 divisions, connected by the claws, erect, blunt, notched at the end.

STAMINA. *Filaments*, 10, hair-like, erect, the 5 outermost the shortest. *Antheræ*, roundish, furrowed.

PISTILLA. *Germen*, with 5 angles. *Styles*, 5, thread-shaped, as long as the stamina. *Stigmata*, blunt.

PERICARPIUM. *Capsula*, with 5 corners, 5 cells, and 10 valves, opening lengthwise at the corners.

SEEDS. Nearly round, covered by a fleshy elastic seed-coat.

*** In some species the capsula is short, and the seeds solitary; in others it is long, and the seeds many; and in others the filaments are united at the base. LINN.

DECANDRIA

MONOGYNIA

CLASS X

ORDER 1

MARSH ANDROMEDA

ANDROMĔDA POLIFOLĬA

DECANDRIA

MONOGYNIA

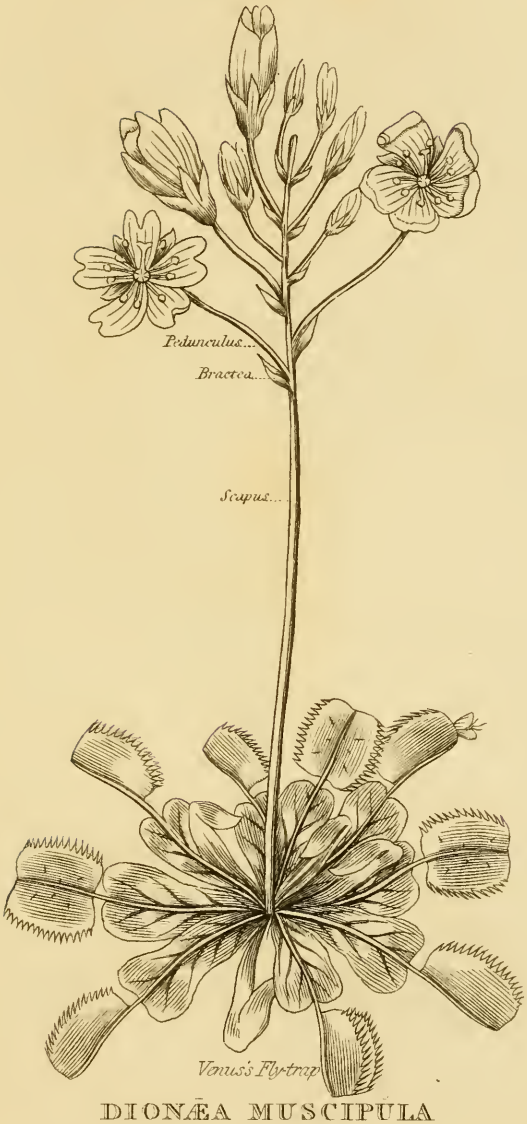
Single-flowered Winter-green

PYRŎLA UNIFLŌRA

♃

DECANDRIA

MONOGYNIA



DIONÆA MUSCIPULA

X

DECANDRIA
DIGYNIA

CLASS X

ORDER *2*

CLOVE PINK

DIĀNTHUS CARYOPHŸLLUS

DECANDRIA

DIGYNIA

Yellow Mountain Saxifrage

SAXIFRĂGA AIZŌIDES

X
2

DECANDRIA
TRIGYNIA

CLASS X

ORDER 3

CORN CATCH-FLY

SILĒNE CONĬCA

DECANDRIA

PENTAGYNIA

CLASS X

ORDER 4

BROAD-LEAVED CHICK-WEED

CERASTĬUM LATIFOLĬUM

DECANDRIA

PENTAGYNIA

Common Wood-Sorrel

OXÁLIS ACETOSĒLLA

$\frac{X}{4}$

DECANDRIA

DECAGYNIA

CLASS X

ORDER 5

VIRGINIAN POKE

PHYTOLĀCCA DECĀNDRA

DODECANDRIA.

CLASS XI.

TWELVE STAMINA.

THIS CLASS HAS SIX ORDERS.

This Class is called, in botanical language, by a name (*Dodecandria*) which supposes the plants to have twelve stamina; but the exact number twelve is so uncommon, that no plant has been found to have that number with unvarying precision; therefore this Class has been made to include such as have from eleven to sixteen stamina, and in some cases more, though in no instance to exceed nineteen.

ORDER I.

LYTHRUM SALICARIA.

Purple Loose-strife.

MONOGYNIA.

One Pistillum.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* inferior, with 12 teeth. *Petals,* 6, inserted into the calyx. *Capsula,* with 2 cells, and many seeds.

SP. CH. *Leaves,* opposite, lanceolate, heart-shaped at the base. *Flowers,* spiked. *Stamina,* 12.

This plant grows on the banks of rivers, ponds, and ditches, and blossoms in July and August.

MONOGYNIA.
One Pistillum.

Some old writers have attributed to this genus the power of taming and reconciling ferocious and discordant animals, by putting it about their yokes or necks: in our improved state of knowledge, how this fanciful opinion could have prevailed, is difficult to guess, and it is now of no further importance than to account for the etymology of its English name.

MONOGYNIA.
One Pistillum.

ASARUM EUROPÆUM.

Asarabacca.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* 3 cleft, standing on the germen. *Corolla,* none. *Stamina,* 12. *Capsula,* coriaceous, of 6 cells, crowned with the calyx. *Stigmata,* in 6 segments.

Sp. Ch. *Leaves,* 2, kidney-shaped, obtuse.

This plant grows naturally in shady situations, is perennial, and blossoms in May. It is not common. Sir James Edward Smith remarks, that in its natural affinities and qualities it comes near to the *Aristolochia.*

British Plants of this Order.

Botanical Generic Names.	Common Names.
3 Asarum.....	1 Asarabacca
18 Lythrum	2 Loose-strife

British Species figured in Sowerby's English Botany.
Asărum, 1083. *Lythrum,* 1061, 292.

ORDER II.

DIGYNIA.
Two Pistilla.

AGRIMONIA EUPATORIA.

Common Agrimony.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-toothed, with an appendage at its base. *Petals*, 5, inserted on the calyx. *Seeds*, 2, in the bottom of the calyx.

Sp. Ch. *Stem-leaves*, pinnated, the old leaflet on a foot-stalk. *Fruit*, bristly.

Of this genus there are five species, but this is the only species which is a native of Great Britain, and the only British plant of this Order: it blossoms in June and July, and is common every where in rough borders of fields, and other waste places. When this plant is beginning to flower, it will dye wool of a good bright nankin colour; if gathered in September, it yields a dark yellow. It gives a good colour in all states, and though a common plant, and easily cultivated, it has not yet been applied to any of the purposes of dying.

Figured in Sowerby's English Botany, 1335.

ORDER III.

TRIGYNIA.
Three Pistilla.

RESEDA ODORATA.

Sweet-scented Mignonnette.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* of 1 leaf, divided. *Petals,* laciniate. *Capsula,* of 1 cell, open at the top.

SP. CH. *Leaves,* 3-lobed, entire. *Calyces,* equalling the flowers.

THERE are thirteen species of this Genus: this is supposed to be a native of Egypt, and introduced into France about the year 1725, from whence it came to England in 1740. Its sweet odour, which made it a *darling* on the Continent, in the same degree contributed to make it a favourite amongst us; and it is now so universally cultivated, that the drawing-room and the cottage window are alike made fragrant with its scent. It blossoms from June till the commencement of winter.

This plant is naturally an annual, but, by being cropped or bitten off, it will continue from year to year bearing flowers, as if it were a perennial.

There is scarcely any Genus, the character of which is so difficult to be determined as the Genus *Reseda,* for the several species

vary both in number and figure. The essential character, however, consists in the trifid petals, one of them melliferous at the base, and in the capsula not being closed, but always gaping.

RESEDA LUTEA.

TRIGYNIA.
Three Pistilla.

Wild Mignonnette, or Base Rocket.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, of 1 leaf, divided. *Petals*, laciniate. *Capsula*, of 1 cell, open at the top.

SP. CH. *Leaves*, all with 3 segments, the lowermost, pinnate.

THIS plant grows very plentifully in chalk countries, and is in flower from June till the end of autumn.

RESEDA LUTEOLA.

TRIGYNIA.
Three Pistilla.

Dyer's-weed.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, of 1 leaf, divided. *Petals*, laciniate. *Capsula*, of 1 cell, open at the top.

SP. CH. *Leaves*, lanceolate, entire, with 1 tooth on each side at the base. *Calyx*, in 4 segments.

THIS Reseda is very common in Gloucestershire by the sides of roads, and on waste places: it has been observed to be one of the first plants that grow on rubbish thrown

TRIGYNIA.
Three Pistilla.

out of coal pits. It blossoms in June and July.

It gives a beautiful yellow dye to cotton, woollen, silk, and linen, and is commonly used by dyers for that purpose. The yellow coloured paint, called Dutch Pink, is obtained from it. The tinging quality resides in the stems and roots; and when cultivated for the purposes of dying, it grows best on a sandy soil. The *Lutum* of Virgil, the *Luteum* of Vitruvius, and the *Lutea* of Pliny, from what may be collected from their descriptions, would seem to refer to this plant.

TRIGYNIA.
Three Pistilla

EUPHORBIA STRICTA.

Upright warty Spurge.

Essential Generic and Specific Characters.

Gen. Ch. *Corolla*, of 3 or 4 petals, standing on the calyx. *Calyx*, of 1 leaf, inflated. *Capsula*, 3-lobed.

Sp. Ch. *Umbel*, of 4 or 5 rays, 3-cleft and cloven. *Partial Involucra*, nearly ovate. *Leaves*, lanceolate, serrated, entire at the base, smooth. *Fruit*, warty, without hairs.

Plants of this Genus are amongst the commonest, to be found as weeds, in every garden. This species is said to be very rare, noticed by the Rev. Mr. Relhan on the north

side of Eversden wood, Cambridgeshire. The Genera *Euphorbia* and *Reseda* are the only two British Genera of this Order.

British Plants of this Order.

Botanical Generic Names.		Common Names.
98	EUPHORBIA.....	13 SPURGE
13	RESEDA.....	2 MIGNONNETTE

British Species figured in Sowerby's English Botany.

Euphorbia, 2002, 959, 1336, 441, 195, 883, 333, 1399, 840, 1337, 256, 442, 2255. *Resēda*, 320, 321.

ORDER IV.

No British Plant of this Order.

APONOGETON MONOSTACHYON.

Single-spiked Aponogeton.

TETRAGYNIA.
Four Pistilla.

Essential Generic and Specific Characters.

GEN. CH. *Calyx.* Amentum. *Corolla,* none. *Capsula,* 3-seeded.

SP. CH. *Spike,* simple. *Leaves,* cordate-oval.

THIS plant has a bulbous root, and is observed to be common in the fields which are flooded for Rice in the East Indies. Of this Genus there are three species.

PENTAGYNIA.

Five Pistilla.

ORDER V.

No British Plant of this Order.

GLINUS is the only unequivocal Genus of this Order, of which there is no figure extant, nor is there any specimen of the plant in England.

ORDER VI.

DODECAGYNIA.

From twelve to twenty Pistilla.

SEMPERVIVUM TECTORUM.

Common House-leek.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* inferior, in 12 deep segments. *Petals,* 12. *Capsula,* 12, with many seeds.

SP. CH. *Leaves,* fringed. *Offsets,* spreading.

THIS is the only Genus belonging to this Order, of which there are fourteen species. This is the only species which is a native of Great Britain. It has a perennial fibrous root, and blossoms in July. Haller,[a] who has mi-

[a] Albert Haller was the son of a citizen, and Advocate of Berne, in Switzerland, where he was born in October, 1708. The accounts of his early display of talents are as extraordinary as almost any upon record. In his fifth year he was accustomed to write down all the new words he heard in the course of the day. At the age of ten he could translate from the Greek, and compiled for his own

nutely described this plant, found it in its wild state on the Alps. It is common in most parts of Europe, on the roofs of buildings; but there, not properly indigenous. It is a native of some parts of Europe on rocks. It was formerly used internally as a medicine, and applied externally in burns and inflammations.

The House-leek, in common with other herbaceous perennials, is similar to evergreen trees, its succulent leaves resisting the severity of winter. The leaves of some plants of this kind are so replete with juices, that they can even dispense with soil for a time, imbibing sufficient humidity from the atmosphere for the purposes of vegetation: it is for this reason that, unless in extremely hot weather, gardeners seldom water succulent plants, which rot when they are moistened, if the sun does not quickly dry them up.

Figured in Sowerby's English Botany, 1320.

use a Chaldaic Grammar, and a Greek and Hebrew Dictionary. As he advanced in years he rapidly advanced in acquirements and maturity of judgment; was one of the most illustrious literary characters of his age; and as an anatomist, physiologist, and botanist, he was of the first class. He died December 12, 1777, in the seventieth year of his age.

The different British Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of the Linnæan System.*

MONOGYNIA.

One Pistillum.

LYTHRUM.

CALYX. *Perianthium,* 1 leaf, cylindrical, scored, with 12 teeth, every other tooth smaller.

COROLLA. *Petals,* 6, oblong, rather blunt, expanding, fixed by the claws to the divisions of the calyx.

STAMINA. *Filaments,* 12, thread-shaped, as long as the calyx, the upper shorter than the lower ones. *Antheræ,* simple, rising.

PISTILLUM. *Germen,* oblong. *Style,* awl-shaped, declining, as long as the stamina. *Stigmata,* round and flat, rising.

PERICARPIUM. *Capsula,* oblong, tapering to a point, covered; cells 2, or 1.

SEEDS. Numerous, small.

*** In the *Lythrum hyssopifolia,* there are only 6 stamina. LINN.

MONOGYNIA.

One Pistillum.

ASARUM.

CALYX. *Perianthium,* 1 leaf, bell-shaped, with 3 or 4 shallow clefts, like leather, coloured, permanent. *Segments,* erect, with the point bent inwards.

COROLLA. None.

STAMINA. *Filaments,* 12, awl-shaped, half as long as the perianthium. *Antheræ,* oblong, growing to the middle of the filaments.

PISTILLUM. *Germen,* either inferior, or else hidden within the substance of the perianthium. *Style,* cylindrical, as long as the stamina. *Stigma,* star-like, with 6 reflected divisions.

Pericarpium. *Capsula,* like leather, generally with 6 cells, enclosed within the substance of the perianthium.
Seeds. Many, egg-shaped.

AGRIMONIA.

DIGYNIA.
Two Pistilla.

Calyx. *Perianthium,* 1 leaf, with 5 clefts, acute, small, superior, permanent, surrounded by another calyx.
Corolla. *Petals,* 5, flat, notched at the end. *Claws,* narrow, growing to the calyx.
Stamina. *Filaments,* hair-like, shorter than the blossom, fixed to the calyx. *Antheræ,* small, double, compressed.
Pistilla. *Germen,* beneath. *Styles,* 2, simple, as long as the stamina. *Stigmata,* blunt.
Pericarpium. None. The *Calyx* becomes hard, and closes at the neck.
Seeds. Two, roundish.

** The number of stamina are exceedingly uncertain; in some flowers 12, in some, 10, frequently 7. In the *Agrimonia eupatoria* the outer calyx adheres to the inner one; the seeds are 2, the stamina from 12 to 20; the fruit surrounded by bristles. Stamina from 5 to 12.

RESEDA.

TRIGYNIA.
Three Pistilla.

Calyx. *Perianthium,* 1 leaf, divided. *Segments,* narrow, acute, erect, permanent, 2 of them standing more open on account of the nectariferous petals.
Corolla. *Petals,* several, unequal, always some, with 3 shallow clefts; the *uppermost* bulging at the base, as long as the calyx, and containing honey.

Nectarium, a flat upright gland, rising from the receptaculum, situate between the stamina and the uttermost petal, closing with the base of the petals, which on that side are dilated.

Stamina. *Filaments,* 11 to 15, short. *Antheræ,* blunt, erect, as long as the blossom.

TRIGYNIA. Three Pistilla.

PISTILLA. *Germen,* bulging, ending in some very short styles. *Stigmata,* simple.

PERICARPIUM. *Capsula,* bulging, angular, tapering to the styles, with 1 cell, opening between the styles.

SEEDS. Many, kidney-shaped, fixed to the angles of the capsula.

*** There is hardly any Genus so difficult to characterise as this; the different species varying so much, both in figure and number. The essential character consists in the petals *with* 3 *clefts,* 1 petal bearing the nectarium in its base, and the capsula not closed, but always gaping open. In the *Reseda luteola* the calyx has 4 divisions, the petals are 3; the uppermost, containing the nectarium, has 6 shallow clefts: the lateral and opposite petals have 3 clefts, and there are sometimes 2 other very small and entire petals. Styles, 3. Stamina, many. LINN.

EUPHORBIA.

TRIGYNIA. Three Pistilla.

CALYX. *Perianthium,* 1 leaf, permanent, somewhat coloured, inflated; *mouth* with 4, and in a few species with 5 teeth.

COROLLA. *Petals* 4, in a few species 5, turban-shaped, bulging thick, lopped, irregularly situate alternating with the teeth of the perianthium, and fixed by their claws to its edge; permanent.

STAMINA. *Filaments,* many (12 or more), thread-shaped, jointed, standing on the receptaculum, longer than the corolla, coming forth at different times. *Antheræ,* double, roundish.

PISTILLUM. *Germen,* roundish, 3-cornered, standing on a little fruit-stalk. *Styles,* 3, cloven. *Stigmata,* obtuse.

PERICARPIUM. *Capsula,* roundish, consisting of 3 united berries, and 3 cells, opening with a jerk.

SEEDS. Solitary, roundish.

*** Petals generally 4, sometimes 5. Separate flow-

ers, with only stamina, and flowers with only pistilla, are often found on the same plant. Capsula, either smooth, hairy, or warty. LINN.

SEMPERVIUM.

DODECAGYNIA.

From twelve to twenty Pistilla.

CALYX. *Perianthium,* from 6 to 12 divisions, concave, acute, permanent.

COROLLA. *Petals,* 6 to 12, oblong, spear-shaped, acute, concave, a little larger than the calyx.

STAMINA. *Filaments,* 6 to 12, awl-shaped, slender. *Antheræ,* roundish. *Pistilla,* germina 6 to 12, placed in a circle, erect, each ending in a *style;* expanding. *Stigmata,* acute.

PERICARPIUM. *Capsulæ,* 6 to 12, oblong, compressed, short, placed in a circle, tapering to a point outwardly, opening on the inner side.

SEEDS. Many, roundish, small.

*** When of a luxuriant growth, the numbers often increase, especially the number of the pistilla. Nearly allied to Sedum, but differs, in always having more than 5 petals.

DODECANDRIA

MONOGYNIA

CLASS XI

ORDER 1

PURPLE LOOSESTRIFE

LYTHRUM SALICARIA

DODECANDRIA

MONOGYNIA

Common Asarabacca

ASĂRUM EUROPAĒUM

XI
7

DODECANDRIA

DIGYNIA

CLASS XI

ORDER 2

COMMON AGRIMONY

AGRIMONĬA EUPATORĬA

DODECANDRIA
TRIGYNIA

CLASS XI

ORDER 3

MIGNONNETTE

RESĒDA ODORĀTA

DODECANDRIA

TREGYNIA

RESĒDA LUTĔA

XI
3

RESEDA LUTEOLA

XI
3

DODECANDRIA

TRIGYNIA

Upright warty Spurge

EUPHORBĬA STRĪCTA

XI
3

DODECANDRIA
TETRAGYNIA

CLASS XI

ORDER 4

SINGLE-SPIKED APONOGETON

APONOGĒTON MONOSTACHŸON

ICOSANDRIA.

CLASS XII.

TWENTY STAMINA.

THIS CLASS HAS THREE ORDERS.

THIS Class is said to have twenty stamina, but the precision of the number is not of so much importance as their insertion into the Calyx, which, though an additional circumstance, is essential to the character of the Class.

ORDER I.

PRUNUS LAURO-CERASUS.

Cherry Laurel.

MONOGYNIA.

One Pistillum.

Essen ial Generic and Specific Characters.

GEN. CH. *Calyx*, 5-cleft, inferior. *Petals*, 5. Stone of the *Drupa*, with slightly prominent seams.

SP. CH. *Flowers*, in racemes. *Leaves*, ever-green, biglandular at the back.

THIS plant is a native of the Levant, of Caucasus, the mountainous parts of Persia, and the Crimea, and is supposed to have been first cultivated in Europe in 1576, when Clusius received it from Constantinople. It blossoms in April, and in the autumn produces a

MONOGYNIA.

One Pistillum.

black berry, somewhat like a cherry or small plum; hence it has been classed by Linnæus with the Genus *Prunus*. In England it was a scarce plant in the reign of Charles I, and a merchant who possessed one in his garden at Highgate, in the year 1629, defended it every winter from the severity of the cold by covering it with a blanket. The fact is recorded by Parkinson,[a] and use has been made of it by physiologists to shew that plants become inured to a climate different from their own; but I am informed by a scientific and practical man, whose information and experience is founded upon a knowledge of more than fourscore years, that this inference is not correct. That Clusius first preserved this plant in a stove at Vienna, there can be no doubt: but even at this day it is very common for nurserymen, when they receive plants or seeds from a hot country, to suppose that their habit requires a stove;

[a] John Parkinson was an English botanist, born in 1567. He was an apothecary in London, and eminent in his profession. His garden was well stored with rare plants, and he became botanist to King Chrales I. He died about 1645. Parkinson was the first author who described and figured the subjects of the flower garden. He published in 1640 his "Theatrum Botanicum, or Theatre of Plants," folio.

and thus it happens that seeds which come from the East and the West Indies are oftentimes put to grow in our stoves, and cultivated in the same manner for many years, from the supposition that they require more than an ordinary degree of heat, till by some accident it is found that they will endure cold, and then it is said that the plant is hardened to our climate. Seeds brought from Canton to England are uniformly sown in our Hot-houses, without inquiry, whether the plants grew wild in the neighbourhood of that city, or under the great wall that divides that vast empire from Tartary.

None of the species of the Genus *Cistus* which grow in the low lands and plains in Portugal will live with us throughout the year in the open air, such as *Cistus villosus*, *Cistus creticus*, *Cistus formosus*, &c. Those only which are indigenous to high and alpine situations, where the temperature and other atmospheric effects correspond to our own, are sufficiently hardy to bear our winters, such as *Cistus ladaniferus* and *Cistus laurifolius*. The Peach, which comes to us from Armenia, is not at all more hardy than it was when first introduced; and it is usually grafted on our native Plum-stocks, that it

MONOGYNIA.
One Pistillum.

may more effectually resist the severity of our winters, and produce quicker:[b] thus the cold any plant will bear appears to be the same, wherever it grows, and whether in a foreign country, or in its native soil, it will die in the same frost, provided the heat of the previous summer has been the same.[c]

That individual plants might acquire individual habits from local circumstances, is not repugnant to philosophical principles; yet, with reference to cold, even this does not seem to be the case; and with respect to a species undergoing any such change, all opinions founded upon that theory are without sufficient foundation.

Seasons are much more apt to vary than the laws that regulate the productions of nature. Formerly wine was made from English vineyards in considerable quantities.

[b] The Almond-Tree affords the best stock for grafting a Peach upon.

[c] In considering this subject, the relative cold of different countries must not be estimated alone; for, on the heat of the summer depends the ripening of the wood, and it is in proportion to this maturity of the wood that the plant is enabled to resist the cold of winter: hence, in a country where it is cold and damp during the summer, those plants would die in a comparatively mild winter, which would have resisted great severity of frost after a hot summer.

Domesday-book shews that wine was made in England previous to the Conquest: and in the reigns of William II. Henry, and Stephen, part of London, now called East Smithfield, and some adjoining streets, was cultivated as a vineyard by the Constables of the Tower, to their great emolument and profit. Subsequently to this time, the Bishop of Ely was accustomed to receive several tons of wine annually as tithe from the produce of the vineyards in his diocese, and frequently received it as rent. The wines in Gloucestershire, within a century after the Conquest, were little inferior to the French, in sweetness. Wine was also made in Kent, Surrey, and other counties; but lately any attempts to make a vineyard in the most favourable part of Cornwall, and in the Isle of Wight, conducted by Frenchmen brought into England expressly for that purpose from the south of France, proved unsuccessful; from which it would seem, that our summers are not so regularly warm as they were some centuries ago. But without referring to a remote time for this alteration in our seasons, even the memory of man will supply us with remarkable instances. From the MS. notes of Peter Collinson, published in the

MONOGYNIA.
One Pistillum.

Tenth Volume of the Transactions of the Linnæan Society, it appears that in the year 1765, which was a long, hot, and dry summer, that a friend of his, a Mr. Rogers, had a Vineyard in the neighbourhood of Fulham, where he grew a large quantity of Burgundy grapes, and did not expect to make less than fourteen hogsheads of wine that year. Mr. Collinson visited him on the 18th of October, when he says "the vines were very strong, the grapes seemingly all perfectly ripe. I did not see a green half-ripe grape in all this great quantity." The nursery-ground of Messrs. Lee and Kennedy is still called the Vineyard; and there, wine was made and sold retail in the late King's reign.

From the leaves of the Cherry Laurel, by distillation, the strongest vegetable poison is produced that we are acquainted with. It was first discovered in the year 1728; and as the facts are extremely interesting, I will transcribe them from the 37th volume of the Philosophical Transactions, where they were originally published, and communicated to the Secretary of the Royal Society of London, by Dr. Madden of Dublin.

"Sir,—A very extraordinary accident that fell out here some months ago, has dis-

MONOGYNIA.

One Pistillum.

covered to us a most dangerous poison, which was never before known to be so, though it has been in frequent use amongst us. The thing I mean is a simple water distilled from the leaves of the *Lauro-Cerasus*.

" It has the smell of the Bitter Almond, or Peach-kernel, and has been for many years in frequent use among our housewives and cooks, to give an agreeable flavour to their creams and puddings. It has also been much in use among our drinkers of drams; and the proportion they generally use it in, has been one part of Laurel-water to four of Brandy.

" Nor has this practice (however frequent) ever been attended with any apparent ill consequences till some time in the month of September 1728, when it happened that one Martha Boyce, a servant, who lived with a person who sold great quantities of this water, got a bottle of it from her mistress, and gave it to her mother, Anne Boyce, as a very rich cordial.

" Anne Boyce made a present of it to Frances Eaton, her sister, who was a shopkeeper in the town, and who she thought might oblige her customers with it. Accordingly in a few days she gave about two

MONOGYNIA.
One Pistillum.

ounces of the water to a woman called Mary Whaley, who had bought some goods of her.

"Mary Whaley drank about two-thirds of what was filled out, and went away: Frances Eaton drank the rest. Mary Whaley went to another shop to buy somewhat else, and in about a quarter of an hour after she had drank the water (as I am informed), she complainéd of a violent disorder in her stomach: she was carried home, and from that time she lost her speech, and died in about an hour.

"The shopkeeper, Frances Eaton, sent word to her sister, Anne Boyce, of what had happened, who came to her upon the message, and affirmed that it was not possible the cordial (as she called it) could have occasioned the death of the woman; and to convince her, she filled out about three spoonfuls of it, and drank it. She continued talking with Frances Eaton about two minutes longer, and so earnest to persuade her of the liquor's being inoffensive, that she filled out two spoonfuls more, which she drank off likewise. She was hardly well seated in her chair, when she died."

After repeated experiments by some Members of the Royal Society, to shew the dead-

ly effects of this poison, the Secretary concludes—

"Thus we find this simple water, distilled from a vegetable, equally mortal with the bite of the Rattlesnake, and more quick in its operation than any mineral poison; and though it may not immediately bring on death, when taken in small quantities, yet an habitual use of it, however disguised with other compounds, must certainly be prejudicial and unwholesome, and, in weakly persons, must hasten death."

It is a singular physiological fact, that whenever Stamina are inserted into the Calyx, whether the number be few or many, the fruit has been invariably found to be wholesome; although from these remarks, the Cherry-Laurel would seem to be an exception to the rule, yet the berries of this tree are not found to be unwholesome; though there may be cause of apprehension that they may in some degree partake of the peculiar secretions of the leaves; not that Peaches and Apricots possess any prejudicial quality, though the leaves of those trees, and the kernels of the fruit, on distillation, have the same poisonous principle as Laurel leaves. Hence in this place it may not be unimportant to re-

mark, that Ratafia flavoured with apricot kernels, from this circumstance, is in its nature a poisonous cordial.

MONOGYNIA.
One Pistillum.

PRUNUS DOMESTICA.

Wild Plum-tree.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-cleft, inferior. *Petals*, 5. *Stone* of the *drupa* with slightly prominent seams.

Sp. Ch. *Flower-stalks*, mostly solitary. *Leaves*, lanceolate-ovate, convolute when young. *Branches*, without spines.

This plant blossoms early in May, and the fruit is ripened late in August. The Genus *Prunus* is the only British Genus of this Order,[c] of which the annexed figure is given as an example; as *Prunus Lauro-Cerasus*, though very common, is not indigenous.

[c] Of this genus there are four British species, which are *Prunus domestica*, Wild Plum-tree, *Prunus padus*, Bird Cherry, *Prunus cerasus*, Cherry-tree, and *Prunus spinosa*, Sloe tree. The *Prunus insititia*, or Bullace-tree, is only a variety of the *Prunus domestica*.—In the *English Botany* these species are figured 1383, 706, 1783, 841, 842.

ORDER II.

PYRUS DOMESTICA.

Service-tree.

PENTAGYNIA.

Five Pistilla.*

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-cleft. *Petals*, 5. *Apple*, inferior, with 5 cells and several seeds.

SP. CH. *Leaves*, pinnate: *leaflets*, equal, downy beneath, serrated towards the point. *Flowers*, in panicles.

THIS tree is a native of the warmer parts of Europe, where it becomes a large and lofty tree. Ray says that it has been observed to grow in many places in the mountainous parts of Cornwall; and by Dr. Plot, to grow wild in the Moorlands in Staffordshire. There is a solitary tree in the middle of the Forest of Wire, near Bewdley; but there is great reason to believe that that tree was originally planted there.

The tree blossoms in May; and the fruit, in taste, is somewhat like a medlar, but inferior.

* Sir James Edward Smith makes this Order to include such plants as have from two to five pistilla, and which, from accidental luxuriance, may occasionally have one or two more. In the Apple, Pear, and Medlar, some species of the same Genus have five, others, three, two, or only one pistillum, and a corresponding number of seeds.

PENTAGYNIA.

Five Pistilla.

I have called it *Pyrus domestica*, in conformity to the opinion of Sir James Edward Smith and Crantz, and in which Professor Martyn concurs, though, in his Dictionary, he has continued the name of *Sorbus*.

Of this Order is the Pear and Apple tree, both classed by Linnæus in two species under the Genus Pyrus, *Pyrus communis* and *Pyrus malus*.[d] Of Apples and Pears the kinds are very numerous; but that which makes an obvious difference in the appearance or flavour of the fruit, is not considered by Botanists as sufficiently constant to characterize separate species. The Golden Pippin, the Nonpareil, and common Crab, are therefore considered as only three varieties of the same species; and in like manner all the different kinds of Pears, but as so many varieties from one parent tree.

In the reproduction of the plant, the fla-

[d] Apples were common in England before the arrival of the Romans; and in the Welsh, Cornish, Armorican, and Irish, the word Apple has one common etymology. The present site of Glastonbury was distinguished, before the arrival of the Romans, by the title of Avallonia, or the Apple-orchard. Before the third century, the fruit seems to have been in general request over the island. In the sixth century, Apples were praised by *Myrdhin Wylht*, a Welsh bard. *Evans*, p. 77. *Richard*, p 19. *Solinus*, c. xxii.

vour of the seed or pulp that surrounds it, is a circumstance not to be regarded. These different fruits, however, formerly, they may have been produced, are now propagated by layers, grafts, and buds; and, as far as we know, may continue to be so reproduced to the end of time. Upon this subject, however, there is a difference of opinion; Dr. Darwin believed that a bud contained the germinating principle of a new plant; while Mr. Knight considers a bud to be only a part of the old plant, partaking of its age and decay. To establish with philosophic precision the laws which regulate the operations of nature, even when those laws appear to be least complicated, has been the lot of few. To Bacon and to Grew we owe the dawning of physiology in this department of natural knowledge: to Haller, to Du Hamel, and to Bonnet, we are indebted for many interesting facts; and from what Mr. Knight has done, much may be expected.

The vital principle in plants, and also in seeds, appears to admit of very extensive modification. Some seeds may be baked in an oven, or kept for fifty years, without losing their vegetating quality; whilst others will be injured by being gathered. Some

PENTAGYNIA.
Five Pistilla.

plants propagate by their roots with such exuberance, that they can hardly be exterminated: some, may be turned upside-down, and the roots become branches, and the branches roots, while others will not bear to be moved. Some, seem to be perpetually reproduced by suckers and offsets, as our common Elm; while other trees sow their own seeds: and with respect to herbaceous plants, many, which are in their nature annual, may be made perennial.[e] I believe a true law of nature to be, that wherever you can make a *new root*, whether by layers, offsets, or other means, that the new root so made, is a *new plant*.

In what manner the flavour of fruits is changed by soil or situation, is not at all known. The same grape and the same hill produce *Hermitage* and the *Coté--róti*; and why particular eminences on the banks of the Rhine and the Danube shall alone produce *Hock* and *Tokay*, and why *Constantia*,

[e] *Senecio elegans*, which is purely an annual plant in its native situation, dying totally and altogether in the winter, may be perpetuated by slips of its branches to an indefinite extent of time. After the original parent plant had been dead for more than twenty years, I have seen those which in succession had been propagated in this way, as flourishing as if they had been produced by seed.

only enough to supply a rich Burgomaster, should be alone produced at the Cape, is not yet accounted for; but this appears to be certain, that aspect, temperature, and soil, are of the utmost importance to the peculiar secretions of plants, and to the flavour of their fruits.[a]

The Golden Pippin, which in Herefordshire is supposed to be worn out, grows in the Stable-yard in St. James's, and produces its fruit in high perfection. A change of soil is necessary to renovate the produce, even of flowers, as well as fruits, of every kind. The whole system of agriculture, as practised in Europe, is conducted upon this principle, with a full conviction of its importance; and with respect to this favourite Apple, in common with others, little atten-

[a] Light is also essential to vegetation, as soon as a plant is above the ground; and as the degree of light alters its character, so it also influences its secretions; of which, the common garden Endive supplies a familiar example. If Cress and Mustard be left to vegetate in the dark, they grow tall, with very imperfect leaves; but in the light, as every one knows, the stems are short, the leaves are well formed, and perfectly green. Professor Robinson once found a plant in a coal mine, which, from the peculiarity of its appearance, he believed to be a new plant; but after keeping it some time in the light, the leaves changed their shape, it obtained a different flavour, and proved to be no other than the common Tansy, *Tanacetum vulgare*.

PENTAGYNIA.

Five Pistilla

tion has been paid to the situation where it is planted; a stiff clay, or a low and damp situation, are equally uncongenial to its nature; but when placed in a dry and loamy soil, it returns to its former vigour, and according to the season, its fruit is kind, and of the same goodness as before. With respect to this apple, however, it may be necessary to make some remarks, as, in support of Mr. Knight's theory, much stress has been laid on its annual deterioration, by reason of the old age and decrepitude of the parent tree.

This fruit, that is to say, the old, little, yellow, warty Golden Pippin, is now comparatively gone; nevertheless, other Golden Pippins are yet produced on healthy trees in proper situations, but the fruit is larger, and not so finely flavoured; and it is therefore said to be, at best, only a variety of this favourite apple: this opinion, however, is not supported by facts. That the old tree, which now produces this little yellow apple, produced it also of the same size and flavour when the tree was young, is not at all probable. When trees grow old and diseased, the fruit becomes stinted in its growth, and the juices are more concentrated: this is the usual operation of nature. The Swan's-egg

Pear is well known at this time to be every year diminishing in size, and every year becoming of a richer flavour. It is also well known to every intelligent gardener, that Grafts inserted into a diseased stock will produce fruit sooner, less luxuriant in size, but if properly ripened, of a better flavour. If from the Golden-Pippin tree already mentioned two healthy grafts be taken, and they are afterwards engrafted on another tree, but on two separate limbs of that tree, one of those limbs being perfectly sound and healthy, and the other diseased; the graft which shall be on the diseased limb will produce its blossoms a week or nine days before the other graft, and the fruit will be proportionably earlier, smaller, and, as I have already observed, more richly flavoured. The other graft will produce a more healthy looking apple but inferior in taste. Hence it would seem, that the fruit of the young and healthy Golden-Pippin tree had not originally its present flavour or appearance: it was then, most probably, similar to that which we are now pleased to denominate a *variety*; and that we have deviated from physiological truth, by confusing the

PENTAGYNIA.

Five Pistilla.

pleasure of taste with the principles of nature.

The canker, so fatal a disease among trees, is no indication of their decrepitude from old age; although it is produced by some latent cause of which we are ignorant; probably, from the peculiar nature of the soil. Mr. Forsyth, however, was of a different opinion; he supposed the canker always to be the consequence of some external injury: that it is occasionally so produced may be true; but that there are oftentimes other causes, seem to be at least equally certain.

Speaking upon this subject in his Treatise on the Culture and Management of Fruit Trees, he says, "It is a general opinion, that the canker in all trees proceeds from the nature of the ground in which they are planted, such as a sour clay, a shining or gravelly soil, &c.; my late and much esteemed friend, Mr. Hudson, author of the *Flora Anglica*, was of this opinion, till I convinced him of the contrary, by some experiments made at Nutwell, near Exeter, the seat of the late Sir Francis Drake, a gentleman very fond of gardening and agriculture. Mr. Hudson said it would be to no purpose to make any at-

tempt to cure the apple-trees, as the ground was of such a nature, as to bring on the canker. The trees were, indeed, in a sad condition, being covered all over with lichens and moss, and very much infected with the canker. I requested Mr. Hudson to fix on some of the worst; we then desired the gardener to open the ground round their roots, which we found perfectly sound, the bark of them smooth, and not the least appearance of the canker to be seen.

"The canker, as before observed, proceeds from bruises in the bark, from limbs cut off, &c. When these limbs begin to rot, and grow hollow, they convey the canker to the root; for it always proceeds from the branches and stem to the roots, and never from the roots to the tree."

Notwithstanding these remarks, I have often seen young seedling trees of the thorny and hardy crab, canker after putting forth strong and healthy shoots for three or four years; particularly if the situation were a wet and cold clay; and in such seedling trees, where the canker has made its appearance on the outside of the bark, three or four feet above the ground, I have in many instances traced it by two or three longitudinal black

lines down the albernum into the root; and yet in no intervening part was there any sign of the canker to be perceived externally.[e]

R. D.

SPIRÆA ULMARIA.

Meadow-sweet.

PENTAGYNIA.

Five Pistilla.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-cleft. *Petals*, 5. *Capsula*, superior, of 2 valves, with many seeds.

Sp. Ch. *Leaves*, interruptedly pinnate, downy beneath; the terminal leaflet largest, and lobed. *Flowers*, cymose, with many styles.

This plant abounds in moist meadows about the banks of rivers and ditches. It blossoms from June till August, and yields a fragrant scent like the hawthorn. The stems of this plant are very astringent, and contain a considerable quantity of the tanine principle. The inhabitants of Iceland tan all their leather with it, which may be worth recollecting, if it should at any time be thought necessary to resort to expedients to supply our deficiency of oak bark.

[e] One cause of the decay of fruit-trees may be, that it is customary to graft with wood less healthy than other branches of the tree, because it is known to produce fruit sooner than young, kind, and vigorous shoots.

Among timber trees, the common Elm, *Ulmus campestris*, is a good example of a tree that has been constantly produced by grafts and suckers, as I have observed, p. 240.

PENTAGYNIA.

Five Pistilla.

British Plants of this Order.

Botanical Generic Names.	Common Names.
9 MESPILUS.....	2 MEDLAR-TREE
13 PYRUS.....	7 PEAR AND APPLE-TREE
22 SPIRÆA.....	3 SPIRÆA

British Species figured in Sowerby's English Botany.

Mespĭlus, 2504, 1523. *Pyrus*, 1784, 179, 298, 350, 337, 2331, 1858, *Spiræa*, 1468, 284, 960.

ORDER III.

ROSA RUBIGINOSA.

Sweet-briar, or Eglantine.

POLYGYNIA

Pistilla numerous and indefinite.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Petals*, 5. *Seeds*, numerous, bristly, fixed to the inside of the calyx.

SP. CH. *Fruit*, ovate, bristly, as well as the flower-stalks. *Prickles*,[f] of the stem, hooked. *Leaflets*, elliptical, clothed beneath with rusty-coloured glands.

THIS Rose grows wild in many parts of England, on a gravelly or sandy soil, blossoming in June and July. It is familiar to every one in our gardens, and makes a beau-

[f] The distinction between a Prickle and a Thorn is, that the Prickle is produced from the bark, and the Thorn grows out of the wood. See the Rose in the annexed figure, and the figure of the *Rhamnus Lotus*, Class V. Order 1.

POLYGYNIA

Pistilla numerous and indefinite.

tiful and fragrant hedge. To the sweet odour of the leaf, Shakspeare bears testimony in a passage from *Cymbeline*, already quoted, p. 145: and in his *Midsummer-night's Dream*, a Bower fit for the Queen of the Fairies to sleep in, is one

> " Quite over-canopied with lush-woodbine,
> With sweet musk-roses, and with eglantine."
> *Act* 2. *sc.* 2.

By Milton the Woodbine has been misunderstood for the Eglantine in his *Allegro*.

Of this very extensive Genus, the Provins and the Damask-Rose are the most fragrant. The Damask-Rose produces white and red flowers on the same tree, and has been celebrated in our History as the emblems of the Houses of York and Lancaster. When those families contended for the crown, the White Rose distinguished the partizans of the house of York; the Red, the party of Lancaster: and in an old author we have this beautiful epigram on a White Rose being presented to a Lancastrian Lady.

> If this fair Rose offend thy sight,
> It, in thy bosom wear;
> 'Twill blush to find itself less white,
> And turn Lancastrian there.

There are two *varieties* of the Damask-Rose, which blossom more than once a year; the

POLYGYNIA

Pistilla numerous and indefinite.

one is commonly called the Monthly Rose, and the other has been celebrated by the Latin poets for blossoming twice a year, and is called the Pæstan Rose.[g]

Water distilled from the Wild Rose is said to be more fragrant than the common Rose-water. Haller says of it, " Fragrantia ejus olei omnia alia odoramenta superat—"

Of all the ornamental plants that grow, there is none of such universal admiration as the Rose; the name is even too remote for the fanciful exercise of derivation. Poets and Moralists have alike recourse to it; Love, Youth, and Beauty with all its charms, by turns find apt emblems in the Rose.

[g] Forsitan et, pingues hortos quæ cura colendi
Ornaret, canerem, biferique rosaria Pæsti;
Virg, Georg. Lib. 4. *v.* 118.

Fragravit ore quod rosarium Pæsti
Martial, Lib. 5. *Epig.* 37.

Prataque nec bifero cessura rosaria Pæsti
Ibid. Lib. 12. *Epig.* 31.

Pæstum was anciently called Sistilis, afterwards changed to Possidonia, and then to Pæstum, about the year 272 before Christ, when it was subdued by the Romans; about which time the city lost its importance, and the celebrity of a fragrant Rose supplied its place: yet, after a lapse of more than two thousand years, its magnificent ruins have had attractions for the writer of this note.

Go, lovely Rose,
Tell her that wastes her time and me,
That now she knows,
When I resemble her to thee,
How sweet and fair she seems to be!

* * * * * * * *

Then die, that she
The common fate of all things rare
May read in thee:
How small a part of time they share,
That are so wondrous sweet and fair.

POLYGYNIA

Pistilla numerous and indefinite.

GEUM RIVALE.

Water-Avens.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, in 10 segments. *Petals*, 5. *Seeds*, with a jointed awn.

Sp. Ch. *Flowers*, drooping. *Fruit*, oblong; *awns*, twisted and feathery.

The Water Avens was formerly esteemed rare, but it is now found to be much more common than was at first suspected. Among other places it grows wild at Batchley, in Herefordshire.

This elegant plant is the favourite of the President of the Linnæan Society, and is a good instance of a flower with a coloured calyx, of which we have but few examples among our native plants.

POLYGYNIA.

Pistilla numerous and indefinite.

British Plants of this Order.

Botanical Generic Names.	Common Names.
1 COMARUM.....	1 MARSH CINQUEFOIL
2 DRYAS.....	1 DRYAS
4 FRAGARIA[h].....	3 STRAWBERRY
9 GEUM.....	3 AVENS
32 POTENTILLA	8 CINQUEFOIL
57 ROSA[i].....	16 ROSE
32 RUBUS.....	8 BRAMBLE
2 TORMENTILLA.....	2 TORMENTILLA

British Species figured in Sowerby's English Botany.

Comărum, 172. *Dryas*, 451. *Fragarĭa*, 1524, 1785, 2197. *Gēum*, 1400, 106. *Potentīlla*, 88, 861, 2058, 89, 561, 37, 1384, 862. *Rōsa*, 187, 188, 583, 990, 991, 992, 1895, 1896, 2068, 2196, 2367, 2388, 2459, 2490, 2521, 2579. *Rūbus*, 2442, 826, 827, 715, 2233, 1585, 716, 2572. *Tormentīlla*, 863, 864.

[h] *Fragaria sterilis*, or Barren Strawberry, is rather a Potentilla with a strawberry-leaf, than a Fragaria.

[i] Though this Genus can scarcely be mistaken, as every one knows a Rose at first sight, yet it is very difficult to determine the number of species, and to ascertain what is a species, and what a *variety*. Donn in his Catalogue enumerates 57 species; the *Hortus Kewensis* 37 species, and 97 *varieties*; and Messrs. Lee and Kennedy publish a catalogue of no less than 320 species or permanent varieties of this beautiful flower.

The different Genera in this Class *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

Order 1. MONOGYNIA. One Pistillum.

PRUNUS.

Calyx. *Perianthium*, 1 leaf, bell-shaped, with 5 clefts, deciduous. *Segments*, blunt, concave.

Corolla. *Petals*, 5, circular, concave, large, expanding, fixed to the cup by claws.

Stamina. *Filaments*, 20 to 30, awl-shaped, nearly as long as the blossom, standing on the calyx. *Antheræ*, double, short.

Pistillum. *Germen*, superior, roundish. *Style*, thread-shaped, as long as the stamina. *Stigma*, circular.

Pericarpium. Nearly globular, pulpy, including a nut or stone.

Seed. *Nut*, somewhat globular, but compressed, seams projecting.

** The inside of the calyx, in most of the species, is covered with a number of small glands, which make an appearance like a hoar frost. In *Prunus insititia* there are sometimes 2 pistilla.

Order 2. PENTAGYNIA. Five Pistilla.

PYRUS.

Calyx. *Perianthium*, 1 leaf, concave, with 5 shallow clefts, permanent. *Segments*, expanding.

Corolla. *Petals*, 5, circular, concave, large, fixed to the calyx.

Stamina. *Filaments*, 20, awl-shaped, shorter than the blossom, fixed to the calyx. *Antheræ*, simple.

Pistilla. *Germen*, beneath. *Styles*, 5, thread-shaped, as long as the stamina. *Stigmata*, simple.

PERICARPIUM. *Pomum*, somewhat globular, with a hollow dimple, fleshy, with 4 cells, divisions membranaceous.

SEEDS. Several, oblong, blunt, tapering to a point at the base, convex on one side, flat on the other.

SPIRÆA.

ORDER 2. PENTAGYNIA. Five Pistilla.

CALYX. *Perianthium*, 1 leaf, with 5 shallow clefts, flat at the base. *Segments*, acute, permanent.

COROLLA. *Petals*, 5, oblong, but rounded, fixed to the perianthium.

STAMINA. *Filaments*, more than 20, thread-shaped, shorter than the corolla, fixed to the perianthium. *Antheræ*, roundish.

PISTILLA. *Germina*, 5, or more. *Styles*, the same number, thread-shaped, as long as the stamina. *Stigmata*, somewhat globular.

PERICARPIUM. *Capsula*, oblong, tapering to a point, compressed, 2-valved.

SEEDS. Few; tapering to a point, small, fixed on the inside the seam of the capsula.

** In *Spiræa ulmaria* the capsulæ are numerous, and placed in a circle: in *Spiræa filipendula* they are numerous, and twisted like a corkscrew. LINN.

ROSA.

ORDER 3. POLYGYNIA. Pistilla numerous and indefinite.

CALYX. *Perianthium*, 1 leaf. *Tube*, inflated, narrow at the neck. *Border*, globular, with 5 divisions, expanding. *Segments*, long, spear-shaped, narrow (2 of which are in some species furnished with appendages on each side, and the other 2 alternate ones, naked; in others, only one segment has these appendages).

COROLLA. *Petals*, 5, inversely heart-shaped, as long as the calyx, and fixed to its neck.

POLYGYNIA

Pistilla numerous and indefinite.

STAMINA. *Filaments*, many, hair-like, very short, fixed to the neck of the calyx. *Antheræ*, 3-edged.

PISTILLA. *Germina*, numerous, at the bottom of the calyx. *Styles*, as many as there are germina, closely compressed by the neck of the calyx, fixed to the side of the germen. *Stigmata*, blunt.

PERICARPIUM. None. *Berry*, fleshy, top-shaped, coloured, soft, of 1 cell, crowned by imperfect segments, closed at the neck, formed by the tube of the calyx.

SEEDS. Numerous, oblong, rough with hair, adhering to the inside of the calyx.

*** The Germen is formed of the calyx, and resembles a berry. LINN.

GEUM.

ORDER 3.

POLYGYNIA

Pistilla numerous and indefinite.

CALYX. *Perianthium*, 1 leaf, with 10 clefts, nearly erect. *Segments*, alternately very small and sharp.

COROLLA. *Petals*, 5, rounded; *claws*, narrow, as long as the perianthium; fixed to the perianthium.

STAMINA. *Filaments*, numerous, awl-shaped, as long as the perianthium, fixed to the perianthium. *Antheræ*, short, rather broad, blunt.

PISTILLA. *Germina*, numerous, forming a knob. *Styles*, long, hairy, fixed to the sides of the germina. *Stigmata*, simple.

PERICARPIUM. None. *Receptaculum* of the seed, oblong, hairy, standing upon the reflected perianthium.

SEEDS. Numerous, compressed, covered with long hairs, furnished with a long awn formed by the style.

CLASS

XII

ICOSANDRIA

Inserted on the Calyx or Corolla

Twenty or more Stamina

XIII

POLYANDRIA

Inserted not on the Calyx or Corolla

but on the Receptaculum

THE CHARACTER OF CLASS XII. XIII.

ICOSANDRIA

MONOGYNIA

CLASS XII

ORDER 1

CHERRY LAUREL

PRŪNUS LAŪRO-CERĂSUS

ICOSANDRIA

MONOGYNIA

Wild Plum-tree

PRŪNUS DOMESTĬCA

XII
7

ICOSANDRIA
PENTAGYNIA

CLASS XII

ORDER 2

SERVICE TREE

PYRUS DOMESTICA

ICOSANDRIA

PENTAGYNIA

Meadow Sweet

SPIRÆA ULMARĬA

XII
2

ICOSANDRIA

POLYGYNIA

CLASS XII

ORDER 3

EGLANTINE

RŌSA RUBIGINŌSA

ICOSANDRIA

POLYGYNIA

Water Avens

GEUM RIVALE

XII
3

POLYANDRIA.

CLASS XIII.

STAMINA NUMEROUS AND INDEFINITE.

THIS CLASS HAS SEVEN ORDERS.

BESIDES the indefinite number of stamina, usually more than twenty,[a] which is the character of this Class, they must be inserted in the Receptaculum, as Class XII. requires them to be inserted into the Calyx.

ORDER I.

NYMPHÆA ALBA.

White Water-lily.

MONOGYNIA.

One Pistillum.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* of 4 or 5 leaves. *Petals,* numerous. *Berry,* of many cells, truncated.

SP. CH. *Leaves,* heart-shaped, entire. *Calyx,* 4-leaved.

THIS plant grows in slow rivers and still water, in dark mud, and blossoms in the mid-

[a] The filaments of the Pæony and the Tea blossom are from 250 to 300, and those of the Pæony stand in three circles round the Germen. See Pistilla of the Pæony in the plate shewing the character and appearance of the STIGMA in different plants.

MONOGYNIA.
One Pistillum.

dle of summer very plentifully: the flower has much the air of a tropical production: it has no scent, and fades very soon after it is gathered. It is a splendid ornament to rustic ponds. At my friend, Thomas Reynolds' at Carshalton it grows in great luxuriance, and adds to the interest of his extensive and delightful garden. The blossom of this flower closes in the evening, and expands with the rising sun.

MONOGYNIA.
One Pistillum.

NYMPHÆA CÆRULEA.

Blue Lotus of the Nile.

Julius Cæsar Savigny, *de l'Institut d'Egypte*, published an account of this *Nymphœa* in the *Annales du Muséum d'Histoire Naturelle*. When he accompanied the French army in the Egyptian expedition, he found it growing in the Delta, and he believes it to be the herbaceous Lotus of the ancients, mentioned by Herodotus, Theophrastus, Dioscorides, Athenæus, and Pliny. That the herbaceous and aquatic Lotus of the ancients was some species of this Genus there can be no doubt; but to know with precision the particular species which was then common to Greece or Egypt, is now, I fear, not

within our means of information. This plant though called *Nymphæa cærulea*, appears to be very different from the *Nymphaea cærulea*, figured in the Botanical Magazine, No. 552, and is probably a different species. That the aquatic Lotus of the ancients may be better understood, these different descriptions of it from ancient authors will put the reader in possession of the best information he can be supplied with.

Herodotus. "To obtain a more plentiful supply of food, they [a](the Egyptians of the marshes) have found out these resources. When the river is full, and the plains are inundated, there grow in the water numbers of lilies, which the Egyptians call Lotus. These they gather and dry in the sun: then they pound what is obtained from the middle of the flower, which is like a poppy-head, and make it into loaves, which they bake. The root also of this Lotus is eatable, and moderately sweet; it is round, and of the size of an apple." *Herodotus, Book* ii. *c.* 121.

[a] Herodotus has just before spoken of the Ægyptians who live in the higher part of the country, out of the reach of the inundation of the Nile, and he now speaks of the inhabitants of the marshes.

MONOGYNIA.

One Pistillum.

Theophrastus. "The Lotus so called, grows chiefly in the plains when the country is inundated. The nature of the stem is like that of the *bean (Tamara of India)*,[b] and its large spreading leaves are similar, except that they are less and thinner, and the leaf is attached to its foot-stalk in the same manner.[c] The flower is white, the petals are narrow, as those of the Lily (*Lilium album*), and numerous, as of a very double flower. When the sun is hid, they cover the seed-vessel: as soon as the sun rises the flowers open, and appear above the water; and this is repeated, until the seed-vessel is ripe and the petals fall off.

"The size of the seed-vessel is equal to that of the largest poppy-head, and it is divided by separations in the same manner as the seed-vessel of the poppy; but the seed, which is like millet,[d] is more condensed. It is said, that in the Euphrates, both the seed-vessel and the petals sink down into the

[b] See Order 7 of this Class.

[c] Though this is not strictly true, the general appearance might easily have deceived Theophrastus into this opinion.

[d] Millet is the seed of a species of Holcus. This is probably of that species which by Linnæus is called *Holcus sorghum*, or some *variety* of it.

water from the evening until midnight to a great depth, so that the hand cannot reach them; afterwards, at day-break they emerge, and as day comes on they rise above the water, and at sun-rise the flowers open; and when fully expanded, they rise up still higher, and thus appear to crowd the surface of the water. The Ægyptians lay these seed-vessels in heaps to perish, and when the coriaceous covering is rotten, they wash the mass in the river, and take out the seed; it is then dried and baked into loaves, which is used as food. The root of the Lotus is called *corsion*, which in figure and size is like a quince: the colour of the rind is dark, like a chesnut, but the inside is white; when boiled or baked it is like pease-soup, and is agreeable to the taste: it is also eaten raw, and is best raw, as it grows in the water."—*Theophrastus*, *Book* iv. *c.* 10.

Dioscorides. "The Lotus which grows in Ægypt, in the water of the inundated plains, has a stem like that of the *Bean*. The flower is small, and white, like the lily, which is said to expand at sun-rise, and to close at sun-set. It is also said, that the seed-vessel is then entirely hid in the water, and that at sun-rise it emerges again. The seed-vessel is

MONOGYNIA.
One Pistillum.

like a very large poppy-head, and the seeds are like millet, which the Ægyptians dry and make into bread. The root, which in appearance is like a quince, is eaten both raw and boiled; when boiled, in quality it is like the yolk of an egg." *Dioscorides*, *Book* iv. *c.* 114.

Pliny. "There is also an herb of the same name,[c] and in Ægypt it grows up with an herbaceous stem, as a marsh plant. When the inundating waters of the Nile retire, it comes up with a stem like the *Bean*, with the petals crowded thick and close, only shorter and narrower. It has a seed-vessel in all respects like a poppy-head, and contains seeds like millet. The inhabitants lay these seed-vessels in heaps to putrify; then wash away the filth, dry the seed, pound it, and make bread of it. There is a further circumstance related concerning this plant of a very remarkable nature; that the poppy-like flowers close up with the setting sun, the petals entirely covering the seed-vessel; but at sun-rise they open again, and so on, till they become ripe, and the blossom, which is white, falls off. *Book* xiii. *c.* 17.

[c] Pliny has just before spoken of the tree-lotus, the *Rhamnus Lotus* of Linnæus; for the description of which, see Class V. Order I. p. 83.

MONOGYNIA.
One Pistillum.

Pliny, speaking of the Lotus, in the twenty-second book, says, "Those who think that there is only a Tree-lotus, may be refuted on Homer's authority alone; for among other herbs produced for the pleasure of the gods, the Lotus is the first named.

"There is a kind of Lotus named *Lotometra*, which is produced from the cultivated Lotus, and from the seed, which is like millet, the Ægyptian shepherds make bread, commonly mixed up with water or milk. It is asserted, that no bread can be more wholesome or light while it is warm; but when cold, it is more difficult of digestion, and becomes heavier." *Pliny, Book* xxii. *c.* 21.

CISTUS HELIANTHEMUM.

MONOGYNIA.
One Pistillum.

Dwarf Cistus.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx* of 5 leaves, two of which are smaller than the rest. *Petals*, 5. *Capsula* superior, angular, with 3 valves and many seeds.

Sp. Ch. Shrubby, procumbent, with pointed *stipulæ*. *Leaves*, elliptic-oblong, white and hairy beneath.

Of this Genus there are sixty-six species, in general, esteemed for their beauty, and

MONOGYNIA.
One Pistillum.

cultivated in our gardens. Though this species cannot vie with many of those which are produced in warmer climates, yet it is one of our ornamental native plants. It is common in chalky soils, and highly ornamental to rocky situations; it is hardy, and easily propagated, either by seeds or cuttings, and continues for the greatest part of the summer daily to put forth new blossoms. The petals are yellow, and Linnæus has remarked, that they have sometimes an orange-coloured spot at their base: the flower, however, is often of a dingy red. The leaves have been observed to vary much in breadth.

This flower has that remarkable character which I have alluded to, page 144—the stamina gradually retiring from the Pistillum which they surround, when slightly touched at the base; and this is the only species that has been discovered to have this singular property.

CHELIDONIUM CORNICULATUM.

Red Horn'd Poppy.

MONOGYNIA.

One Pistillum.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* of 2 leaves. *Petals,* 4. *Pod,* superior, linear, of 2 cells, and 2 or 3 valves. *Seeds,* numerous, dotted.

SP. CH. *Stem,* hispid. *Stem-leaves,* pinnatifid, jagged. *Pod,* bristly.

THIS plant grows wild in sandy corn-fields, and blossoms in June and July: the flowers are of very short duration, often not exceeding half a day, yet produced in long succession. It was upon the flower of this plant that Linnæus made repeated experiments to shew the importance of Stamina and Pistilla to the production of perfect seed. He stripped off the Stamina from two separate flowers, and afterwards, from a distance, brought the Pollen of a third, and sprinkled the stigma of one of these which he had so deprived of its stamina; and the seed of this plant, which he so fertilized, came to maturity, and the other did not: the experiment was frequently repeated with the same result.

At different times many experiments had been made to ascertain the importance of the Stamina and Pistilla to the production

MONOGYNIA.
One Pistillum.

and ripening perfect seed. In the middle of the last century, in a hot-house at Berlin, there was a Date Palm which blossomed very luxuriantly every year with flowers containing Pistilla only,[a] but never produced any seed or fruit that came to perfection. In a hot-house in Leipsic there was one of the same species that produced blossoms only with Stamina. In the year 1749, a branch of this tree in flower was sent from Leipsic to Berlin, and suspended over the Palm-tree there, which produced only Pistilla, and that year it bore, for the first time, perfect fruit and perfect seeds; some of which were sent to Linnæus in Sweden, who raised other trees from them at Upsal.

The importance of these two parts of a flower to the maturing the fruit of the Palm was known among the ancients, and the trees bearing flowers with Stamina only, were always planted among those which bore the Pistilla, that the Dates might come to perfection; and among the moderns, where this fruit is used as food, it is now not less carefully attended to. M. Michaux, in his

[a] This plant bears its Pistilla on one tree, and the Stamina on another, and is of the Class Dioecia of this system.

MONOGYNIA.
One Pistillum.

Travels in Persia, has observed, that in the contentions and civil commotions in that country for the dominion of the empire, the different parties which were alternately victorious, in order the more speedily to reduce the inhabitants of the provinces, burned all the Palm-trees that produced Stamina; and famine would have been the consequence had not the Persians previously taken the precaution to preserve a great quantity of the Pollen for the purpose of fructifying the fruit-bearing trees which produce only Pistilla. It also appears from the same author, that the Pollen, which had been preserved for this purpose, had been kept for eighteen years without losing its fertilizing property.

PAPAVER SOMNIFERUM.

White Poppy.

MONOGYNIA.
One Pistillum.

Essential Generic and Specific Characters.

GEN. CH *Calyx*, 2-leaved. *Petals*, 4. *Stigma* radiated. *Capsulæ* superior, discharging its seeds by pores under the permanent stigma.

SP. CH. *Calyx* and *Capsulæ* smooth: *Leaves*, clasping the stem, glaucous, cut.

THIS Poppy grows wild in Norfolk, and in Cambridgeshire on the banks of the fen-

MONOGYNIA.
One Pistillum.

ditches, if the soil be sandy: it has also been found in Angusshire in Scotland.

A luxuriant and double variety of this Poppy is common in our gardens. In warmer countries this species is cultivated for the sake of opium, which is made from a milky secretion extracted, by excoriation, from the half-ripe capsula. Its seeds are oily, sweet, and not narcotic. It blossoms in July.

MONOGYNIA.
One Pistillum.

SARRACENIA ADUNCA.

Hook-leaved Side-saddle-flower.

Essential Generic and Specific Characters.

Gen. Ch. *Outer Calyx* of 3 leaves; *inner*, of 5. *Capsula* of 5 cells, underneath a permanent shield-like stigma.

Sp. Ch. *Leaves*, cylindrical, the length of the flower-stalk; with a roundish inflexed appendage.

This plant is a native of South Carolina, and is perennial. It grows in boggy and wet situations, and is remarkable for the peculiar structure of its leaves, which are hollow like a leather bottle, and hooded at the top, making a sort of covering or lid. In the inside of these leaves there is generally water and drowned insects; which, as they putrify, may be supposed to contribute to

the nourishment of the plant. It produces its flowers in July.

MONOGYNIA.
One Pistillum.

British Plants of this Order.

Botanical Generic Names.	Common Names.
4 ACTÆA.	1 HERB-CHRISTOPHER
66 CISTUS.	7 CISTUS
1 CHELIDONIUM.....	1 CELANDINE
4 GLAUCIUM.....	3 HORN'D POPPY
4 NUPHAR.....	2 NUPHAR
10 NYMPHÆA.....	1 WATER-LILY
9 PAPAVER.....	6 POPPY
5 TILIA	2 LIME-TREE.

British Species figured in Sowerby's English Botany.

Actæa, 918. *Cistus*, 396, 544, 2414, 2207, 1321, 1322, 2208. *Chelidonium*, 1581. *Glaucium*, 8, 1433, 201. *Nuphar*, 159, 2292. *Nymphaea*, 160. *Papaver*, 43, 643, 644, 645, 2145, 66. *Tilia*, 610, 1705.

ORDER II.

PÆONIA CORALLINA.

Pæony.

DIGYNIA.
Two Pistilla.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, of 5 leaves. *Petals*, 5. *Styles*, none. *Follicles*, superior, with many seeds.

SP. CH. *Leaves*, twice ternate; *Leaflets*, ovate, undivided, smooth. *Seed-vessels*, downy, recurved.

THIS plant is named after Pæon, a famous physician of antiquity. Of this Genus

DIGYNIA
Two Pistilla.

there are five species, variable in the number of the pistilla: it blossoms in May and June; it is a native of several parts of Europe, and Sir J. Smith supposes it also to be a native of England. This species in its wild state, is probably, when cultivated, the double-leaved Pæony of our gardens. There is a superstitious opinion prevails concerning the efficacy of the root of this plant to facilitate the growth of children's teeth: bits of it are dried and rubbed smooth, and strung and sold by the name of Anodyne Necklaces, and the seeds are sometimes employed for the same purpose.

This is the only plant which can be supposed to be English, that is of this Order.

ORDER III.

TRIGYNIA.
Three Pistilla.

THEA.

Tea Tree.

Essential Generic Character.

GEN. CH. *Calyx,* 5 or 6-leaved. *Corolla,* 6 or 9-petalled. *Capsula,* 3-celled. *Seed,* solitary.

THIS plant has been placed by Linnæus in the first Order of this Class, from consi-

dering the styles as united; but on consulting the best botanists of our time, I find it is now thought to be indifferent whether it be placed in the first, or the third Order; I have therefore chosen the latter; since it appears, from the best figures of the flower, and by the most authentic descriptions of it, that the styles separate from each other down to the germen, and become quite distinct; and wither upon it after the petals and stamina have fallen off.. TRIGYNIA. Three Pistilla.

This plant is a native of China and Japan, and in those countries only cultivated for use. In China it is cultivated in the open fields, in every latitude between Canton and Pekin; but the best tea is said to grow in a mild and temperate climate in the country about Nankin. It delights in sloping banks of hills facing the south, especially in the neighbourhood of rivers and rivulets.

In Japan the tea which is most esteemed grows in the neighbourhood of a small town called Udsi, situate near the sea. Here is a celebrated mountain of the same name, the whole of which is occupied in the culture of the tea for the Emperor's use. This mountain is entirely surrounded with a wide ditch to keep out both men and beasts. The plan-

TRIGYNIA. Three Pistilla.

tations are made in regular rows, and when the leaves are gathered, the men employed for that purpose wear gloves, and are obliged to bathe two or three times a day, lest the delicate flavour of the leaf should be injured in gathering.

In other parts of this country the tea is usually sown in the month of February, in the borders of fields which are cultivated with other produce; not in a continued hedge, but at moderate intervals, both that its shade may not be injurious to the general crop, and that the leaves may be the more easily collected. As the seeds are very liable to be damaged, from six to twelve are put into one hole, a fifth part not being expected to grow. When the tree is three years old the leaves may be plucked; when it is seven years old it no longer bears any quantity, and is then usually cut down to the root, when the stool sends forth many new shoots, which afford a plentiful supply of leaves. Sometimes this operation is deferred till the tenth year. The tree is an evergreen, and grows to about six feet in height, according to the best account we have of it.

The tea is gathered at three separate

times: the tenderest leaves, of but a few days growth, are gathered in February or the beginning of March; the second gathering is in the beginning of April; and the third about June, when the leaves are full grown. The tea is afterwards prepared by drying it in a stove in shallow iron pans; but upon this subject very little is known in Europe. It is now very generally believed, that the mode adopted by the Chinese to prepare the tea is of the utmost importance to its quality, and that the same tea-leaf is capable of being dryed or cured in different ways, so as to produce very different flavours. When Lord Macartney returned from his Chinese embassy, he brought with him some tea made up in small balls, presented to him by the Emperor, and which were understood to be of the finest quality; nevertheless, an infusion of this tea produced no flavour to an English taste, so that it would seem that the best tea prepared for the Court in China, is reduced in its astringency and odour by the mode of preparing it. The supposition that the tea is ever dried upon copper to give a more beautiful green to the leaves, is said to be entirely without foundation.

Of this plant it is generally believed there

TRIGYNIA.
Three Pistilla.

is only one species; the difference of green and Bohea-tea depending upon the nature of the soil, the culture, and the manner of drying the leaves. It has been observed, or at least it has been said, that the green-tea, planted in the Bohea country, will produce Bohea-tea, and on the contrary.

Tea was first introduced into Europe by the Dutch East India Company in 1641, and a small quantity was brought to England from Holland about the year 1666, by Lord Arlington and Lord Ossery, from whom it soon became known to the people of fashion, and its use ever since has been general. In China the use of tea is derived from very remote antiquity, and is so universal among all ranks of people in that vast empire, that, we are assured by Sir Geo. Staunton, if the Europeans were entirely to cease from trading in it, it would very little affect the price of tea in China: nevertheless, I was told by the late Mr. Roberts, a very competent judge on this subject, that however the Chinese might affect to under-value the tea-trade with Europe, yet, in reality it was of considerable importance, and the want of it would be very generally felt.

John Ellis, Esq. well known for his ex-

cellent works on corals and corallines, previous to the year 1768, set several tea seeds, sent to him from China, in pots in the open air in London, from which he raised one plant; and this was probably the first tea plant ever raised in England. In the year 1771, a tea tree blossomed for the first time in England, at Sion House, in the months of October and November.

Much has been said about the unwholesomeness of this plant, and perhaps truly, with respect to some of its properties; but its refreshing quality is so agreeable, and the harm arising from it estimated with so much uncertainty, that in England it has become general, without our being aware of any serious evil from its use; nevertheless, I cannot help being apprehensive, that its stimulating or narcotic quality, according to the strength or proportion in which it is taken, may with many constitutions be materially prejudicial, and upon all, it may have an unperceived operation on the nervous system. "I observed," says *Kæmpfer*, "that the tea leaves contained something narcotic, which occasions a disorder in the animal spirits, and makes those who drink a *decoction* made from them, appear intoxicated: this

TRIGYNIA. Three Pistilla.

bad quality is particularly corrected by the operation of toasting the leaves, which is repeated by degrees; but it is never radically removed: something capable of affecting the head always remains."[a]

It has been much the habit of studious men to indulge in drinking tea. I once called upon the learned Professor Porson at five o'clock, when I myself was going to dinner, and found him in his room alone, sitting over his books, with a disorderly tea equipage on the table, and his tea-pot standing on a trevet before the fire. Dr. Johnson would sometimes drink more than twenty cups at a sitting; and he tells us himself, that he was a 'hardened and shameless tea-drinker; who for twenty years diluted his meals with only the infusion of this fascinating plant; whose kettle had scarcely time to cool; who with tea amused the evening, with tea solaced the midnight, and with tea welcomed the morning.' Nevertheless, according to the same enthusiastic admirer of it, its proper use is to amuse the idle, to relax the studious, and to dilute the full meals of those who cannot use exercise, and will

[a] *Kæmpfer's History of Japan.*

not use abstinence. He told Boswell, notwithstanding the great quantity which he accustomed himself to take, he never felt the least inconvenience from the excess.[b]

DELPHINIUM CONSOLIDA.

Field Larkspur.

TRIGYNIA.
Three Pistilla.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, none. *Petals*, 5; the upper one spurred. *Nectarium* cloven, with a posterior spur.

Sp. Ch. *Capsula*, solitary. *Nectarium* of 1 leaf. *Stem*, subdivided.

This is the branching Larkspur of the gardens. It grows wild in all the open chalky or sandy fields of Cambridgeshire, Suffolk, &c. It blossoms in July. This is the only British plant of this Order.

It is figured in Sowerby's English Botany, 1839.

[b] The leaves and young stems of a tree of a very different kind to the Tea-tree of the East, are exclusively used as Tea in Paraguay and Chili. The tree is but little known in Europe, though of the first importance in that part of South America. It is described by Azara to be of the size of a middling Orange-tree, and by his editor, Walckenaer, supposed to be the *Psoralea glandulosa* of Linnæus. I have chewed the leaves and dryed stems bruised together of this Paraguay tea, and the taste is as agreeable as our oriental tea, tasted in the same way. For the description of this plant, see Martino Dobrizhoffer, *Historia de Abiponibus*, tom. iii. 8vo. and, Voyages dans L'Amérique Meridionale, par. Don Felix de Azara, tom. i. p. 120.

TETRAGYNIA.
Four Pistilla.

ORDER IV.

No British Plant of this Order.

Except TETRACERA, Sir James Edward Smith is of opinion, that all the other examples are doubtful which have been hitherto placed in this Order, and a specimen of this plant I have not been able to obtain.

PENTAGYNIA.
Five Pistilla.

ORDER V.

AQUILEGIA VULGARIS.

Common Columbine.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, none. *Petals*, 5. *Nectaria*, 5, horn-shaped, alternate with the petals. *Capsulæ*, 5, distinct.

SP. CH. *Nectaria* equal to the petals; their horns incurved. *Leaves* and *Stem*, smooth.

THIS plant is found in woods, thickets, and pastures, in several parts of England: not uncommon in Derbyshire and Westmoreland. It blossoms in June. This is the only British species of the Genus, and the only British plant of this Order.

It is figured in Sowerby's English Botany, 297.

HEXAGYNIA.

Six Pistilla.

ORDER VI.

STRATIOTES ALOIDES.

Water Aloe.

Essential Generic and Specific Characters.

GEN. CH. *Spatha,* of 2 leaves. *Inner Calyx,* superior, in 3 segments. *Petals,* 3. *Berry,* with 6 cells.

SP. CH. *Leaves,* sword-shaped, channelled, with a prominent rib, fringed with sharp prickles.

OF this Genus there are three species, but this is the only species indigenous to Great Britain, and the only British plant of this Order. It is rarely found in any other part of England, than Lincolnshire, Cambridgeshire, and Norfolk, where it grows in deep ditches of the fens, sometimes so plentifully as to cover the whole surface, to the exclusion of all other plants. It blossoms in July. The pulp of the seed of this plant in its natural state is clear like the vitreous humour of the eye; in spirits of wine it becomes opaque and white like the boiled white of an egg; plunged into water, it becomes clear again.

This Genus, is nearly allied to the Frog-bit, Class XXII. Order 7.

This Species is figured in Sowerby's English Botany, 379.

ORDER VII.

POLYGYNIA

Pistilla numerous and indefinite.

CYAMUS NELUMBO.

Egyptian Bean-lily.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* of 4 or 5 leaves. *Petals,* numerous. *Nuts,* immersed in a cellular receptaculum, each crowned with its own stigma.

Sp. Ch. *Leaves,* peltate, orbicular, waved. *Foot-stalks* and *Flower-stalks,* prickly.

This plant is indigenous to still pools and recesses in the margins of running streams in the East Indies, growing in a deep muddy soil, in a depth of water not less than two or three feet, nor more than six.

When the seeds become ripe, the capsula containing them separates from its footstalk, and falls into the water with all the seeds in their respective cells, which then begin to vegetate, and thus present a cornucopia of young sprouting plants, which, after a time, loosen from their cells, fall down, and take root in the mud.

Among the plants of ancient Ægypt this was in great estimation; and, by Pliny and Athenaeus, was considered to be a Lotus. The capsula resembling a wasps nest, with

POLYGYNIA

Pistilla numerous and indefinite.

esculent seeds, about the size of olive berries, contained in separate cells, is so remarkable, that the plant cannot be mistaken when described by Herodotus, Theophrastus, and Dioscorides.

Herodotus, after speaking of the Egyptian Lotus, which he considered to be a liliaceous plant, says, "There are likewise other Lilies like Roses: and these too grow in the River Nile; whose fructification is produced in a separate capsula, springing like a sucker from the root, in appearance exactly resembling a wasps nest. In this are a number of esculent seeds, about the size of the olive berry. These are also eaten when tender, and dry." *Book* 2. *c.* 121.

Theophrastus.—The Bean is produced in marshes and in stagnant waters; the length of the stem at the longest is four cubits,[a] and the thickness of a finger, like the smooth jointless reed. The inner texture of this stem is perforated throughout like a honey-comb, and upon the top of it is a poppy-like capsula, in circumference and appearance like a wasps nest. In each of

[a] An ancient Grecian cubit was somewhat more than a foot and a half of our measure; the exact proportion is 18 inches, 13125 decim.

POLYGYNIA

Pistilla numerous and indefinite.

the cells there is a bean projecting a little above the surface of the capsula, which usually contains about thirty of these beans or seeds. The flower is twice the size of a poppy, of the colour of a full-blown rose, and elevated above the water; about each flower are produced large leaves, of the size of a Thessalian hat, having the same kind of stem as the pedunculus or flower stem. In each bean, when broken, may be seen the embryo plant[b] out of which the leaf grows. So much for the fruit.

"The root is thicker than the thickest reed, and cellular like the stem; and those who live about the marshes eat it as food, either raw, or boiled, or roasted. These plants are produced spontaneously, but they are cultivated in beds. To prepare their bean-beds, the beans are sown in the mud, being previously mixed up carefully with chaff, so that they may remain without injury till they take root, after which the plant is safe.

[b] Τὸ συνεσταλμένον, *a contorted, crooked thing*, in this place, in the original text, must allude to the embryo plant; since, in the seed, when broken to pieces, this embryo is to be seen doubled and folded up, somewhat similar to the embryo plant, which may be seen in the seed of the common Sea-kale of our kitchen gardens; *Crambe maritima* of Linnaeus.

POLYGYNIA.

Pistilla numerous and indefinite.

"The root is strong, and not unlike that of the reed; the stem is also similar, except that it is full of prickles, and therefore the crocodiles, who do not see very well, avoid the plant, for fear of running the prickles into their eyes.

"This plant is produced in Syria and about Cilicia, but does not come to maturity in that country; but about Torone, in a certain marsh of a modern size, in the Chalcidic region, it ripens and comes to perfection, and brings forth perfect seed." *Book* 4. *c.* 10.

DIOSCORIDES.—"The Ægyptian Bean, which some call the Ponticon, is chiefly produced in Ægypt and in Asia; and in Cilicia it is found in stagnant waters; it has a large leaf like an umbrella, and a stem a cubit high, of the thickness of a finger. The flower, which is like a rose, is twice the size of a poppy: when the petals fall off, the capsula is produced with cells, each containing a bean, a little elevated above the top of the capsula, like a bubble in water. The capsula is called *Ciborion*, or *Cibotion*, and the planting of the beans is effected by sinking the capsula in the water, with the beans in it, so that they may take root in the mud.

"The root is thicker than a reed, and it is

POLYGYNIA.

Pistilla numerous and indefinite.

eaten both boiled and raw, and is called *Collocasia;* the bean is also eaten green: when it is dry, it becomes of a dark colour, and is larger than the Grecian bean." *B. 2. c. 128.*

To these testimonies might be added those of Strabo, Athenaeus, and Arrian, to shew that this plant anciently abounded on the shores of the Nile, though in modern times it has not been found in Ægypt. Arrian's account is very remarkable; according to that author, when Alexander reached the Hydaspes, he believed that he had discovered a branch of the Nile, from finding crocodiles in the stream, and the *Ægyptian bean* growing on its banks.

"On the banks of the Hydaspes, after Alexander had prepared many vessels with two and with three banks of oars, and ships for the transport of his horses and his army, he resolved to sail down the river as far as the ocean. Here he first saw crocodiles in the Indus, which he had never before seen in any river but the Nile; and *beans* growing on the banks of the Acesines, such as are produced in Ægypt; and having heard that the Acesines discharged itself into the Indus, he thought he had discovered the sources of the Nile." *Arrian Exped. Alex. Book 6. c. 1.*

POLYGYNIA

Pistilla numerous and indefinite.

Strabo's account is not less interesting :— "In the marshes and lakes of Egypt grow both the *Paper-reed* and the *Egyptian bean*, which produces a Ciborium.[c] They are nearly of equal height, having stems about ten feet long. But the Paper-reed has a smooth stem, with foliage growing from the top : whereas the *bean* has leaves and flowers springing from the stem in many places, and bears a fruit like our bean, but differing in size and taste. The plantations of beans are pleasant to the sight and delightful to those who wish to feast on them. The way of feasting is to go in boats with cabins[d] into the thick plantations of them, where a shade is afforded by the leaves, which are very large, so as to be used for cups and bowls. They are adapted to that use by their concavity. The shops at Alexandria are full of them, where they are used for vessels. The sale of

[c] The capsula of this plant was called *Ciborium* or *Cibotion*.

[d] This Egyptian boat was a kind of Gondola, of which a good representation may be seen in the celebrated mosaic pavement of the ancient Temple of Fortune at Palestina. In this pavement there are also rude representations of this Egyptian bean-plant growing in the water. There are many engraved representations of this pavement, but the most common and of easiest reference is to be found in Montfaucon's Supplement, Vol. IV.

POLYGYNIA

Pistilla numerous and indefinite.

them constitutes one part of the profit of a farm." *Strabo, Book* 17. *c.* 799, *p.* 1151.

When Prosper Alpinus visited Egypt, in the end of the sixteenth century, he was not able to discover this plant; nor since his time has it been found by other travellers: but we are acquainted with it from India, where it makes a conspicuous figure in the Mythology of the eastern nations. Thunberg says it is a sacred plant in Japan, and pleasing to their deities; and that the images of their idols are often represented sitting on its large leaves.

In China, their favourite deity, *Shing-moo*, or holy-mother, or rather the mother of *perfect intelligence*, which corresponds to the *Isis* of the Ægyptians, and the *Ceres* of the Greeks, is generally represented with a flower of it in her hand, and, if seated, she is usually placed on one of its peltate leaves; and few temples are without some representation of this plant.

Loureiro says that it abounds in muddy marshes, and is cultivated in large handsome pots in the gardens and houses of the Mandarines in China; and that there is a variety with a flower of pure white, and another with a very beautiful and luxuriant blossom,

Pistilla numerous and indefinite.

having about a hundred large petals, white or rose-coloured. It is called *Lien-wha* in the Chinese language. In India this plant is called by many different names; the most common in Bengal are *Cummul* and *Puddum*. In Hindostan this plant appears to have been considered with religious veneration in the remotest antiquity. In the caves of Carli and Elephanta are numerous representations of it in the architectural ornaments, and in religious symbols; and I have seen a drawing by Mr. Daniel of their god of the sun *Surya* with one flower in each hand.

In the remains of ancient Ægyptian temples, this plant frequently occurs in sculptured ornaments and symbolical pictures. There is a figure of Isis represented seated on a capsula of the Ægyptian Cyamus, with a flagellum in her hand, in an antique gem, once in the possession of M. de la Chausse, and engraved in the third volume De l'Académie Royale des Inscriptions. This mode of representing Isis is not uncommon: Montfaucon supplies many similar examples. He also gives the representation of two Ægyptian Altars, ornamented in a peculiar manner with birds and fishes, and capsulæ of this Ægyptian Cyamus, with pendent stems and leaves.

POLYGYNIA

Pistilla numerous and indefinite.

This plant having been anciently common to the Nile and to the marshes of Ægypt, and now not discoverable in that country, it has been supposed that it must originally have been imported from the East. The truth of this opinion, if it were established, would serve to shew that there was a communication between those distant nations anterior to historical record: and as this plant is used as a religious symbol, and in religious ceremonies, wherever it has been found indigenous in India; this fact may afford one conjectural point, among many, that the religion, as well as the arts, of Egypt, are indebted to nations of still more remote antiquity. R. D.

RANUNCULUS SCELERATUS.

Celery-leaved Crowfoot.

POLYGYNIA

Pistilla numerous and indefinite.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-leaved. *Petals*, 5, with a honey-bearing pore on the inside of the claw of each. *Seeds*, naked.

SP. CH. *Lower-leaves*, palmate; uppermost, fingered. *Fruit*, oblong.

THIS Ranunculus is one of the most virulent of all our native plants. If bruised and applied to the skin it soon raises a blister, and makes a sore by no means easy to heal. The poisonous herb of Sardinia mentioned by Virgil in his seventh Eclogue is supposed by Dioscorides to be some species of Ranunculus; and probably this, or *Ranunculus thora.*

CALTHA PALUSTRIS.

Marsh Marigold.

POLYGYNIA

Pistilla numerous and indefinite.

Essential Generic Character.

GEN. CH. *Calyx*, none. *Petals*, 5. *Nectaria*, none. *Capsulæ*, several, with many seeds.

THIS plant is nearly allied to *Trollius*, but has fewer petals and wants the petal-like nectaria of that Genus. The *Trollius* has also fewer seeds in each capsula than the *Caltha.*

POLYGYNIA

Pistilla numerous and indefinite.

It abounds plentifully in moist meadows about rivulets and brooks; and in the neighbourhood of Cambridge, where I have particularly noticed it; it blossoms in the beginning of March: Linnæus remarked it in West Bothland towards the end of May, as then putting forth the first blossom of the spring.

British Plants of this Order.

Botanical Generic Names.	Common Names.
6 ADONIS.....	1 PHEASANT'S-EYE
28 ANEMONE.....	4 ANEMONE
2 CALTHA.....	2 MARCH-MARYGOLD
21 CLEMATIS.....	1 VIRGIN'S BOWER
7 HELLEBORUS.....	2 HELLEBORE
59 RANUNCULUS.....	16 CROW-FOOT
22 THALICTRUM.....	4 MEADOW-RUE
2 TROLLIUS.....	1 GLOBE-FLOWER

British Species figured in Sowerby's English Botany.

Adōnis, 308, *Anemōne*, 51, 355, 1062, 1484. *Cāltha*, 506, 2175. *Clemătis*, 612. *Hellebŏrus*, 200. 613. *Ranuncŭlus*, 387, 100, 2306, 584, 624, 681, 515, 1504, 516, 652, , 135, 120, 2003, 101, 2390. *Thalĭctrum*, 262, 11, 611, 307. *Trollĭus*, 28.

The different British Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

ORDER I.

MONOGYNIA.
One Pistillum.

Botanical Description of the Genus NYMPHÆA.

CALYX. *Perianthium* beneath, 4-leafed, large, coloured on the upper surface, permanent.

COROLLA. *Petals*, numerous (often 25,) fixed to the side of the germen, in more than 1 row.

STAMINA. *Filaments*, numerous (often 70,) flat, crooked, obtuse, short. *Antheræ*, oblong, fixed to the edge of the filaments.

PISTILLUM. *Germen*, egg-shaped, large. *Style*, none. *Stigma*, circular, flat, central, sitting, marked with rays, scallopped at the edge, permanent.

PERICARPIUM. *Berry*, hard, egg-shaped, fleshy, rough, narrow at the neck, crowned at the top, with many cells (10 to 15), filled with pulp.

SEEDS. Many, roundish.

ORDER I.

MONOGYNIA.
One Pistillum.

Botanical Description of the Genus CISTUS.

CALYX. *Perianthium*, 5-leaves, permanent, *leaflets*, circular, concave, 2 of them smaller, placed below, but alternating with the others.

COROLLA. *Petals*, 5, circular, flat, expanding, very large.

STAMINA. *Filaments*, numerous, hair-like, shorter than the blossom. *Antheræ*, roundish, small.

PISTILLUM. *Germen*, roundish. *Style*, simple, as long as the stamina. *Stigmata*, flat, circular.

PERICARPIUM. *Capsula*, roundish, covered by the calyx.

Seeds. Numerous, roundish, small.

*** The essential character of the genus consists in the 2 smaller and alternate leaves of the calyx. Some species have a capsula of 1 cell and 3 valves, in others it has 5 or 10 cells, and as many valves as there are cells. Linn.

ORDER 1.

MONOGYNIA. One Pistillum.

Botanical Description of the Genus CHELIDONIUM.

Calyx. *Perianthium*, 2-leaved, roundish, *leaflets* somewhat egg-shaped, concave, obtuse, caducous.

Corolla. *Petals*, 4, circular, flat, expanding large, narrower at the base.

Stamina. *Filaments*, many, about 30, flat, broader upwards, shorter than the corolla. *Antheræ*, oblong, compressed, obtuse, erect, twin.

Pistillum. *Germen*, cylindrical, as long as the stamina. *Style* none. *Stigma*, a knob, bifid.

Pericarpium. *Silique*, cylindrical, generally with 2 valves.

Seeds. Many, egg-shaped, shining, adhering to the little stalk that connects them with the receptaculum. *Receptaculum*, narrow, situate between the seams of the valves, and applied close to the seams through their whole length, continuing entire.

*** The *Chelidonium majus* produces a long pod of 1 cell; the *Chelidonium glaucium* and *Chelidonium corniculatum* a long pod of 2 capsulæ, and the *Chelidonium hybridum* a long pod with 3 valves. *Chelidonium majus* has a capsula resembling a pod, with knots where the seeds are placed; it has 1 cell and 2 valves. The seeds are egg-shaped, with a kind of crest along the back, and fixed by each end to a thread-shaped receptaculum and between the edges of the valves. The *Chelidonium glaucium* and *Chelidonium hybridum* have a very long pod-like capsula compressed transversely, of 2 cells, 2 valves, and a partition

inserted between the edges of the valves. The seeds are globular, and fixed in hollow cavities to the middle of the spongy receptaculum. This Genus is distinct from *Papaver* by its siliquose pericarpium.

ORDER 1.
MONOGYNIA.
One Pistillum.

Botanical Description of the Genus PAPAVER.

Calyx. *Perianthium*, 2-leaved, egg-shaped, notched at the end. *Leaflets*, 2, somewhat egg-shaped, concave, blunt, shedding.

Corolla. *Petals*, 4, circular, flat, expanding, large, narrowest at the base, alternately smaller.

Stamina. *Filaments*, numerous, hair-like, much shorter than the corolla. *Antheræ*, oblong, compressed, erect, blunt.

Pistillum. *Germen*, nearly globular, large. *Style*, none. *Stigma*, target-shaped, flat, radiated.

Pericarpium. *Capsula*, of 1 cell, divided half way into many cells, opening by several apertures beneath the crown formed by the large and flat stigma.

Seeds. Numerous, very small. *Receptaculum*, consisting of as many longitudinal plaits as there are rays in the stigma, connected to the sides of the capsula.

*** The *Pericarpium* varies in figure from globular to oblong, and the number of rays in the stigma are likewise variable. The species may be divided into such as have *smooth* and into such as have *rough hairy* pericarpia. Linn.

ORDER 2.
DIGYNIA.
Two Pistilla.

Botanical Description of the Genus PÆONIA.

Calyx *Perianthium*, 5-leaved, small, permanent; *leaflets* roundish, concave, reflex, unequal in size and situation.

Corolla. *Petals*, 5, roundish, concave, narrow at the base, spreading, very large.

Stamina. *Filaments* numerous, (about three hundred) capillary, short. *Antheræ*, oblong, quadrangular, erect, 4-celled, large.

Pistilla. *Germina*, 2, ovate, erect, tomentose. *Styles*, none. *Stigmata*, compressed, oblong, blunt, coloured.

Pericarpium. A double *Capsula*, ovate, oblong, spreading, and reflex, tomentose, celled, 1-valved, opening longitudinally inwards.

Seeds. Several, oval, shining, coloured, fastened to the opening suture.

*** The most natural number of the germina seems to be 2, but they vary much in different, and even in the same species. They hardly ever amount to 5.

ORDER 3.

TRIGYNIA. Three Pistilla.

Botanical Description of the Genus DELPHINIUM.

Calyx. None.

Corolla. *Petals*, 5, unequal, placed in a circle, the uppermost before, blunter than the rest, behind, extended into a straight, tubular, long, blunt horn, the other, egg-spear-shaped, expanding, nearly equal.

Nectarium cloven, its front standing in the upper part of the circle of the petals, and its hinder part enclosed by the tube of the uppermost petal.

Stamina. *Filaments* many (15 to 30,) awl-shaped, broadest at the base, very small, inclining towards the uppermost petal. *Antheræ*, erect, small.

Pistilla. *Germina*, 3 or 1, egg-shaped, ending in *styles* as long the stamina. *Stigmata*, simple, reflected.

Pericarpium. *Capsulæ*, 3 or 1, egg-awl-shaped, straight. with 1 valve, opening inwards.

Seeds. Many, angular.

ORDER 5.

PENTAGYNIA. Five Pistilla.

Botanical Description of the Genus AQUILEGIA.

Calyx. *Perianthium*, none.

Corolla. *Petals*, 5, spear-egg-shaped, flat, expanding, equal. *Nectaria*, 5, equal, alternating with the petals, horned, gradually widening upwards, the mouth ascend-

ing obliquely outwards, fixed to the receptaculum inwardly, extending below into a long tapering tube, blunt at the end.

STAMINA. *Filaments*, many, (30 to 40,) awl-shaped, the outer ones the shortest. *Antheræ*, oblong, erect, as high as the nectaria.

PISTILLA. *Germina*, 5, egg-oblong, ending in awl-shaped *styles*, longer than the stamina. *Stigmata*, erect, undivided: 10 short, wrinkled, chaffy substances separate and enclose the germina.

PERICARPIUM. *Capsulæ*, 5, distinct, cylindrical, parallel, straight, tapering to a point, with 1 valve, opening from the point inwardly.

SEEDS. Many, egg-shaped, keeled, fixed to the opening seam.

Botanical Description of the Genus STRATIOTES.

ORDER 6.

HEXAGYNIA. Six Pistilla.

FLOWERS WITH ONLY STAMINA.

CALYX. *Spatha*, 2-leaved, containing 3 or 5 florets: *leaflets* boat-shaped, compressed, blunt, approaching, keeled, nearly equal, permanent

Calyx, 1 leaf, with three divisions, erect, deciduous.

COROLLA. *Petals*, 3, inversely heart-shaped, erect, but expanding twice as large as the calyx.

Nectaria, 20, resembling antheræ, strap-spear-shaped, acute, placed in a circle, standing on the receptaculum.

STAMINA. *Filaments*, 12, thread-shaped, shorter than the nectaria, fixed to the receptaculum. *Antheræ*, strap-shaped, erect.

FLOWERS WITH ONLY PISTILLA.

On the same plant.

CALYX. *Spatha*, as above, but enclosing only 1 floret.

Calyx, as above, superior.

COROLLA. As above.

Nectaria, as above, but rather larger.

Pistilla. *Germen,* beneath, egg-shaped, but with 6 angles, and compressed. *Styles,* 6, divided down to the base. *Stigmata,* simple, bent outwards.

Pericarpium. *Berry,* egg-shaped, tapering at each end, with 6 sides, and 6 cells; pulp pellucid.

Seeds. Many, oblong, cylindrical.

*** Nectaria from 21 to 1. Stamina from 11 to 13. The *Stratiotes aloides,* in cold climates, bears perfect flowers, with 20 stamina in each.

ORDER 7.

POLYGYNIA: Pistilla numerous and indefinite.

Botanical Description of the Genus RANUNCULUS.

Calyx. *Perianthium,* 5 leaves. *Leaflets,* egg-shaped, concave, a little coloured, deciduous.

Corolla. *Petals,* 5, blunt, shining, with small claws. *Nectarium,* a little cavity, just above the claw of each petal.

Stamina. *Filaments,* many, nearly half as long as the petals. *Antheræ,* erect, oblong, blunt, double.

Pistilla. *Germina,* numerous, forming a knob. *Styles,* none. *Stigmata,* reflected, very small.

Pericarpium. None. *Receptaculum,* connecting the seeds by very short footstalks.

Seeds. Many, irregular, crooked at the point, figure various.

*** The essential character of this Genus consists in the *Nectarium,* the other parts of the flower are inconstant. This nectarium is in some species a naked pore, in others, encompassed by a cylindrical border, and in others, closed by a scale which is notched at the end. In this species there is an awl-shaped receptaculum, and the fruit is in a spike. In the *Ranunculus ficaria* the perianthium has three leaves, and the blossoms more than five petals. The *Ranunculus hederaceus* has only five stamina. In some species the seeds are roundish, in others, depressed; sometimes they are beset with prickles like a hedge-hog, and sometimes they are but a few in number. Linn.

ORDER 7.

POLYGYNIA. Pistilla numerous and indefinite.

Botanical Description of the Genus CALTHA.

CALYX. None.

COROLLA. *Petals*, 5, egg-shaped, flat, expanding, large, shedding.

STAMINA. *Filaments*, numerous, thread-shaped, shorter than the petals. *Antheræ*, compressed, blunt, erect.

PISTILLA. *Germina*, from 5 to 10, oblong, compressed, erect. *Styles*, none. *Stigmata*, simple.

PERICARPIUM. *Capsulæ*, from 5 to 10, short, tapering to a point, expanding, keeled at both edges, opening at the upper seam.

SEEDS. Many, roundish, with an edging fixed to the upper seam.

POLYANDRIA
MONOGYNIA

CLASS XIII

ORDER 1

WHITE WATER-LILY

NYMPHÆA ALBA

The Blue Lotus of the Nile

NYMPHÆA CÆRULEA

XIII

POLYANDRIA

MONOGYNIA

Dwarf Cistus

CISTUS HELIANTHĔMUM

XIII

POLYANDRIA

MONOGYNIA

Red Horned-Poppy

CHELIDONĬUM CORNICULĀTUM

XIII

POLYANDRIA

MONOGYNIA

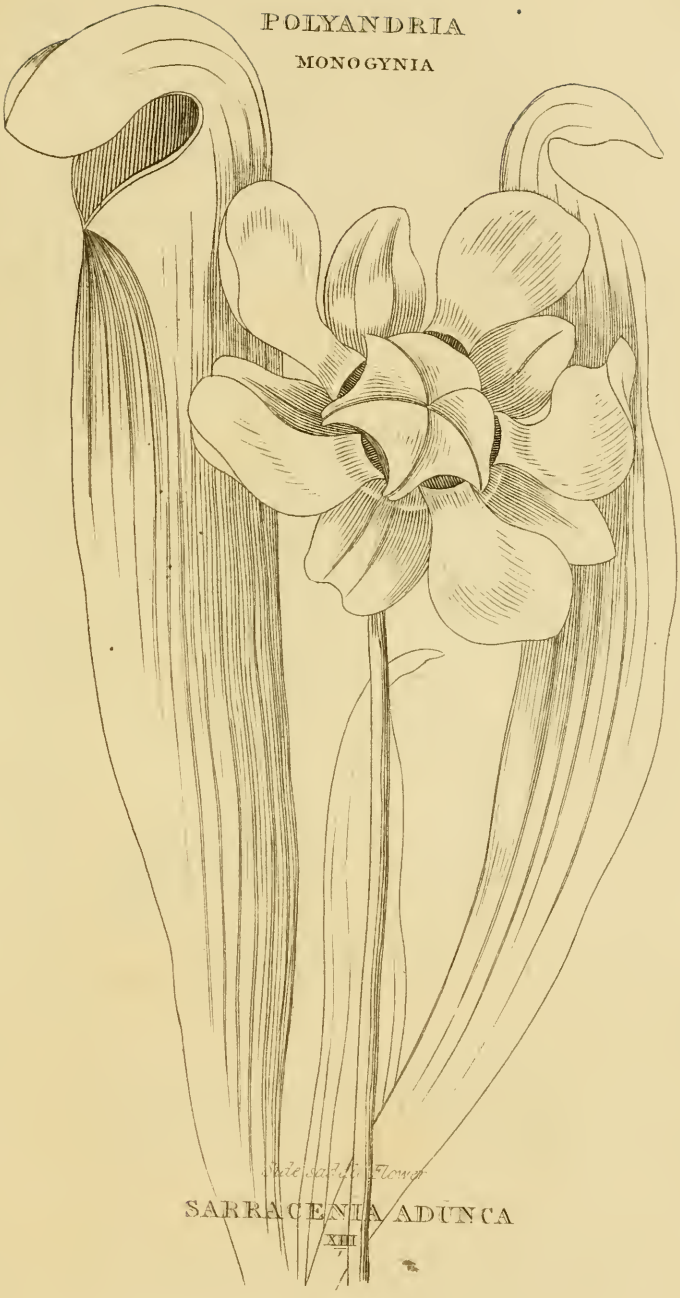
White Poppy

PAPAVER SOMNIFERUM

XIII

POLYANDRIA

MONOGYNIA



SARRACENIA ADUNCA

XIII

POLYANDRIA

DIGYNIA

CLASS XIII

ORDER 2

PÆONY

PÆONIA CORALLINA

POLYANDRIA
TRIGYNIA

CLASS XIII

ORDER 3

TEA TREE

THEA

POLYANDRIA

TRIGYNIA

Field Larkspur

DELPHINĬUM CONSOLIDA

XIII
3

POLYANDRIA
PENTAGYNIA

CLASS XIII

ORDER 5

COMMON COLUMBINE

AQUILEGĬA VULGĀRIS

POLYANDRIA

HEXAGYNIA

CLASS XIII

ORDER 6

WATER ALOE

STRATIŌTES ALOĪDES

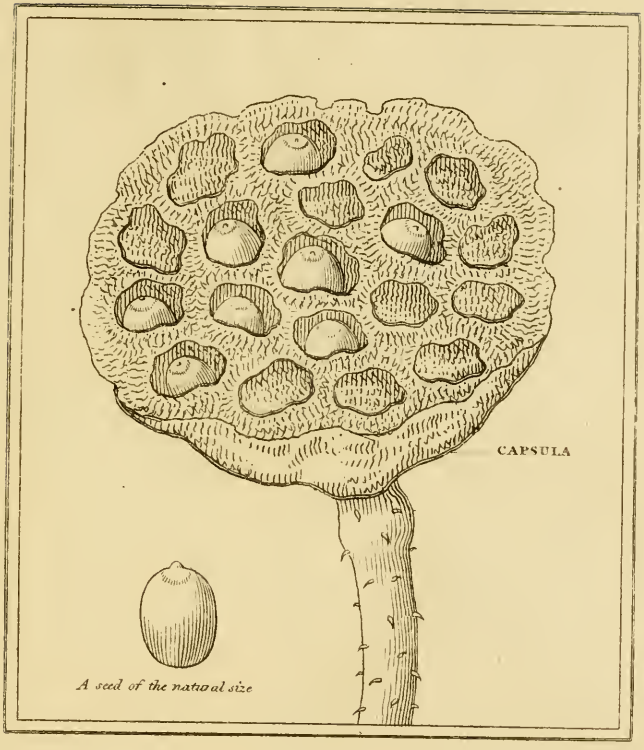
POLYANDRIA
POLYGYNIA

CLASS XIII

ORDER 7

EGYPTIAN BEAN-LILY

CYĂMUS NELŪMBO



A RIPE CAPSULA WITH SEEDS OF THE CYAMUS NELUMBO

POLYANDRIA

POLYGYNIA

Celery-leaved Crowfoot

RANUNCULUS SCELERATUS

XIII
7

POLYANDRIA

POLYGYNIA

Marsh Marigold

CĀLTHA PALŪSTRIS

XIII
7

DIDYNAMIA.

CLASS XIV.

FOUR STAMINA, 2 LONG AND 2 SHORT.

THIS CLASS HAS TWO ORDERS.

This Class contains most of the labiate, ringent, or personate flowers, as the Balm, Dead-nettle, Snap-dragon, Fox-glove, &c.

The Orders of this Class are named after the manner of producing their seeds. The first Order produces naked seeds at the bottom of a Calyx, usually four in number. The second Order produces seeds in a pod or capsula.[a]

ORDER I.

ORDER 1.
GYMNOSPERMIA.
Seeds exposed.

NEPETA.

Of the Genus Nepeta there is only one British species.

This plant is called Nepeta by Pliny; derived from *Nepa*, being supposed to be efficacious against the bite of a scorpion. Linnæus derives it from the name of a town in Italy between Rome and Viterbo.

[a] The plants which produce naked seeds are generally aromatic, whilst those of the second Order of this class, producing their seeds in a pod, are often of a poisonous nature.

ORDER 1.

GYMNOSPERMIA: Seeds exposed.

NEPETA CATAREA.

Nep, or Cat-mint.

Essential Generic and Specific Characters.

GEN. CH. *Corolla* with the middle segment of its lower lip crenate: orifice with a reflexed margin. *Stamina*, approaching each other.

SP. CH. *Flowers*, spiked; the whorls slightly pedunculated. *Leaves*, on foot-stalks, heart-shaped, dentato-serrated.

THIS plant grows wild about hedges and road-sides, in a chalky and gravelly soil, in various parts of England, though seldom very plentifully. It blossoms in the latter part of the summer.

Every part of this herb emits, when bruised, a pungent aromatic odor. Cats appear to be particularly fond of the scent. Whenever they meet with it they entirely destroy it, by chewing the young branches, and rolling themselves upon the plant as long as any scent remains. Cat-thyme, *Teucrium marum*, is another plant for which cats have a similar partiality.

GLECHOMA.

Of the Genus Glechoma there is only one known species.

The name is derived from γληχων, a plant in Dioscorides.

GLECHOMA HEDERACEA.

Ground-Ivy.

Essential Generic Character.

Gen. Ch. *Calyx*, 5 cleft, nearly regular. *Antheræ* approaching each other in pairs forming a cross.

This plant is common in dry groves about hedge banks, under park walls or pales, and similar situations, where it puts out its fragrant foliage on the first approach of spring, and blossoms in April and May.

An extract of the leaves of this plant has been long in use with the common people, as a remedy for many complaints: it is now but little prescribed by medical practitioners, but Ray gives a remarkable instance of its efficacy in removing a violent and inveterate head-ache by drawing the juice of the plant up the nostrils.

ORDER I.

GYMNOSPERMIA.
Seeds exposed.

TEUCRIUM.

Of the Genus Teucrium there are three British species. The name is derived from Teucer, son of Scamander, and father-in-law to Dardanus king of Troy.

TEUCRIUM SCORODONIA.

Wild Sage.

Essential Generic and Specific Characters.

Gen. Ch. Upper lip of the *Corolla* divided down below its base and divaricated. *Stamina* projecting above it.

Sp. Ch. *Leaves* heart-shaped, serrated, on foot-stalks. *Stem*, erect. Flowers leaning to one side, in lateral and terminal clusters.

This is a common English plant, the leaves of which in appearance somewhat resemble the garden sage, and when rubbed in the hand have the same scent as the Hop. In the island of Jersey it is said to be used in brewing as a bitter: I have known it used in Worcestershire for that purpose, dried and prepared like the Hop, in the proportion of twice the quantity, without any perceivable difference in the flavour of the beer. It grows wild by the sides of woods and hedges, and is in blossom in July and August.

VERBENA.

ORDER 1.

GYMNOSPERMIA.
Seeds exposed.

Of the Genus Verbena there is only this one British species.

The derivation of the name is very uncertain. In Greek it is called Ιεροβοταν̃η, the sacred herb, because bunches of it were suspended in lustrations; but this name was common to plants used in the sacred rites.

VERBENA OFFICINALIS.

Common Vervain.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, with 5 teeth, one of them shorter than the rest. *Corolla*, funnel-shaped, nearly equal, curved. *Stamina*, 2 or 4. *Seeds*, 2 or 4, enclosed in a thin tunic.

Sp. Ch. *Stamina*, 4. *Spikes*, slender, panicled. *Leaves*, deeply cut. *Stem*, mostly solitary.

This plant is not unfrequent in waste places about villages blossoming in July. It is the *Sagmina* of Livy, and in the first book of that historian there is a particular description of the use that was made of it to confirm and bind the treaties entered into by the ancient Romans on the return of peace with their hostile neighbours; and Pliny says expressly that *sagmina* and *verbena*

meant the same plant; which was also used by the ambassadors when they went to reclaim any thing that had been carried away by an enemy, and the person who had the particular office of carrying it was called *Verbenarius.*

ORDER 1. GYMNOSPERMIA. Seeds exposed.

THYMUS.

Of the Genus Thymus there are four British species. The name is Θομος in Theophrastus and Dioscorides; derived from Θυμος, courage, strength; being supposed to revive the spirits: or from Θυω, *sacrificio,* because it was used for incense in the temples.

THYMUS SERPYLLUM.

Wild Thyme.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* 2-lipped, its orifice closed with hairs. *Corolla,* the upper lip flat, notched.

Sp. Ch. *Flowers* in small heads. *Stems,* decumbent. *Leaves,* flat, ovate, obtuse; fringed at the base.

This plant abounds in dry and gravelly countries, and bees are fond of frequenting the flowers. It very much resembles common garden thyme in its scent, from whence

it has its English name. It is in blossom during the summer months.

In the province of St. Jago in Chili there is a plant of this Class and Order, supposed to be a species of wild Basil, *Ocimum salinum*,[b] resembling the common Basil so much as hardly to be distinguished from it, except that the flower-stem is round and jointed, and its scent and taste not like the Basil, but rather like that of a sea flag, or some marine plant. It is an annual, shooting forth in the spring, and continuing till the commencement of winter: every morning it is covered with hard and shining saline globules, resembling dew, which the countrymen shake off the leaves to serve them as common salt, and in some respects is thought to be of a superior quality. Every plant produces daily about half an ounce of this salt; but Molina, a scientific naturalist, to whom we are indebted for this information, says, that it is extremely difficult to account for this phenomenon, as the situation where he found these plants was in the most fertile

[b] *Ocimum fol. ovatis glabris, caule geniculato.*

ORDER 1. GYMNOSPERMIA. Seeds exposed.

part of the kingdom, and at a distance from the sea of more than seventy miles.[c]

When we see some plants secrete flint, separate and distinct from their fibres, as well as combined with their organic structure; and when we also know that plants secrete alcali in every situation, I cannot perceive why Molina should consider the contiguity of the sea to be essential to the production of a neutral salt in the *Ocimum salinum.*

British Plants of this Order.

Botanical Generic Names.		Common Names.
6	Ajuga	4 Bugle
6	Ballota	1 Black Horehound
7	Betonica	1 Betony
5	Clinopodium	1 Wild Basil
3	Galeobdolon	1 Yellow Dead-nettle
4	Galeopsis	4 Hemp-nettle
1	Glechoma	1 Ground-ivy
13	Lamium	5 Archangel
5	Leonurus	1 Mother-wort
11	Marrubium	1 White Horehound
2	Melittis	2 Bastard-Balm
19	Mentha[d]	13 Mint
20	Nepeta	1 Cat Mint
12	Origanum	1 Marjoram
3	Prunella	1 Self-heal

[c] This account I have translated from an Italian work, entitled *Saggio sulla storia naturale del Chile, del Signor Abate Gio. Ignazio Molina, p.* 139.

[d] *Mentha odorata* is the plant from which the Bergamotte of the shops is produced; and *Mentha piperita,* Pepper-mint-water.

Botanical Generic Names.	Common Names.
16 Scutellaria.....	2 Scull-cap
24 Stachys.....	5 Stachys
69 Teucrium.....	3 Germander
22 Thymus	4 Thyme
23 Verbena.....	1 Vervain

British Species figured in Sowerby's English Botany.

Ajŭga, 489, 477, 77, 1270. *Ballōta*, 46. *Betonĭca*, 1142. *Clinopodĭum*, 1401. *Galeobdŏlon*, 787. *Galeōpsis*, 884, 2353, 207, 667. *Glechōma*, 853. *Lamĭum*, 768, 769, 770, 1933, 2550. *Leonūrus*, 286. *Marrubĭum*, 410. *Melittis*, 577, 636. *Mēntha*, 686, 446, 2424, 687, 1025, 447, 2415, 1413, 2118, 449, 2119, 1026, 2120. *Nepĕta*, 137. *Origănum*, 1143. *Prunēlla*, 961. *Scutellarĭa*, 523, 524. *Stāchys*, 416, 1675, 829, 1154, 2089. *Teucrĭum*, 1543, 828, 680. *Thymus*, 1514, 411, 1676, 1414. *Verbēna*, 767.

ORDER II.

ORDER 2.

ANGIOSPERMIA. Seeds enclosed.

LINNÆA.

Of the Genus Linnæa there is only this one known species, which was named by Gronovius in honour of Linnæus.

LINNÆA BOREALIS.

Two-flowered Linnæa.

Essential Generic Character.

Gen. Ch. *Calyx*, double; that of the fruit 2-leaved; that of the flower in 5 divisions, superior. *Corolla*, bell-shaped. *Berry*, dry, 3-celled.

Linnæus borealis grows in dry, stony, mossy woods; it is found wild in the neigh-

ORDER 2. ANGIOSPERMIA. Seeds enclosed.

bourhood of Aberdeen, and blossoms in May and June. It is fragrant at night, and smells like the *Meadow-sweet*.

Linnæus found this plant as far north as Lulea, and in his Lapland Tour he has thus described it: "Though this flower is, not without reason, reckoned by every body of the regular kind, its stamina indicate the contrary. They are four as in labiate flowers, two small and two larger ones near the other side. Betwixt these the pistillum is placed, being bent towards the side as in labiate plants. The upper lip is therefore to be understood as consisting of two lobes, the lower of three, though all the lobes are alike." Linnæus, who seems to have had a particular partiality to it, traced a fanciful analogy between it and his own early fate—'a little 'northern plant, flowering early, depressed, 'abject, and long over-looked.'[d]

[d] Linnæus, the celebrated naturalist and founder of this system, was the son of a clergyman, born at Roeshult, in the province of Smaland in Sweden, in 1707. He studied physic at Leyden, and in 1735 took his doctor's degree, after which he settled at Stockholm. At the age of 34 he was appointed Professor of Physic and Botany in the university of Upsal. He also became physician to the king, who created him a knight of the polar star, and conferred on him a pension with a patent of nobility. He was the founder and first president of the academy of Stockholm,

ANTIRRHINUM.

Of the Genus Antirrhinum there are eight British species. Antirrhinum is derived from Ἀντίρρινον, by which name it is known in Theophrastus and Dioscorides.

ANTIRRHINUM LINARIA.

Toad-flax.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-leaved. *Corolla*, with a prominence at its base, pointing downwards and bearing honey. *Capsula*, 2-celled.

Sp. Ch. *Leaves*, linear-lanceolate, crowded. *Stem*, erect. *Spikes*, terminal. *Flowers*, imbricated. *Calyx*, smooth, shorter than the spur.

This plant is common on banks by road sides and in dry pastures; blossoming from July to September. This flower is a good example of a *personate* corolla; a term employed by Tournefort. The corolla of the *Glechoma* and *Teucrium* and those of a similar character he denominates *labiate* or lipped. Linnæus employs *ringens* to express both these kinds, not very aptly, by which,

and a member of several foreign societies. He travelled into Norway, Dalecarlia, Desert Lapland, Germany, Holland, France, and England, in eager pursuit of his favourite science. He died in 1778.

descriptions are sometimes confused: and I perfectly agree with professor Martyn that the confusion would be cleared up if the term *Labiate* might be permitted to express an irregular monopetalous corolla with two lips; and to appropriate the term *Ringent* to such as have the lips gaping or *open*, and *Personate*, to such as have them closed.

ORDER 2.
ANGIOSPERMIA.
Seeds enclosed.

SIBTHORPIA.

Of the Genus SIBTHORPIA there is only this one known species, which was named by Linnæus in honour of Humphrey Sibthorp, M. D. Professor of Botany at Oxford.

SIBTHORPIA EUROPÆA.

Cornish Money-wort.

Essential Generic Character.

GEN. CH. *Calyx*, in 5 divisions. *Corolla*, 5-cleft irregular. *Stamina*, approaching each other in pairs. *Capsula*, compressed, inversely heart-shaped, of 2 cells with transverse partitions.

THIS plant is a native of Devonshire and Cornwall, and grows in shady places chiefly about springs: it is perennial and blossoms from June till August.

In this Order the Acanthus is placed; an herbaceous plant, of ornamental foliage, often

alluded to by the ancient poets,[e] and from which Callimachus, a Greek architect, is said to have invented the Corinthian capital, suggested to him by accidentally finding it, growing round a basket covered with a tile.

British Plants of this Order.

Botanical Generic Names.	Common Names.
52 ANTIRRHINUM.....	8 SNAP-DRAGON
5 BARTSIA	3 BARTSIA
12 DIGITALIS	1 FOX-GLOVE
9 EUPHRASIA.....	1 EYE-BRIGHT
4 LATHRÆA.....	1 TOOTH-WORT
2 LIMOSELLA.....	1 MUD-WORT
1 LINNÆA	1 LINNÆA
5 MELAMPYRUM	4 COW-WHEAT
14 OROBANCHE	6 BROOM-RAPE
19 PEDICULARIS	2 LOUSE-WORT
8 RHINANTHUS	1 PENNY-GRASS
22 SCROPHULARIA.....	4 FIG-WORT
1 SIBTHORPIA	1 CORNISH MONEY-WORT

[e] Et nobis idem Alcimedon duo pocula fecit,
Et molli circum est ansas amplexus acantho;
Ecl. iii. v. 44.

Virgil also mentions an Acanthus, which was an Acacia-tree, supposed to be the *Mimosa nilotica* of Linnæus, the same tree which produces the gum Arabic. It is alluded to in Ecl. iv. v. 20. Georg. ii. v. 119, and a figure of it is inserted in a new Edition of Martyn's Virgil, plate 24.

ORDER 2.

ANGIOSPERMIA.

Seeds enclosed.

British Species figured in Sowerby's English Botany.

Antirrhīnum, 502, 691, 692, 1253, 658, 2014, 129, 1155. *Bartsĭa*, 361, 1045, 1415. *Digitālis*, 1297. *Euphrasĭa*, 1416. *Lathræa*, 50. *Limosĕlla*, 357. *Linnæa*, 433. *Melampyrum*, 41, 53, 113, 804. *Orobānche*, 421, 568, 422, 423, 184, 1786. *Pediculāris*, 399, 400. *Rhinānthus*, 657. *Scrophularĭa*, 1544, 854, 2209, 567. *Sibthorpĭa*, 649.

The different Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

ORDER 1.

GYMNOSPERMIA. Seeds naked and exposed.

Botanical Description of the Genus NEPETA.

CALYX. *Perianthium,* 1-leaf, tubular, cylindrical; *mouth* with 5 teeth, acute, erect, *upper teeth,* the longest, the *lower,* most expanded.

COROLLA. *Petal,* 1, gaping. *Tube,* cylindrical, crooked; *border,* open. *Mouth,* expanding, heart-shaped, terminated by 2 very short, reflected, blunt segments. *Upper lip,* erect, circular, notched at the end. *Lower lip,* circular, concave, larger, entire, a little scallopped at the edge.

STAMINA. *Filaments,* 4, 2 long and 2 short, awl-shaped, approaching, covered by the upper lip. *Antheræ,* fixed sidewise.

PISTILLUM. *Germen,* with 4 clefts. *Style,* thread-shaped, agreeing in length and situation with the stamina. *Stigma,* cloven, acute.

PERICARPIUM. None. The perianthium standing erect contains the seeds.

SEEDS. Four, somewhat egg-shaped.

*** If the segments of the mouth be reckoned as a part of the lower lip, that lip must then be considered as having 3 divisions. LINN.

ORDER 1.
GYMNOSPERMIA.
Seeds naked and exposed.

Botanical Description of the Genus GLECHOMA.

Calyx. *Perianthium,* 1 leaf, tubular, cylindrical, scored, very small, permanent, *rim,* with 5 clefts, segments unequal, tapering to a point.

Corolla. *Petal,* 1, gaping. *Tube,* slender, compressed. *Upper lip* erect, obtuse with a shallow cleft. *Lower lip,* expanding, large, obtuse, with 3 segments, the middle one largest, and notched at the end.

Stamina. *Filaments,* 4, 2 long and 2 short, covered by the upper lip. *Antheræ,* of each pair of stamina approaching so as to form a cross.

Pistillum. *Germen,* cloven into 4. *Style,* thread-shaped, leaning under the upper lip. *Stigma,* cloven, acute.

Pericarpium. None. The seeds at the bottom of the calyx.

Seeds. Four, egg-shaped.

ORDER 1.
GYMNOSPERMIA.
Seeds naked and exposed.

Botanical Description of the Genus TEUCRIUM.

Calyx. *Perianthium,* 1 leaf, with 5 shallow clefts, nearly equal, acute, bulging on one side of the base, permanent.

Corolla. *Petal,* 1, gaping. *Tube,* cylindrical short, ending in a crooked mouth. *Upper lip,* erect, acute, deeply divided, even lower than its base, *segments,* standing wide. *Lower lip* with 3 clefts, expanding, *lateral segments,* a little erect, of the shape of the upper lip, the *middle* one large, circular.

Stamina. *Filaments* 4, awl-shaped, longer than the upper lip of the blossom, and projecting between its segments. *Antheræ,* small.

Pistillum. *Germen,* with 4 divisions. *Style,* thread-

shaped, agreeing in size and situation with the stamina. *Stigmata,* 2, slender.

Pericarpium. None. The *Calyx* remaining unchanged, contains the seeds within it.

Seeds. Four, roundish.

*** The very deep division of the upper lip of the blossom, and its segments so wide apart, give the appearance of a flower without any upper lip. The *Teucrium Chamædrys* has a tubular calyx, and bears its flowers in the bosom of the leaves. Linn.

Botanical Description of the Genus VERBENA.

ORDER 1.

GYMNOSPERMIA. Seeds naked and exposed.

Calyx. *Perianthium,* 1, leaf angular, tubular, slender, permanent with 5 teeth, one of the teeth lopped.

Corolla. *Petal,* 1, unequal. *Tube,* cylindrical, straight, as long as the perianthium, dilated, and bowed inward towards the top. *Border,* expanding, with 5 shallow clefts. *Segments,* rounded, nearly equal.

Stamina. *Filaments,* 4, like bristles, very short concealed within the tube of the corolla, 2 of them longer. *Antheræ,* crooked.

Pistillum. *Germen,* 4-cornered. *Style,* simple, thread-shaped as long as the tube. *Stigma,* blunt.

Pericarpium. Very fine and thin, but generally none, the perianthium containing the seeds.

Seeds. Two or four, oblong.

*** Linnæus put this Genus in the Class *Diandria,* because some of the species have only two stamina, but as the species found with us has uniformly four, and its structure in other respects agreeing with the plants of this Class it is introduced here, where the English Botanist would expect to find it.

ORDER 1.
GYMNOSPERMIA.
Seeds naked and exposed.

Botanical Description of the Genus THYMUS.

CALYX. *Perianthium,* 1 leaf, tubular, cloven half way down into 2 lips, permanent. *Mouth,* closed by soft hairs. *Upper lip,* broader, flat, erect, with 3 teeth. *Lower lip,* with 2 bristles, of equal length.

COROLLA. *Petal,* 1, gaping. *Tube,* as long as the perianthium. *Mouth,* small. *Upper lip,* short, flat, erect, notched at the end, blunt. *Lower lip,* long, expanding, broader, with 3 segments, blunt; *middle segment,* broadest.

STAMINA. *Filaments,* 4, 2 long and 2 short, crooked. *Antheræ,* small.

PISTILLUM. *Germen,* with 4 divisions. *Style,* thread-shaped. *Stigma,* cloven, acute.

PERICARPIUM. None. The perianthium becoming narrow at the neck, encloses the seeds.

SEEDS. Four, small, roundish.

ORDER 2.
ANGIOSPERMIA.
Seeds enclosed.

Botanical Description of the Genus LINNÆA.

CALYX. *Perianthium,* double.

Calyx of the *Fruit* beneath, 4-leaved; 2 leaflets opposite, very small, acute, the other 2 elliptical, concave, erect, rough with hairs, embracing the germen, converging, permanent.

Calyx of the *Flowers* superior, of 1 leaf with 5 divisions, erect, slender, acute, equal.

COROLLA. *Petal,* 1, bell-shaped, with 5 shallow clefts, obtuse, nearly equal, twice the size of the calyx.

STAMINA. *Filaments,* 4, awl-shaped, fixed to the bottom of the blossom, 2 very small, the other 2 near together, longer, but shorter than the blossom. *Antheræ,* compressed, vane-like.

PISTILLUM. *Germen,* roundish, beneath. *Style,* thread-shaped, straight, leaning, as the blossom. *Stigma,* globular.

PERICARPIUM. *Berry,* juiceless, egg-shaped, 3-celled,

covered by the rough hairy glutinous calyx of the fruit, deciduous.

SEEDS. Two, roundish.

Botanical Description of the Genus ANTIRRHINUM.

ORDER 2. ANGIOSPERMIA. Seeds enclosed.

CALYX. *Perianthium*, with 5 divisions permanent. *Segments*, oblong, the 2 *lower*, more expanding.

COROLLA. *Petal*, 1, gaping. *Tube*, oblong, bulging; *border* with two lips. *Upper lip*, cloven, reflected sideways. *Lower lip*, with 3 clefts, obtuse. *Palate*, convex, mouth generally closed by a projection of the lower lip, which is channelled on the under side.

Nectarium, projecting backwards from the base of the corolla.

STAMINA. *Filaments*, 4, 2 short and 2 long, nearly as long as the corolla, and enclosed by the upper lip. *Antheræ*, approaching.

PISTILLUM. *Germen*, roundish. *Style*, simple, agreeing in length and situation with the stamina. *Stigma*, obtuse.

PERICARPIUM. *Capsula*, roundish, obtuse, cells 2. Figure and manner of opening, different in different species.

SEEDS. Many. *Receptaculum*, kidney-shaped, solitary, fixed to the partition.

*** The *nectarium* and the *seed-vessel* differ greatly in different species. In some, the nectarium is long and awl-shaped and the seed-vessel opens equally. In others, the nectarium is obtuse, scarcely protuberating; the capsula unequal at the base, opening at the top obliquely; in others, still different.

Botanical Description of the Genus SIBTHORPIA.

ORDER 2. ANGIOSPERMIA. Seeds enclosed

CALYX. *Perianthium*, 1 leaf, turban-shaped, with 5 divisions, expanding; *leaflets*, egg-shaped, permanent.

ORDER 2.
ANGIOSPERMIA.
Seeds enclosed.

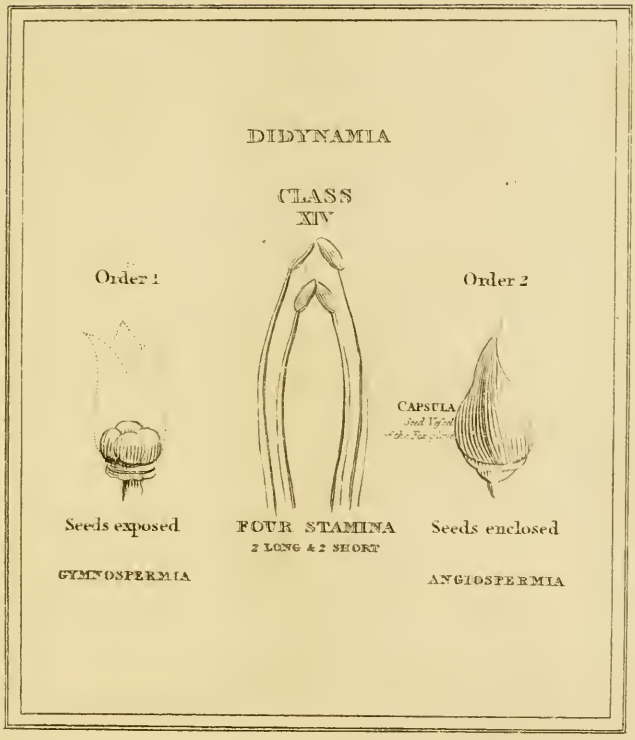
COROLLA. *Petal,* 1, with 5 divisions, expanding, equal, as long as the perianthium. *Segments,* rounded.

STAMINA. *Filaments,* 4, hair-like, 2 of them approaching. *Antheræ,* heart-oblong.

PISTILLUM. *Germen,* roundish, compressed. *Style,* cylindrical, thicker than the filaments, as long as the corolla. *Stigma,* a simple knob, depressed.

PERICARPIUM. *Capsula,* compressed, round and flat, inflated on each side, edges, acute, valves 2, cells 2, partition transverse.

SEEDS. Several, roundish, oblong, convex on one side, flat on the other. *Receptaculum,* globular, fixed to the middle of the partition.



THE CHARACTER OF THE CLASS & ORDERS OF
CLASS XIV

DIDYNAMIA

GYMNOSPERMIA

CLASS XIV

ORDER 1

CAT-MINT

NEPĔTA CATARĬA

DIDYNAMIA

GYMNOSPERMIA

Ground-Ivy

GLECHOMA HEDERACEA

XIV
7

DIDYNAMIA

GYMNOSPERMIA

TEUCRIUM SCORODONIA

XIV

VERBENA OFFICINALIS

XIV

Wild Thyme

THYMUS SERPYLLUM

XIV

DIDYNAMIA

ANGIOSPERMIA

CLASS XIV

ORDER 2

TWO-FLOWERED LINNÆA

LINNÆA BOREĀLIS

DIDYNAMIA

ANGIOSPERMIA

Toad-flax

ANTIRRHĪNUM LINARĬA

XIV
2

DIDYNAMIA

ANGIOSPERMIA

Cornish Money-wort

SIBTHORPIA EUROPÆA

XIV
2

TETRADYNAMIA.

CLASS XV.

SIX STAMINA, 4 LONG AND 2 SHORT.

THIS CLASS HAS TWO ORDERS.

The Orders of this Class, like the former, are named after the manner of producing their seeds. The first Order has its seeds in a short or roundish pod, or pouch. The second Order has its seeds contained in a very long pod.

All the plants of this Class possess similar virtues; they are termed acrid and antiscorbutic in their raw state, as Mustard and Water-cress; when cultivated and boiled, they become a mild wholesome food, as Cabbage, Turnip, &c.

The flowers of this tribe of plants are called *cruciformed*, from their having four petals, which make a fanciful resemblance to a Greek cross.

ORDER 1.

SILICULOSA. Seeds in a short Pod.

ORDER I.

IBERIS.

Of the Genus Iberis there are two British species. The Genus is named Ιβερις by Dioscorides, and the name is supposed to be derived from *Iberia,* its place of natural growth.

IBERIS AMARA.

Bitter Candy-tuft.

Essential Generic and Specific Characters.

Gen. Ch. *Corolla,* irregular, the 2 external petals being longest and largest. *Pouch,* with many seeds, notched.

Sp. Ch. *Stem,* herbaceous. *Leaves,* lanceolate, pointed, a little indented. *flowers,* racemose.

This plant is an annual, and grows wild in great plenty in the neighbourhood of Wallingford in Berkshire. It is hardy, and its beauty has procured it a place in our gardens, where Sir James Edward Smith observes that it grows much more luxuriantly than in its native chalky soil. It blossoms in July, and the whole herb is nauseously bitter. The Genus *Iberis* is unique in its natural Order in having unequal petals.

DRABA.

Or the Genus Draba there are five British species. Draba is a name in Dioscorides: according to Linnæus, derived from δριμύς, acrid.

DRABA VERNA.

Common Whitlow-grass.

Essential Generic and Specific Characters.

Gen. Ch. *Pouch,* entire, long oval: valves flattish, parallel to the partition. *Style,* scarcely any.

Sp. Ch. *Stalks,* naked. *Petals,* cloven. *Leaves,* lanceolate, hairy, slightly cut.

On the tops of walls and on dry banks this Draba is common, putting forth its delicate blossoms in the month of March. I first noticed it growing in the wall of the Botanic Garden in Oxford; and, from numerous associations, if I have a favourite plant, this, which I first Botanically knew, may be said to be mine.

ORDER I.
SILICULOSA.
Seeds in a short Pod.

SUBULARIA.

Of the Genus SUBULARIA there is only this one known species. It is so named from its awl-shaped leaves.

SUBULARIA AQUATICA.

Awl-wort.

Essential Generic Character.

GEN. CH. *Pouch,* entire, elliptical; valves elliptical, concave, contrary to the partition. *Style,* shorter than the pouch.

THIS little plant is an annual, and seldom exceeds two inches in height. It is found at the bottom of lakes in Ireland, Scotland, and Wales, always immersed in the water. At first sight it might be mistaken for a *Draba,* but an essential difference is found in the partition, being contrary to the valves, and not parallel with them as in that Genus. It blossoms in July.

ISATIS.

Of the Genus Isatis there is only one British species. By Dioscorides it is called Ισατις, and by Pliny, Isatis: but its primary derivation is not known.

ISATIS TINCTORIA.

Dyers' Woad.

Essential Generic and Specific Characters.

Gen. Ch. *Pouch*, lanceolate, 1-celled, single-seeded, deciduous, with 2 boat-like valves.

Sp. Ch. *Radical leaves*, crenated, *stem leaves*, arrow-shaped. *Pouch*, oblong.

This plant has been supposed not to be indigenous to this country, because it is always found with us in and about cultivated fields, and, according to Linnæus, it is a maritime plant; but from Pliny we learn that the ancient Britons painted their bodies with it; at least, from his description, it would seem to be the same; if so, it must be considered as a native British plant.

Woad is much used by dyers for its blue colour, and it is the basis of black and many other colours.

Queen Elizabeth took offence at the scent of this herb, and on that account, it

ORDER I. SILICULOSA. Seeds in a short Pod.

is said, she issued an edict prohibiting its cultivation.[d]

According to Hakluyt we were dependent upon France for it in 1576, but in 1582 he says, "Thus was Woad brought in, and came to good perfection, to the great loss of the French, our old enemies."

British Plants of this Order.

Botanical Generic Names.		Common Names.
17	ALYSSUM	2 MADWORT
9	BUNIAS	1 SEA ROCKET[e]
8	COCHLEARIA	4 SCURVY-GRASS
2	CORONOPUS	2 WART-CRESS
6	CRAMBE	1 COALWORT
9	DRABA	5 WHITLOW-GRASS
14	IBERIS	2 CANDYTUFT[f]
5	ISATIS	1 WOAD
23	LEPIDIUM	3 PEPPER-WORT
1	SUBULARIA	1 AWL-WORT
14	THLASPI	6 BASTARD-CRESS
2	VELLA	1 CRESS-ROCKET

British Species figured in Sowerby's English Botany.

Alyssum, 1254, 1729. *Bunĭas*, 231. *Cochlearĭa*, 551, 552, 696, 2323. *Coronŏpus*, 1660, 245. *Crāmbe*, 924. *Drāba*, 586, 1338, 388, 912, 1271. *Ibēris*, 52, 327. *Isātis*, 97. *Lepidĭum*, 111, 182, 1595. *Subularĭa*, 732. *Thlāspi*, 1659, 1385, 1803, 2354, 81, 1485. *Vēlla*, 1442.

[d] See Townsend's Journals, p. 259, and Stow's Annals.

[e] In the Hortus Kewensis this species of the Genus Bunias is made to belong to a separate Genus, constituted from its Botanical specific name, and called *Cakile maritima*.

[f] The *Hortus Kewensis* makes two Genera of these two pecies IBERIS and TEESDALIA.

ORDER II.

ORDER 2.
SILIQUOSA.
Seeds in a long Pod.

DENTARIA.

Of the Genus Dentaria there is only this one British species. It is named Dentaria from the toothed form of the root.

DENTARIA BULBIFERA.

Bulbiferous Coral-wort.

Essential Generic and Specific Characters.

Gen. Ch. *Pod,* bursting elastically, the valves rolling back. *Stigma,* notched. *Calyx-leaves,* connected longitudinally.

Sp. Ch. *Lower leaves,* pinnated; the uppermost, simple.

This is a rare plant: it is found wild in few parts of England; it grows in Buckinghamshire in shady places and on the high rocks at Tunbridge wells. In the bosom of most of the leaves stands a solitary bud, or bulb, which falling off, vegetates in the ground, and by this mean the plant is plentifully propagated. Its seeds are rarely ever perfected, as is common with plants that increase much by the root. It blossoms early in May.

ORDER 2.

SILIQUOSA. Seeds in a long Pod.

CHEIRANTHUS.

Of the Genus Cheiranthus there are three British species. Linnæus derives the name from χείρ, a hand, and ἄνθος, a flower.

CHEIRANTHUS FRUTICULOSUS.

Wild Wall-flower.

Essential Generic and Specific Characters.

Gen. Ch. *Germen,* with a glandular tooth on each side. *Calyx,* closed; 2 of its leaves gibbous at the base. *Seeds,* flat.

Sp. Ch. *Leaves,* lanceolate, acute, hoary beneath. Pubescence, all simple and close-pressed. *Stem,* somewhat shrubby. *Branches,* angular.

This plant is common in old ruined walls of cities, castles, and monasteries, and is supposed to be indigenous to Great Britain. By Ray it is called *Leucojum luteum.* It is thought to be the *Pallens viola* of Virgil;[g] and the late Professor Martyn has bestowed much learning to illustrate that opinion. It blossoms in April and May.

g *Eclogue ii. v.* 47.

TURRITIS.

Of the Genus Turritis there are three British species. The derivation of Turritis appears to be uncertain, but it is said to be from *turris* a tower, because, according to Linnæus, it is tall and narrow.

TURRITIS GLABRA.

Smooth Tower-Mustard.

Essential Generic and Specific Characters.

Gen. Ch. *Pod,* very long, straight, somewhat angular. *Calyx,* closed, erect. *Corolla,* erect.

Sp. Ch. *Radical leaves,* toothed, rough, the rest entire, embracing the stem, smooth.

This plant thrives best in a dry gravelly soil, and blossoms in May and June. The root is annual; the stem, which is round, leafy, and simple, is much taller than the *Turritis hirsuta,* being more than two feet in height.

The Genus *Turritis,* Sir James Edward Smith observes, is scarcely to be distinguished from *Arabis* either by its natural habit or technical characters.

British Plants of this Order.

Botanical Generic Names.		Common Names.
15	Arabis	4 Wall-cress
16	Brassica	5 Cabbage
18	Cardamine	5 Cardamine
22	Cheiranthus	3 Wall-flower

ORDER 2.
SILIQUOSA. Seeds in a long Pod.

4	DENTARIA.....	1 CORAL-WORT
8	ERYSIMUM	5 HEDGE-MUSTARD
7	HESPERIS	1 ROCKET
6	RAPHANUS.....	2 RADISH
19	SINAPIS.....	3 MUSTARD
53	SISYMBRIUM.....	9 WILD-ROCKET
8	TURRITIS	3 TOWER-MUSTARD

British Species figured in Sowerby's English Botany.

Arăbis, 901, 614, 469, 178. *Brassĭca*, 1804, 2234, 2146, 2176, 637. *Cardamĭne*, 2355, 80, 492, 776, 1000. *Cheirānthus*, 1934, 462, 1935. *Dentarĭa*, 309. *Erysĭmum*, 735, 443, 1129, 796, 942. *Hespĕris*, 731. *Raphănus*, 856, 1643. *Sinăpis*, 1748, 1677, 969. *Sisymbrĭum*, 855, 2324, 1747, 1840, 525, 962, 963, 1631, 1090. *Turrītis*, 777, 587, 1746.

The different Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

Botanical Description of the Genus IBERIS.

ORDER 1.
SILICULOSA. Seeds in a short Pod.

CALYX. *Perianthium,* 4 leaves; *leaflets* inversely egg-shaped, concave, expanding, small, equal, deciduous.

COROLLA. *Petals,* 4, unequal; *petals,* inversely egg-shaped, obtuse, expanding, the 2 *outer* ones much larger, equal, the 2 *inner* small, reflected. *Claws,* oblong, erect.

STAMINA. *Filaments,* 6, awl-shaped, erect, the 2 lateral ones shortest. *Antheræ,* roundish.

PISTILLUM. *Germen,* roundish, compressed. *Style,* simple, short. *Stigma,* blunt.

PERICARPIUM. *Pouch,* erect, nearly circular, compressed, notched at the end, encompassed by an acute border. *Cells,* 2. *Partition,* spear-shaped. *Valves,* boat-shaped, keeled, compressed.

SEEDS. Several, somewhat egg-shaped.

Botanical Description of the Genus DRABA.

ORDER I.
SILICULOSA. Seeds in a short Pod.

CALYX. *Perianthium,* 4 leaves, *leaflets,* egg-shaped, concave, erect, but expanding, deciduous.

COROLLA. 4 *Petals,* deciduous, forming a cross, *petals* oblong, rather expanding. *Claws,* very minute.

STAMINA. *Filaments* 6, as long as the perianthium, 4 opposite ones a little longer than the other 2, erect, expanding. *Antheræ,* expanding.

PISTILLUM. *Germen,* egg-shaped. *Style,* hardly any. *Stigma,* a flat knob.

PERICARPIUM. *Pouch,* oval, oblong, compressed, entire, without a style. *Cells* 2. Partition parallel to the valves; *valves* flat, but slightly concave.

SEEDS. Many, small, roundish.

*** In some species of this Genus the petals are divided down to the base, in others they are only notched at the end, and in others they are quite entire. The essential character consists in the pouch being oval-oblong, compressed, and almost without a style. These circumstances readily distinguish it from the Alyssum, the Subularia, and the Lunaria. LINN.

ORDER 1.
SILICULOSA. Seeds in a short Pod.

Botanical Description of the Genus SUBULARIA.

CALYX. *Perianthium,* 4 leaves; *leaflets,* egg-shaped, concave, a little expanding, deciduous.

COROLLA. *Petals,* 4, forming a cross. *Petals,* inversely egg-shaped, entire, rather larger than the perianthium.

STAMINA. *Filaments,* 6, shorter than the corolla, the 2 standing opposite still shorter. *Antheræ,* simple.

PISTILLUM. *Germen,* egg-shaped. *Style,* shorter than the pouch. *Stigma,* blunt.

PERICARPIUM. *Pouch,* egg-shaped, somewhat compressed, entire, furnished with a very short style. *Cells,* 2. *Partition,* placed in a contrary direction to the valves, which are egg-shaped and concave.

SEEDS. Several, very minute, roundish.

ORDER 1.
SILICULOSA. Seeds in a short Pod.

Botanical Description of the Genus ISATIS.

CALYX. *Perianthium,* 4 leaves; *leaflets,* egg-shaped, rather expanding, coloured, deciduous.

COROLLA. *Petals*, 4, forming a cross. *Petals*, oblong, blunt, expanding, gradually tapering into claws.

STAMINA. *Filaments*, 6, erect, but expanding as long as the corolla, but 2 of them shorter. *Antheræ*, oblong, lateral.

PISTILLUM. *Germen*, oblong, 2-edged, compressed, as long as the shorter stamina. *Style*, none. *Stigma*, a blunt knob.

PERICARPIUM. *Pouch*, oblong-spear-shaped, blunt, compressed, 2-edged, with 1 cell, not opening. *Valves*, 2, boat-shaped, compressed, keeled, deciduous.

SEED. Single, egg-shaped, in the centre of the pericarpium.

Botanical Description of the Genus DENTARIA.

ORDER 2. SILIQUOSA. Seeds in a long Pod.

CALYX. *Perianthium*, 4 leaves; *leaflets* egg-oblong, approaching towards the top, blunt, deciduous.

COROLLA. *Petals*, 4, forming a cross; *Petals*, circular, obtuse, very slightly notched at the end, flat, ending in *claws* as long as the calyx.

STAMINA. *Filaments*, 6, awl-shaped, as long as the calyx, 2 of them shorter. *Antheræ*, heart-oblong, erect.

PISTILLUM. *Germen*, oblong, the length of the stamina. *Style*, very short and thick. *Stigma*, obtuse, notched at the end.

PERICARPIUM. *Siliqua*, long, cylindrical; *cells* 2; *valves* 2, opening with a jerk, and the valves rolling back; *partition*, rather longer than the valves.

SEEDS. Many, somewhat egg-shaped.

Botanical Description of the Genus CHEIRANTHUS.

ORDER 2. SILIQUOSA. Seeds in a long Pod.

CALYX. *Perianthium*, 4, leaves, compressed; *leaflets*, spear-shaped, concave, erect, parallel, but approaching

ORDER 2. SILIQUOSA, Seeds in a long Pod.

towards the top, deciduous, the 2 *outer*, bulging at the base.

COROLLA. *Petals*, 4, forming a cross. *Petals*, circular, longer than the perianthium; *claws*, as long as the perianthium.

STAMINA. *Filaments*, 6, awl-shaped, parallel, as long as the perianthium, 2 of them shorter and bulging at the base within the perianthium. *Antheræ*, erect, cloven at the base, acute, and reflected at the top.

A *Nectariferous Gland* surrounding the base of the short stamen on each side.

PISTILLUM. *Germen*, prism-shaped, with 4 edges, as long as the stamina, with a small tubercle on each side of the base. *Style*, very short, compressed. *Stigma*, oblong, divided, reflected, thick, permanent.

PERICARPIUM. *Pod*, long, compressed, the 2 opposite angles obliterated and marked with a little tooth; *cells* 2, valves 2, furnished with a very short style, and an erect cloven stigma.

SEEDS. Many, pendant, alternate, somewhat egg-shaped, compressed with a membranaceous border.

*** The little tooth on each side of the Germen in some species, almost disappears, in others it grows larger. In the *Cheiranthus tricuspidatus*, the top has 3 points at the end. LINN.

ORDER 2. SILIQUOSA. Seeds in a long Pod.

Botanical Description of the Genus

TURRITIS.

CALYX. *Perianthium*, 4 leaves; *leaflets* egg-oblong, parallel, but approaching towards the top, deciduous.

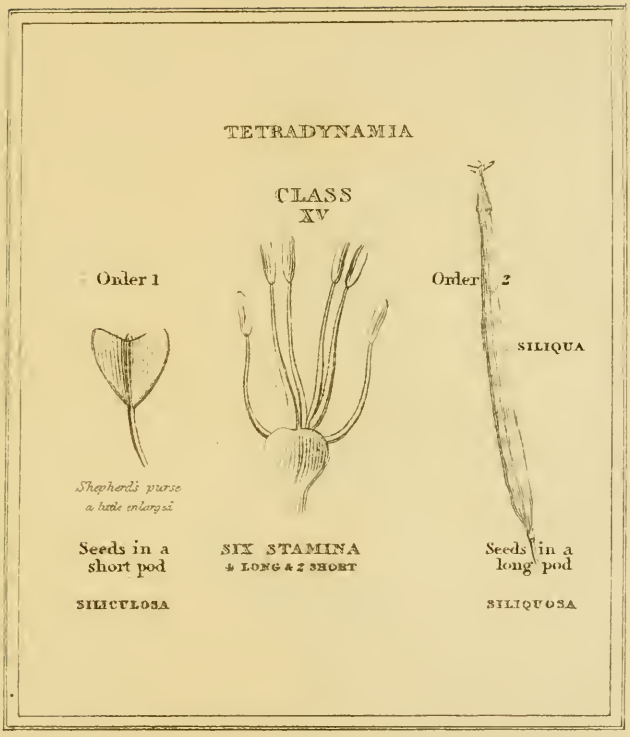
COROLLA. Four *petals*, forming a cross. *Petals*, egg-oblong, obtuse, erect, entire. *Claws*, erect.

STAMINA. *Filaments*, 6, awl-shaped, erect, as long as the tube, 2 of them shorter. *Antheræ*, simple.

PISTILLUM. *Germen* as long as the corolla, cylindrical, a little compressed. *Style*, none. *Stigma*, obtuse.

PERICARPIUM. *Pod*, exceedingly long, stiff and straight, with 4 edges, but 2 of the edges which are opposite, almost obliterated and somewhat compressed. *Cells* 2, *valves* 2, rather shorter than the partition.

SEEDS. Very numerous, roundish, notched at the end.



THE CHARACTER OF THE CLASS & ORDERS OF
CLASS XV

TETRADYNAMIA
SILICULOSA

CLASS XV

ORDER 1

BITTER CANDY-TUFT

IBĒRIS AMĀRA

TETRADYNAMIA

SILICULOSA

Common Whitlow-grass

DRĀBA VĒRNA

$\frac{V^r}{7}$

TETRADYNAMIA

SILICULOSA

Awl-wort

SUBULARIA AQUATICA

XV

TETRADYNAMIA

SILICULOSA

ISATIS TINCTORIA

XV.

TETRADYNAMIA
SILIQUOSA

CLASS XV

ORDER 2

BULBIFEROUS CORAL-WORT

DENTARĬA BULBIFĔRA

TETRADYNAMIA

SILIQUOSA

Wild Wall-Flow.r

CHEIRANTHUS FRUTICULOSUS

$\frac{N}{2}$

TETRADYNAMIA

SILIQU

TURRITIS GLĀBRA

XV

MONADELPHIA.

CLASS XVI.

ALL THE FILAMENTS OF THE STAMINA UNITED INTO ONE TUBE.

THIS CLASS HAS EIGHT ORDERS.

ORDER I.

No British Plant of this Order.

SISYRINCHIUM.

Of the Genus SISYRINCHIUM there is no British species. It is named *Sisyrinchium* by Pliny, and Σισυριγχιον by Theophrastus; derived from ὑς, a swine, and ρυγχος, a snout. Swine's snout: from the form of the flower.

SISYRINCHIUM BERMUDIANA.

Iris-leaved Sisyrinchium.

Essential Generic and Specific Characters.

GEN. CH. *Calyx, Spatha,* 2-leaved. *Petals,* 6, almost equal. *Style,* none. *Capsula,* 3-celled, inferior.

SP. CH. *Stem, Scapus,* ancipital, branched leafy, *Spatha,* sub-quadriflorous, shorter than the flowers; *petals,* mucronate, *leaves,* ensiform.

THIS plant is a native of the Burmudian Islands; it grows from one to two feet and

a half in height, and blossoms from May till the end of July.

ORDER 2.

PENTANDRIA.
Five Stamina.

ORDER II.

HERMANNIA.

Of the Genus Hermannia there is no British species. This name was given by Tournefort, in memory of the celebrated Paul Hermann, who practised physic in Ceylon and at the Cape of Good Hope, and was afterwards professor of Botany at Leyden.

HERMANNIA ALTHÆIFOLIA.

Marsh-Mallow-leaved Hermannia.

Essential Generic and Specific Characters.

Gen. Ch. *Styles*, 5, *Petals*, semi-tubular at the base, oblique.

Sp. Ch. *Leaves*, ovate, crenate, plaited, tomentose. *Flowering calyces*, bell-shaped, angular, *stipulæ*, oblong, leafy.

This plant is a native of the Cape. It is of free growth, and produces flowers during most of the summer months. It bears its flowers in pairs, and the corollas are twisted, and, as I have before remarked, page 180, always contrary to each other. Of this Order Sir James Edward Smith makes the

Genus *Erodium*, of which, in his Flora Britannica, he describes three species figured in the English Botany under the numbers 646, 902, 1768.

ERODIUM.

ORDER 2.

PENTANDRIA. Five Stamina.

Of this Genus there are three British species.

The name is derived from Ερωδιος, a Heron, from the character of the beak of the fruit.

ERODIUM CICUTARIUM.

Hemlock Storks'-bill.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-leaved. *Petals*, 5. *Honey-glands*, 5. *Barren filaments*, 5. *Fruit*, beaked, separating into 5. *Capsulæ*, each tipped with a long spiral awn, bearded on the inside.

Sp. Ch. *Flower-stalks*, many, flowered. *Leaves*, pinnate. *Leaflets* sessile, pinnatified, and cut.

This plant is not unfrequent on waste ground, especially on a sandy soil: it blossoms from June till August or September. *Erodium* is the only British Genus of this Order. The flowers of this species have but little scent, and the leaves have not the musky odour of the *Erodium moschatum*.

ORDER 3.
HEPTANDRIA.
Seven Stamina.

ORDER III.

No British Plant of this Order.

PELARGONIUM.

Of the Genus PELARGONIUM there is no British species. The name is derived from Πελαργος, a Stork. *Arist.* From the length of the beak to the fruit.

PELARGONIUM ACETOSUM.

Sorrel Crane's-bill.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-parted, the upper segment ending in a capillary nectariferous tube running along the peduncle. *Corolla*, 5-petalled, irregular. *Filaments*, 10, unequal, three of which (seldom five), are castrated. *Fruit*, 5-grained, beaked: beak, spiral, bearded within.

SP. CH. *Umbels*, few-flowered, *leaves*, obovate, crenate, smooth, fleshy, *petals*, linear.

THIS plant is a native of the Cape: it blossoms during most of the summer, and is readily propagated by cuttings; the leaves have somewhat the taste of sorrel, whence it derives its English name.

ORDER IV.

No British Plant of this Order.

AITONIA.

Of the Genus Aitonia there is no British species. This plant is so named to honour Mr. William Aiton, late gardener to his Majesty at Kew.

AITONIA CAPENSIS.

Cape Aitonia.

Essential Generic Character.

Gen. Ch. *Calyx*, 4-parted. *Style*, 1. *Corolla*, 4-petalled. *Berry*, dry, quadrangular; 1-celled, many-seeded.

Of this Genus there is only one known species; it is a native of the Cape of Good Hope, and was brought to England in the year 1774. It is a green-house shrub, of

[a] William Aiton was born in 1731, near Hamilton, in the county of Lanark, and being bred to gardening, came in 1754 to London to seek employment. At the recommendation of Philip Miller, in 1759, he became superintendent of the botanical garden at Kew, which he greatly improved, and in 1783 he was appointed to manage also the pleasure and kitchen gardens. In 1786 he published a "Hortus Kewensis." He died in 1793.

slow growth, and seldom exceeds three feet in height, and, when of a sufficient age, produces flowers and berries throughout most of the year.

ORDER 5.
DECANDRIA.
Ten Stamina.

ORDER V.

GERANIUM.

Of the Genus Geranium there are thirteen British species.

The name is derived from γερανος, a crane; the fruit somewhat resembling the form of a crane's head and neck.

GERANIUM PYRENAICUM.

Mountain-crane's-bill.

Essential Generic and Specific Characters.

Gen. Ch. *Style*, none. *Petals*, 5, regular. *Nectarium*, 5 glands at the base of the longer stamina. *Fruit*, beaked, separating into 5 seed-cases, each tipped with a long simple naked awn.

Sp. Ch. *Stalks*, 2-flowered. *Petals*, cloven, twice as long as the calyx. *Leaves*, kidney-shaped, palmate, cut. *Seed-cases*, even, sharply carinated, slightly downy. *Seeds*, smooth.

The botanical name of this plant would seem to imply, that it was peculiarly a native of the Pyrenees, whereas it is found in waste ground, and on the borders of fields, in

various parts of Europe; common about London, as at Chelsea, Hammersmith, &c. The intricacy of this tribe of plants caused Curtis to confound the *Geranium molle* with this species in his *Flora Londinensis*. It blossoms in July.

Of this Order, Linnæus put the numerous Genus *Geranium*, but since his time, this tribe of plants has been divided by M. L'Heritier,[b] into three Genera, which he arranged under this Order and the Orders 2, and 3, of this Class, by the titles, *Erodium*, *Pelargonium*, and *Geranium*.

This tribe consists of more than two hundred species, of which thirteen grow wild in Great Britain.[c] It is remarkable, that the fertilizing pollen of these flowers is very

Charles Louis L'Brutelle de Heritier was an eminent French botanist, born in Paris 1745. He enjoyed many places in the French government, but devoted himself principally to botanical pursuits. In 1786, Dombey having brought from Peru and Chili an inestimable collection of plants, L'Heritier undertook to publish a description of them, which was executed at London, under the title of the Flora of Peru. On his return to Paris he published a work with the singular title of *Flore de la Place Vendom*. He was assassinated in 1801, but his murderers were not discovered.

[c] These species are figured in Sowerby's English Botany, 322, 1091, 121, 404, 1486, 75, 778, 385, 405, 157, 753, 259, 272.

apt to mix with others of different species, and so produce new species or varieties; but these plants so produced rapidly degenerate, and in a few years become extinct.

ORDER 5.
DECANDRIA.
Ten Stamina.

GERANIUM PUSILLUM.

Small-flowered Crane's-bill.

Essential Specific Character.

Sp. Ch. *Stalks*, 2-flowered. *Petals*, notched. *Leaves*, kidney-shaped, palmate, cut. *Seed-cases*, even, carinated, downy, with erect hairs. *Seeds*, smooth.

This species is common in various parts of England on waste ground, especially on a gravelly soil, though not formerly distinguished from *Geranium molle* and *rotundifolium*. It differs from the former in having an even and downy, not wrinkled and naked seed-coat, and from the latter, in the downiness of that part being close-pressed, or at least pointing upwards, not spreading, and the seeds smooth, not dotted. The petals scarcely exceed the calyx and are notched, yet not so deeply cloven as those of *Geranium molle* and *Geranium pyrenaicum*, with which last, though very different in size and appearance, this species has more affinity in structure

than with any others of this intricate tribe. It blossoms from June till September, and in its general appearance agrees with *Geranium molle*.

ORDER VI.

No British Plant of this Order.

BROWNEA.

Of the Genus Brownea there is no British species. It is named in honour of Patrick Browne,[d] M. D., author of the History of Jamaica.

BROWNEA RACEMOSA.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, unequally bifid. *Corolla*, double; outer 5-cleft; inner, 5-petalled. *Legume*, 2-celled.

Sp. Ch. *Flowers*, disjoined, umbelled.

This is the only Genus in this Order. It is a shrub, or small tree, growing to the

[d] Patrick Browne was an eminent physician, born at Crossboyne in Ireland, in 1720. When young he was sent to a relation of his in the island of Antigua, but the climate not agreeing with his constitution, he returned to Europe in 1737. He resided at Paris five years, and then removed to Leyden, where he took his degree of M. D. He next went to London, where he formed an intimacy with some of the most learned of the faculty, and once

height of eighteen feet in woody and hilly places in America: the wood is covered with an ash-coloured bark. The blossom is scarlet.

ORDER 7.

DODECANDRIA. Twelve Stamina.*

ORDER VII.

No British Plant of this Order.

PTEROSPERMUM.

Of the Genus PTEROSPERMUM there is no British species. It is so named because the seed has a membranaceous wing. *Wing-seeded.*

PTEROSPERMUM ACERIFOLIUM.

Maple-leaved Pterospermum.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* single, 5-parted. *Corolla,* 5-petalled. *Filaments,* 15, with 5 ligules, one between every three filaments. *Capsula,* 5-celled, with the cells 2-valved. *Seeds,* many, winged.

SP. CH. *Leaves,* cordate repand.

THIS plant is a native of the East Indies, where it grows into a tree; the bark is

more visited the West Indies, and fixed his residence in Jamaica. In the year 1750 he published his Natural and Civil History of Jamaica in folio, having the year before published a correct map of that island, drawn by himself. He died at Rusbrook in Ireland in 1790.

* This Order, though called *Dodecandria,* is chiefly composed of flowers having fifteen stamina.

covered with a white wool, as is the under side of the leaves. The flower is sweet-scented and the petals are white. The stamina are fifteen in number, with long twisted antheræ, and their filaments unite at the base; among these are five club-pointed bodies twice the length of the others, and much stouter than the filaments; and as they are the only internal parts that appear without forcibly opening the flower, it has the appearance, when superficially observed, of being pentandrous. It is propagated in England by seeds imported from India: in the winter it requires a stove, but may be removed into a green-house in the summer.

ORDER 8.

POLYANDRIA: Stamina numerous and indefinite.

ORDER VIII.

GOSSYPIUM.

Of the Genus Gossypium there is no British species. Vossius is of opinion that Gossypium is an Egyptian word: it is called ξυλον in Greek. See Pliny, L. 19, c. 1.

GOSSYPIUM HERBACEUM.

Common Cotton.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* double; outer, trifid. *Capsula,* 4-celled. *Seeds,* wrapped in cotton.

Sp. Ch. *Leaves,* 5-lobed, without glands underneath. *Stem,* herbaceous.

This is an herbaceous plant, a native of the East Indies, growing to about three feet high. The whole plant is downy, and whilst young, odorous. The blossom is of a pale yellow, with five red spots at the bottom; and its seeds, which are ripened in September, are immersed in fine white cotton: the cotton, which is produced in China, of which the cloth called Nankin is made, is said to be tinged with red in its vegetable state, which is supposed to be the cause of its washing of better colour than any cloth that

we can manufacture to imitate it. Few plants are more useful than this: it furnishes clothing to the four quarters of the world; and the seeds are an article of food to the inhabitants where it is cultivated.

There are six species of this Genus, and the Barbadoes cotton is the species most cultivated in the West Indies, and forms a considerable branch of their exports.

This species is set in rows in the West Indies, about five feet apart. It grows from four to six feet high, and produces two crops annually; the first in eight months from the time of sowing the seed, and the second, four months afterwards. Each plant at the two gatherings is reckoned to produce about one pound weight of cotton; and an acre of land to produce 270 pounds weight on an average; but the certainty of gathering a good crop is very precarious; since it may be almost literally said of this plant, that in the morning it is green and flourishing, and in the same evening, withered and decayed. For, when the worms begin to prey upon a whole plantation, though they are at first scarcely perceptible to the naked eye, yet in three days they will grow to such a size, and prove so destructive, that the most verdant field,

thickly and beautifully clothed with leaves and flowers, is reduced to as naked and desolate a condition as trees are in the month of December, in England. When these worms, which are of the caterpillar kind, have attained their full growth, they spin, and inwarp themselves as in a bag, or web, like silk-worms, in the few remaining leaves, or any other covering; and after a few days, in this their chrysalis state they turn into dark-coloured moths and fly away.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

LAVATERA.

Of the Genus LAVATERA there is only one British species. It is named in honour of Lavater, a Physician at Zurich.

LAVATERA ARBOREA.

Sea Tree-Mallow.

Essential Generic and Specific Characters.

GEN. CH. *Calyx* double; the outermost 3-cleft. *Capsulæ*, numerous, circularly arranged. *Seeds*, solitary.

SP. CH. *Stem*, arborescent. *Leaves*, downy, plaited, with seven angles. *Flower-stalks*, axillary, clustered, single flowered.

IT grows wild on several parts of the south-west coast of England, and on the east

coast of Scotland on rocky cliffs. It blossoms in July and often produces a long succession of flowers. In a garden, Sir James Edward Smith observes, that this plant often remains some years without producing flowers, but dies in the winter after it has blossomed, being naturally a biennial. It is said to bear cold, when exposed to the sea air, much better than in an inland situation.

The chief generic distinction between this Genus and the Genus *Malva* is, that the outer calyx is deeply divided into 3 large lobes; and not, as in *Malva*, formed of 3 separate leaves. This is a very slight distinction. The distinction between *Pisum* and *Lathyrus* is founded upon as trifling a variation.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

MALVA.

Of the Genus Malva there are three British species. The name is given from the plant's possessing the quality of an emollient. In Greek it is named Μαλαχη, for the same reason.

MALVA SYLVESTRIS.

Common Mallow.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* double; the outermost of 3 leaves. *Seed-cases,* numerous, circularly arranged. *Seeds,* solitary.

Sp. Ch. *Stem,* erect, herbaceous. *Leaves,* with 7 sharpish lobes. *Leaf-stalks* and *flower-stalks,* hairy.

This plant is common and plentiful by road sides and in all waste places, blossoming from May till September; and as it is so easily to be met with, it is well adapted to illustrate this Order.

ALTHÆA.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

Of the Genus ALTHÆA there is only one British species. It is named Αλθαια by Dioscorides, from αλθος, a remedy, or αλθαινειν, to heal; or, as Dioscorides himself says, δια το πολυαλθες αυτης, from its many excellent qualities.

ALTHÆA OFFICINALIS.

Marsh Mallow.

Essential Generic and Specific Characters.

GEN. CH. *Calyx,* double; the external one in about 9 segments. *Arilli,* numerous, each containing 1 seed.

SP. CH. *Leaves,* simple, downy, slightly 5-lobed.

THIS plant abounds in salt-marshes and on the banks of ditches in the fens. The whole of it is covered with a delicately soft pubescence. A decoction from this herb is often used as an emollient.

British Plants of this Order.

Botanical Generic Names.		Common Names.
7	ALTHÆA	1 MARSH MALLOW
9	LAVATERA.....	1 TREE-MALLOW
34	MALVA	3 MALLOW

British Species figured in Sowerby's English Botany.

Althæa, 147. *Lavatēra,* 1841. *Mālva,* 671, 1092, 754.

The different British Genera in this CLASS *described by their Generic characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

ORDER 5.
DECANDRIA.
Ten Stamina.

Botanical Description of the Genus GERANIUM.

CALYX. *Perianthium*, 5 leaves, or 1 leaf with 5 divisions; *leaflets*, egg-shaped, acute, concave, permanent.

COROLLA. *Petals*, 5, inversely heart-shaped, or egg-shaped, expanding, large.

STAMINA. *Filaments*, 10, awl-shaped, united at the base, so as to form a sort of perianthium, expanding towards the top, alternately longer and shorter; shorter than the blossom. *Antheræ*, oblong, turning about like a vane.

PISTILLUM. *Germen*, with 5 angles, beaked. *Style*, awl-shaped, longer than the stamina, permanent. *Stigmata*, 5, reflected.

PERICARPIUM. *Capsula*, 5-seeded, beaked, cells, opening inwardly, each terminated by an awn-like tail, very long, and rolling up spirally.

SEEDS. Solitary, rarely in pairs, egg-oblong.

*** Linnæus classed all these plants as of one Genus, which more modern Botanists have divided into three Genera now known by the names *Erodium*, *Pelargonium*, and *Geranium*. Although there be an irregularity in the number and union of the filaments in these different plants, yet I doubt very much whether the making different Genera in consequence of those irregularities be any improvement in Botanical science; and this doubt may be very fairly indulged since those variations were as well known to Linnæus as to those who have succeeded him.

Botanical Description of the Genus LAVATERA.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

CALYX. *Perianthium*, double.

Outer perianthium, 1 leaf, with 3 clefts, blunt, shorter, permanent.

Inner perianthium, 1 leaf, with 5 shallow clefts. *Segments*, more acute, erect, permanent.

COROLLA. *Petals*, 5, united at the base to the tube of the stamina, inversely heart-shaped, flat, expanding.

STAMINA. *Filaments*, numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Antheræ*, kidney-shaped.

PISTILLUM. *Germen*, round and flat. *Style*, cylindrical, short. *Stigmata*, many, (7 to 14), bristle-shaped, as long as the style.

PERICARPIUM. *Capsula*, round and flat, composed of as many cells as there were stigmata, 2-valved, placed in a whirl round the pillar-like *receptaculum*, at length falling off.

SEEDS. Solitary, kidney-shaped.

Botanical Description of the Genus MALVA.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

CALYX. *Perianthium*, double.

Outer perianthium, 3 leaves, narrower; *leaflets*, heart-shaped, acute, permanent.

Inner perianthium, 1 leaf, with 5 shallow clefts, larger, broader, permanent.

COROLLA. *Petals*, 5, inversely heart-shaped, bitten, flat, united at the base to the tube of the stamen.

STAMINA. *Filaments*, numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Antheræ*, kidney-shaped.

PISTILLUM. *Germen*, round and flat. *Style*, cylindrical, short. *Stigmata*, many, bristle-shaped, as long as the style.

PERICARPIUM. *Capsula*, roundish, composed of several cells, (as many as styles,) 2-valved, disposed in a whirl round the pillar-like *receptaculum*; at length falling off.

SEEDS. Solitary, (sometimes, though rarely 2 or 3), kidney-shaped.

ORDER 8.

POLYANDRIA. Stamina numerous and indefinite.

Botanical Description of the Genus ALTHÆA.

CALYX. *Perianthium*, double.

Outer perianthium, 1 leaf, small and permanent, with, from 6 to 9 clefts *Segments*, very narrow.

Inner perianthium, 1 leaf, with 5 shallow clefts. *Segments*, broader, more acute, permanent.

COROLLA. *Petals*, 5, united at the base to the tube formed by the union of the filaments, inversely heart shaped, bitten, flat.

STAMINA. *Filaments*, numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Antheræ*, nearly kidney-shaped.

PISTILLUM. *Germen*, round and flat. *Style*, cylindrical, short. *Stigmata*, numerous, (about 20), bristle-shaped, as long as the styles.

PERICARPIUM. *Capsula*, round and flat, composed of many cells, (as many as there were styles), 2-valved, disposed in a whirl round the pillar-like receptaculum; when quite ripe, separating.

SEEDS. Solitary, kidney-shaped, but compressed.

THE CHARACTER OF CLASS XVI. XVII. XVIII.

MONADELPHIA
TRIANDRIA

CLASS XVI

ORDER 1

IRIS-LEAVED SISYRINCHIUM

SISYRINCHĬUM BERMUDIĀNA

MONADELPHIA
PENTANDRIA

CLASS XVI

ORDER *2*

HERMANNIA

HERMANNĬA ALTHÆIFOLĬA

MONADELPHIA

PENTANDRIA

Hemlock Stork's-bill

ERODIUM CICUTARIUM

XVI
2

MONADELPHIA

HEPTANDRIA

CLASS XVI

ORDER 3

SORREL CRANES-BILL

PELARGONĬUM ACETŌSUM

MONADELPHIA
OCTANDRIA

CLASS XVI

ORDER 4

CAPE AITONIA

AITONĬA CAPĒNSIS

MONADELPHIA
DECANDRIA

CLASS XVI

ORDER 5

MOUNTAIN CRANES-BILL

GERANĬUM PYRENAĬCUM

MONADELPHIA

DECANDRIA

Small-flowered Cranes-bill

GERANĬUM PUSĪLLUM

XVI

MONADELPHIA

ENDECANDRIA

CLASS XVI

ORDER 6

BROWNEA

BROWNĔA RACEMŌSA

MONADELPHIA
DODECANDRIA

CLASS XVI

ORDER 7

MAPLE-LEAVED PTEROSPERMUM

PTEROSPĒRMUM ACERIFOLĭUM

MONADELPHIA
POLYANDRIA

CLASS XVI

ORDER 8

COMMON COTTON

GOSSIPĬUM HERBACĔUM

MONADELPHIA

POLYANDRIA

Sea Tree-Mallow

LAVATĒRA ARBOREA

XV
6

MONADELPHIA

POLYANDRIA

Common Mallow

MALVA SYLVĒSTRIS

XVI
6

MONADELPHIA

POLYANDRIA

Marsh Mallow

ALTHÆA OFFICINĀLIS

XVI

8

DIADELPHIA.

CLASS XVII.

THE FILAMENTS OF THE STAMINA UNITED, MAKING TWO SETS, BOTH SOMETIMES COHERING AT THE BASE.

THIS CLASS HAS FOUR ORDERS.

ORDER I.

ORDER I.
PENTANDRIA.
Five Stamina.

No British Plant of this Order.

MONNIERIA.

Of the Genus MONNIERIA there is no British species. It is named from Mons. Monnier of Paris.

MONNIERIA TRIFOLIA.

Three-leaved Monneia.

Essential Generic Character.

GEN. CH. *Calyx*, 4-cleft. *Petals*, 4. *Berry*, 2-celled. *Seeds*, solitary.

THIS is the only Genus in this Order; a very scarce annual plant, with white flowers, a native of South America, and of which there is no good figure that can be accurately

depended upon; the one annexed is copied from the French *Encyclopid Methodique*, which is the best representation there is of it, and that was delineated from a dried specimen.

ORDER 2.

HEXANDRIA.
Six Stamina.

ORDER II.

FUMARIA.

Of the Genus Fumaria there are six British species. Fumiaria is so called because it is said to affect the eyes, like smoke; hence also its Greek name, Καπνος.

FUMARIA LUTEA.

Yellow Fumitory.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 2-leaved. *Corolla*, ringent. *Filaments*, 2, membranaceous, each bearing 3 *antheræ*.

Sp. Ch. *Pods*, nearly cylindrical, shorter than their foot-stalk. *Stems*, spreading, angular. *Bracteæ*, minute. *Spur*, short, rounded.

This plant is a native of many parts of England, and blossoms in May. Its leaves continue green throughout the year, and the flowers are produced in succession till October. Of the Genus *Fumaria* there are fifteen

species, of which six are English.[a] Sir James Edward Smith observes, that the different species are remarkable for a great variety of forms in their seed vessels. This is the only British Genus of this Order.

ORDER III.

ORDER 3.

OCTANDRIA. Eight Stamina.

POLYGALA.

Of the Genus POLYGALA there is only one British species. The name is derived from πολυ, much, and γαλα, milk, the plant being supposed to make cattle yield much milk. The name occurs in Pliny; and Dioscorides has πολυγαλον.

POLYGALA VULGARIS.

Common Milk-wort.

Essential Generic and Specific Characters.

GEN. CH. *Calyx* of 5 leaves, 2 of them wing-shaped, and coloured. *Pod,* inversely heart-shaped, 2-celled.

SP. CH. *Flowers* in a cluster, crested. *Stems,* herbaceous, simple, procumbent. *Leaves,* linear-lanceolate.

THIS plant is very common in dry heathy pastures and on rocks; it blossoms in June and July. *Polygala* is the only Genus of

[a] These species are figured in Sowerby's English Botany, 1471, 588, 589, 590, 943, 103.

this Order, and this is the only British species of the Genus.

Figured in Sowerby's English Botany, 76.

ORDER 4.

DECANDRIA.*
Ten Stamina.

ORDER IV.

ASTRAGALUS.

Of the Genus ASTRAGALUS there are four British species. Ἀστράγαλος is the name of a shrub in the Greek writers, supposed to be so named from the seed being squeezed in the legume into a squarish form, in some species.

ASTRAGALUS HYPOGLOTTIS.

Purple Mountain Milk-wort.

Essential Generic and Specific Characters.

GEN. CH. *Pod,* of 2 cells, swelling.

SP. CH. *Stem,* prostrate. *Flowers* in round heads. *Pods,* ovate, with a channel along the back, compressed, hairy; tip reflexed.

THIS plant abounds on dry heaths, as on the chalky tracts of Cambridgeshire, and on

* This Order is composed of plants Papilionacæ or Leguminosæ, which have usually nine Stamina in one set, with a single one separate; but there are some exceptions: *Spartium, Lupinus,* and *Ulex,* have ten stamina, with the tenth evidently distinguished from the rest, but incorporated with them by its lower part. The *Ononis* and some others have only a longitudinal slit in the upper side of the tube, without any indication of a separate stamen.

some elevated gravelly or sandy spots of Scotland as well as England. It blossoms in June and July usually of a beautiful purple, but which sometimes vary to white. The figure represents the plant of its natural size.

TRIFOLIUM.

Of the Genus Trifolium there are eighteen British species. It is named Τριφυλλο by Hippocrates, and Dioscorides: derived from τρεις, three, and φυλλον, a leaf.

TRIFOLIUM PRATENSE.

Common Purple Clover, or Honey-suckle Trefoil.

Essential Generic and Specific Characters.

Gen. Ch. *Flowers* more or less capitate. *Legumen* scarcely longer than the Calyx, never bursting, but falling off entire.

Spe. Ch. *Spikes*, dense. *Stems*, ascending. Parts of the Corolla unequal in length. 4 of the calyx-teeth equal. *Stipulus*, awned.

This Clover is a truly perennial plant, growing, in its native situation, on chalky downs. It blossoms about the end of June.

These plants are therefore strictly *monadelphous*, and not *diadelphous*; but, as Sir James Edward Smith observes, Linnæus here swerves from his strict artificial laws, in compliance with the decisive natural character which marks the plants in question. Therefore, when ten stamina are all alike separate and distinct, such plants are to be referred to the Class *Decandria*; but if they are all combined, to the Class *Diadelphia*.

ORDER 4.
DECANDRIA.
Ten Stamina.

GENISTA.

Of the Genus GENISTA there are three British species. This name of very uncertain etymology.

GENISTA TINCTORIA.

Dyer's Green-weed.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 2-lipped, with 2 teeth in the upper lip, and 3 in the lower. *Vexillum*, oblong, bent backwards from the rest of the flower.

SP. CH. *Leaves*, lanceolate, smooth. *Branches*, round, striated, and erect.

THE Genista is frequently to be found on dry barren banks in the borders of fields. It blossoms in July and August. The whole of this plant dyes a yellow colour, which, by means of the *Isatis*, is afterwards made green, and is preferred to all other yellows for wool which is to be dyed green.

Plantagenet is said to be derived from this plant, *Planta Genesta*, or *genista;* and this story is told concerning it; Fulke, Earl of Anjou, who lived a century before the Norman conquest, having been guilty of some crimes, was enjoined, by way of penance, to go to the Holy Land, which he

submitted to, and in his humble dress to mark his penance he wore the genista in his cap; and, as this plant was considered as a symbol of humility, he afterwards adopted the title of Plantagenet, and his descendants continued the name.

SPARTIUM.

ORDER 4.

DECANDRIA. Ten Stamina.

Of the Genus *Spartium* there is only one British species. The name is derived from Σπαρτιον of Dioscorides.

SPARTIUM SCOPARIUM.

Common Broom.

Essential Generic and Specific Characters.

Gen. Ch. *Stigma,* longitudinal, downy above. *Filaments,* all united, adhering to the germen. *Calyx,* extended downward.

Sp. Ch. *Leaves,* ternate or solitary. *Branches,* angular, without thorns.

This shrub grows plentifully on dry gravelly hills, and ornaments the country with its yellow blossoms in the months of May and June.

The *Stamina* of this plant are all united, consequently it is truly *monadelphous*, but its being papilionaceous, which characterizes

this Order, induced Linnæus to supersede his artificial arrangement in favour of natural affinity.

ORDER 4.

DECANDRIA. Ten Stamina.

PISUM.

Of the Genus Pisum there is only this one British species. The name is derived from πισον of Theophrastus, but its primary etymology is uncertain.

PISUM MARITIMUM.

Sea Pea.

Essential Generic and Specific Characters.

Gen. Ch. *Style,* triangular, keeled and downy at the upper edge. Two upper segments of the *calyx* shortest.

Sp. Ch. *Footstalks,* flattish on the upper side. *Stem,* angular. *Stipulæ,* arrow-shaped.

This plant grows on various parts of the east and south-east of England. The specimen from which this figure was made was gathered by Mr. Sowerby on the shore at Walmer in Kent. The account given by the learned Dr. Caius of the peas which grew so plentifully in the autumn of 1555 on the rocks between Aldburgh and Orford as to afford food for thousands of people, relates to this plant.

The *style* of the Genus *Pisum* being sharp edged above, and not flat, separates it from the Genus *Lathyrus*.

LOTUS.

ORDER 4.
DECANDRIA.
Ten Stamina.

Of the Genus Lotus there are three British species. The derivation of the word *Lotus* is very uncertain, and I believe it to be of Ægyptian origin, from this passage in Herodotus, τὰ Αἰγύπτιοι καλέουσι λωτόν. Although the Lotus here referred to was a different plant from this Lotus, yet it is evident, from this expression, that it was a word used by the Egyptians.

LOTUS CORNICULATUS.

Common Bird's-foot-Trefoil.

Essential Generic and Specific Characters.

Gen. Ch. *Leguma,* cylindrical, straight. *Wings,* of the corolla, cohering by their upper edge. *Calyx,* tubular. *Filaments,* dilated upwards.

Sp. Ch. *Heads,* depressed, of few flowers. *Stems,* decumbent, solid. *Legumes,* spreading, nearly cylindrical, *claw* of the keel, ob-ovate; *filaments,* all dilated.

The flowers of this plant are produced in a sort of umbel with very short foot-stalks, numerous, in flatted heads. The blossoms before they expand are of a deep red on the outside, and of a yellowish green

within, but when expanded they are quite yellow. It appears from Theophrastus and Dioscorides, as well as other ancient authors, that in addition to the different plants which were called by the name of Lotus, of which, in this work I have already spoken at some length, they had also a papilionaceous genus, which was either this Lotus, a Medicago, or our common Trefoil.

ORDER 4.

DECANDRIA. Ten Stamina.

HEDYSARUM.

Of the Genus HEDYSARUM there is only this one British species. The name is adopted from Ἡδυσαρον in Theophrastus and Dioscorides, which is derived from ἡδύσμα, sweetness, and ἄρὸν, ointment.

HEDYSARUM ONOBRYCHIS.

Saint-foin.

Essential Generic and Specific Characters.

GEN. CH. *Carina* of the Corolla transversely obtuse. *Legumen* jointed, with 1 seed in each joint.

SP. CH. *Leaves*, pinnated. *Legumen*, single-seeded, prickly. *Alæ* of the Corolla equal to the Calyx. *Stem*, elongated.

THIS plant grows in chalky pastures and open downs in various parts of England, always in dry barren situations, and blossoms about June and July.

HEDYSARUM GYRANS.

Sensitive Hedysarum.

Essential Specific Character.

Sp. Ch. Having ternate leaves.

This species is a native of Bengal, near the Ganges, and was first known in England by some plants raised by Kennedy and Lee of Hammersmith, from seeds sent to them from India by Lady Anne Monson, in the year 1772. This may be considered as one of the most extraordinary plants in the vegetable world. When the air is very warm, and quite still, its leaves are in continual motion, some rising, others falling, and others whorling circularly, by twisting their stems: the cause of this irritability seems to be very different from that of the common sensitive plant, *Mimosa pudica.* Its motion does not appear to be at all influenced by any external stimulus, as I have frequently touched it, when the leaves have been in quick and slow activity, and the surrounding atmosphere at various temperatures, but without producing any change in its motion.

ORDER 4.
DECANDRIA.
Ten Stamina.

It is an annual plant, and grows to about three feet high; the leaves are of a bright green, with somewhat of a sea-green hue in the middle; the flowers are of a pale red, slightly tinged with blue, and sometimes with yellow.

To this Order belong the leguminous vegetables, as the Pea, Bean, Vetch, &c.[b] they are all said to be wholesome, but I believe there are some few exceptions to that rule. The seeds of the *Citisis Labernum*, in their green state, have an emetic quality; and those, beautiful red seeds with a black spot, brought from India, which are sometimes worn as ornaments of dress,[c] are said by the natives to be so dangerous, that the half of one of them is sufficiently poisonous to destroy a man; this account, however, may exceed the truth; but that they have a very prejudicial quality I have reason to believe; for, within my own knowledge, I

[b] That which in common language is called a *pea-shell*, in the language of Botany is called *Legumen*, the seeds being arranged along one of its sutures. When, in a similar covering, the seeds are affixed to the seams on both sides, as in the plants of the second Order of Class XV. that kind of seed-vessel is properly called a *pod*. The English language wants this discrimination.

[c] The Botanical name of the plant that produces this Pea is *Abrus Precatorius*.

have seen an extraordinary effect of the poison of one of these peas. A poor woman who had some of them given to her, and who did not choose to be at the expense of having them drilled to make a necklace, put the seeds into hot water till they were sufficiently soft to be perforated with a large needle; in doing this, she accidentally wounded her finger, which soon swelled, and became very painful, the swelling extending to the whole hand; and it was a considerable time before it was quite recovered.

At Crossthwait's Museum, in Keswick, a gentleman (Mr. Sherbrook), inadvertently swallowed one of these seeds in the evening, and at night he was so dangerously ill that medical aid was sent for. As these facts have happened to persons within my own knowledge, I have no doubt of the poisonous nature of these peas; and as they are usually given to children, it would be prudent to discontinue that practice, as there is danger of their being swallowed in their amusements.

ORDER 4.

DECANDRIA. Ten Stamina.

British Plants of this Order.

Botanical Generic Names.		Common Names.
17	ANTHYLLIS.....	1 KIDNEY VETCH
63	ASTRAGALUS.....	4 MILK VETCH
3	ERVUM	2 TARE
17	GENISTA.....	3 GENISTA
67	HEDYSARUM	1 SAINTFOIN
5	HIPPOCREPIS	1 HORSE-SHOE VETCH
23	LATHYRUS	7 LATHYRUS
23	LOTUS.....	3 BIRD'S-FOOT TREFOIL
11	MEDICAGO.....	4 MEDICK
38	ONONIS.....	1 REST-HARROW
5	ORNITHOPUS	1 BIRD'S-FOOT
16	OROBUS.....	2 BITTER VETCH
3	PISUM.....	1 PEA
27	SPARTIUM.....	1 BROOM
51	TRIFOLIUM.....	18 TREFOIL
3	ULEX.....	2 FURZE
25	VICIA	9 VETCH

British Species figured in Sowerby's English Botany.

Anthyllis, 104. *Astragălus*, 203, 274, 466, 2522. *Ervum*, 1223, 970. *Genista*, 44, 208, 132. *Hedysărum*, 96. *Hippocrēpis*, 31. *Lathyrus*, 1167, 112, 1255, 670, 805, 1108, 169. *Lotus*, 2090, 925, 2091. *Medicāgo*, 1749, 1016, 971, 1616. *Onōnis*, 682. *Ornithŏpus*, 369. *Orŏbus*, 1153, 518. *Pīsum*, 1046. *Spartĭum*, 1339. *Trifolĭum*, 1340, 1047, 1769, 1048, 1224, 1770, 190, 220, 944, 903, 1063, 1843, 1049, 1050, 945, 1257, 1545, 1256. *Ulex*, 742, 743. *Vicĭa*, 79, 1168, 334, 30, 481, 482, 483, 1515, 1842.

The different British Genera in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

ORDER 2.

HEXANDRIA. Six Stamina.

Botanical Description of the Genus FUMARIA.

CALYX. *Perianthium,* 2 leaves; *leaflets,* opposite, equal, lateral, erect, acute, small, deciduous

COROLLA. Oblong, tubular, gaping, palate projecting and filling up the mouth.

Upper lip, flat, obtuse, notched at the end, reflected. *(The Vexillum.)*

The *Nectarium* is the base of the upper lip projecting backwards, obtuse.

Lower lip, altogether similar to the upper lip, towards the base keeled. *(The Carina.)*

Nectarium, at the base keeled, but projecting less than in the other.

Mouth, 4-cornered, obtuse, cloven perpendicularly. *(The Alæ.)*

STAMINA. *Filaments,* 2, equal, broad, tapering, one enclosed within each lip. *Antheræ,* 3 at the end of each filament.

PISTILLUM. *Germen,* oblong, compressed, tapering to a point.

Style, short. *Stigma,* round, compressed, erect.

PERICARPIUM. *Pouch,* with one cell.

SEEDS. Roundish.

*** The stamina are almost the only invariable part in this Genus. The *Fumaria officinalis* has a roundish pouch, generally containing a single seed, deciduous. In *Fumaria claviculata* the seed vessel is an oblong, taper-pointed pod.

ORDER 3.

OCTANDRIA. Eight Stamina.

Botanical Description of the Genus POLYGALA.

CALYX. *Perianthium*, 5 leaves, small; *leaflets*, egg-shaped, acute, permanent, 2 placed beneath, and 1 above the blossom, the 2 *middle* leaflets nearly egg-shaped, flat, large, coloured, (the *Alæ*), deciduous.

COROLLA. Nearly butterfly-shaped.

Vexillum, generally cylindrical, tubular, short. *Rim*, reflected, small, cloven.

Carina, concave, compressed, bulging towards the end.

Appendages to the carina (generally) 2 pencil-shaped substances, with 3 divisions, fixed towards the end of the carina.

STAMINA. *Filaments*, 8, united, enclosed in the carina. *Antheræ*, 8, simple.

PISTILLUM. *Germen*, oblong. *Style*, simple, erect. *Stigma*, terminating, rather thick, cloven.

PERICARPIUM. *Capsula* inversely heart-shaped, compressed, acute at the edge. *Cells*, 2. *Valves*, 2. *Partition*, placed crosswise to the valves, opening at the edge on each side.

SEEDS. Solitary, egg-shaped.

*** The appendages to the carina are different in different species, and in many they are not to be found.

ORDER 4.

DECANDRIA. Ten Stamina.

Botanical Description of the Genus ASTRAGALUS.

CALYX. *Perianthium*, 1 leaf, tubular, with 5 acute teeth, the lower teeth gradually smaller.

COROLLA. Butterfly-shaped. *Standard*, longer than the other petals, reflected at the sides, notched at the end, blunt, straight. *Wings*, oblong, shorter than the standard. *Keel*, as long as the wings, notched at the end.

STAMINA. *Filaments,* 10, almost straight, 9 united. *Antheræ,* roundish.

PISTILLUM. *Germen,* nearly cylindrical. *Style,* awl-shaped, ascending. *Stigma,* blunt.

PERICARPIUM. *Legumen,* with 2 cells, the cells bending to one side.

SEEDS. Kidney-shaped.

*** The *legumen* differs in different species.

Botanical Description of the Genus TRIFOLIUM.

ORDER 4. DECANDRIA. Ten Stamina.

CALYX. An *Umbellula,* or little head upon a common receptaculum. *Perianthium,* 1 leaf, tubular, with 5 teeth, permanent.

COROLLA. Butterfly-shaped, generally permanent, shrivelling. *Standard,* reflected. *Wings,* shorter than the standard. *Keel,* shorter than the wings.

STAMINA. *Filaments,* 10; 9, united. *Antheræ,* simple.

PISTILLUM. *Germen,* somewhat egg-shaped. *Style,* awl-shaped, ascending *Stigma,* simple.

PERICARPIUM. *Legumen,* scarcely larger than the perianthium with 1 valve, not opening, deciduous.

SEEDS. Very few, roundish.

*** It is more difficult to give a true and essential character to this Genus than to any other, and those who have attempted to divide it have not been able to fix any certain limits to their sub-divisions. LINN.

Botanical Description of the Genus GENISTA.

ORDER 4. DECANDRIA. Ten Stamina.

CALYX. *Perianthium,* 1 leaf, small, tubular, 2-lipped. *Upper lip,* with 2 teeth, more deeply divided than the *lower lip,* which has 3 teeth nearly equal.

Corolla. Butterfly-shaped. *Standard,* oblong, distant from the keel, entirely bent back. *Wings,* oblong, flexible, shorter than the other petals. *Keel,* straight, notched at the end, longer than the standard.

Stamina. *Filaments,* 10, connected, rising out of the keel. *Antheræ,* simple.

Pistillum. *Germen,* oblong. *Style,* simple, rising upwards. *Stigma,* acute, rolled inwards.

Pericarpium. *Legumen,* roundish, turgid, with 1 cell and 2 valves.

Seeds. Solitary, generally kidney-shaped.

*** In *Genista tinctoria* the seeds are many; in *Genista pilosa,* there are 2 or more seeds; and in *Genista anglica* there are from 3 to 14 seeds.

ORDER 4.

DECANDRIA. Ten Stamina.

Botanical Description of the Genus SPARTIUM.

Calyx. *Perianthium,* 1 leaf, heart-shaped, but tubular, small, coloured, the upper margin very short, the lower towards the end set with 5 little teeth.

Corolla. Butterfly-shaped. *Petals,* 5.

Vexillum inversely heart-shaped, entirely reflected, very large.

Alæ, egg-shaped, oblong, shorter than the vexillum, connected to the filaments.

Carina, petals, 2, spear-shaped, oblong, longer than the alæ, connected at the keel-shaped margin by soft hairs to the filaments.

Stamina. *Filaments,* 10, connected, unequal, adhering to the germen, the uppermost very short, and from that growing gradually longer: the lower cloven into 9 parts. *Antheræ,* rather long.

Pistillum. *Germen,* oblong, hairy. *Style,* awl-shaped, rising upwards. *Stigma,* fixed to the upper side of the end of the style, hairy.

PERICARIUM. *Legumen*, cylindrical, long, obtuse, with 1 cell and 2 valves.

SEEDS. Many, globular, but somewhat kidney-shaped.

Botanical Description of the Genus PISUM.

CALYX. *Perianthium*, 1 leaf, with 5 clefts, acute, permanent, the 2 *upper segments* the shortest.

COROLLA. Butterfly-shaped. *Standard*, very broad, inversely heart-shaped, reflected, notched at the end, with a point between. *Wings*, 2, circular, approaching, shorter than the standard. *Keel*, compressed, half-moon-shaped, shorter than the wings.

STAMINA. *Filaments*, 10; 1, simple, superior, awl-shaped, but flat; 9 awl-shaped, united from the middle downwards into a cylinder, which is cloven towards the top. *Antheræ*, roundish.

PISTILLUM. *Germen*, oblong, compressed. *Style*, ascending, triangular, membranaceous, keeled, the sides bent outwards. *Stigma*, fixed to the superior angle, oblong, woolly.

PERICARPIUM. *Legumen*, large, long, somewhat cylindrical, or compressed underneath; the point tapering upwards, 1 cell, 2 valves.

SEEDS. Many, globular.

*** The style being sharp-edged above, not flat, distinguishes this Genus from the Genus *Lathyrus*.

ORDER 4.
DECANDRIA.
Ten Stamina.

Botanical Description of the Genus LOTUS.

CALYX. *Umbel*, simple: *Perianthium*, 1 leaf, tubular, with 5 shallow clefts; *teeth*, acute, equal, erect, permanent.

COROLLA. Butterfly-shaped. *Standard*, circular, bent downwards, claw, oblong, concave. *Wings*, circular, shorter than the standard, broad, approaching upward. *Keel*, bulging in the lower part, closed above, tapering to a point, ascending, short.

STAMINA. *Filaments*, 10, ascending, 9 united, broadish at the ends. *Antheræ*, small, simple.

PISTILLUM. *Germen*, cylindrical, oblong. *Style*, simple, ascending. *Stigma*, a dot, bending inwards.

PERICARPIUM. *Legumen*, cylindrical, stiff and straight, filled full, longer than the perianthium, 2 valves and many cells.

SEEDS. Many, cylindrical.

ORDER 4.
DECANDRIA.
Ten Stamina.

Botanical Description of the Genus HEDYSARUM.

CALYX. *Perianthium*, 1 leaf, with 5 shallow clefts, *segments*, awl-shaped, erect, permanent.

COROLLA. Butterfly-shaped, scored.

Vexillum, reflected and compressed, egg-oblong, notched at the end, long.

Alæ, oblong narrower than the other petals, straight.

Carina, straight, compressed, broader at the outer part, and transversely obtuse, cloven from the base to the bulging part.

STAMINA. *Filaments*, 10, 9 united, bent at a right angle. *Antheræ*, roundish, compressed.

PISTILLUM. *Germen*, slender, compressed, strap-shaped. *Style*, awl-shaped, bent like the stamina. *Stigma*, undivided.

PERICARPIUM. *Legumen*, with roundish joints, compressed, with 2 valves and 1 seed in each joint.

SEEDS. Kidney-shaped, solitary.

*** The *Hedysarum Onobrychis* has a legumen of only 1 joint, and a single seed.

DIADELPHIA
PENTANDRIA

CLASS XVII

ORDER 1

THREE-LEAVED MONNIERIA

MONNIERĬA TRIFOLĬA

DIADELPHIA

HEXANDRIA

CLASS XVII

ORDER 2

YELLOW FUMITORY

FUMARĬA LUTĔA

DIADELPHIA
OCTANDRIA

CLASS XVII

ORDER 3

COMMON MILK-WORT

POLYGĂLA VULGĀRIS

DIADELPHIA

DECANDRIA

CLASS XVII

ORDER 4

MOUNTAIN MILK-WORT

ASTRAGĂLUS HYPOGLŌTTIS

DIADELPHIA

DECANDRIA

Common Purple Clover, or Honeysuckle Trefoil

TRIFOLĬUM PRATĒNSE

XVII

DIADELPHIA

DECANDRIA

Dyer's Greenweed

GENĪSTA TINCTORĬA

XVII

DIADELPHIA

DECANDRIA

Common Broom

SPARTĬUM SCOPARĬUM

XVII
4

DIADELPHIA

DECANDRIA

Sea Pea

PISUM MARITIMUM

XVII

DIADELPHIA

DECANDRIA

Common Birds-foot Trefoil

LŌTUS CORNICULĀTUS

XVII

DIADELPHIA

DECANDRIA

Saint-foin.

HEDYSARUM ONOBRYCHIS

XVII

Sensitive Hedysarum

HEDYSÀRUM GŸRANS

XVII
4

POLYADELPHIA.

CLASS XVIII.

THE FILAMENTS OF THE STAMINA UNITED, MAKING MORE THAN TWO PARCELS.

No part of the Linnæan system has been less accurately defined or understood than the Orders of this Class. Sir J. Ed. Smith has therefore adopted some improvements, and the following arrangement is conformable to them.

THIS CLASS HAS THREE ORDERS.

ORDER I.

ORDER 1.

DODECANDRIA. Stamina from twelve to twenty, or twenty-five, their filaments being unconnected with the Calyx.

No British Plant of this Order.

CITRUS.

Of the Genus Citrus there is no British species.

The derivation of Citrus is very uncertain. Vossius says that it is a Latin word originally introduced from Africa.

CITRUS AURANTIUM.

Orange.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* 5-cleft. *Petals,* 5, oblong. *Antheræ,* 20, filaments united into various bodies. *Berry,* 9-celled.

Sp. Ch. *Leaves,* acuminate. *Petiolus,* winged.

The Orange-tree is a native of India, but grows luxuriantly in many parts of Europe.

ORDER I.

DODECANDRIA. Stamina from twelve to twenty, or twenty-five, their filaments being unconnected with the Calyx.

This fruit was not known to the ancient Greeks or Romans, although the oranges now produced in Malta are those which are most esteemed in Europe. The Pomegranate is supposed to be the Golden Apple of the ancients. There is one kind of orange, the pulp of which is tinged with red, said to be produced by grafting the common Orange on the Pomegranate; but this is a vulgar error, as the dark-coloured, called a black Rose,[a] *Rosa centifolia*, is said to be in consequence of grafting a red rose on a black currant tree, which is a common error of the same kind.

To this Order belongs the tree which produces the seed of which Chocolate is made.[b]

[a] Among the various colours of flowers, scarlet is most rare, and yellow the most common. The blossom of the *Lobelia fulgens* exhibits the deepest and most vivid carmine red that is to be met with. There is no flower that is entirely black. The black spot in the blossom of the common garden bean is darker than that of any flower I am acquainted with. The *Rosa centifolia*, *Lotus jacobæus*, and the *Pelargonium lobatum*, are of a dark purple.

[b] Linnæus named this plant *Theobroma* (celestial food) which shews him to have been more fond of Chocolate than the Europeans who first tasted it. Benzo, who made a voyage to South America in 1541, calls it a *mess* more fit for pigs than for men. "I loathed it," he says, "for more than a year," Lib. ii. c. 16. And Acosta says, that some persons who were not used to Chocolate were disgusted

ORDER II.

ORDER 2.

ICOSANDRIA. Stamina numerous, their filaments being inserted, in several parcels, into the Calyx.

No British Plant of this Order.

MELALEUCA.

Of the Genus Melaleuca there is no British species. The name is derived from μελας, black, and λευκος, white.

MELALEUCA THYMIFOLIA.

Thyme-leaved Melaleuca.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, 5-cleft, half superior. *Petals*, 5. *Filaments*, numerous, very long, united into 5 parcels. *Style*, 1. *Capsula*, 3-celled.

Sp. Ch. *Leaves*, opposite, elliptic, lanceolate, nerveless. *Flowering branches*, lateral, very short, few-flowered. *Filaments*, branched more than half way down.

This plant is a native of New South Wales. It is rather a tender green-house plant, seldom kept long, but easily renewed from seed. The soil should be like that on which the Heath kind are cultivated. The

at its appearance; and he seemed to think, with good reason—"Porque tiene una espuma arriba, y un borbollon como de hezes, que cierto es menester mucho credito para passar con ello." Lib. iv. C. 22.

first representation of this plant was published in the Linnæan Transactions, 1797.

ORDER 3.

POLYANDRIA. Stamina very numerous, unconnected with the Calyx.

ORDER III.

HYPERICUM.

Of the Genus HYPERICUM there are eleven British species.[c] The name is Hypericum in Pliny, and in Dioscorides, Υπερικον. According to Linnæus it is derived from υπερ, above, and εικων, image.

HYPERICUM ELODES.

Marsh St. John's-wort.

Essential Generic and Specific Characters.

GEN. CH. *Calyx*, 5-leaved. *Petals*, 5. *Filaments*, numerous, united at the base in 3 or 5 sets. *Capsula*, roundish.

SP. CH. *Styles*, 3. *Stem*, round, creeping, vellous, as well as the leaves, which are roundish.

THE Genus *Hypericum* is the only British Genus of this Order. The different species are produced in spongy bogs in several parts of England, and blossom in July and August, but the flowers seldom fully expand, unless in bright sun-shine.

[c] These species are figured in Sowerby's English Botany, 1225, 370, 295, 296, 1226, 371, 1156, 1227, 109, 1986, 2017.

Botanical Description of the Genus HYPERICUM *taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

HYPERICUM.

ORDER 3.

POLYANDRIA. Stamina very numerous, unconnected with the Calyx.

CALYX. *Perianthium,* with 5 divisions; *segments,* somewhat egg-shaped, concave, permanent.

COROLLA. *Petals,* 5, oblong-egg-shaped, blunt, expanding, bending from left to right.

STAMINA. *Filaments,* numerous, hair-like, connected at the base into 3 or 5 sets. *Antheræ,* small.

PISTILLA. *Germen,* roundish. *Styles,* 3, (sometimes 1, 2, or 5,) simple, distant, as long as the stamina. *Stigmata,* simple.

PERICARPIUM. *Capsula,* roundish, with as many cells as styles.

SEEDS. Several, oblong.

POLYADELPHIA

DODECANDRIA

CLASS XVIII

ORDER 1

ORANGE

CITRUS AURANTIUM

POLYADELPHIA

ICOSANDRIA

CLASS XVIII

ORDER 2

THYME-LEAVED MELALEUCA

MELALEŪCA THYMIFOLĬA

POLYADELPHIA

POLYANDRIA

CLASS XVIII

ORDER 3

MARSH ST JOHN'S-WORT

HYPERĬCUM ELŌDES

SYNGENESIA.

CLASS XIX.

ANTHERÆ UNITED INTO A TUBE. FLOWERS COMPOUND.

THIS CLASS HAS FIVE ORDERS.

THIS Class comprehends those flowers which are called *compound.* The essential character of a *compound flower* consists in the antheræ being united together, so as to form a cylinder, and the filaments separate at the base;[a] which are, for the most part, five in number, and inserted into the *Corolla.* The Dandelion and Thistle are of this kind, composed of a number of small flowers called *Florets.* To illustrate the character of this Class, a Floret of the Dandelion is given, magnified: which plant is also of the first Order.

[a] Those flowers which are composed of Florets, where the *antheræ* are not united into a cylinder, are called aggregate flowers, as the Scabious, Class IV. the Teasel, &c.

ORDER I.

POLYGAMIA ÆQUALIS. Both parts of fructification complete in each Floret; and each Floret, without the assistance of any other, capable of producing perfect seed.

ORDER I.

CARLINA.

Of the Genus Carlina there is only this one British species. The name is said to be derived from Carolus. Charlemagne's army being said to be cured of the plague by the use of the root.

CARLINA VULGARIS.

Common Carline.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, swelling: the outer scales, spinous; the inner, coloured, scariose, radiant. *Receptaculum*, chaffy. *Down*, feathery.

Sp. Ch. *Stem*, many-flowered, corymbose. *Flowers*, terminal. Outer scales of the calyx, pinnatifid; inner, whitish.

This plant is scattered over dry and sandy heaths and pastures, and blossoms in June and July.

The seeds of this flower, as of many others of this natural Class, are furnished with a plume, serving them as wings, which in different plants are differently constructed; some, like a divergent tuft of hair, others are branched like feathers; some are elevated

from the crown of the seed by a slender foot-stalk, which gives them a very elegant appearance; others sit immediately on the crown of the seed itself: by this provision of nature they are wafted to a distance, and are thus disseminated far from the parent plant.

TRAGOPOGON.

ORDER 1.

POLYGAMIA ÆQUALIS. Both parts of fructification complete in each Floret; and each Floret, without the assistance of any other, capable of producing perfect seed.

Of the Genus Tragopogon there are two British species. The name is Tragopogon in Pliny, and Τραγοπωγων, in Dioscorides. Derived from τραγος, a goat, and πωγων, a beard, on account of the large down to the seed.

TRAGOPOGON PORRIFOLIUS.

Purple Goat's-beard.

Essential Generic and Specific Characters.

Gen. Ch. *Receptaculum*, naked. *Calyx*, simple, of many leaves. *Down*, feathered.

Sp. Ch. *Crlyx*, half as long again as the corolla. *Leaves*, entire, straight. *Flower-stalk*, swelling upwards.

This is a biennial plant, and blossoms in May and June; when in blossom, the flower opens at three or four o'clock in the morning, and closes as early as nine or ten. The root when boiled or stewed has a mild

ORDER 1.
POLYGAMIA ÆQUALIS.
Both parts of fructification complete in each Floret; and each Floret, without the assistance of any other, capable of producing perfect seed.

sweetish flavour, and formerly was cultivated for the table.

British Plants of this Order.

Botanical Generic Names.	Common Names.
3 ARCTIUM	2 BURDOCK
14 BIDENS	2 BIDENS
18 CARDUUS	7 THISTLE
9 CARLINA	1 CARLINE
28 CNICUS	4 CNICUS
5 CICHORIUM	1 ENDIVE
20 CREPIS	4 HAWK'S-BEARD
49 EUPATORIUM	1 HEMP AGRIMONY
4 HEDYPNOIS	4 HEDYPNOIS
55 HIERACIUM	18 HAWK-WEED
10 HYOSERIS	1 HYOSERIS
5 HYPOCHÆRIS	3 CAT'S-EAR
11 LACTUCA	3 LETTUCE
5 LAPSANA	1 NIPPLEWORT
4 LEONTODON	2 DANDELION
7 ONOPORDUM	1 COTTON-THISTLE
6 PICRIS	2 OX-TONGUE
19 PRENANTHES	1 PRENANTHES
6 SANTOLINA	1 SEA COTTON-WEED
20 SERRATULA	3 SAW-WORT
19 SONCHUS	4 SOW-THISTLE
14 TRAGOPOGON	2 GOAT'S-BEARD

British Species figured in Sowerby's English Botany.

Arctium, 1228, 2478. *Bidens*, 1113, 1114. *Cardŭus*, 107, 1112, 973, 412, 976, 675, 161. *Carlīna*, 1144. *Cichorĭum*, 539. *Cnicus*, 974, 386, 177, 2562. *Crēpis*, 406, 1111, 149, 2325. *Eupatorĭum*, 428. *Hedypnoīs*, 554, 555, 1109, 830. *Hieracĭum*, 1110. 1093, 2332, 2368, 2082, 2031, 1094, 2210, 2379, 349, 2235, 1771, 1469, 2083, 2121, 2122, 2307, 2378. *Hyoscĕris*, 95.

Hypochaēris, 225, 575, 831. *Lactūca*, 1957, 268, 707. *Lapsăna*, 844. *Leontŏdon*, 510, 553. *Onopōrdum*, 977. *Picris*, 972, 196. *Prenānthes*, 457. *Santolīna*, 141. *Serratŭla*, 38, 599, 975. *Sōnchus*, 2425, 935, 674, 843. *Tragopōgon*, 434, 638.

ORDER II

ORDER 2.

POLYGAMIA SUPERFLUA. The central Florets having both parts of fructification complete, while those in the circumference have only Pistilla, but both kinds producing perfect seed.

BELLIS.

Of the Genus Bellis there is only this one British species. The name is derived from *Bellus*, pretty, handsome.

BELLIS PERENNIS.

Daisy.

Essential Generic and Specific Characters.

Gen. Ch. *Receptaculum*, naked, conical. *Down*, none. *Calyx*, hemispherical; its scales equal. *Seeds*, ob-ovate.

Sp. Ch. *Root*, creeping. *Stalk*, naked.

With this interesting little flower every pasture and grass-plat is spangled, from the beginning of spring till the end of autumn.

It is called in French *La belle Margarete*, and with us, the Daisy, being emblematical, as Chaucer expresses it, of the eye of the Day, from its opening to the rising sun. When the sun is declining the flower shuts

ORDER 2.

POLYGAMIA SUPERFLUA: The central Florets having both parts of fructification complete, while those in the circumference have only Pistilla, but both kinds producing perfect seed.

itself up, as if to take its rest. It has always been a favourite with Poets, and observers of Nature. Chaucer, who is among the first that takes notice of the opening and shutting of flowers at particular times of the day, thus expressed his partiality for it:

> Well by reason men is calle maie
> The Daisie, or else the eye of the Daie
> ——She that is of all flowris the floure,
> Fulfilled of all virtue and honoure;
> And even alike fair and fresh of hewe,
> As well in winter as in summer newe,
> As soon as ever the sunne ginneth West
> To sene this floure, how it will go to rest,
> For fear of night, so hateth she darknesse;
> Her chere is plainly spread in the brightnesse
> Of the Sunne.——

Burns, that exquisite poet of Nature and of feeling, has also paid his tribute to the Daisy, and left us a moral for our instruction.

> Wee, modest, crimson-tipped flow'r,
> Thou's met me in an evil hour;
> For I maun crush amang the stoure
> Thy slender stem;
> To spare thee now is past my pow'r,
> Thou bonnie gem.

See Burns, *To a Mountain Daisy*, Vol. III. P. 201.

ACHILLEA.

ORDER 2.

POLYGAMIA SUPERFLUA. The central Florets having both parts of fructification complete, while those in the circumference have only Pistilla, but both kinds producing perfect seed.

Of the Genus Achillea there are two British species. The name is supposed to have its origin from Achilles, but without any very good reason.

ACHILLEA PTARMICA.

Sneeze-wort, Yarrow.

Essential Generic and Specific Characters.

Gen. Ch. *Receptaculum*, chaffy. *Down*, none. *Calyx*, ovate, imbricated, unequal. *Florets*, of the radius 5 to 10, roundish, or inversely heart-shaped.

Sp. Ch. *Leaves*, lanceolate, pointed, sharply serrated.

This, though not a very common plant, is plentiful in some parts of England about wet hedges and the banks of rivers. On the banks of the Ouse at York I observed this species growing in the greatest plenty on the one side of the river, and on the opposite bank, the other species of this Genus, *Achillea Millefolium*, and with so few examples of either species being mixed with the other, that the effect seemed more like cultivation than spontaneous growth. It blossoms in August and September.

ORDER 2.

FOLYGAMIA SUPERFLUA. The central Florets having both parts of fructification complete, while those in the circumference have only Pistilla, but both kinds producing perfect seed.

This plant is a good example of a *Corymbose* inflorescence.

British Plants of this Order.

Botanical Generic Names.		Common Names.
27	ACHILLEA	2 MILFOIL
19	ANTHEMIS	5 CHAMOMILE
44	ARTEMISIA	6 WORMWOOD
65	ASTER	1 STAR-WORT
2	BELLIS	1 DAISY
27	CHRYSANTHEMUM	2 CHRYSANTHEMUM
41	CINERARIA	2 CINERARIA
43	CONYZA	1 FLEA-BANE
3	DORONICUM	1 LEOPARD'S-BANE
30	ERIGERON	3 ERIGERON
66	GNAPHALIUM	10 EVERLASTING
34	INULA	4 INULA
8	MATRICARIA	1 WILD CHAMOMILE
3	PYRETHRUM	3 FEVERFEW
75	SENECIO	9 GROUNDSEL
30	SOLIDAGO	1 GOLDEN-ROD
9	TANACETUM	1 TANSY
14	TUSSILAGO	3 COLT'S-FOOT

British Species figured in Sowerby's English Botany.

Achillēa, 757, 758. *Anthĕmis*, 2370, 980, 602, 1772, 1472. *Artemisĭa*, 338, 1001, 1230, 978, 2426, 1706. *Aster*, 87. *Bēllis*, 424. *Chrysanthĕmum*, 601, 540. *Cinerarĭa*, 151, 152. *Conyza*, 1195. *Doronĭcum*, 630 *Erigĕron*, 2019, 1158, 464. *Gnaphalĭum*, 1002, 2018, 267, 913, 124, 1193, 1194, 2369, 1157, 946. *Inŭla*, 1546, 1115, 1196, 68. *Matricarĭa*, 1232. *Pyrēthrum*, 1231, 676, 979. *Senecĭo*, 747, 32, 748, 600, 574, 1130, 1131, 650, 2211. *Solidāgo*, 301. *Tanacētum*, 1229. *Tussilāgo*, 429, 430, 431.

ORDER III.

ORDER 3.

POLYGAMIA FRUSTRANEA. The central Florets having both parts of fructification complete, while those in the circumference have neither Stamina nor Pistilla.

CENTAUREA.

Of the Genus Centaurea there are seven British species.[b] This Genus is called Κενταύριον by Dioscorides, and is supposed to be named from Chiron.

CENTAUREA CYANUS.

Blue-bottle, or, Corn-flower.

Essential Generic and Specific Characters.

Gen. Ch. *Receptaculum*, bristly. *Seed-down*, simple. *Corolla*, of the radius funnel-shaped, irregular, longer than those of the disk.

Sp. Ch. *Scales*, of the calyx serrated. *Leaves*, linear, entire; the lowermost dentated.

This is the only British Genus of this Order.

This species is common in corn-fields, and is a good example of this Order. It blossoms in June and the two succeeding months, and the petals are of a beautiful blue colour, though sometimes white, and sometimes purple.

[b] These species are figured in Sowerby's English Botany, 278, 277, 56, 2256, 125, 243, 1678.

ORDER 3.

POLYGAMIA. FRUSTRANEA. The central Florets having both parts of fructification complete, while those in the circumference have neither Stamina nor Pistilla.

Among vegetables, colour i sso uncertain, that Linnæus has seldom taken it into the account to characterise a species, for it is found often to depend upon a difference of heat, climate, soil, and culture; and it is remarked, that red more readily changes into white and blue; blue, into white and yellow; yellow, into white; and white, into purple.

The flowers of the *Hibiscus mutabilis* are remarkable for altering their colour. At their first expansion they are white; they then change to a deep red, or rose-colour, which as they decay turns to purple. In the West Indies all these alterations happen in the course of one day, which in those hot countries is the longest duration of these flowers; but in England, where they continue nearly a week in perfection, the changes are not so sudden.

While colour is the most uncertain character of the Corolla, the figure of the petals of the same species is more constant than that of the fruit; hence it is recommended by Linnæus, to arrange under the same Genus such plants as agree invariably in the Calyx, Petals, and Stamina.

ORDER IV.

ORDER 4.

POLYGAMIA NECESSARIA. The central Florets having Stamina only, and the Florets of the circumference only Pistilla.

No British Plant of this Order.

CALENDULA.

Of the Genus Calendula there is no British species. Calendula is supposed to be derived from Καλαθος, as the flower, when slightly expanded, somewhat resembles a little basket, known to the Greeks by that name.

CALENDULA OFFICINALIS.

Garden Marigold.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx*, many-leaved, nearly equal. *Receptaculum*, naked. *Down*, none. *Seeds*, of the centre, very often membranous.

Sp. Ch. *Seeds*, all boat-formed, prickly, bent inwards; the innermost seeds crowded together, the outermost, erect, furnished with a tail.

This plant grows wild in the southern countries of Europe, as the south of France and Italy. Of the Genus *Calendula* there are fourteen species. Of this species there are several varieties. According to Linnæus's observations these flowers are open from nine in the morning till three in the afternoon. The regular expansion of flowers attracted early notice; and in the poems of

ORDER 4.

POLYGAMIA. NECESSARIA. The central Florets having stamina only, and the Florets of the circumference only Pistilla.

Rowley there is an allusion to this property in the Marigold:

"The Mary-bud that shutteth with the light."

And in Shakespeare it is thus expressed:

"The Marigold, that goes to bed wi' the sun,
And with him rises weeping."

The knowledge of this fact has also furnished him with a most beautiful poetical image in his *Tarquin and Lucrece:*

"Her eyes like Marigolds had sheath'd their light,
And canopy'd in darkness sweetly lay,
Till they might open to adorn the day."

And again, in this exquisite song in Cymbeline:

Hark! Hark! the lark at heaven's gate sings,
And Phœbus 'gins arise,
His steeds to water at those springs
On chalic'd flowers that lies;

And winking Mary-buds begin
To ope their golden eyes;
With every thing that pretty bin:
My lady sweet, arise.

This property is not uncommon with plants in this natural Class. The Dandelion opens at five or six in the morning, and closes at nine. The Mouse-ear Hawk-weed opens at eight, and closes at twelve. The

Sow-thistle opens at five, and closes between eleven and twelve, and the Goat's-beard, I have already remarked, opens at three or four in the morning, and closes at nine or ten. In fine weather these flowers open earlier, and close at an earlier hour.

ORDER V.

ORDER 5.

POLYGAMIA SEGREGATA. Compound Florets, each having a partial Calyx, but all included in one general Calyx.

No British Plant of this Order.

ECHINOPS.

Of the Genus Echinops there is no British species. The name is derived from Εχινος, a hedge-hog, and οψις, on account of the rough appearance of these plants.

ECHINOPS SPHÆROCEPHALUS.

Great Globe Thistle.

Essential Generic and Specific Characters.

Gen. Ch. *Calyx,* 1-flowered. *Corolla,* tubular, having perfect florets. *Receptaculum,* bristly.

Sp. Ch. *Heads,* globular; *leaves,* sinuate, pubescent.

This plant is a native of most of the countries in Europe, but not of England, and was introduced into our gardens in 1596. In its native state it grows in any soil or situation, not more than two feet high; but by culture it grows to more than twice that

ORDER 5.

POLYGAMIA SEGREGATA. Compound Florets, each having a partial Calyx, but all included in one general Calyx.

height. It blossoms in July, and its seeds ripen in August.

In this Class Linnæus made a sixth Order, which has been abolished by subsequent Botanists.

This Class of compound flowers, *Syngenesia*, has been particularly treated upon by Vaillant, who principally confined his researches to this part of Botany, and published his discoveries and method of arrangement in the Memoirs of the Academy of Sciences at Paris.[c]

[c] Sebastian Vaillant, a French physician and botanist, was born at Vigny, near Pontoise, in 1669. He became superintendant of the royal garden, and a Member of the Academy of Sciences. He died in 1722. His works are, Remarks on Tournefort's Botanical Institutions; Discourse on the Structure of Flowers; Botanicon Parisiense, or a Description of Plants which grow about Paris, folio, with plates; and a small Botanicon, 12mo. 1743.

The different Genera introduced in this CLASS *described by their Generic Characters, taken from the seven parts of fructification, agreeably to the principles of Linnæus.*

Botanical Description of the Genus CARLINA.

ORDER 1.

POLYGAMIA ÆQUALIS: Both parts of fructification complete in each Floret; and each Floret, without the assistance of any other, capable of producing perfect seed.

CALYX. *Common,* bellying, radiate, imbricated. *Scales,* numerous, flexible, acute, the inner, in a circle, very long, expanding, shining, colored, forming radii to the compound flower.

COROLLA. *Compound,* uniform, tubular. *Perfect Florets,*[d] equal.

Individuals, of 1 petal, funnel-shaped. *Tube,* slender; *Border,* funnel-shaped, with 5 clefts.

STAMINA. *Filaments, 5,* hair-like, very short. *Antheræ,* forming a hollow cylinder.

PISTILLUM. *Germen,* short. *Style,* thread-shaped, as long as the stamina. *Stigma,* oblong, cloven or entire.

PERICARPIUM. None. *Calyx,* unchanged.

SEED. Solitary, rather cylindrical. *Down,* divided into rays, somewhat chaff-like, branched, feathered.

RECEPTACULUM. Flat, chaff bristle-like, membranaceous, and a little united at the base, forming cells, with many clefts, rays awl-shaped. *Bristles,* somewhat longer than the chaff, and club-shaped, are intermixed with it.

[d] *Perfect florets* are such as have the parts of fructification perfect and complete in each floret as, a *stamen* and *pistillum,* in each.

ORDER 1.

POLYGAMIA ÆQUALIS. Both parts of fructification complete in each Floret; and each Floret, without the assistance of any other, capable of producing perfect seed.

Botanical Description of the Genus TRAGOPOGON.

CALYX. *Common,* simple, with 8 leaves; *leaflets,* spear-shaped, equal, each alternate leaflet standing more inwards, all united at the base.

COROLLA. *Compound,* imbricated, uniform. *Perfect florets,* numerous, the outer rather longer.

Individual florets, of 1 petal, strap-shaped, topped, with 5 teeth.

STAMINA. *Filaments,* 5 hair-like, very short. *Antheræ,* forming a cylinder.

PISTILLUM. *Germen,* oblong. *Style,* thread-shaped, as long as the stamina. *Stigmata,* 2, rolled back.

PERICARPIUM. None; the *Calyx* closing, tapering to a point, as long as the seeds, a little inflated.

SEEDS. Solitary, oblong, tapering towards each end, angular, rough, terminated by a long awl-shaped pillar, supporting the *down,* which is feathered and flat, with about 32 spokes.

RECEPTACULUM. Naked, flat, rough.

*** In some species of this Genus the seeds are straight and the calyx longer than the corolla; in others, the seeds are crooked and the calyx is shorter than the corolla.

ORDER 2.

POLYGAMIA SUPERFLUA. The central Florets having both parts of fructification complete, while those in the circumference have only

Botanical Description of the Genus BELLIS.

CALYX. *Common,* hemispherical, erect, *leaflets* from 10 to 20, placed in a double row, spear-shaped, equal.

COROLLA. *Compound,* radiate; in the centre, *Perfect florets,* tubular, numerous; in the circumference, *Florets having only pistilla,* strap-shaped, more in number than the leaves of the calyx. Pistilla, but both kinds producing perfect seed.

Individual perfect florets, funnel-shaped, with 5 clefts.

Individual florets with only pistilla, narrow, spear-shaped, very slightly marked with 3 teeth.

STAMINA. *Filaments,* 5, hair-like, very short. *Antheræ,* forming a hollow cylinder.

PISTILLUM. *Germen,* in the perfect florets, egg-shaped. *Style,* simple. *Stigma,* notched at the end.

Germen; in the florets, having only Pistilla, egg-shaped. *Style,* thread-shaped. *Stigmata,* 2, standing wide.

PERICARPIUM. None. *Calyx,* unchanged.

SEEDS. In all the florets, solitary, inversely egg-shaped, compressed. *Down,* none.

RECEPTACULUM. Naked, conical.

Botanical Description of the Genus

ACHILLEA.

ORDER 2.

POLYGAMIA SUPERFLUA. The central Florets having both parts of fructification complete, while those in the circumference have only Pistilla, but both kinds producing perfect seed.

CALYX. *Common,* egg-shaped, imbricated. *Scales,* egg-shaped, acute, approaching.

COROLLA. *Compound,* radiate; in the centre. *Perfect florets,* tubular; in the circumference, *florets* from 5 to 10, containing only pistilla, strap-shaped.

Individual perfect florets, funnel-shaped, with 5 clefts, open.

Individual florets, having only pistilla, strap-shaped, inversely heart-shaped, expanding, cloven into 3 segments, the middlemost the smallest.

STAMINA. *Filaments,* 5, hair-like, very short. *Antheræ,* forming a hollow cylinder.

PISTILLUM. *Germen,* in the perfect florets, small. *Style,* thread-shaped, as long as the stamina. *Stigma,* blunt, notched at the end.

Germen, in the florets containing only pistilla, small. *Style*, thread-shaped, as long as the other. *Stigmata*, 2, blunt, bent back.

PERICARPIUM. None. *Calyx*, but little changed. *Receptaculum*, thread-shaped, lengthens out when loaded with the seeds, egg-shaped, and twice as long as the calyx.

SEEDS. In all the florets, solitary, egg-shaped, woolly. *Down*, none.

RECEPTACULUM. Chaffy, elevated. *Chaff*, spear-shaped, as long as the florets.

ORDER 3.

POLYGAMIA FRUSTRANEA: The central Florets having both parts of fructification complete, while those in the circumference have neither Stamina nor Pistilla.

Botanical Description of the Genus

CENTAUREA.

CALYX. *Common*, imbricated, roundish; *scales* often terminating variously.

COROLLA. *Compound*, florets all tubular, but of different shapes. In the centre, *Perfect florets*, many. In the circumference, *Florets having only pistilla*, not so many, larger, more flexible.

Individual perfect florets, of 1 petal. *Tube*, thread-shaped. *Border*, inflated, oblong, erect, terminating in 5 strap-shaped, erect segments.

Individual florets with only Pistilla, 1-petaled, funnel-shaped. *Tube*, slender, gradually becoming wider, bent backwards. *Border*, oblong, oblique, unequally divided.

STAMINA. *Filaments*, 5, hair-like, very short. *Antheræ*, forming a hollow cylinder, as long as the blossom.

PISTILLUM. *Germen*, in the perfect florets, small. *Style*, thread-shaped, as long as the stamina. *Stigma*, very obtuse, (in many cloven,) with a projecting point.

Germen, in the florets having only Pistilla, very small. *Style*, almost none.

Stigma. None.

PERICARPIUM. None. *Calyx*, unchanged, closing.

SEEDS. In the complete florets, solitary. *Down,* mostly feathered, sometimes hair-like.

RECEPTACULUM. Bristly.

*** The scales of the calyx, and the down of the seeds, are different in different species. LINN.

Botanical Description of the Genus

CALENDULA.

ORDER 4.

POLYGAMIA. NECESSARIA. The central Florets having stamina only, and the Florets of the circumference only Pistilla.

CALYX. *Common,* simple, many-leaved, rather erect: *Segments,* strap-spear-shaped, 14 to 20, nearly equal.

COROLLA. *Compound,* radiate: *Perfect florets,* very many in the centre. *Florets having only pistilla,* not so many, very long; in the circumference, as many as the scales of the calyx.

Individual perfect florets, tubular, with 5 shallow clefts, as long as the calyx.

Individual florets with only Pistilla, strap-shaped, very long, with 3 teeth, without nerves, woolly at the base.

STAMINA. *Filaments, 5,* hair-like, very short. *Antheræ,* united so as to form a hollow cylinder, the length of the floret.

PISTILLUM. *Germen,* in the perfect florets, oblong. *Style,* thread-shaped, hardly so long as the stamina. *Stigma,* blunt, cloven, straight.

Germen, in the florets having only Pistilla, oblong, 3-sided. *Style,* thread-shaped, as long as the stamina. *Stigmata,* 2, oblong, tapering to a point, reflected.

PERICARPIUM. None. *Calyx,* closing, roundish, depressed.

SEEDS. In the perfect florets in the centre, none: more outwardly; few solitary, membranaceous, inversely-heart-shaped, compressed. In the florets having only pistilla, which are in the circumference, solitary, larger, oblong bent inwards, triangular, membranaceous at the

angles, marked on the outer side lengthwise, as if engraved with the figure of a plant. *Down*, none.

RECEPTACULUM. Naked, flat.

ORDER 5.

POLYGAMIA SEGREGATA. Compound Florets, each having a partial Calyx, but all included in one general Calyx.

Botanical Description of the Genus ECHINOPS.

CALYX. *Common*, many-leaved; with scales awl-shaped, totally reflected, containing many flowers.

Perianthium partial, 1-flowered, oblong, imbricate, cornered; *leaflets*, awl-shaped, loose above, erect, permanent.

COROLLA. One-petalled, length of the calyx, tubular; *border*, 5-cleft, reflex-spreading.

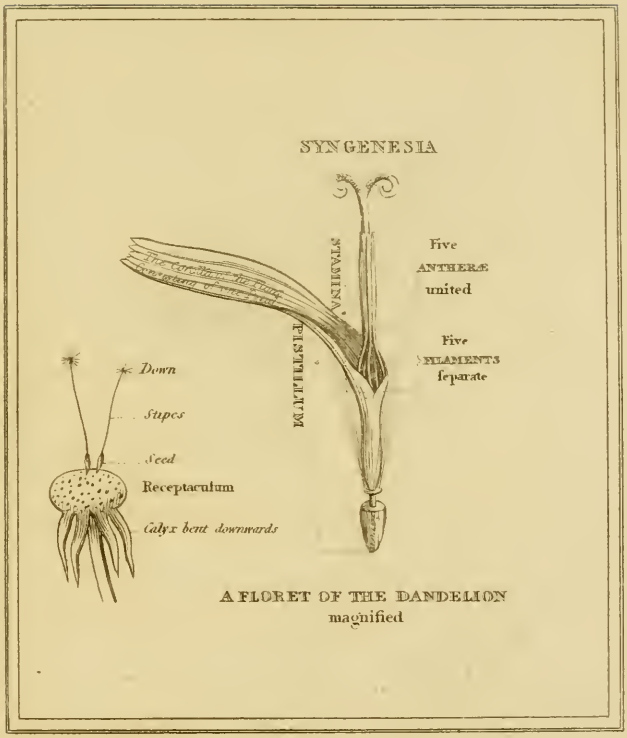
STAMINA. *Filaments*, 5, capillary, very short. *Antheræ*, cylindrical, tubular, 5-toothed.

PISTILLUM. *Germen*, oblong. *Style*, filiform, length of the corolla. *Stigma*, double, somewhat depressed, rolled back.

PERICARPIUM. None. *Calyx*, unchanged, larger.

SEED. Single, ovate-oblong, narrower at the base; with an obtuse tip. *Down*, obscure.

RECEPTACULUM. *Common receptaculum*, globose, bristly.



A FLORET OF THE DANDELION
magnified

THE CHARACTER OF CLASS XIX

SYNGENESIA
POLYGAMIA ÆQUALIS

CLASS XIX

ORDER 1

COMMON CARLINE

CARLĪNA. VULGĀRIS

SYNGENESIA

POLYGAMIA ÆQUALIS

Purple Goats-beard

TRAGOPŌGON PORRIFOLĬUS

XIX
7

SYNGENESIA

POLYGAMIA SUPERFLUA

CLASS XIX

ORDER 2

COMMON DAISY

BĒLLIS PERĒNNIS

SYNGENESIA

POLYGAMIA SUPERFLUA

Sneeze-wort *Yarrow*

ACHILLĒA PTARMĬCA

XIX

SYNGENESIA

POLYGAMIA FRUSTRANEA

CLASS XIX

ORDER 3

BLUE-BOTTLE

CENTAURĒA CYĂNUS

SYNGENESIA
POLYGAMIA NECESSARIA

CLASS XIX

ORDER 4

MARIGOLD

CALENDŬLA OFFICINĀLIS

SYNGENESIA

POLYGAMIA SEGREGATA

CLASS XIX

ORDER 5

GREAT GLOBE THISTLE

ECHINOPS SPHÆROCEPHALUS